



# Establishing New Medical Schools in Medically Under-Served Areas

By

**Dr. Sneha Jebaselvi Kirubakaran**

BComputing, BAppSc (Hons), BMBS, GradDip (ClinEd), FRACGP

*Thesis*

*Submitted to Flinders University  
for the degree of*

**Doctor of Philosophy**

College of Medicine & Public Health

13 July 2022

---

## DECLARATION

I certify that this thesis does not incorporate without acknowledgment any material previously submitted for a degree or diploma in any university; and that to the best of my knowledge and belief it does not contain any material previously published or written by another person except where due reference is made in the text.

A handwritten signature in black ink, appearing to be 'hkm', written in a cursive style.

6<sup>th</sup> January 2022

# CONTENTS

<b>DECLARATION</b>	<b>I</b>
<b>SUMMARY</b>	<b>VII</b>
<b>STATEMENT ON ETHICS</b>	<b>IX</b>
<b>STATEMENT ON THE CONTRIBUTION OF OTHERS</b>	<b>X</b>
<b>ACKNOWLEDGMENTS</b>	<b>XII</b>
<b>KEY PRESENTATIONS AND PUBLICATIONS DURING CANDIDATURE</b>	<b>XIV</b>
PRESENTATIONS:	XIV
PUBLICATIONS:	XV
MANUSCRIPTS IN PREPARATION:	XVI
<b>GLOSSARY OF TERMS</b>	<b>XVII</b>
<b>LIST OF ABBREVIATIONS</b>	<b>XXI</b>
<b>LIST OF TABLES</b>	<b>XXV</b>
<b>LIST OF FIGURES</b>	<b>XXVI</b>
<b>LIST OF IMAGE SOURCES</b>	<b>XXVII</b>
<b>1 INTRODUCTION</b>	<b>1</b>
1.1 INTRODUCTION TO CHAPTER:	1
1.2 BACKGROUND:	2
1.3 EVOLUTION OF MY RESEARCH FROM PERSONAL BEGINNINGS:	5
1.4 RESEARCH AIMS, QUESTIONS, AND OBJECTIVES:	7
1.4.1 <i>Reflexivity: Defining and hyphenating ‘medically under-served’</i>	8
1.5 RESEARCH DESIGN:	9
1.5.1 <i>Critical Realist philosophy:</i>	9
1.5.2 <i>Social Accountability axiology:</i>	11
1.5.3 <i>Multiple Case Study methodology:</i>	11
1.5.4 <i>Utilising theory and research to devise a novel framework:</i>	12
1.6 SIGNIFICANCE OF THIS RESEARCH:	14
1.6.1 <i>Theoretical original contributions:</i>	14
1.6.2 <i>Methodological original contributions:</i>	15
1.6.3 <i>Empirical original contributions:</i>	15
1.6.4 <i>Practical original contributions:</i>	16
1.7 SUMMARY OF CHAPTER AND THESIS STRUCTURE:	16
<b>2 LITERATURE REVIEW</b>	<b>19</b>
2.1 INTRODUCTION TO CHAPTER:	19
2.2 SCOPING REVIEW METHODOLOGY:	20
2.2.1 <i>Review questions:</i>	21
2.2.2 <i>Search strategy:</i>	21
2.2.3 <i>Article selection:</i>	23
2.2.4 <i>Charting the data:</i>	26
2.2.5 <i>Collating, summarising, and reporting the results:</i>	26

2.3	SCOPING REVIEW RESULTS:	27
2.3.1	<i>Literature proliferation reflected socio-political forces:</i>	27
2.3.2	<i>Empirically and theoretically under-developed literature:</i>	30
2.3.3	<i>Key considerations when establishing a new medical school:</i>	33
2.4	STRENGTHS AND LIMITATIONS OF THIS LITERATURE REVIEW:	75
2.5	GAPS IN THE LITERATURE:	76
2.6	SUMMARY OF CHAPTER:	76
<b>3</b>	<b>RESEARCH DESIGN</b>	<b>78</b>
3.1	INTRODUCTION TO CHAPTER:	78
3.2	RESEARCH AIMS, QUESTIONS, AND OBJECTIVES:	78
3.3	PHILOSOPHICAL ORIENTATION:	79
3.3.1	<i>Critical Realism:</i>	79
3.3.2	<i>Social accountability:</i>	83
3.4	RESEARCH METHODOLOGY:	86
3.4.1	<i>Case Study methods:</i>	87
3.4.2	<i>Utilising theory:</i>	91
3.4.3	<i>Data collection:</i>	106
3.4.4	<i>Analysis:</i>	108
3.4.5	<i>Dissemination of results:</i>	116
3.4.6	<i>Ethical considerations:</i>	117
3.4.7	<i>Research validity:</i>	119
3.4.8	<i>Reflexivity: Reconstructed logic versus logic-in-use</i>	120
3.5	SUMMARY OF CHAPTER:	121
<b>4</b>	<b>CASE STUDY 1: THE NORTHERN TERRITORY MEDICAL PROGRAM</b>	<b>123</b>
4.1	INTRODUCTION TO CHAPTER:	123
4.2	NTMP OVERVIEW:	123
4.3	ESTABLISHING THE NTMP:	128
4.3.1	<i>Context:</i>	128
4.3.2	<i>Catalysts:</i>	131
4.3.3	<i>Conducting:</i>	135
4.3.4	<i>Connecting:</i>	143
4.3.5	<i>Collecting:</i>	147
4.3.6	<i>Convincing:</i>	158
4.4	CHALLENGES:	164
4.4.1	<i>Another university lobbying in competition:</i>	165
4.4.2	<i>Early students failing to progress:</i>	165
4.4.3	<i>Implementing the Indigenous imperative:</i>	168
4.4.4	<i>Staff recruitment, retention, and burnout:</i>	169
4.4.5	<i>'Us and Them' regional divisions:</i>	171
4.4.6	<i>Identical versus contextualised curriculum:</i>	173
4.4.7	<i>Technological difficulties:</i>	176
4.4.8	<i>Insufficient funds for some aspects:</i>	177
4.5	CONSEQUENCES:	179
4.5.1	<i>Improved junior doctor workforce:</i>	180
4.5.2	<i>Improved Indigenous applicant preparatory support:</i>	181
4.5.3	<i>Opportunity for innovation:</i>	182
4.5.4	<i>Improved technology access for the region:</i>	183
4.6	STRENGTHS AND LIMITATIONS OF THIS CASE STUDY:	184
4.6.1	<i>Strengths:</i>	184
4.6.2	<i>Limitations:</i>	184
4.6.3	<i>Researcher reflexivity:</i>	185

4.7	SUMMARY OF CHAPTER:	186
<b>5</b>	<b>CASE STUDY 2: THE NORTHERN ONTARIO SCHOOL OF MEDICINE</b>	<b>189</b>
5.1	INTRODUCTION TO CHAPTER:	189
5.2	NOSM OVERVIEW:	189
5.3	ESTABLISHING NOSM:	193
5.3.1	<i>Context:</i>	193
5.3.2	<i>Catalysts:</i>	195
5.3.3	<i>Conducing:</i>	199
5.3.4	<i>Convincing:</i>	204
5.3.5	<i>Collecting:</i>	210
5.3.6	<i>Connecting:</i>	224
5.4	CHALLENGES:	226
5.4.1	<i>Dissenting politics:</i>	227
5.4.2	<i>Vast geographic distribution:</i>	229
5.4.3	<i>Interpersonal conflicts:</i>	230
5.5	CONSEQUENCES:	232
5.5.1	<i>Improved workforce for Northern Ontario:</i>	232
5.5.2	<i>Community engagement:</i>	234
5.5.3	<i>Impact of students on communities:</i>	235
5.5.4	<i>Competent and competitive graduates:</i>	237
5.5.5	<i>Improved research opportunities:</i>	238
5.5.6	<i>Exemplar innovations:</i>	239
5.6	STRENGTHS AND LIMITATIONS OF THIS CASE STUDY:	240
5.6.1	<i>Strengths:</i>	240
5.6.2	<i>Limitations:</i>	241
5.6.3	<i>Researcher reflexivity:</i>	241
5.7	SUMMARY OF CHAPTER:	241
<b>6</b>	<b>CASE STUDY 3: THE UNIVERSITY OF BOTSWANA FACULTY OF MEDICINE</b>	<b>245</b>
6.1	INTRODUCTION TO CHAPTER:	245
6.2	UBFOM OVERVIEW:	245
6.3	ESTABLISHING UBFOM:	247
6.3.1	<i>Context:</i>	247
6.3.2	<i>Catalysts:</i>	252
6.3.3	<i>Conducing:</i>	255
6.3.4	<i>Collecting:</i>	262
6.3.5	<i>Convincing:</i>	273
6.3.6	<i>Connecting:</i>	279
6.4	CHALLENGES:	280
6.4.1	<i>Non-return of Batswana trained abroad:</i>	281
6.4.2	<i>Recruiting and retaining staff:</i>	283
6.4.3	<i>Conflict within the university:</i>	285
6.4.4	<i>Culture of extensive consultation:</i>	287
6.4.5	<i>Implementing the teaching health system:</i>	288
6.4.6	<i>Student strike:</i>	292
6.5	CONSEQUENCES:	294
6.5.1	<i>Increased Batswana medical workforce:</i>	295
6.5.2	<i>High quality graduates:</i>	296
6.5.3	<i>Improved career pathways:</i>	297
6.5.4	<i>Improved intellectual capital:</i>	298
6.5.5	<i>Student-led community improvements:</i>	299

6.6	STRENGTHS AND LIMITATIONS OF THIS CASE STUDY:	299
6.6.1	<i>Strengths:</i>	299
6.6.2	<i>Limitations:</i>	300
6.6.3	<i>Researcher reflexivity:</i>	300
6.7	SUMMARY OF CHAPTER:	300
<b>7</b>	<b>CROSS-CASE ANALYSIS</b>	<b>305</b>
7.1	INTRODUCTION TO CHAPTER:	305
7.2	COMPARING CONTEXTS:	305
7.2.1	<i>Geographical factors:</i>	306
7.2.2	<i>Population characteristics:</i>	307
7.2.3	<i>Medical workforce needs:</i>	309
7.2.4	<i>Health situation:</i>	310
7.2.5	<i>Educational milieu:</i>	311
7.3	COMPARING CATALYSTS:	314
7.4	COMPARISON OF CONDUCTING:	316
7.5	COMPARISON OF CONVINCING:	319
7.6	COMPARISON OF CONNECTING:	323
7.7	COMPARISON OF COLLECTING:	325
7.7.1	<i>Funds:</i>	325
7.7.2	<i>Staff:</i>	327
7.7.3	<i>Curriculum:</i>	328
7.7.4	<i>Clinical training sites:</i>	333
7.7.5	<i>Facilities:</i>	335
7.7.6	<i>Students:</i>	337
7.8	COMPARING CHALLENGES:	340
7.9	COMPARING CONSEQUENCES:	342
7.10	SUMMARY OF CHAPTER:	344
<b>8</b>	<b>DISCUSSION</b>	<b>349</b>
8.1	INTRODUCTION TO CHAPTER:	349
8.2	HOW ARE NEW MEDICAL SCHOOLS SUCCESSFULLY ESTABLISHED IN MEDICALLY UNDER-SERVED AREAS?	349
8.2.1	<i>Who can be a Catalyst and how do they become one?</i>	351
8.2.2	<i>What makes the Context fertile or hostile for a new medical school?</i>	358
8.2.3	<i>Why is Conducting so imperative?</i>	360
8.2.4	<i>What socio-political devices are helpful in Convincing, Connecting, and Collecting?</i>	365
8.2.5	<i>What mechanisms help to produce desirable Consequences and overcome Challenges?</i>	371
8.3	UNITING STRUCTURE, AGENCY, POWER, AND POLITICS WITH SOCIAL ACCOUNTABILITY:	379
8.4	CRITIQUING MY RESEARCH:	381
8.4.1	<i>Critiquing my use of theory:</i>	381
8.4.2	<i>Critiquing validity:</i>	384
8.4.3	<i>Strengths and limitations of this research:</i>	387
8.5	SUMMARY OF CHAPTER:	387

<b>9</b>	<b>CONCLUSION</b>	<b>389</b>
9.1	INTRODUCTION TO CHAPTER:	389
9.2	MY THESIS ARGUMENT:	389
9.3	MY RESEARCH PROCESS:	390
9.4	FINDINGS OF MY RESEARCH:	390
9.5	SIGNIFICANCE OF THIS RESEARCH:	392
9.5.1	<i>Theoretical original contributions:</i>	392
9.5.2	<i>Methodological original contributions:</i>	392
9.5.3	<i>Empirical original contributions:</i>	393
9.5.4	<i>Practical original contributions:</i>	394
9.6	AREAS FOR FUTURE RESEARCH:	394
9.7	FINAL THOUGHTS:	395
<b>10</b>	<b>REFERENCES</b>	<b>397</b>
<b>11</b>	<b>APPENDICES</b>	<b>434</b>
11.1	SCOPING LITERATURE REVIEW: CHARTING THE DATA	434
11.2	COMPARING 20 <sup>TH</sup> CENTURY AND 21 <sup>ST</sup> CENTURY LITERATURE:	438
11.3	SAMPLE INVITATION TO HEAD OF CASE STUDY MEDICAL SCHOOLS:	441
11.4	SAMPLE LETTER OF INTRODUCTION FROM PRIMARY SUPERVISOR:	444
11.5	SAMPLE INFORMATION SHEET FOR PARTICIPANTS:	445
11.6	SAMPLE CONSENT FORM:	448
11.7	GUIDING QUESTIONS FOR SEMI-STRUCTURED INTERVIEWS:	449
11.8	SUMMARY OF DATA COLLECTED FOR EACH CASE STUDY:	450

## SUMMARY

Medically under-served areas might seek to establish a new medical school in their region to improve the quantity and quality of their local medical workforce, as well as their population's health outcomes and educational opportunities. Establishing a new medical school is a significant venture involving many complex political, social, economic, educational, and organisational considerations. Most founders go about the process intuitively, drawing from their prior knowledge and experiences; guided by accreditation standards; and utilising project management strategies. There is substantial value in this experience-based, intuitive approach, but a stronger evidence-base could increase the efficiency and efficacy of academics, clinicians, administrators, politicians, universities, health facilities, health systems, and communities seeking to establish a new medical school.

The published literature on the process of establishing a new medical school is, however, empirically and theoretically under-developed. There are several clear gaps including no prior published reviews; no explicit reference to applicable theory; minimal research on the establishment process; poor reporting of strategies to obtain initial approval from governing authorities; and minimal discussion regarding the personal costs and burnout commonly experienced by founders of new medical schools. My thesis addresses each of these gaps through Critical Realist Multiple Case Study research with a social accountability ethos. I conducted a scoping review of the published literature; I developed a strong theoretical basis by adapting concepts from Institutional Entrepreneurship theory; and I provided a suite of strategies for use by various stakeholders at all stages of the process, particularly in medically under-served regions.

The research question I sought to answer was, "***How are new medical schools successfully established in medically under-served areas?***" To answer this question, my Multiple Case Study research spanned three continents, in medically under-served contexts of Australia, Canada, and Botswana. Multi-source data was collected for each case study including site visits, observational data, semi-structured interviews, documents, and audio-visual materials. Using Institutional Entrepreneurship theory and my empirical findings, I derived a novel conceptual framework – the Eight C's Framework (8CF) –that unpacked the various aspects of successful new medical school establishment: Context, Catalysts, Conducting, Convincing, Collecting, Connecting, Challenges, and Consequences.



My research aimed to understand the critical success factors for the process of establishing a new medical school in medically under-served regions. These success factors are encapsulated in 8CF and can be used to answer my research question:

*New medical schools are successfully established in medically under-served areas when Catalysts act within their Contexts to undertake various tasks of Conducting, Convincing, Collecting, and Connecting in order to produce desired Consequences and overcome Challenges.*

Catalysts are the human agents of change and innovation. They are creative, visionary leaders who use mechanisms of agency and power to collectively and individually effect change. They identify the field conditions of their environmental Context that are either beneficial or detrimental to their venture and utilise them to their advantage. They use entrepreneurial skills and processes when Conducting (making more favourable) the Context for their venture. They use socio-political devices such as power, persuasion, trust, symbiosis, sharing, and bricolage when Convincing all the stakeholders with various arguments and rationales, Connecting with various partners and collaborators, and Collecting all the required resources. Catalysts harness the utility of both field structure and human agency to produce the desired macro-level, meso-level, and micro-level Consequences or outcomes and to overcome foreseen and unforeseen Challenges or problems and obstacles. Underlying mechanisms that contribute to successful establishment include elements of human agency, contextual structure, power dynamics, and political diplomacy. Furthermore, my research identified that socially accountable motivations and methods can unite these factors into an even stronger force for successful establishment of a new medical school, particularly in medically under-served areas.

My research makes several original theoretical, methodological, empirical, and practical contributions. Critically, it provides stakeholders such as academics, clinicians, administrators, politicians, universities, health facilities, health systems, and communities with an evidence-informed framework for establishing a new medical school. Even though building a new medical school and teaching hospital is not a panacea to addressing doctor shortages, the empirically and theoretically supported 8CF guides medical school founders to consider the elements of human agency, contextual structure, power dynamics, political diplomacy, and social accountability that underpin successful establishment, especially in medically under-served areas. Future research could test application of the 8CF in practice, in establishing other new medical schools.

## STATEMENT ON ETHICS

The research presented in this thesis was conducted in accordance with the National Health and Medical Research Council (NHMRC) National Statement on Ethical Conduct in Human Research (2007; updated 2015 & 2018). The study received human research ethics approval from the following institutions:

- Flinders University Social and Behavioural Research Ethics Committee (SBREC) (Project number: 7306) in April 2016, with modifications approved in July 2017 and February 2018
- Lakehead University, Ontario, Canada (REB Project #: 020 17-18/Romeo file number: 1465871) in June 2017, with annual renewals till 2021
- Laurentian University, Ontario, Canada (REB file number: 6011069) in June 2017, with annual renewals till 2021
- University of Botswana Institutional Review Board (Reference number: UBR/RES/IRB/BIO/097) in August 2018, with annual renewals till 2021

## STATEMENT ON THE CONTRIBUTION OF OTHERS

Nature of Assistance	Contribution	Contributors
Intellectual support	Supervisors	Jennene Greenhill, Paul Worley, Koshila Kumar, Joanne Pimlott
	Librarian	Leila Mohammadi
	General advice	Shameen Prashantham, David Prideaux, Julie Ash, Svetlana King, Linda Sweet, Robyn Preston, Lucie Walters, John Hamilton, Roger Strasser, Randall Longenecker, Sarah Dingle, Amy Seymour-Walsh, Ruth Sladek, Annie Murray, Rogano 2016 attendees, Tara Brabazon, Kevin Forsyth, Lambert Schuwirth, Paul Ward, Heath Pillen, Lenore De La Parelle, Sara Zabeen, Susan Selby, Beulah Herbert, Hannah Anandaraj, Spurgeon Anandaraj, Wendy Hu, Anna Vnuk, Adrian Schoo, Leila Morsey, Gillian Kette, Arpudh Anandaraj, Meshach Kirubakaran, Chellam Kirubakaran, Priya Kirubakaran, Riitta Partanen, Matthew McGrail
Research collaboration	Conference presentation co-authors	Narelle Campbell, John Wakerman
Administrative support	Office & logistics	Prideaux Discipline of Clinical Education, Lori Tietz, Fiona Smith
	Transcription	TranscriptAustralia
Financial support	Stipend	Flinders University Research Student Maintenance AU\$1000 per annum from 2015 – 2019 (part-time) and AU\$2000 per annum 2020 – 2021 (full-time)
	Scholarship	Flinders University Research (2020 – 2021)

In-kind support	Fieldwork support	Flinders University, Northern Ontario School of Medicine, Lakehead University, Laurentian University, University of Botswana, University of Queensland Rural Clinical School
-----------------	-------------------	--

I acknowledge the contribution of the Australian Government Research Training Program.

No professional editor was deployed in the preparation of this thesis. The editing remains the work of the candidate.

## ACKNOWLEDGMENTS

First, I must acknowledge and thank my supervisors, Jennene, Paul, Koshila, and Joanne, for making this trek with me. It was a long and winding journey, but I never felt alone. You kept me moving forward despite the occasional rabbit trails you also introduced! My brain frequently hurt but it also grew! I am so very grateful. “Thank you” sounds so inadequate.

Next, I must acknowledge and thank my childhood friend, Shameen, who first spoke the words “Institutional Entrepreneurship” to me as we sat at his kitchen table in China. God gifted me those words through you and my research developed a backbone because of it! Both “thank you” and “hallelujah” are equally appropriate!

Then there is David Prideaux, my mentor in medical education since my first year of medical school – that is, a journey of 20+ years! First you supervised my student project, then encouraged me to apply for a student prize through ANZAME and write a paper that got published, and then you supported me as I convened the ANZAME conference. After that you were a mentor as I weaved a path through Clinical Education, first as a student and then as a lecturer. Then, over a casual lunch, you helped me realise that my research desires were about generic resource-constrained medical schools and not about “Cuba” specifically. Finally, (or maybe not even final yet!), you gave helpful feedback in my PhD presentations, including highlighting the importance of “politics” for my research phenomenon. I am so very grateful for all of it. “Thank you” sounds so inadequate again.

My dear family – Dad, Mum, and sis. You patiently watched and cheered from the sidelines, accepting that “the PhD” was my persistent excuse for arranging my schedule and family holidays a certain way. You prayed for me and waited, waited, waited till it was all done. I am grateful for you all. I love you.

My PhD Prayer Party – Susan, Amy, Aunt Beulah, Aunt Hannah, and Uncle Spurgeon. You too prayed me through the final few years of hard slog. Knowing that each of you had walked this same journey yourselves was so reassuring. I am so grateful for your faithful encouragement and spiritual support. Even though I frequently became weary and faint, you prayed me through, so I was able to keep walking and running till I got to the end. “Thank you” and “hallelujah” again.

Finally, but also firstly, I acknowledge and thank the Alpha and the Omega, my God and Saviour Jesus Christ. It was important to me to identify a philosophical stance that could accommodate my belief in You and “Critical Realism” seems big enough for that. What would have been the point otherwise? Thank You for giving me such an interesting project to be on about for so many years! It provided structure to my life when otherwise I may have blown about like a bored leaf in the wind. I trust that You will do Your “two-loaves-and-five-fish-thang” with it and with me. I look forward to the next project You have in mind for us! I love You, I thank You, I worship You.

## KEY PRESENTATIONS AND PUBLICATIONS DURING CANDIDATURE

### Presentations:

- **Kirubakaran, S.** (Perth, Australia, 19 – 23 March 2016). Leadership in health professional education in low-resourced settings. *The 17th Ottawa Conference & the Australia and New Zealand Association of Health Professional Educators (ANZAHPE) Conference 2016.*
- **Kirubakaran, S.** (Sault Ste. Marie, Canada, 22 – 25 June 2016). Health professional education on a shoe-string: What riches do communities have to offer? *The International Conference on Community Engaged Medical Education in the North (ICEMEN) 2016.*
- **Kirubakaran, S.** (Barcelona, Spain, 1 – 2 September 2016). Establishing new medical schools in low-resourced settings. *The 2016 Rogano Meeting.*
- **Kirubakaran, S.** (Adelaide, Australia, 11 – 14 July 2017). New medical schools: frequently established, infrequently published (poster). *Australia and New Zealand Association of Health Professional Educators (ANZAHPE) Conference 2017.*
- **Kirubakaran, S.** (Adelaide, Australia, 11 – 14 July 2017). Northern Territory Medical Program: Transitions in the Top End. *Australia and New Zealand Association of Health Professional Educators (ANZAHPE) Conference 2017.*
- **Kirubakaran, S.** (Adelaide, Australia, 11 – 14 July 2017). Defining 'low-resourced' in health professional education & research. *Australia and New Zealand Association of Health Professional Educators (ANZAHPE) Conference 2017.*
- **Kirubakaran, S.** (Adelaide, Australia, 1 June 2018). From case study theory to research reality: Establishing new medical schools in medically under-served areas. *Prideaux Centre for Research in Health Professions Education 2018 Symposium.*
- **Kirubakaran, S.** (Mt. Gambier, Australia, 15 – 18 October 2018). The Northern Territory Medical Program: Locally, regionally, and nationally important. *Global Community Engaged Medical Education Muster Conference 2018.*

- **Kirubakaran, S.** (Mt. Gambier, Australia, 15 – 18 October 2018). The Northern Ontario School of Medicine: Blazing a social accountability trail. *Global Community Engaged Medical Education Muster Conference 2018*.
- **Kirubakaran, S.** (Adelaide, Australia, 26 July 2019). Translating institutional entrepreneurship with critical realism. *Prideaux Centre for Research in Health Professions Education 2019 Symposium*.
- **Kirubakaran, S.** (Albuquerque, New Mexico, USA, 9 – 12 October 2019). Using entrepreneurial theory to strategically improve health equity in medically under-served areas. *American Association of Family Physicians Global Health Summit 2019*.
- **Kirubakaran, S.** (Albuquerque, New Mexico, USA, 12 – 15 October 2019). Establishing new medical schools in medically under-served areas: Applying a novel strategic framework for success. *WONCA World Rural Health Conference 2019*.
- **Kirubakaran, S.** (Port Moresby, Papua New Guinea, 1 – 4 September 2019). Encouraging rural workforce: Insights from three new medical schools. *55<sup>th</sup> Annual Symposium of the Papua New Guinea Medical Society*.
- **Kirubakaran, S.** (Online from Rockhampton, Australia, 25 May 2021). Implementing the Regional Medical Pathway: Could a novel strategic framework based on institutional entrepreneurship help? *University of Queensland Rural Clinical School local meeting*.

## **Publications:**

- **Kirubakaran, S., Shaw, D., McArthur, L., Miller, A., Radford, A.** (2020). Preparing Christian health workers for international work: Evaluating a short global health course. *Christian Journal of Global Health*, 7(5), Dec: 21 – 30. <https://doi.org/10.15566/cjgh.v7i5.415>



## Manuscripts in preparation:

- **Kirubakaran, S.**, Kumar, K., Worley, P., Pimlott, J., Greenhill, J. Creating new medical schools: What can institutional entrepreneurship offer?
- **Kirubakaran, S.**, Kumar, K., Worley, P., Pimlott, J., Greenhill, J. Establishing new medical schools: What is the evidence?
- **Kirubakaran, S.**, Kumar, K., Worley, P., Pimlott, J., Greenhill, J. Successfully establishing new medical schools: A novel strategic framework.
- **Kirubakaran, S.**, Kumar, K., Worley, P., Pimlott, J., Wakerman, J., Campbell, N., Greenhill, J. The Northern Territory Medical Program: Locally, regionally, nationally important.

## GLOSSARY OF TERMS

<b>Abduction</b>	A logic and reasoning strategy that interprets, reconceptualises, or reclassifies information/phenomena using an alternative conceptual framework. Also called ‘theoretical redescription’.
<b>Algorithmic thinking</b>	Thinking and decision-making using rigid, protocol-driven steps as opposed to ‘heuristic thinking’.
<b>Batswana</b>	Citizens of Botswana, plural form. Singular is ‘Motswana’.
<b>Bricolage</b>	An area of business theory relating to the resourcing of business ventures by ‘making do with what is at hand’ by re-purposing and combining existing and possibly cheaper or easier to access resources in innovative, new ways.
<b>Case Study Research (CSR)</b>	A preferred methodology for answering ‘how’ or ‘why’ research questions, that call for extensive exploration and explanation of a multifaceted phenomenon, in situations that have a distinctive need to understand a complex social phenomenon and retain a holistic and real-world perspective.
<b>Catalysts</b>	An element of the Eight C’s Framework that correlates with ‘institutional entrepreneurs’, the creative, visionary leaders who precipitate, lead, and participate in a new venture.
<b>Challenges</b>	An element of the Eight C’s Framework that relates to the foreseen and unforeseen problems, obstacles, and set-backs faced by a new venture.
<b>Collecting</b>	An element of the Eight C’s Framework that relates to collecting the required human, economic, physical, material, intellectual, educational, ideological, and technological resources for a new venture, utilising principles of sharing and ‘bricolage’.

<b>Conducting</b>	An element of the Eight C's Framework referring to making the 'Context' more favourable for a new venture, incorporating aspects of 'opportunity recognition/creation' and overcoming the 'paradox of embedded agency'.
<b>Connecting</b>	An element of the Eight C's Framework that relates to connecting the key stakeholders of a new venture in collaborative relationships, partnerships, and alliances, utilising principles of symbiosis and trust.
<b>Consequences</b>	An element of the Eight C's Framework that relates to the intended and unintended outcomes of a new venture.
<b>Context</b>	An element of the Eight C's Framework that correlates with 'field conditions' or the environmental milieu of a new venture.
<b>Convincing</b>	An element of the Eight C's Framework that relates to convincing the various stakeholders of a new venture with compelling rationales, arguments, and narratives, utilising principles of persuasion and influence.
<b>Critical Realism (CR)</b>	A philosophical approach that integrates an objective realist ontology with a subjective constructivist epistemology.
<b>Expatriate</b>	A person who lives outside their native country.
<b>Field conditions</b>	The situational context or environmental milieu of a new venture.
<b>Generative mechanisms</b>	The causal forces underlying a phenomenon that produce the events and experiences associated with it.
<b>Heuristic thinking</b>	Thinking and decision-making with intuitive mental agility and lateral thinking as opposed to 'algorithmic thinking'.
<b>Institutional Entrepreneurship (IE)</b>	An area of business theory descended from both Institutional theory and Entrepreneurship theory that relates to the activities of actors who have an interest in particular institutional arrangements and who leverage resources to create new institutions or to transform existing ones.

<b>Medical school</b>	An educational institution providing a complete educational program leading to a basic medical qualification that permits the holder to obtain a licence to practise as a medical doctor or physician.
<b>Medically under-served area</b>	Regions that are characterised by a geo-socio-political situation of medical workforce shortage, inadequate access to health services, and poorer health outcomes.
<b>Multiple Case Study (MCS)</b>	A variant of 'Case Study Research' that examines multiple cases of the phenomenon under study, each within their own contexts.
<b>Opportunity recognition / creation</b>	A vital remit of entrepreneurs to be able to recognise or create opportunities for their new venture in their unique situations or field conditions.
<b>Paradox of embedded agency</b>	A theoretical dilemma between stability and change in human behaviour and cognition, referring to the notion that actors embedded in an existing field often do not have the faculties to envision anything different to the norm, yet may still paradoxically exhibit the ability to precipitate innovation and transformation.
<b>Retrodiction</b>	An analytical strategy that uses currently available information or ideas to infer or explain historical states or events.
<b>Retroduction</b>	A logic and reasoning strategy or thought operation that uses techniques such as counterfactual thinking; social and thought experiments; studying pathological circumstances and/or extreme cases; and comparing different cases, to reconstruct the basic conditions (i.e., 'generative mechanisms') for anything to be what it is.
<b>Social accountability</b>	The measures that are made by an organisation to be aware of concerns to the community surrounding it, reflected in a commitment to health and safety, civil and human rights, and betterment of the community. In medical education, more specifically, it is the obligation of medical schools to direct their education, research, and service activities towards addressing the priority health needs of the community, region, and/or nation they have a mandate to serve.

**Theory adjudication**

Identifying the theory of best-fit by making sense of observations, sifting through rival explanations, and weeding out alternative theories.

## LIST OF ABBREVIATIONS

<b>13KCs</b>	Thirteen Key Considerations of New Medical School Establishment
<b>8CF</b>	Eight C's Framework
<b>AARENet</b>	Australian Advanced Research and Education Network
<b>AIDA</b>	Australian Indigenous Doctors Association
<b>AMC</b>	Australian Medical Council
<b>AMSANT</b>	Aboriginal Medical Services Alliance Northern Territory
<b>ASH</b>	Alice Springs Hospital
<b>ATAR</b>	Australian Tertiary Admission Rank
<b>AV</b>	Audio-visual
<b>BCS</b>	Bachelor of Clinical Science
<b>BHPC</b>	Botswana Health Professions Council
<b>CACMS</b>	Committee on Accreditation of Canadian Medical Schools
<b>CBL</b>	Case-based learning
<b>CDU</b>	Charles Darwin University
<b>CEO</b>	Chief Executive Officer
<b>CMCH</b>	Christian Medical College and Hospital
<b>CMO</b>	Context + Mechanisms = Outcomes
<b>COAHL</b>	Consortium of Academic Health Libraries
<b>CONSAMS</b>	Consortium of New Southern African Medical Schools
<b>CR</b>	Critical Realism
<b>CRaHR</b>	Centres for Rural and Northern Health Research
<b>CSR</b>	Case Study Research
<b>FAIMER</b>	Foundation for the Advancement of International Medical Education
<b>FCMPH</b>	Flinders University College of Medicine & Public Health
<b>FM</b>	Family Medicine

<b>FMC</b>	Flinders Medical Centre
<b>FSU</b>	Florida State University
<b>FUELS</b>	Flinders University Extended Learning in Science
<b>GAMSAT</b>	Graduate Medical School Admissions Test
<b>GDH</b>	Gove District Hospital
<b>GEMSAS</b>	Graduate Entry Medical School Application System
<b>GFC</b>	Global Financial Crisis
<b>GP</b>	General Practitioner / General Practice
<b>GPA</b>	Grade Point Average
<b>HHF</b>	Health and Hospitals Fund
<b>HIV/AIDS</b>	Human Immunodeficiency Virus/Acquired Immunodeficiency Syndrome
<b>HRC</b>	High Ranking Committee
<b>HRSA</b>	Health Resources and Services Administration
<b>ICT</b>	Information & Communication Technology
<b>IE</b>	Institutional Entrepreneurship
<b>IMC</b>	Implementation Management Committee
<b>IRB</b>	Institutional Review Board
<b>IT</b>	Information technology
<b>ITS</b>	Information Technology Support
<b>JCU</b>	James Cook University
<b>KDH</b>	Katherine District Hospital
<b>LCME</b>	Liaison Committee on Medical Education
<b>LIME</b>	Leaders in Indigenous Medical Education
<b>MBBS</b>	Bachelor of Medicine Bachelor of Surgery
<b>MCAT</b>	Medical College Admission Test
<b>MCS</b>	Multiple Case Study
<b>MD</b>	Doctor of Medicine

<b>MEPI</b>	Medical Education Partnerships International
<b>MMED</b>	Master of Medicine
<b>MoE</b>	Ministry of Education
<b>MoF</b>	Ministry of Finance
<b>MoH</b>	Ministry of Health
<b>NAHSN</b>	Northern Academic Health Sciences Network
<b>NBN</b>	National Broadband Network
<b>NOHFC</b>	Northern Ontario Heritage Fund Corporation
<b>NOMECE</b>	Northeastern Ontario Medical Education Corporation
<b>NOMP</b>	Northwestern Ontario Medical Program
<b>NORMS</b>	Northern Ontario Rural Medical School
<b>NOSM</b>	Northern Ontario School of Medicine
<b>NT</b>	Northern Territory
<b>NTCS</b>	Northern Territory Clinical School
<b>NTGPE</b>	Northern Territory General Practice Education
<b>NTMP</b>	Northern Territory Medical Program
<b>OMSAS</b>	Ontario Medical School Application Service
<b>ORION</b>	Ontario Research and Education Network
<b>OSCE</b>	Objective Structured Clinical Examinations
<b>OTSS</b>	Ontario Trust for Student Support
<b>PBL</b>	Problem-based learning
<b>PMP</b>	Preparation for Medicine Program
<b>PRISMA</b>	Preferred Reporting Items for Systematic Reviews and Meta-Analyses
<b>QLD</b>	Queensland
<b>RACGP</b>	Royal Australian College of General Practitioners
<b>RDH</b>	Royal Darwin Hospital
<b>REB</b>	Research Ethics Board



<b>SA</b>	South Australia
<b>SADC</b>	Southern African Development Corporation
<b>SAFRI</b>	Saharan Africa-FAIMER Regional Institute
<b>SBREC</b>	Social and Behavioural Research Ethics Committee
<b>TBL</b>	Team-based learning
<b>THEnet</b>	Training for Health Equity Network
<b>UB</b>	University of Botswana
<b>UBFoM</b>	University of Botswana Faculty of Medicine
<b>UK</b>	United Kingdom
<b>UMAT</b>	Undergraduate Medical Admissions Test
<b>US or USA</b>	United States of America
<b>VC</b>	Videoconference
<b>WDOMS</b>	World Directory of Medical Schools
<b>WFME</b>	World Federation for Medical Education
<b>WHO</b>	World Health Organization

## LIST OF TABLES

Table 2-1: Database search strings .....	22
Table 2-2: Additional limitations set for ProQuest searches .....	23
Table 2-3: Numbers of Medical Schools in the World .....	30
Table 2-4: Types of Publications on New Medical School Establishment .....	31
Table 2-5: Thirteen Key Considerations of New Medical School Establishment (13KCs) ....	34
Table 3-1: Linking IE, 8CF and literature review .....	105
Table 4-1: NTMP's Champions .....	132
Table 4-2: NTMP's Colleagues .....	133
Table 5-1: NOSM's Champions .....	196
Table 5-2: NOSM's Colleagues .....	197
Table 6-1: UBFoM's Champions .....	253
Table 6-2: UBFoM's Colleagues .....	254

## LIST OF FIGURES

Figure 1-1: Dr. Ida Sophia Scudder, Founder of CMCH, Vellore, India .....	6
Figure 1-2: One of seven current campuses of CMCH, Vellore, India .....	6
Figure 1-3: Concept Map of the Eight C's Framework (8CF).....	13
Figure 2-1: May 2015 PRISMA Flow Chart.....	24
Figure 2-2: January 2021 PRISMA Flow Chart.....	25
Figure 2-3: Articles by Decade Published .....	28
Figure 2-4: Thirteen Key Considerations of New Medical School Establishment (13KCs) ...	33
Figure 3-1: The Stratified Ontology of Critical Realism.....	81
Figure 3-2: Concept Map of the Eight C's Framework (8CF) (Figure 1-3 reproduced).....	98
Figure 4-1: Map of Australia Highlighting Locations of Flinders University & NTMP .....	124
Figure 4-2: Distributed Sites of Flinders Medical School Across SA & NT .....	125
Figure 4-3: The Charles Darwin University Pharmacy & Medical Science Building.....	126
Figure 4-4: The Flinders NT Building at Royal Darwin Hospital.....	127
Figure 4-5: NTMP Clinical Sites (in yellow).....	127
Figure 5-1: Lakehead University & Laurentian University in Ontario, Canada.....	190
Figure 5-2: Learning Sites for NOSM Students .....	191
Figure 5-3: NOSM's Curriculum Summarised.....	217
Figure 6-1: University of Botswana entrance, Gaborone, Botswana .....	246
Figure 6-2: Botswana Map.....	248
Figure 6-3: Monument of Cattle Donations to Build UB .....	264
Figure 6-4: The new Sir Ketumile Masire Teaching Hospital on UB Campus .....	290
Figure 7-1: Eight C's Framework (Figure 1-3 & Figure 3-2 reproduced).....	305
Figure 8-1: Vogel's Conceptual Framework of Venture Idea to Opportunity Exploitation ...	363

## LIST OF IMAGE SOURCES

Figure	Source
<b>Figure 1-1: Dr. Ida Sophia Scudder, Founder of CMCH, Vellore, India</b>	<p><a href="https://cfmedicine.nlm.nih.gov/physicians/biography_290.html">https://cfmedicine.nlm.nih.gov/physicians/biography_290.html</a></p> <p>Used with permission from the US National Library of Medicine.</p> <p><a href="https://scudder.org/philanthropy/aunt-idas-legacy/">https://scudder.org/philanthropy/aunt-idas-legacy/</a></p> <p>Used with permission from the Scudder Association Foundation.</p>
<b>Figure 1-2: One of seven current campuses of CMCH, Vellore, India</b>	<p><a href="https://www.cmch-vellore.edu/2col.aspx?ptype=CONTENT&amp;pid=P170801015&amp;mid=M170807109">https://www.cmch-vellore.edu/2col.aspx?ptype=CONTENT&amp;pid=P170801015&amp;mid=M170807109</a></p> <p>Used with permission from the Christian Medical College &amp; Hospital.</p>
<b>Figure 1-3: Concept Map of the Eight C's Framework (8CF)</b>	<p>© Sneha Kirubakaran, 2020</p> <p>Created using Microsoft Word software.</p>
<b>Figure 2-1: May 2015 PRISMA Flow Chart</b>	<p>© Sneha Kirubakaran, 2021</p> <p>Created via software from <a href="http://prisma.thetacollaborative.ca/">http://prisma.thetacollaborative.ca/</a></p>
<b>Figure 2-2: January 2021 PRISMA Flow Chart</b>	<p>© Sneha Kirubakaran, 2021</p> <p>Created via software from <a href="http://prisma.thetacollaborative.ca/">http://prisma.thetacollaborative.ca/</a></p>
<b>Figure 2-3: Articles by Decade Published</b>	<p>© Sneha Kirubakaran, 2021</p> <p>Created using Microsoft Excel software.</p>
<b>Figure 2-4: Thirteen Key Considerations of New Medical School Establishment</b>	<p>© Sneha Kirubakaran, 2017</p> <p>Created using Microsoft Word software.</p>

<p><b>Figure 3-1: The Stratified Ontology of Critical Realism</b></p>	<p>Zachariadis, M., Scott, S., &amp; Barrett, M. (2013). Methodological implications of critical realism for mixed-methods research. <i>MIS Quarterly</i>, 37(3), p. 858.</p> <p>Fletcher, A. J. (2017). Applying critical realism in qualitative research: Methodology meets method. <i>International Journal of Social Research Methodology</i>, 20(2), p. 183.</p> <p>Adapted with permissions from <i>MIS Quarterly</i> and Taylor &amp; Francis.</p>
<p><b>Figure 3-2: Concept Map of the Eight C's Framework (8CF) (Figure 1-3 reproduced)</b></p>	<p>© Sneha Kirubakaran, 2020</p> <p>Created using Microsoft Word software.</p>
<p><b>Chapter 4, uncaptioned photo/logo</b></p>	<p><a href="https://dkj.net.au/dt_gallery_category/cdu/">https://dkj.net.au/dt_gallery_category/cdu/</a></p> <p>Cropped and edited using Microsoft Photos software.</p> <p>Adapted with permission from DKJ.</p>
<p><b>Figure 4-1: Map of Australia Highlighting Locations of Flinders University &amp; NTMP</b></p>	<p><a href="http://www.freeusandworldmaps.com/html/Countries/Asia%20Countries/AustraliaPrint.html">http://www.freeusandworldmaps.com/html/Countries/Asia%20Countries/AustraliaPrint.html</a></p> <p>Emphasis added using Microsoft Word software.</p> <p>Adapted with permission from Bruce Jones Design.</p>
<p><b>Figure 4-2: Distributed Sites of Flinders Medical School Across SA &amp; NT</b></p>	<p><a href="https://www.flinders.edu.au/college-medicine-public-health">https://www.flinders.edu.au/college-medicine-public-health</a></p> <p>Used with permission from Flinders University.</p>
<p><b>Figure 4-3: The Charles Darwin University Pharmacy &amp; Medical Science Building</b></p>	<p><a href="https://dkj.net.au/dt_gallery_category/cdu/">https://dkj.net.au/dt_gallery_category/cdu/</a></p> <p>Used with permission from DKJ.</p>
<p><b>Figure 4-4: The Flinders NT Building at Royal Darwin Hospital</b></p>	<p><a href="https://www.hamesharley.com.au/project/flinders-medical-programme-building">https://www.hamesharley.com.au/project/flinders-medical-programme-building</a></p> <p>Used with permission from Hames Sharley Architects.</p>
<p><b>Figure 4-5: NTMP Clinical Sites (in yellow)</b></p>	<p><a href="https://www.flinders.edu.au/flinders-nt/where-we-are">https://www.flinders.edu.au/flinders-nt/where-we-are</a></p> <p>Used with permission from Flinders University.</p>
<p><b>Chapter 5, uncaptioned logo</b></p>	<p>Obtained by email from the Northern Ontario School of Medicine (NOSM).</p> <p>Used with permission from NOSM.</p>

<p><b>Figure 5-1: Lakehead University &amp; Laurentian University in Ontario, Canada</b></p>	<p>Arrows &amp; logos added using Microsoft Word software.  <a href="https://commons.wikimedia.org/wiki/File:Ontario_regions_map.png">https://commons.wikimedia.org/wiki/File:Ontario_regions_map.png</a>  Used under the Creative Commons Attribution-Share Alike 3.0 Unported license.  <a href="https://www.lakeheadu.ca/about/branding/guidelines/lakehead-identity">https://www.lakeheadu.ca/about/branding/guidelines/lakehead-identity</a>  Used with permission from Lakehead University.  <a href="https://laurentian.ca/">https://laurentian.ca/</a>  Used with permission from Laurentian University.</p>
<p><b>Figure 5-2: Learning Sites for NOSM Students</b></p>	<p><a href="https://www.nosm.ca/our-community/wider-campus-of-the-northern-ontario-school-of-medicine/community-profiles/">https://www.nosm.ca/our-community/wider-campus-of-the-northern-ontario-school-of-medicine/community-profiles/</a>  Used with permission from NOSM.</p>
<p><b>Figure 5-3: NOSM’s Curriculum Summarised</b></p>	<p><a href="https://www.nosm.ca/education/md-program/">https://www.nosm.ca/education/md-program/</a>  Used with permission from NOSM.</p>
<p><b>Chapter 6, uncaptioned logo</b></p>	<p><a href="https://www.ub.bw/">https://www.ub.bw/</a>  Used with permission from the University of Botswana.</p>
<p><b>Figure 6-1: University of Botswana entrance, Gaborone, Botswana</b></p>	<p><a href="https://www.santheafrica.org/about/partners/african-collaborating-partner-sites/university-botswana">https://www.santheafrica.org/about/partners/african-collaborating-partner-sites/university-botswana</a>  Unable to obtain copyright permission. Image removed from open access copy of thesis.</p>
<p><b>Figure 6-2: Botswana Map</b></p>	<p><a href="https://www.britannica.com/place/Botswana">https://www.britannica.com/place/Botswana</a>  Used with permission from Encyclopaedia Britannica.</p>
<p><b>Figure 6-3: Monument of Cattle Donations to Build UB</b></p>	<p><a href="https://www.santheafrica.org/about/partners/african-collaborating-partner-sites/university-botswana">https://www.santheafrica.org/about/partners/african-collaborating-partner-sites/university-botswana</a>  Unable to obtain copyright permission. Image removed from open access copy of thesis.</p>
<p><b>Figure 6-4: The new Sir Ketumile Masire Teaching Hospital on UB Campus</b></p>	<p><a href="https://www.facebook.com/SirKetumileMasireTeachingHospital/photos/d41d8cd9/112794253575881">https://www.facebook.com/SirKetumileMasireTeachingHospital/photos/d41d8cd9/112794253575881</a>  Used with permission from the University of Botswana.</p>
<p><b>Figure 7-1: Eight C’s Framework (Figure 1-3 &amp; Figure 3-2 reproduced)</b></p>	<p>© Sneha Kirubakaran, 2020  Created using Microsoft Word software.</p>

**Figure 8-1: Vogel's  
Conceptual Framework of  
Venture Idea to Opportunity  
Exploitation**

Vogel, P. (2017). From venture idea to venture opportunity. *Entrepreneurship Theory and Practice*, 41(6), p. 948.  
Used with permission from SAGE Publications.

# 1 INTRODUCTION

## 1.1 Introduction to chapter:

This thesis presents a scholarly and practical understanding of the process of new medical school establishment, particularly in medically under-served areas. It is based on original research conducted across three continents on new medical schools established in medically under-served areas of Australia, Canada, and Botswana.

In this chapter, I present the background to this research related to medical workforce problems and poorer health indices in medically under-served areas. I explain the evolution of my research aims, questions, and objectives from personal beginnings. I outline the design of this research including a Critical Realist philosophy, Social Accountability axiology, Multiple Case Study methodology, and the use of business theories to devise a novel conceptual framework for new medical school establishment. Finally, I highlight the significance of this research and outline several theoretical, methodological, empirical, and practical original contributions.



## 1.2 Background:

Doctors are a much-needed health resource in every region, state, and nation of the world. Nonetheless, the maldistribution of doctors in regional, rural, and remote locations of both high- and low-resourced countries has been a persistent problem across the globe for many decades (Buykx et al., 2010; Frenk et al., 2010; Greenhill et al., 2015; Ono et al., 2014; Rabinowitz et al., 2008; Russell et al., 2017; Strasser & Strasser, 2020; World Health Organization, 2006, 2010). This maldistribution poses many challenges to the health workforce of these regions, such as needing to import medical staff from elsewhere at great expense and with high turnover (Buykx et al., 2010; Russell et al., 2017; Zhao et al., 2019). Medically under-served areas also frequently report poorer health outcomes for their populations (Buykx et al., 2010; Greenhill et al., 2015; Russell et al., 2017; World Health Organization, 2006, 2010). Additionally, the current global situation of the Covid-19 pandemic has highlighted even more fervidly the need for a local supply of trained workforce (Quilter, 2020; Strasser & Strasser, 2020; Worley, 2020). Markedly restricted travel opportunities both within and between regions, have exposed weaknesses in imported workforce supply models and inequities in healthcare, leading to more regions recognising their dire need to 'grow their own' (Quilter, 2020; Strasser & Strasser, 2020; Worley, 2020; Worley et al., 2019).

Establishing new medical schools in medically under-served regions is suggested as one possible solution to these problems of workforce maldistribution and healthcare inequities (Boelen, 2018; Boulet et al., 2007; Frenk et al., 2010; Greenhill et al., 2015; Rourke, 2010; World Health Organization, 2010). Although the number of doctors practicing in a region depends on a multitude of complex socio-political factors (Beckett & Morrison, 2010; Boulet et al., 2007; Frenk et al., 2010; McKendry, 1999), the presence of a medical school increases the likelihood of improved physician density (Boulet et al., 2007; PWC Consulting, 2002). Tesson et al. note, "cities with medical schools [do] not seem to suffer the same physician shortages as those without them" (2009, p. 50). Duvivier et al. note, "doctors who are trained in regions of need are more likely to stay and practise in those areas after graduation" (2014, p. 867). Research indicates that extended rural and remote training experiences contribute to doctors accepting later employment in similar locations (Curran & Rourke, 2004; Jones et al., 2009; Ono et al., 2014; Rabinowitz et al., 2008; Roberts et al., 2012; Strasser, 2001). Furthermore, health professionals educated within their own region and in the kind of research environment afforded by a medical school, are better placed to propose innovative solutions to the problems faced by their health systems (Cookson, 2013).

Even though “increasing the number of medical schools in [physician] low-density areas” (Boulet et al., 2007, p. 24) sounds like a plausible solution, establishing a new medical school is a significant undertaking involving substantial social, political, economic, educational, and organisational considerations (Arango, 1966; Australian Medical Council, 2012; Bin Abdulrahman & Saleh, 2015; Castelo-Branco et al., 2016; Hays, McKinley, et al., 2019; Hays, Strasser, et al., 2019; Liaison Committee on Medical Education, 2006, 2008; Mullan, 2003; Whitcomb, 2009, 2018; World Federation for Medical Education, 2015, 2020). Bin Abdulrahman and Saleh write, “establishing a new medical college ... is a lengthy ‘surgical operation’ that requires careful and timely planning in order to anticipate and prevent any damage, and to ensure optimal outcomes” (2015, p. 1). Castelo-Branco et al. note that the venture “is not for the faint hearted” (2016, p. 1204). Arango instructs that new medical schools need to meaningfully address cultural, socioeconomic, and political issues and not just award medical degrees to large numbers of people each year (1966).

Despite the complexity, almost 100 new medical schools are being established around the world every year (Boulet et al., 2007; Duvivier et al., 2014; Karle, 2006). In 2007, data from the World Directory of Medical Schools reported 1935 operating medical schools globally, with 169 countries having at least one and 66 having none (Boulet et al., 2007). In 2014, an updated report identified 2597 medical schools globally, with 183 countries having at least one medical school and only 24 with none (Duvivier et al., 2014). Thus, within that seven-year span, there was a reported increase of 662 medical schools worldwide. Improved data collection only partially explains these increases with the active establishment of new medical schools also contributing to the figures.

Even with the burgeoning number of medical schools worldwide, the evidence-base underpinning the complex logistics of creating new ones remains relatively under-developed, both empirically and theoretically (detailed in chapter 2 'Literature Review'). Founding leaders seem to go about the process intuitively using their pre-existing knowledge of medical schools and project management. Thistlethwaite and Hammick concur that "much health professional education is developed and delivered on the basis of tradition and expediency" (2010, p. 880). My literature review identified three significant gaps in the published literature and my research uncovered a further two gaps: 1) no prior published literature reviews on the process of establishing a new medical school; 2) no underpinning theories applied to the process of establishing a new medical school; 3) only a few research-based publications on establishing new medical schools; 4) minimal consideration of how to go about getting official permissions to establish a new medical school; and 5) poor reporting of personal adverse effects experienced by founders of new medical schools.

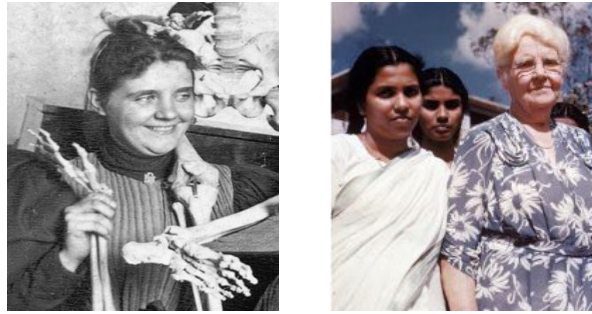
Currently, published information guiding founding leaders and teams are primarily from two sources: 1) standards documents or accreditation guidelines and 2) journal commentary articles or opinion pieces by experienced experts. The standards documents and accreditation guidelines (Australian Medical Council, 2012; Liaison Committee on Medical Education, 2006, 2008, 2020; World Federation for Medical Education, 2015, 2020) articulate "predetermined standards of structure, process and achievement" (Frenk et al., 2010, p. 1938) for new medical schools, but do not explicate the evidence-base behind these. Journal articles are primarily descriptive or advisory detailing the personal reflections and experiences of founding deans and other leaders (Bin Abdulrahman & Saleh, 2015; Castelo-Branco et al., 2016; Cookson, 2013; Eichbaum, Bowa, et al., 2014; Eichbaum, Nyarango, et al., 2014; Fogarty et al., 2012; Hamdy & Anderson, 2006; Hays, 2018; Hays et al., 2003; Howe et al., 2004; Hurt & Harris, 2005; Lanphear & Strasser, 2008; Mokone et al., 2014; Smego et al., 2010; Smith, 2009; Snadden et al., 2011; Strasser & Lanphear, 2008; Strasser et al., 2009; Tesson et al., 2009). Accreditation guidelines prescribe 'what' standards need to be met without necessarily describing 'how' to meet those standards. Advisory journal articles, on the other hand, offer practical suggestions and tips on 'how' to go about establishing a new medical school without necessarily covering all the aspects of 'what' is required.

Thus, currently available published evidence for best practices when establishing a new medical school is largely 'experience-based'. Whilst there is substantial relevance and utility in experience-based evidence, particularly for complex medical education initiatives, (Eva, 2009; Harden et al., 1999), given the high political and financial stakes of creating a new medical school, the lack of research-based evidence is a concern. Are founding leaders and teams at risk of perpetuating ineffective or inefficient strategies and approaches based solely on practical or experiential wisdom? How could a stronger evidence-base increase the efficiency and efficacy of academics, clinicians, administrators, politicians, universities, health facilities, health systems, and communities seeking to establish a new medical school? Could some of the financial, institutional, and personal costs of establishing a new medical school in a medically under-served area be mitigated through more scholarship on the process? I suggest there is an affirmative answer to each of these questions that prompted my research. In the next section, I explain how my research grew out of early personal influences.

### **1.3 Evolution of my research from personal beginnings:**

The idea of establishing a new medical school in an area of medical need fascinated me from my earliest days as a medical student at Flinders University in South Australia in the early 2000's. The story of Dr. Ida Sophia Scudder (1870 – 1960) who founded a medical school in Vellore, South India (my birthplace), in the early 1900's was deeply impacting. Dr. Scudder (see Figure 1-1) – a single, female American missionary in her early thirties – responded to a dire cultural need for female doctors in India by founding the Christian Medical College and Hospital (CMCH), initially for female students only (George, 2014; Jeffrey, 2014; U.S. National Library of Medicine, 2015; Wilson, 1959, 1987). Over the century, CMCH has grown monumentally (see Figure 1-2) and continues to provide high quality health care and health professional education to tens of thousands of people each day (Christian Medical College & Hospital, 2016). Dr. Scudder's inspiration of my personal, professional, and research journey is significant.

Figure 1-1: Dr. Ida Sophia Scudder, Founder of CMCH, Vellore, India



(Used with permissions from the US National Library of Medicine and the Scudder Association Foundation)

Figure 1-2: One of seven current campuses of CMCH, Vellore, India



(Used with permission from CMCH)

In 2007, several years before commencing my doctoral research journey, I travelled from Australia to the neighbouring nation of Vanuatu as a volunteer doctor. I was shocked to discover that this small South Pacific country did not have its own medical school. I had assumed that in the 21<sup>st</sup> century, every country would have at least one medical school. *“If this low-resourced country wanted to build its first medical school, what would it need to do?”* was a question that burned a hole in my soul for the next several years.

From these personal beginnings, my interest in the topic grew through critical thought, collegial discussion, and wide reading, finally into a formal research journey to answer my burning question.

## 1.4 Research aims, questions, and objectives:

The aim of this research was to develop a deep understanding of the phenomenon of new medical school establishment in medically under-served areas. I wanted to understand the many factors at play in the process and how challenges could be approached. A key intention was to identify elements that were important for successful establishment of a new medical school.

Based on these aims, the research question posed for this study was:

***How are new medical schools successfully established in medically under-served areas?***

Additional guiding questions were:

- *Why was this medical school established in this location?*
- *What factors and processes required consideration?*
- *What challenges were faced by the founding team and how were these challenges approached?*
- *What factors particularly contributed to successful establishment?*

My research objectives were to develop a scholarly understanding and derive a way to structure information – both for myself and for future founders of new medical schools. In the next section, I summarise the research design employed to pursue these objectives (detailed in chapter 3 ‘Research Design’), but first I explain my use of the phrase ‘medically under-served’.

### **1.4.1 Reflexivity: Defining and hyphenating ‘medically under-served’**

There is no clear definition for the phrase ‘medically under-served’, but rather its meaning is implicit, and can be relative and variable by locality (Grobler et al., 2015; Strasser & Strasser, 2020). Thus, the phrase is commonly accepted as used and defined by the authors using and defining them (Grobler et al., 2015). Strasser and Strasser note, “Even though rural and underserved urban settings are distinctive, they have many commonalities” such as “limited access to health care with insufficient health workforce to address the health needs of the local population” (2020, p. 20). In my research, I have used the phrase ‘medically under-served areas’ to refer to regions that are characterised by a geo-socio-political situation of medical workforce shortage, inadequate access to health services, and poorer health outcomes (as described in section 1.2 'Background' above). Furthermore, I have accepted the self-report of my case study medical schools as being in medically under-served locations (see ‘Research Design’ section 3.4.1.2).

In published literature, the term ‘medically underserved’ does not usually include a hyphen in the word ‘underserved’ (e.g., in Larkins, 2015; Sabde et al., 2020; Strasser & Strasser, 2020; Training for Health Equity Network, 2011; University of California Riverside, 2008). However, I noted that ‘underserved’ was commonly misread as ‘undeserved’ and my research topic frequently required clarification. Thus, to make my meaning clear from the outset, I chose to hyphenate the word ‘under-served’ throughout this thesis.

Researcher reflexivity throughout the research process is essential in all research, and particularly so for Critical Realism. In this thesis, I employ short reflexivity sections such as this one, to better explain some aspect of my thinking and practice. I further explain Critical Realism in the next section.

## **1.5 Research design:**

### **1.5.1 Critical Realist philosophy:**

Medical education derives from two distinct parent fields – clinical medicine and higher education – and, thus, often needs to pragmatically straddle both parent areas in its philosophical approaches (Bligh & Anderson, 2000; Gordon, 2016; Prideaux, 2002; Thistlethwaite & Hammick, 2010; Varpio et al., 2020; Yardley & Dornan, 2012). As a clinician and educator, both medical science and social science influence my thinking and practice. I found I could comfortably espouse multiple epistemological views in harmonious parallel – depending on the practical need at hand. Critical Realism (CR) is a philosophical stance that aligns with this pragmatic pluralism.

Critical Realism (detailed in ‘Research Design’ section 3.3.1) is a philosophical approach that integrates an objective realist ontology with a subjective constructivist epistemology (Alexander, 2013; Archer et al., 1998; Bhaskar, 2011, 2018; Maxwell, 2012; Maxwell & Mittapalli, 2010). It contends that our understanding of the real world can be more or less accurate, but no position or theory can claim to be full and complete – that is, our knowledge can always be subject to revision (Archer et al., 1998; Bhaskar, 2011, 2018; Danermark et al., 2019; Maxwell, 2012; Pawson et al., 2004). We understand our world through both mental and physical constructs – both of which are equally real, even when not directly observable nor measurable (Maxwell, 2012). CR describes reality in terms of three nested layers of the ‘Empirical’ (where phenomena are experienced and interpreted); the ‘Actual’ (where factual events occur regardless of experience and interpretation); and the ‘Real’ (where generative mechanisms or causal forces produce the events and experiences of the Actual and the Empirical) (Alexander, 2013; Archer et al., 1998; Bhaskar, 2011, 2018; Danermark et al., 2019; Fletcher, 2017; Scambler, 2018). An important aim of CR research is to explain phenomena with reference to their underlying causal or generative mechanisms – both mental and physical (Archer et al., 1998; Bhaskar, 2011, 2018; Fletcher, 2017; Maxwell, 2012). CR takes a pragmatic, inclusive attitude towards different research approaches, without discounting any that have shown some ability to increase our understanding of the world and its causal mechanisms (Maxwell, 2012). The term ‘critical’ in Critical Realism encourages different thrusts of critique about the real world including philosophical critique of positivist and constructivist understandings; social critique of human relationships and power dynamics; and scientific critique of rationality, myths, and ignorance (Alexander, 2013; Archer et al., 1998; Bhaskar, 2011, 2018; Danermark et al., 2019).



As a Critical Realist, I employed both positivist and constructivist ways of thinking and researching, while acknowledging their limitations and constraints. I drew from both abstract and tangible data to understand my research phenomenon of new medical school establishment. I examined the physical processes and sociological mechanisms underpinning successful establishment – particularly elements of environmental structure, human agency, power dynamics, political strategy, and social accountability. I used existing theory to inform interpretations of empirical data and vice-versa to devise a novel conceptual framework for new medical school establishment – the ‘Eight C’s Framework’ (8CF). Before describing how I used business theories and the Multiple Case Study methodology to devise this original framework (in below sections 1.5.4 and 1.5.3 respectively), I first reflect on how Critical Realism shaped my academic writing style in this thesis, and on the implications of a socially accountable axiology.

#### ***1.5.1.1 Reflexivity: My use of mixed ‘voice’ in scientific writing***

As a Critical Realist, I embrace the utility and validity of both objective and subjective interpretations of reality – in myself and others. This is reflected in my approach to scientific writing where I fluidly move between the use of first-person, ‘subjective’ voice to third-person, ‘objective’ voice and back again. Zhou and Hall, encourage this in academic writing to highlight the “complementarity” of different scientific approaches and voices: “scholars can use the third-person and the first-person in tandem. ... as one mode’s strengths can complement the other’s shortcomings. ... The significance of these divergent writing voices corresponds to the multiple positions one may hold” (2016, p. 2).

Furthermore, as a medical doctor who values concepts of ‘whole-person health care’ in real life (Hutchinson et al., 2009; Kaslow et al., 2007), I wanted to recognise myself as a ‘whole-person academic’ in this critically real piece of research. Critical Realism acknowledges the full reality of feelings, emotions, and intentions that influence and impact what we see and experience in the real world (Maxwell, 2012). Zhou and Hall note that the writing voice can reveal “the author’s personality within the manuscript” (Brenner, 2014, as cited in Zhou & Hall, 2016, p. 3). My frequent use of first-person voice and revelations of personal motivations underpinning this research serve to portray my passion as a ‘whole-person academic’ as I undertook this Multiple Case Study.

### **1.5.2 Social Accountability axiology:**

Social accountability is defined as “the measures that are made by an organisation to be aware of concerns to the community surrounding it. It is reflected in a commitment to health and safety, civil and human rights and betterment of the community” (Law Dictionary, n.d.). Personal values related to social justice and pro-social action align me with scholarly considerations of social accountability. Furthermore, social accountability aligns with the emancipatory connotations of Critical Realism (Alexander, 2013; Archer et al., 1998; Bhaskar, 2011, 2018; Danermark et al., 2019). In ‘Research Design’ section 3.3.2, I further explain the implications of this axiology for my Multiple Case Study research, including the emphasis on ‘medically under-served areas’.

### **1.5.3 Multiple Case Study methodology:**

Case Study Research (CSR) is ideally suited to situations that have “a distinctive need to understand a complex social phenomenon ... and retain a holistic and real-world perspective” (Yin, 2014, p. 4). It is a preferred methodology for ‘how’ or ‘why’ research questions that call for extensive exploration and explanation of a multifaceted phenomenon (Thomas, 2011; Yin, 2014), such as the question posed for this research (see section 1.4 above).

Multiple Case Study (MCS) research is a variant of CSR that examines multiple cases of the phenomenon each within their own contexts (Stake, 2006; Thomas, 2011; Yin, 2014). Thus, it was an ideal choice for my investigation of new medical schools established in medically under-served areas around the world. I utilised targeted, purposive selection to identify and include three international case study medical schools in my research:

1. The Northern Territory Medical Program (NTMP) in Darwin, Australia
2. The Northern Ontario School of Medicine (NOSM) in rural Canada
3. The University of Botswana Faculty of Medicine (UBFoM) in Botswana

For each case study medical school, data was collected through site visits; observational data; confidential semi-structured interviews with key founding personnel; and the confidential gathering of documents and audio-visual materials relevant to establishment.

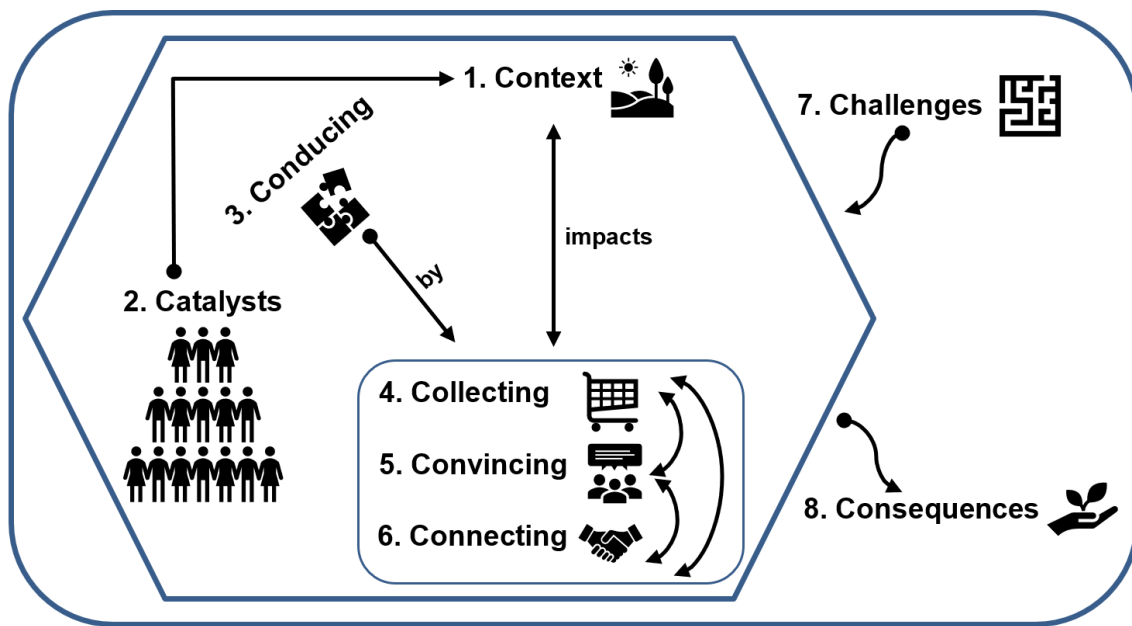
In Critical Realism, all data is treated as “evidence” from which inferences about the real world can be made (Maxwell, 2012, p. 103). Furthermore, both CSR and CR encourage engaging with existing theories to help explain what is going on in reality (Fletcher, 2017; Yin, 2014). Using theory to better understand the complex mechanics of medical education phenomena, is particularly important due to the potential educational and health impacts on individuals and societies (Samuel et al., 2020). In the next section, I explain how existing theories from the business domain assisted my understanding of successful new medical school establishment and together with the findings of my MCS, led to the derivation of a novel conceptual framework, the 8CF.

#### **1.5.4 Utilising theory and research to devise a novel framework:**

As will be explored in chapter 2 ‘Literature Review’, one significant gap in the medical education literature is that an overarching theory has never before been applied to the process of establishing a new medical school. To address this gap, I explored various theories of organisational and educational change and identified ‘Institutional Entrepreneurship’ (IE) from the business literature as the theory of best-fit (Pawson et al., 2004) (see ‘Research Design’ section 3.4.2.1). IE is defined as “the activities of actors who have an interest in particular institutional arrangements and who leverage resources to create new institutions or to transform existing ones” (Maguire et al., 2004, p. 657). It uses concepts from Institutional Theory and Entrepreneurship Theory to offer a deep understanding of how to successfully launch a new venture and initiate complex institutional change (Garud et al., 2007).

A major contribution of this thesis is my original ‘Eight C’s Framework’ (8CF) for successful new medical school establishment (detailed in ‘Research Design’ section 3.4.2.3), that I derived by combining the theoretical concepts of IE and the empirical findings of my case study research. 8CF outlines eight important considerations when establishing new medical schools: Context, Catalysts, Conducing, Connecting, Convincing, Collecting, Challenges, and Consequences (see Figure 1-3).

Figure 1-3: Concept Map of the Eight C's Framework (8CF)



(© Author)

8CF was useful as an analytical framework, to develop a deep and multifaceted understanding of how each case study medical school was successfully established in their medically under-served regions. An answer to my research question, “**How are new medical schools successfully established in medically under-served areas?**”, can be broadly summarised using the elements of 8CF:

*New medical schools are successfully established in medically under-served areas when Catalysts act within their Contexts to undertake various tasks of Conducing, Convincing, Collecting, and Connecting in order to produce desired Consequences and overcome Challenges.*

Paring back the layers of this broad summary facilitated an in-depth discussion of the underpinning mechanisms of structure, agency, power, and politics, and how social accountability can draw these together for new medical schools in medically under-served regions (see chapter 8 ‘Discussion’).

By providing a theory-based and empirically-supported understanding of the system-wide considerations when establishing a new medical school in an area of need, 8CF could also be useful as a strategic framework for policy makers, government officials, institutional administrators, university academics, health service clinicians, and medically under-served communities. Furthermore, 8CF could potentially be generalised for other ventures of establishment and entrepreneurship in other domains and disciplines. In the next section, I outline several other original contributions of my research.

## **1.6 Significance of this research:**

Several original contributions are identifiable from my research. They are arranged as theoretical, methodological, empirical, and practical contributions below.

### **1.6.1 Theoretical original contributions:**

- I have reviewed the literature on a topic that has never been reviewed before.
- I have identified and applied a theoretical framework for the process of establishing a new medical school, by borrowing theory from the business domain.
- I have adapted and extended Institutional Entrepreneurship theory – that has never before been applied to new medical schools – into a novel conceptual framework for their creation.
- My novel framework and empirical findings might have application in other cross-domain, trans-disciplinary ventures of establishment, innovation, and entrepreneurship.

### **1.6.2 Methodological original contributions:**

There is a dearth of research conducted on the process of new medical school establishment, particularly in medically under-served regions. Only a single large Multiple Case Study was identified in the literature, with an unknown philosophical stance and covering two countries (USA and Canada) within a single continent (detailed in 'Literature Review' section 2.3.2).

- I have conducted Multiple Case Study research in medically under-served contexts spanning three countries and continents.
- I have conducted my research with a Critical Realist philosophy.

### **1.6.3 Empirical original contributions:**

- My empirical findings can contribute to the body of knowledge on establishing new medical schools, particularly in medically under-served areas.
- My empirical findings will address a significant gap in the medical education literature by illuminating how to go about obtaining the initial approval to proceed with establishing a new medical school from governing authorities.
- My empirical findings will identify a further gap in the medical education literature regarding the personal costs and burnout frequently experienced by founders of new medical schools.
- Several other aspects not previously discussed in the literature that my research will elucidate include:
  - the socio-political, economic, and organisational complexities caused by geographical isolation
  - the reciprocal opportunity for a new medical school to improve the processes and standards of accreditation bodies
  - the 'mission critical' nature of technology for distributed sites and the educational inequities that could result when the technology failed for some students but not others

- My empirical findings will uncover other unique challenges for consideration when establishing new medical schools such as:
  - environmental disruptions of technology (e.g., “the ants ate the wiring”)
  - social disruptions of the medical school (e.g., “the parents of the students wanted to close the new medical school so that their children would be sent abroad to train instead”)
  - implementing a social vision can work against untested stakeholders (e.g., “Indigenous students were admitted without sufficient benchmarking and preparation resulting in unforeseen difficulties for students and staff”)
  - inappropriate infrastructure can work against the social ethos and educational aims of the new medical school (e.g., “building a new, high-end teaching hospital can become a proxy for good medical education and could entice people away from a focus on rural, community-based practice”)

#### **1.6.4 Practical original contributions:**

- I have devised a theory-based, empirically-supported conceptual framework with a system-wide view of new medical school establishment that could be used by all levels of stakeholders including policy makers, government officials, institutional administrators, university academics, health service clinicians, and communities to structure their own strategic approaches.
- I have collated a suite of practical strategies pertaining to new medical school establishment in medically under-served areas.

### **1.7 Summary of chapter and thesis structure:**

In this chapter introducing my thesis, I have set the scene for my research including its academic and personal backgrounds, its overall design, and its original contributions. I conclude this chapter with a summary of each chapter of my thesis below.

In chapter 2, I present a scoping review of the medical education literature on the topic of new medical school establishment and identify several gaps in the literature including no previous literature reviews; no identification of theories applicable to the process; paucity of research on the process; limited coverage of the ways to gain initial approval to proceed from governing authorities; and poor reporting of the adverse effects and personal costs experienced by founders of new medical schools. I present the results of my thematic analysis of the literature, collated, and synthesised into thirteen key considerations, which served as an initial framework of understanding for the process of new medical school establishment.

In chapter 3, I detail my research design including the Critical Realist philosophy, Social Accountability axiology, and the Multiple Case Study methodology. I explain how I derived a novel 8 C's framework to examine my research phenomenon based on business theories and empirical findings from my case study data. I describe how I used Critical Realist analytical approaches to understand the causal or generative mechanisms underpinning the successful establishment of new medical schools in medically under-served areas. I also discuss Critical Realist approaches to validity in my research.

Chapters 4, 5, and 6 will present each of my case studies – NTMP in Australia (chapter 4), NOSM in Canada (chapter 5), and UBFoM in Botswana (chapter 6). Each chapter will begin with an overview of the medical school and then a detailed description of the case, structured around the Eight C's Framework. For each medical school the Context and Catalysts will be outlined. The activities and processes involved with Conducting, Convincing, Collecting, and Connecting will be explained. In these and subsequent chapters, the sections on Connecting, Convincing, and Collecting will deliberately not follow a consistent order from chapter to chapter to underscore their interleaved and interwoven nature, and to highlight that they are usually undertaken in a non-linear fashion. Then, the Challenges and positive Consequences experienced by the medical school will be discussed. Each case chapter will conclude with a discussion of the strengths and limitations of the case study.



In chapter 7, I present the findings of my cross-case analysis, comparing and contrasting my case studies against each other as well as against the medical education literature on new medical school establishment. Again, I use 8CF as an organising device for this chapter. Performing cross-case analysis supports the validity of the findings in each case and helps determine how causal relationships and generative mechanisms emerged from the data.

In chapter 8, I synthesise the findings of my Multiple Case Study to discuss the answer to my research question, “**How are new medical schools successfully established in medically under-served areas?**” I summarise with a broad answer using the concepts of 8CF: “*New medical schools are successfully established in medically under-served areas when Catalysts act within their Contexts to undertake various tasks of Conducting, Convincing, Collecting, and Connecting in order to overcome Challenges and produce desired Consequences*”. I then pose several questions to help unpack the deeper considerations and mechanisms of my research phenomenon:

- Who can be a Catalyst and how do they become one?
- What makes the Context fertile or hostile for a new medical school?
- Why is Conducting so imperative?
- What socio-political devices are helpful in Convincing, Connecting, and Collecting?
- What mechanisms help to produce desirable Consequences and overcome Challenges?

I draw from Critical Realist philosophy, Institutional Entrepreneurship theory, and Social Accountability axiology to discuss key insights regarding the roles of environmental structure, human agency, power dynamics, and political strategy in successful establishment. I illustrate how the 8CF can be systematically and strategically used to assist founding teams of new medical schools and note the potential for cross-domain, trans-disciplinary applications of my research. Finally, I critique my research including my use of theory, the validity of my research, and its strengths and limitations.

In the concluding chapter 9, I summarise my thesis argument, the findings of my research, my original contributions to research, and areas for future research. I conclude with personal reflections, closing the loop from the personal beginnings of my research journey.

## 2 LITERATURE REVIEW

### 2.1 Introduction to chapter:

Understanding what is already known and where the knowledge and publication gaps are, is an essential starting point for any research. What does the medical education literature say about how new medical schools are established? What literature is helpful for founding teams seeking to establish a new medical school? What are the key factors that need to be considered when establishing a new medical school? This chapter addresses these questions with a scoping review of the medical education literature on the topic of new medical school establishment. To date, there are no prior literature reviews on the process of establishing a new medical school, thereby demonstrating the evidence-base for this medical education activity has not been robustly critiqued. This is a major knowledge and research gap.

In this chapter, I explain my choice to undertake a scoping review of the literature and describe its methodology and findings. Throughout the chapter, I note the implications for medically under-served areas. I identify that 1) literature proliferation reflects socio-political forces regarding physician supply and numbers over time; 2) the literature is empirically and theoretically under-developed; 3) thirteen key considerations are useful when establishing a new medical school. I critique the strengths and limitations of this scoping review and then close with a summary of the identified gaps in the literature and how this thesis seeks to address each one.

## 2.2 Scoping review methodology:

An initial background search to get a feel for the literature (Pawson et al., 2004, 2005) was conducted in May 2015. This search identified that there were no prior literature reviews on the process of establishing a new medical school. Furthermore, authors rarely reported a research methodology to their writings on the topic nor applied any theoretical frameworks to the process of establishing a new medical school. Thus, an exploratory scoping review of the medical education literature, to assess the extent of the available evidence, to organise it into categories, to synthesise the findings, and highlight gaps, was appropriate for my research, more so than a systematic review to determine the strength of published evidence or a narrative review [to critique current knowledge](#). In this section, I outline scoping review methodology, following the prescribed five steps (Arksey & O'Malley, 2005; Levac et al., 2010; Peters et al., 2020):

1. Identifying the review research question
2. Identifying relevant studies/articles
3. Selecting the studies/articles
4. Charting the data
5. Collating, summarising, and reporting results

The sixth optional step of 'Consultation' (Levac et al., 2010; Peters et al., 2020) was beyond the scope of this doctoral research but could be an area for future extension.

### **2.2.1 Review questions:**

Scoping reviews have great utility in mapping the size, variety, and nature of the existing literature, particularly when a topic has not been reviewed before or when the information is likely to be broad, complex, and heterogenous (Arksey & O'Malley, 2005; Munn et al., 2018; Peters et al., 2015; Peters et al., 2020; Tricco et al., 2018). Furthermore, scoping reviews are useful for identifying and synthesising the key characteristics or factors related to a broad concept (Arksey & O'Malley, 2005; Munn et al., 2018; Peters et al., 2015; Peters et al., 2020; Tricco et al., 2018). Thus, this type of literature review was ideal to answer the questions posed at the beginning of this chapter:

1. *What does the medical education literature say about how new medical schools are established?*
2. *What literature is helpful for founding teams seeking to establish a new medical school?*
3. *What are the key factors that need to be considered when establishing a new medical school?*

The qualifying phrase, “in medically under-served areas”, was deliberately left out for this stage of my research, with intention to understand the whole before focusing on the subset. However, throughout the chapter, I have highlighted the implications of my review findings for medically under-served areas.

### **2.2.2 Search strategy:**

Databases such as Ovid MEDLINE(R) In-Process & Other Non-Indexed Citations, Ovid MEDLINE(R) 1946 to Present, Scopus, Web of Science, ProQuest, and the Cochrane Library of Systematic Reviews were searched at two time points – first in May 2015 and again in January 2021. The same search string was used for each database, applying the appropriate syntax for the adjacency operators (see Table 2-1). The searches were limited to English-language articles only, but no limits were set on publication types and grey literature was included. No limits were set on publication dates when the searches were run in 2015, but in 2021, publication dates were limited to ‘2015 to current’.

**Table 2-1: Database search strings**

Database	Search string
<b>Medline</b>	(medic*) adj2 (school* OR college* OR program* OR course*) adj2 (new OR inaugural* OR first OR initial*) AND (establish* OR set* up OR found* OR creat* OR plan* OR commenc* OR build* OR design* OR start*)
<b>Scopus</b>	(medic*) W/2 (school* OR college* OR program* OR course*) W/2 (new OR inaugural* OR first OR initial*) AND (establish* OR “set* up” OR found* OR creat* OR plan* OR commenc* OR build* OR design* OR start*)
<b>Web of Science &amp; Cochrane Library of Systematic Reviews &amp; ProQuest</b>	(medic*) NEAR/2 (school* OR college* OR program* OR course*) NEAR/2 (new OR inaugural* OR first OR initial*) AND (establish* OR set* up OR found* OR creat* OR plan* OR commenc* OR build* OR design* OR start*)

The ProQuest search in both 2015 and 2021 retrieved a prohibitively large number of results (156,966 and 6841 respectively) so some additional limitations were imposed for this database only (see Table 2-2).

**Table 2-2: Additional limitations set for ProQuest searches**

<b>Source type</b>	Books, Conference Papers & Proceedings, Dissertations & Theses, Scholarly Journals
<b>Document type</b>	Annual Report, Article, Book, Book Chapter, Business Plan, Case Study, Conference Paper, Conference Proceeding, Dissertation/Thesis, Government & Official Document, Literature Review, Market Report, Market Research, Report, Review
<b>Search</b>	Limited to abstract only

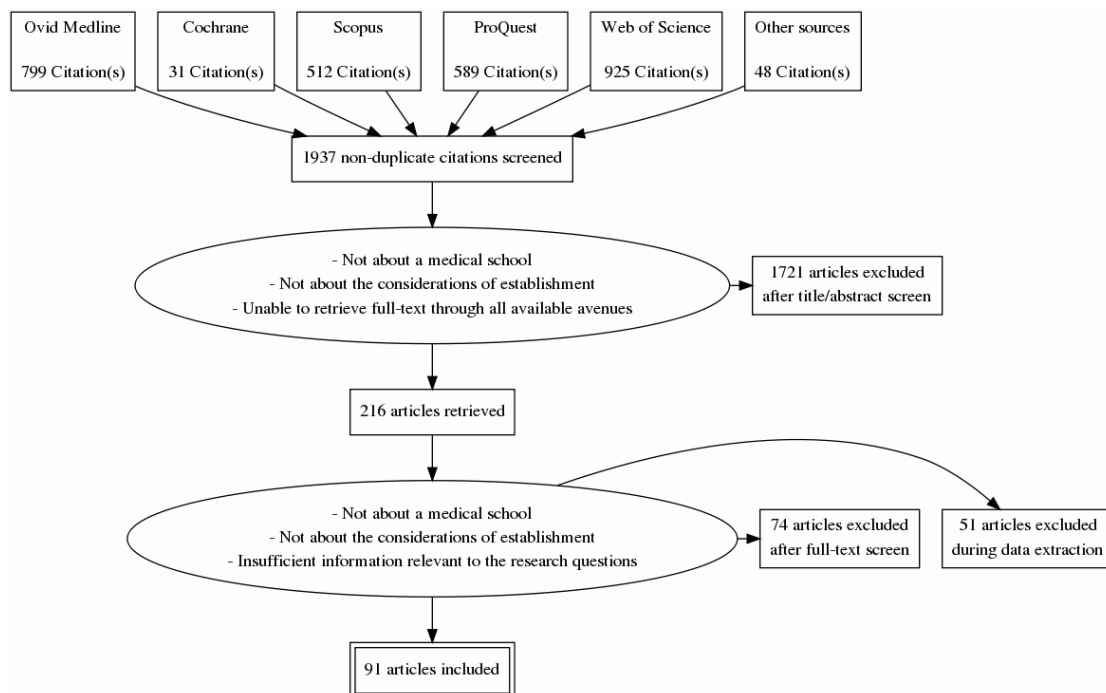
Further articles were identified through manual processes such as bibliographic searches, online searches (such as Google and Google Scholar searches), journal content alerts, medical school websites, and personal contacts. Articles about the case study medical schools found during the data collection stages of this research were also considered for inclusion.

### **2.2.3 Article selection:**

Inclusion and exclusion of articles for this topic and literature set, depended on judgements of their suitability in answering the review questions rather than on clear-cut methodological criteria or critical appraisal checklists (Eva, 2009; Harden et al., 1999; Pawson et al., 2005; Yardley & Dornan, 2012). This is a common approach for reviews of complex educational interventions that are not easily amenable to methodological nor contextual standardisation (Education Group for Guidelines on Evaluation, 1999; Eva, 2009; Harden et al., 1999; Pawson et al., 2005; Yardley & Dornan, 2012). This approach is also consistent with scoping review methodology where inclusion and exclusion criteria can be devised both *a priori* as well as *post hoc*, taking advantage of increasing familiarity with the literature to determine relevance (Arksey & O'Malley, 2005; Levac et al., 2010; Sucharew & Macaluso, 2019) and “best fit” for the review questions (Arksey & O'Malley, 2005, p. 26).

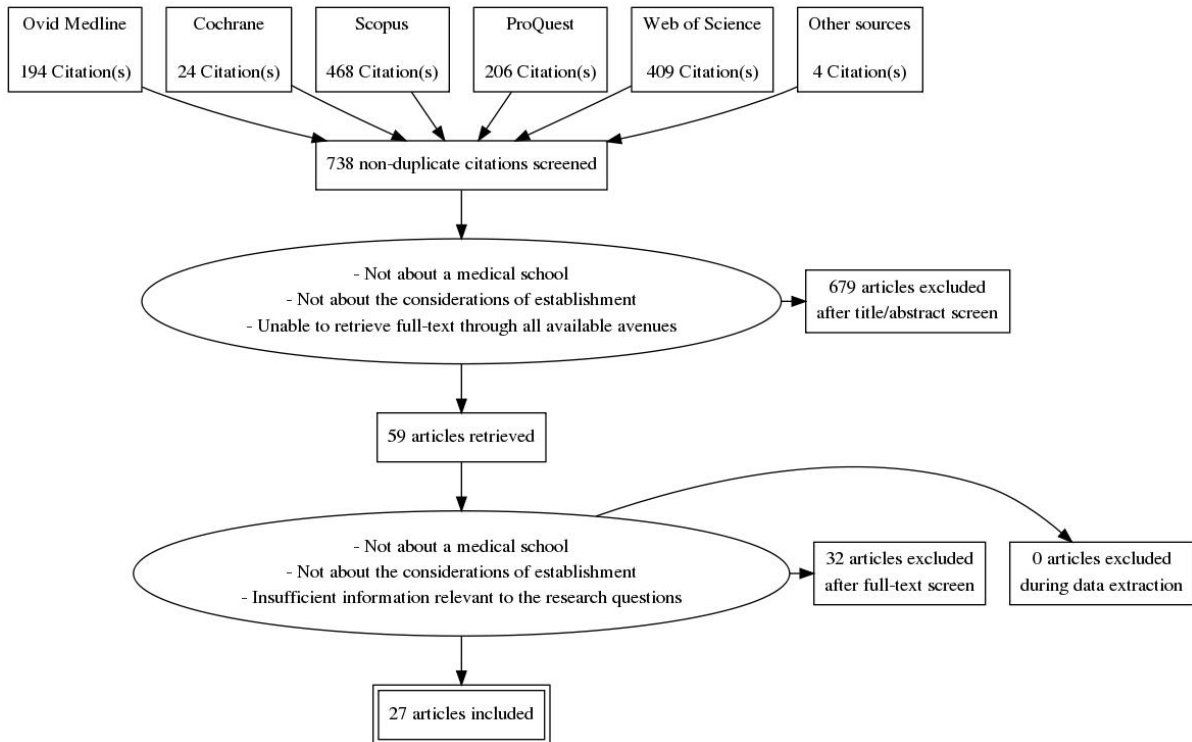
Thus, articles were chosen for this scoping review if they pertained to the overarching considerations of establishing a new medical school and were excluded if they were not about a new medical school or not about the factors and processes involved with establishment of one. Articles were also excluded if the full-text could not be retrieved through all the available search methods and library services (such as Findit@Flinders, Google, Google Scholar, EndNote Find Full Text, Flinders Medical Library physical journal collections, and Flinders University Document Delivery Services). Some articles that focused on a single aspect of a new medical school’s functioning (e.g., curricular elements or resourcing aspects) were included if they contributed vital information for the thematic analysis (for example, Nausheen et al., 2018, on staff retention) or excluded if they did not. Figure 2-1 and Figure 2-2 summarise the numbers of articles retrieved in 2015 (no date limits) and 2021 (publication dates limited from 2015 to current) respectively, through PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) flow charts:

**Figure 2-1: May 2015 PRISMA Flow Chart**



(© Author)

Figure 2-2: January 2021 PRISMA Flow Chart



(© Author)

A total of 118 (91 + 27) articles were retrieved from the two literature searches combined. This included forty (40) articles published in the 20<sup>th</sup> century and seventy-eight (78) articles published in the 21<sup>st</sup> century. For this scoping review, the 40 articles published last century were included despite their age. However, for the thematic analysis conducted under the ‘collating, summarising, and reporting’ step, in order to gain the most relevant and contemporary perspectives, only the 78 articles published this century were analysed (see sections 2.2.5 and 2.3.3 below).



#### **2.2.4 Charting the data:**

Charting the data involved examining the retrieved articles for the following extraction fields:

- Authors
- Year of publication
- Aim/purpose of article
- Type of article (e.g., advice/opinion, report, accreditation standards, research, etc.)
- Research methodology used
- Theoretical framework identified

Software such as Microsoft Excel and EndNote X7 and X9 were used to create a spreadsheet with this information (see Appendix 11.1).

#### **2.2.5 Collating, summarising, and reporting the results:**

Collating and summarising the data were split into two parts to answer the second and third review questions respectively (*What literature is helpful for founding teams seeking to establish a new medical school?* and *What are the key factors that need to be considered when establishing a new medical school?*). The first part sought to understand the nature and variety of the literature by using Microsoft Excel to structurally analyse all the articles (n=118) identified via the two literature searches (see Appendix 11.1). The structural analysis involved sorting, counting, and chart-drawing.

The second part comprised a thematic analysis of the literature to produce a 'narrative' review of the topic (Arksey & O'Malley, 2005; Eva, 2008). To gain the most relevant and contemporary perspectives of new medical school establishment, the articles included for this part were limited to those published in the new millennium only – that is, between 2000 and 2021 (78 articles). Combined deductive and inductive approaches were used for the analysis with the assistance of software such as EndNote X7 and X9, Microsoft Word, Microsoft Excel, and XMind Pro 7. Initial broad deductive categories such as 'costs', 'staff', 'curriculum', 'students', 'buildings', and 'accreditation' were identified through simple brainstorming of the economic, human, material, and educational factors to be considered when establishing a new medical school. Iterating through combined deductive and inductive initial coding (first-cycle, open-ended, tentative, provisional coding) followed by second-cycle coding (rearranging and reclassifying codes) (Saldaña, 2009), helped thematically identify thirteen key considerations when establishing new medical schools. The literature published prior to the year 2000 (40 articles), was compared against this analysis and inferences drawn. The results of this scoping review and the themes that emerged are outlined in the next section.

## **2.3 Scoping review results:**

The key findings of this scoping review were that:

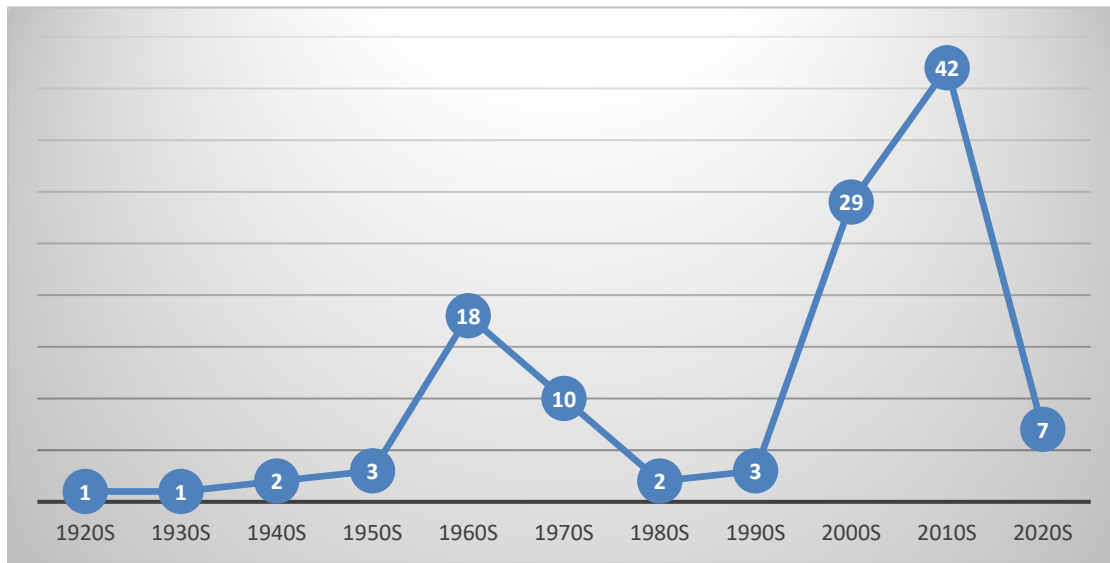
1. literature proliferation reflected the socio-political forces regarding doctor supply and physician numbers over time
2. the literature was empirically and theoretically under-developed
3. thirteen key considerations when establishing a new medical school were identified

Each finding is detailed below.

### **2.3.1 Literature proliferation reflected socio-political forces:**

Graphing the literature by publication date (see Figure 2-3) revealed there was some interest in medical school establishment in the 1960s; a major lull in the '80s and '90s; but a resurgence of interest in the new millennium.

Figure 2-3: Articles by Decade Published



(© Author)

This 'M-shaped' publication trend could be explained by the socio-political forces and the perception of doctor numbers during these time periods. Mid-20<sup>th</sup> century literature was rife with cries of doctor shortages and workforce maldistribution (Asano et al., 2001; *Case histories of ten new medical schools*, 1972; Davidson, 1965; "Expansion of medical education: The Karmel committee's report on medical schools," 1973; Farrer-Brown et al., 1958; Harrell, 1962; Leake, 1962; McKendry, 1999; "Pattern for a new medical school," 1962; "Prospectus for a new medical school," 1962; Putnam, 2006; Willard, 1960). As a result, there was a global spate of new medical schools in the 1960s and '70s and many existing medical schools expanded their capacities (Asano et al., 2001; Association of American Medical Colleges, 2012; *Case histories of ten new medical schools*, 1972; Davidson, 1965; Farrer-Brown et al., 1958; Harrell, 1962; Leake, 1962; Norris et al., 2006; "Pattern for a new medical school," 1962; "Prospectus for a new medical school," 1962; Romano, 2001; Smith, 2009; Smythe, 1972; Whitcomb, 2009, 2013, 2020; Willard, 1960).

In the '80s and '90s, however, several reports from individual countries, of gross physician over-supply led to a “plateau phase” (Smith, 2009, p. 230) with very few new medical schools opening globally (Asano et al., 2001; Dupper et al., 2016; Furukawa et al., 2017; Ginsburg, 1998; Kwizera et al., 2005; McKendry, 1999; Olds & Barton, 2015; Putnam, 2006; Romano, 2001; Smith, 2009; Tesson et al., 2009; Whitcomb, 2009, 2010, 2020; Worley & Murray, 2011). Countries like the United States (US or USA) even closed some existing medical schools (Association of American Medical Colleges, 2012; Romano, 2001; Smith, 2009; Whitcomb, 2009).

At the close of the 20<sup>th</sup> century, however, the predicted doctor surpluses did not eventuate. Expanding populations, improved healthcare technologies, increased healthcare demand, and changing workforce patterns outpaced workforce supply in many countries (Karle, 2010; Rizwan et al., 2018; Romano, 2001; Smith, 2009). Impending workforce deficits and/or maldistributions were once again recognised as problems and the 21<sup>st</sup> century has seen yet another global spate of new medical schools (Bin Abdulrahman & Saleh, 2015; Castelo-Branco et al., 2016; Colquhoun et al., 2009; Drobac & Morse, 2016; Dupper et al., 2016; Evans & Watt, 2005; Hays et al., 2003; Howe et al., 2004; Hurt & Harris, 2005; Lanphear & Strasser, 2008; Lee, 2005; McKendry, 1999; Mokone et al., 2014; Norris et al., 2006; Olds & Barton, 2015; Reis et al., 2009; Rizwan et al., 2018; Romano, 2001; Smego et al., 2010; Smith, 2009; Snadden et al., 2011; Tesson et al., 2009; Whitcomb, 2009, 2010, 2013, 2018).

Data from the World Health Organization (WHO) (Karle, 2010) and the Foundation for the Advancement of International Medical Education (FAIMER) (Boulet et al., 2007; Duvivier et al., 2014) showed that the new millennium averages approximately 95 new medical schools per year while last century averaged approximately 23 new medical schools per year (see Table 2-3). More current figures could not be obtained despite contacting FAIMER and the World Directory of Medical Schools (WDOMS) directly. Data from the USA suggested that their new-millennial spate of 29 new medical schools (Whitcomb, 2020) had slowed down with very few likely to be established in upcoming years (Whitcomb, 2018).

**Table 2-3: Numbers of Medical Schools in the World**

	<b>1953*</b>	<b>2000*</b>	<b>2007^</b>	<b>2014^</b>
<b>Globally</b>	566	1642	1935	2597
<b>Countries with at least one medical school</b>			169	183
<b>Countries with none</b>			66	24
<b>Number of new medical schools in this interval</b>	1076		662	
<b>Average new per annum in this interval</b>	~23		~95	

(\*WHO data ^FAIMER data)

Increased establishments of new medical schools in the new millennium were reflected in the uptick of articles published in the 2010s (see Figure 2-3 above). Despite this increased interest, there was a dearth of scholarship and research in the literature, as I describe in the next section.

### **2.3.2 Empirically and theoretically under-developed literature:**

The literature on establishing new medical schools was empirically and theoretically under-developed with articles being primarily descriptive pieces by founding deans or other leaders of new medical schools, outlining personal and institutional experiences without report of research methodologies nor underpinning theoretical frameworks. Table 2-4 categorises the different types of articles retrieved for this scoping review.

**Table 2-4: Types of Publications on New Medical School Establishment**

<b>Type</b>	<b>1900s</b>	<b>2000s</b>	<b>Total</b>
Advice/opinions from experienced experts	17	7	<b>24</b>
Reports from specific new medical schools	16	37	<b>53</b>
Reports from an authoritative organisation	1	4	<b>5</b>
Discussion of national/regional situation	1	6	<b>7</b>
Discussion of global situation	0	3	<b>3</b>
Accreditation standards & guidelines	0	6	<b>6</b>
Research articles	1	10	<b>11</b>
Other (letter-to-editor, news article, prospectus, proposal, historical account, commentary, etc.)	4	5	<b>9</b>
<b>Total</b>	<b>40</b>	<b>78</b>	<b>118</b>

Advice/opinion articles outlined the perspectives of leaders who had been involved with establishing one or more new medical schools. Reports from specific new medical schools described one or several aspects of establishment such as staffing, curriculum design, or admissions procedures. Reports from authoritative organisations came from organisations such as the World Federation for Medical Education (reporting their efforts to define international standards); the Association of American Medical Colleges (summarising the experiences of sixteen new medical schools); the Josiah Macy, Jr. Foundation (who commissioned a large multiple case study); and the Australian Medical Council (who collated the key accreditation challenges facing new medical schools). Discussions of the national/regional situation summarised issues such as workforce shortages and maldistribution; medical education trends; medical school or graduate numbers; and prospects for new medical schools. Similar issues were discussed in the papers on the global situation. Accreditation guidelines listed standards that were categorised into various domains such as mission and values; educational program; student assessment; admissions processes; staffing; evaluation; and governance and administration.

Several of the eleven research articles related primarily to a single aspect of a new medical school such as start-up expenditures (Smythe, 1972), staff retention factors (Nausheen et al., 2018), student experiences (Delgado et al., 2017), or a specific curriculum element (Colquhoun et al., 2009; Lockyer & Patterson, 2005). A large multiple case study commissioned by the Josiah Macy, Jr. Foundation on twenty-nine new medical schools established in the United States in the new millennium produced several articles and reports (Whitcomb, 2009, 2010, 2013, 2018). The Josiah Macy, Jr. Foundation also published a collation of ten case histories (*Case histories of ten new medical schools*, 1972) written by ten founding deans without a standard format for each, thus, this source was categorised as 'reports from specific programs' rather than multiple case study research. Two sources were reported as retrospective single case studies (Cristobal & Worley, 2012; Tesson et al., 2009). It could also be argued that all the reports from specific new medical schools were a type of single case study even if not explicitly noted as such nor specifically using case study research methods.

None of the new medical schools reported a research methodology associated with the overarching process of establishment. Furthermore, none of the articles proposed a theoretical framework that could underpin the process. Even the accreditation standards (Australian Medical Council, 2012; Liaison Committee on Medical Education, 2006, 2008, 2020; World Federation for Medical Education, 2015, 2020) did not explicate the evidence-base behind their "predetermined standards of structure, process and achievement" (Frenk et al., 2010, p. 1938).

Despite the lack of empirical and theoretical foundations to the literature, there can still be substantial relevance and utility in experience-based evidence for medical education initiatives (Eva, 2009; Harden et al., 1999). The accreditation guidelines prescribed 'what' standards needed to be met without necessarily describing 'how' to meet those standards. The advisory articles and reports, on the other hand, offered practical suggestions and strategic tips on 'how' to go about establishing a new medical school without necessarily covering all the aspects of 'what' was required. Acknowledging the practical relevance and utility of this experience-based literature enabled the thematic analysis presented next.

### 2.3.3 Key considerations when establishing a new medical school:

Thematic analysis of the literature published since the year 2000 revealed thirteen factors that need to be considered when establishing a new medical school (see Table 2-5). Figure 2-4 depicts these considerations as a spoke diagram to indicate there was no specific order nor hierarchy to this initial framework of understanding. Each consideration is explored in detail below.

Figure 2-4: Thirteen Key Considerations of New Medical School Establishment (13KCs)



(© Author)



**Table 2-5: Thirteen Key Considerations of New Medical School Establishment (13KCs)**

1. Reasons for establishment	8. Student recruitment
2. Location choices	9. Curriculum design & implementation
3. Leadership & governance	10. Clinical training sites
4. Costs & funding	11. Buildings & facilities
5. Partnerships	12. Information & technology resources
6. Staffing	13. Accreditation
7. Student numbers	

### **2.3.3.1 Reasons for establishment:**

New medical schools cited multiple reasons for their establishment. Almost ubiquitously, workforce shortages and the maldistribution of doctors were discussed as their *raison d'être* (Association of American Medical Colleges, 2012; Bin Abdulrahman & Saleh, 2015; Castelo-Branco et al., 2016; Cathcart-Rake et al., 2017; Condon et al., 2017; Drobac & Morse, 2016; Fogarty et al., 2012; Furukawa et al., 2017; Hays & Sen Gupta, 2003; Hays et al., 2003; Howe et al., 2004; Hurt & Harris, 2005; Lanphear & Strasser, 2008; Lawrenson et al., 2017; Lawson et al., 2004; Lockyer & Patterson, 2005; Mokone et al., 2014; Olds & Barton, 2015; Penner, 2018; Pinder et al., 2008; Reis et al., 2009; Rizwan et al., 2018; Salter et al., 2016; Smego et al., 2010; Smith, 2009; Strasser & Lanphear, 2008; Strasser et al., 2009; Tesson et al., 2009; University of California Riverside, 2008; Whitcomb, 2009; Worley et al., 2019). The fact that most medical schools are over-subscribed by capable applicants, suggests there are large untapped student populations that could help meet these workforce needs (Gifford, 2007; Härtl et al., 2017; Hurt & Harris, 2005; Mullan, 2003; Romano, 2001). Moreover, a new medical school could serve to attract local diaspora back to the region (Pericleous, 2011) as well as other well-qualified personnel (Whitcomb, 2013).

Two other related and frequently cited reasons were to improve health services and respond to the health care needs of a specific community or region – particularly if they were medically under-served (Association of American Medical Colleges, 2012; Cristobal & Worley, 2012; Fogarty et al., 2012; Hamdy & Anderson, 2006; Härtl et al., 2017; Hays, 2001, 2018; Hays et al., 2003; Hays, Strasser, et al., 2019; Hurt & Harris, 2005; Karle, 2010; Lanphear & Strasser, 2008; Lawrenson et al., 2017; Lockyer & Patterson, 2005; Romano, 2001; Simoyan et al., 2011; Smego et al., 2010; Strasser & Lanphear, 2008; Strasser et al., 2009; Tesson et al., 2009; University of California Riverside, 2008; Whitcomb, 2009, 2010, 2013, 2018; Worley et al., 2019). For regions that are heavily dependent on either importing their physicians from assorted countries or sending their locals across the world for training, establishing a local medical school can improve the local health system, not only by providing sheer numbers of locally trained personnel but also by providing “uniformity for practising physicians” (Pericleous, 2011, p. 523).

Community development benefits were also frequently noted as reasons for establishment (Hamdy & Anderson, 2006; Reis et al., 2009; Whitcomb, 2009, 2018), particularly economic benefits (Karle, 2010; Smego et al., 2010; Snadden et al., 2011; Tesson et al., 2009; Whitcomb, 2009, 2010, 2013, 2018). Improving intellectual capital and educational opportunities were also important (Association of American Medical Colleges, 2012; Hamdy & Anderson, 2006; Härtl et al., 2017; Hays, Strasser, et al., 2019; Karle, 2010; Muula, 2006; Smego et al., 2010; Snadden et al., 2011; Worley et al., 2019). Cultural welfare and civic pride were noted in a few cases (Hamdy & Anderson, 2006; Karle, 2010; Lawson et al., 2004; Muula, 2006; Snadden et al., 2011). Moreover, strong social missions citing inclusion, diversity, social accountability, minority disadvantage, and ethnic disparities were driving forces for establishing many new medical schools (Association of American Medical Colleges, 2012; Drobac & Morse, 2016; Fogarty et al., 2012; Hays, 2018; Hays, Strasser, et al., 2019; Hurt & Harris, 2005; Lanphear & Strasser, 2008; Lawrenson et al., 2017; Mullan, 2003; Nausheen et al., 2018; Olds & Barton, 2015; Schuster et al., 2020; Simoyan et al., 2011; Strasser & Lanphear, 2008; Strasser et al., 2009; Tesson et al., 2009; University of California Riverside, 2008; Worley et al., 2019).

Having strong research mandates were *raisons d'être* for several new medical schools (Association of American Medical Colleges, 2012; Hays, 2001, 2018; Hays et al., 2003; Hays, Strasser, et al., 2019; Lawson et al., 2004; Nausheen et al., 2018; Pericleous, 2011; Strasser & Lanphear, 2008; Strasser et al., 2009; Tesson et al., 2009; University of California Riverside, 2008; Whitcomb, 2010, 2018; Williams et al., 2008). Furthermore, opportunities for medical education innovation and reform were also frequently cited as motivations for establishment (Association of American Medical Colleges, 2012; Bin Abdulrahman & Saleh, 2015; Drobac & Morse, 2016; Eichbaum, Nyarango, et al., 2014; Frenk et al., 2010; Hamdy & Anderson, 2006; Hays, 2018; Hays et al., 2003; Hays, Strasser, et al., 2019; Howe et al., 2004; Hurt & Harris, 2005; Lawson et al., 2004; Nausheen et al., 2018; Penner, 2018; Reis et al., 2009; Simoyan et al., 2011; Smith, 2009; Whitcomb, 2018; Williams et al., 2008).

Universities and health services often spear-headed the establishment of a new medical school for their own integral improvement and reputation (Cookson, 2013; Hays, 2018; Hays et al., 2003; Salter et al., 2016; Smego et al., 2010; Snadden et al., 2011; Whitcomb, 2009, 2010, 2013, 2018; Worley et al., 2019), because they were “likely to gain financial rewards, societal regard, and political credit” (Salter et al., 2016, p. 23). For some universities and health services, this prestige was the primary motivator even though other societal, medical, and economic benefits may have been prominent in their socio-political arguments for support and favour (Mangan, 2002; Whitcomb, 2009, 2010, 2013, 2018).

In some regions of the world, such as the Indian sub-continent and the Caribbean, private medical schools were more prolific than public institutions (Frenk et al., 2010; Karle, 2010). Although many private medical schools might be established for profit-making reasons (Frenk et al., 2010; Karle, 2010; Sabde et al., 2020; Smith, 2009; Whitcomb, 2009, 2018, 2020; World Federation for Medical Education, 2015), many others reported the same social motivations discussed above (Association of American Medical Colleges, 2012; Lawson et al., 2004; Simoyan et al., 2011; Smego et al., 2010; Whitcomb, 2009, 2010, 2013, 2018). Some were established by non-profit organisations for philanthropic or religious reasons (Association of American Medical Colleges, 2012; Drobac & Morse, 2016; Frenk et al., 2010; Karle, 2010; Mullan, 2003; Muula, 2006; Nausheen et al., 2018; Smego et al., 2010; Whitcomb, 2009, 2010, 2013, 2018). Additionally, some were the result of private-public partnerships (Association of American Medical Colleges, 2012; Frenk et al., 2010; Karle, 2010; Simoyan et al., 2011; Whitcomb, 2009, 2010, 2013).

Despite the many good reasons for establishing a new medical school, the literature did not clearly describe how the founding leaders went about obtaining the initial authoritative approval to proceed with establishment. This is a key issue uncovered by my research (see section 2.5 'Gaps in the literature' below). Furthermore, none of the articles retrieved for my scoping review explicitly referred to establishing their new medical school in a “medically under-served region”. By my own definition (see ‘Introduction’ section 1.4.1), a medically under-served region is characterised by medical workforce shortages, inadequate access to health services, and poorer health outcomes. My analysis identified that these were the cited reasons for establishing every new medical school discussed in the literature.

The reviewed literature discussed a few reasons to NOT establish a new medical school. A common argument against a new medical school was that it is cheaper and easier to just expand the capacity of an existing medical school (Condon et al., 2017; Lawrenson et al., 2017; McFee & Aust, 2005; Norris et al., 2006; Romano, 2001; Salter et al., 2016; Texas Higher Education Coordinating Board, 2008; Whitcomb, 2009, 2013, 2018). Similarly, it was thought that sending people out of the region to study medicine might be more expedient (Mokone et al., 2014; Pericleous, 2011). Some places were thought to have too small a population to warrant a new medical school, though it was acknowledged that even smaller populations sometimes had one or more medical schools already (Frenk et al., 2010; Karle, 2010; Muula, 2006; Pericleous, 2011). Similarly, some places were thought to be too poor and resource-constrained to establish a new medical school, though it was acknowledged that even poorer regions already had their own medical school (Frenk et al., 2010; Muula, 2006). Concerns that a new medical school would drain scarce resources and weaken the existing infrastructure of the university and/or health-service were also raised (Furukawa et al., 2017; Whitcomb, 2009). Whitcomb’s American multiple case study noted that groups who consider establishing a new medical school but then withdrew, often did so because they were unable to procure sufficient funds, clinical affiliations, and/or preliminary accreditation (Whitcomb, 2010, 2013). Finally, despite all the concerns of workforce shortages, some contradictions were observed in the literature with some writers reporting fears that a new medical school might cause a future glut of doctors (Furukawa et al., 2017; Pericleous, 2011), despite the lessons from history (as discussed in section 2.3.1 above).

### **2.3.3.2 Location choices:**

The location of the new medical school was quite a significant consideration, influenced by the reasons for establishment (as discussed in section 2.3.3.1 above) as well as the availability of resources like clinical training sites (see section 2.3.3.10 below) and staff (see section 2.3.3.6 below). Following the motivating reason of workforce shortages, new medical schools were commonly located in areas of workforce shortage – that is, in medically under-served areas (Bin Abdulrahman & Saleh, 2015; Cathcart-Rake et al., 2017; Chavez et al., 2012; Condon et al., 2017; Cristobal & Worley, 2012; Drobac & Morse, 2016; Field, 2011; Fogarty et al., 2012; Frenk et al., 2010; Furukawa et al., 2017; Härtl et al., 2017; Hays, 2001; Hays & Sen Gupta, 2003; Hays et al., 2003; Hays, McKinley, et al., 2019; Howe et al., 2004; Hurt & Harris, 2005; Lanphear & Strasser, 2008; Lawrenson et al., 2017; Lockyer & Patterson, 2005; Mokone et al., 2014; Olds & Barton, 2015; Penner, 2018; Reis et al., 2009; Smego et al., 2010; Smith, 2009; Strasser & Lanphear, 2008; Strasser et al., 2009; Tesson et al., 2009; University of California Riverside, 2008; Whitcomb, 2009, 2013, 2020; Worley et al., 2019).

Correspondingly, new medical schools were also commonly located within the community they were intended to serve (Association of American Medical Colleges, 2012; Cathcart-Rake et al., 2017; Chavez et al., 2012; Cristobal & Worley, 2012; Delgado et al., 2017; Drobac & Morse, 2016; Field, 2011; Fogarty et al., 2012; Frenk et al., 2010; Furukawa et al., 2017; Hays & Sen Gupta, 2003; Lanphear & Strasser, 2008; Mokone et al., 2014; Olds & Barton, 2015; Schuster et al., 2020; Simoyan et al., 2011; Smego et al., 2010; Snadden et al., 2011; Strasser & Lanphear, 2008; Strasser et al., 2009; Tesson et al., 2009; University of California Riverside, 2008; Whitcomb, 2009, 2013, 2018, 2020; Worley et al., 2019).

Ever since Flexner's influential 1910 report, which recommended that medical education be delivered through universities and academic hospitals, medical schools have been almost ubiquitously co-located with their parent university (Frenk et al., 2010; Karle, 2010; Whitcomb, 2020). Many new medical schools have continued this tradition (Association of American Medical Colleges, 2012; Lanphear & Strasser, 2008; Mokone et al., 2014; Olds & Barton, 2015; Salter et al., 2016; Whitcomb, 2009, 2013, 2018, 2020; Williams et al., 2008). However, nowadays universities are commonly distributed across multiple campuses/cities/regions (Whitcomb, 2020). Furthermore, medical schools commonly utilise various distributed health service facilities for their clinical training (Association of American Medical Colleges, 2012; Bin Abdulrahman & Saleh, 2015; Colquhoun et al., 2009; Condon et al., 2017; Cookson, 2013; Drobac & Morse, 2016; Fogarty et al., 2012; Frenk et al., 2010; Hamdy & Anderson, 2006; Härtl et al., 2017; Hays et al., 2003; Hays, McKinley, et al., 2019; Howe et al., 2004; Hurt & Harris, 2005; Karle, 2010; Kebaetse et al., 2014; Lanphear & Strasser, 2008; Lawrenson et al., 2017; Lawson et al., 2004; Lockyer & Patterson, 2005; Mangan, 2009; McFee & Aust, 2005; Mokone et al., 2014; Norris et al., 2006; Olds & Barton, 2015; Strasser & Lanphear, 2008; Strasser et al., 2009; Tesson et al., 2009; University of California Riverside, 2008; Whitcomb, 2009, 2013, 2018). Whitcomb noted that several new medical schools that developed as a partnership between a university and a health care facility, were preferentially located on the campus of the health facility rather than the university even when this was in a different town or city (2020). In 1970, the Carnegie Commission on Higher Education recommended that every community with a population of at least 350,000 should be the site of a university-affiliated hospital, because of the impact this could have on the local and regional community healthcare needs (as cited in Bin Abdulrahman & Saleh, 2015, p. 11). Thus, many new medical schools were deliberately designed to be distributed across several locations and communities (Lanphear & Strasser, 2008; Mokone et al., 2014; Smego et al., 2010; Snadden et al., 2011; Strasser & Lanphear, 2008; Strasser et al., 2009; Tesson et al., 2009; Whitcomb, 2009, 2013, 2018; Worley et al., 2019). These distributions spanned university locations as well as key health service and/or research locations (Association of American Medical Colleges, 2012; Colquhoun et al., 2009; Condon et al., 2017; Härtl et al., 2017; Hays, McKinley, et al., 2019; Hurt & Harris, 2005; McFee & Aust, 2005; Mokone et al., 2014; Nonailhada, 2020; Whitcomb, 2009, 2010, 2013, 2018, 2020; Williams et al., 2008; Worley et al., 2019).

In some cases, the location of the new medical school was chosen for other pragmatic reasons such as a central location for a multi-regional collaboration (Hamdy & Anderson, 2006) or a leased space from a different educational or business entity (Fogarty et al., 2012; Smego et al., 2010; Whitcomb, 2009, 2010, 2013; Worley et al., 2019). Some new medical schools also took advantage of a “greenfield of opportunity” (Association of American Medical Colleges, 2012, p. 56) to be located in an area being freshly developed as a multi-organisational biomedical complex (Whitcomb, 2009, 2013, 2018, 2020). Some new satellite medical schools were even established in overseas locations on disparate continents from the parent university (Field, 2011; Frenk et al., 2010; Gifford, 2007; Karle, 2010; Williams et al., 2008). This reflects a view that globalisation of professional education could lead to a trend where “physical location is less important than the quality of the education from a leading institution” (Frenk et al., 2010, p. 1949).

### **2.3.3.3 Leadership and governance:**

Crucial early steps were to hire the Founding Dean (or equivalent); appoint the leadership team; and set up steering committees and sub-committees (Association of American Medical Colleges, 2012; Bin Abdulrahman & Saleh, 2015; Cookson, 2013; Hamdy & Anderson, 2006; Härtl et al., 2017; Hays, Strasser, et al., 2019; Hurt & Harris, 2005; Khalil & Kibble, 2014; Lanphear & Strasser, 2008; Liaison Committee on Medical Education, 2006, 2008, 2020; Olds & Barton, 2015; Penner, 2018; Schuster et al., 2020; Strasser & Lanphear, 2008; Strasser et al., 2009; Tesson et al., 2009; University of California Riverside, 2008; Whitcomb, 2009, 2013, 2018; World Federation for Medical Education, 2015, 2020; Worley et al., 2019). Key appointments included senior leaders to oversee activities such as administration; finances; fund raising; curriculum; academic processes; faculty matters; clinical affiliations; student admissions; student support; research; graduate education; continuing education; educational resources; information technology; and business planning (Bin Abdulrahman & Saleh, 2015; Liaison Committee on Medical Education, 2006, 2008; Mokone et al., 2014).

The Founding Dean served as a focal point and was responsible for leading the whole team, coordinating all processes and addressing all the considerations (Bin Abdulrahman & Saleh, 2015; Cookson, 2013; Hamdy & Anderson, 2006; Liaison Committee on Medical Education, 2006; University of California Riverside, 2008; Whitcomb, 2009, 2018). The University of California at Riverside went as far as to say the Founding Dean was the “single most important force in the success of the campaign” (2008, p. 72). To ensure the success of the new medical school, it was recommended that the Founding Dean be given full authority, autonomy, and support from university leadership, including financially (Association of American Medical Colleges, 2012; Cookson, 2013; Liaison Committee on Medical Education, 2008, 2020; Penner, 2018; University of California Riverside, 2008; Worley et al., 2019).

Gathering the right team to help establish the new medical school was paramount (Cookson, 2013; Reis et al., 2009). Capable individuals were drawn from amongst the local clinicians; health service representatives; community and business leaders; university staff at the main and regional campuses; other leading regional, national, and international academics; local government nominees; and representatives from key medical societies (Cristobal & Worley, 2012; Fogarty et al., 2012; Härtl et al., 2017; Hurt & Harris, 2005; Khalil & Kibble, 2014; Lanphear & Strasser, 2008; Penner, 2018; Smego et al., 2010; Strasser & Lanphear, 2008; University of California Riverside, 2008; Whitcomb, 2009, 2013, 2018; World Federation for Medical Education, 2015, 2020). Although theories of leadership were not discussed in the literature, Hamdy and Anderson recognised that “institutional leadership is both a collective attribute and an expression of the leadership qualities of the individual members of the institution” (2006, p. 1089).



Members of the founding team needed diverse skills in leadership; communication; teamwork; governance and administration; resource management; stakeholder engagement; faculty support and development; research; and medical education (Association of American Medical Colleges, 2012; Bin Abdulrahman & Saleh, 2015; Hays, Strasser, et al., 2019; Khalil & Kibble, 2014; Lawson et al., 2004; Liaison Committee on Medical Education, 2008; Reis et al., 2009). They needed to “believe in the importance of the mission, ... share the vision, be strategically flexible, be innovative, be prepared to work with all partners to push the agenda along the planned path, and be willing to adapt development in response to inevitable challenges” (Snadden et al., 2011, pp. 526, 523). They needed tenacity, courage, enthusiasm, and energy to work tirelessly on a project of this magnitude that is likely to dominate their lives (Association of American Medical Colleges, 2012; Castelo-Branco et al., 2016; Reis et al., 2009; Snadden et al., 2011). Although founding leaders’ personal qualities were emphasised, the personal costs and burnout experienced by founding leaders were not mentioned in the literature – a key issue uncovered by my research (see section 2.5 'Gaps in the literature' below).

Previous medical education experience was considered essential for the founding leaders (Association of American Medical Colleges, 2012; Bin Abdulrahman & Saleh, 2015; Cookson, 2013; Härtl et al., 2017; Hays, Strasser, et al., 2019; Liaison Committee on Medical Education, 2008, 2020; University of California Riverside, 2008), while previous experience of establishing a new medical school or branch campus was highly desirable (Association of American Medical Colleges, 2012). Hays, Strasser, and Sen Gupta suggested the founding team needed collective medical education expertise in six domains of “student selection, student support, curriculum management, assessment, clinical placements, and evaluation/quality improvement” (2019, p. 400). Supporting and training the founding team in leadership; team process; curricular design; program evaluation; student assessment methods; instructional methodology; discipline content; research; and equity, inclusion and diversity, were recognised as important (Khalil & Kibble, 2014; Liaison Committee on Medical Education, 2008, 2020; Nonailada, 2020; Schuster et al., 2020).

Governance of the new medical school – that is, the institutional structure, processes, policies, and their implementations (World Federation for Medical Education, 2015, 2020) – needed to be structured well and defined clearly (Australian Medical Council, 2012; Lanphear & Strasser, 2008; Liaison Committee on Medical Education, 2006, 2008, 2020; Snadden et al., 2011; World Federation for Medical Education, 2000, 2015, 2020). While governance models varied depending on the local situation, “the more successful models have a clear, shared vision and mission, clear lines of communication and accountability, greater reliance on local decision-making to solve local implementation challenges, and clear guidance for resolving differences” (Snadden et al., 2011, p. 521).

#### **2.3.3.4 Costs and funding:**

Medical education is a very expensive business (Drobac & Morse, 2016; Frenk et al., 2010; Hays, 2001; Hays, Strasser, et al., 2019; Hurt & Harris, 2005; Mokone et al., 2014; Mullan, 2003; Muula, 2006; Norris et al., 2006; Pericleous, 2011; Romano, 2001; Strasser et al., 2009; Texas Higher Education Coordinating Board, 2008; Whitcomb, 2009, 2010). For a new medical school, two aspects of funding needed to be accounted for: 1) start-up or establishment costs; and 2) running or maintenance costs (Bin Abdulrahman & Saleh, 2015; Frenk et al., 2010; Hays, 2001; Hurt & Harris, 2005; Norris et al., 2006; Pericleous, 2011; Tesson et al., 2009; Texas Higher Education Coordinating Board, 2008; University of California Riverside, 2008; Whitcomb, 2009, 2013).

The 2010 Lancet Commission recounted a world average estimated expenditure of US\$122,000 per medical graduate which ranged from US\$14,000 (in China) to US\$497,000 (in North America) (Frenk et al., pp. 1936, 1937). Unit costs to establish a new medical school were also significant with establishment costs ranging between US\$75 million and US\$150 million (Bin Abdulrahman & Saleh, 2015; Hurt & Harris, 2005; Norris et al., 2006; Pericleous, 2011; Tesson et al., 2009; Texas Higher Education Coordinating Board, 2008; University of California Riverside, 2008; Whitcomb, 2009, 2013). Annual running costs ranged between US\$12 million and US\$168 million (Hurt & Harris, 2005; Norris et al., 2006; Pericleous, 2011; Tesson et al., 2009; Texas Higher Education Coordinating Board, 2008; University of California Riverside, 2008).

Given how expensive it is to establish and run medical schools, finding adequate funds was a significant challenge for many founding teams (Eichbaum, Bowa, et al., 2014; Frenk et al., 2010; Karle, 2010; Whitcomb, 2009, 2010, 2013, 2018, 2020). Multiple sources – both public and private – were usually required (Association of American Medical Colleges, 2012; Frenk et al., 2010; Hays, Strasser, et al., 2019; Karle, 2010; Liaison Committee on Medical Education, 2008, 2020; University of California Riverside, 2008; Whitcomb, 2009, 2013). Funding sources included federal and state government support; university funding; infrastructure development grants; research funding; philanthropic donations; endowments and bequests; international aid; student tuition fees; clinical revenue subsidies; and community fund-raising (Association of American Medical Colleges, 2012; Cristobal & Worley, 2012; Eichbaum, Bowa, et al., 2014; Eichbaum et al., 2015; Fogarty et al., 2012; Frenk et al., 2010; Hamdy & Anderson, 2006; Hays et al., 2003; Hays, Strasser, et al., 2019; Hurt & Harris, 2005; Lanphear & Strasser, 2008; Liaison Committee on Medical Education, 2008, 2020; Mokone et al., 2014; Norris et al., 2006; Pericleous, 2011; Simoyan et al., 2011; Smego et al., 2010; Snadden et al., 2011; Strasser & Lanphear, 2008; Strasser et al., 2009; Tesson et al., 2009; University of California Riverside, 2008; Whitcomb, 2009, 2013, 2018; Williams et al., 2008; Worley et al., 2019).

Partnerships between major stakeholders could help procure sufficient funds and other resources when one entity could not do so alone – for example, between the university and the health system or between two disparate universities (Association of American Medical Colleges, 2012; Howe et al., 2004; Tesson et al., 2009; Whitcomb, 2009, 2013, 2018). Sharing in-kind resources was another strategy to mitigate financial outlays – for example, sharing clinical, academic, and research personnel, or sharing physical spaces (Cathcart-Rake et al., 2017; Hamdy & Anderson, 2006; Hays, McKinley, et al., 2019; Hays, Strasser, et al., 2019; Lawson et al., 2004; Liaison Committee on Medical Education, 2020; Tesson et al., 2009; Whitcomb, 2020).

The large expense and rising costs of modern medical education was a major challenge for the world (Drobac & Morse, 2016; Frenk et al., 2010; Karle, 2010). Flexner's reforms to improve the quality of medical education and graduands a hundred years ago have also led to on-going high standards that are expert-centric and expensive to meet and maintain (Karle, 2010; Simoyan et al., 2011). This, in turn, has contributed to global inequities and inequalities of medical education and graduate quality (Drobac & Morse, 2016; Frenk et al., 2010; Karle, 2010; Rizwan et al., 2018). There is a great global need for lower cost solutions to this problem (Chavez et al., 2012; Drobac & Morse, 2016). Effective medical education need not always be so expensive (Cookson, 2013; Hays, Strasser, et al., 2019), however, cheaper designs may not be able to utilise some best-practice pedagogies (Karle, 2010). Nonetheless, some medical schools were able to operate effectually on lean budgets by sharing resources with other entities, or by appealing to the social-minded altruism of volunteer clinical staff (Cathcart-Rake et al., 2017; Cristobal & Worley, 2012).

#### **2.3.3.5 *Partnerships and relationships:***

Establishing a new medical school required the cooperation and collaboration of many invested stakeholders. A variety of internal and external stakeholders were identified including university councils, clinical training sites, health service entities, governmental authorities, regulatory bodies, funding sources, specialty training bodies, professional associations, other health professions, students, staff, Indigenous peoples, other minority groups, health consumers, and members of the public (Association of American Medical Colleges, 2012; Australian Medical Council, 2012; Frenk et al., 2010; Hays, 2001; Hays, Strasser, et al., 2019; Lanphear & Strasser, 2008; Smego et al., 2010; Strasser & Lanphear, 2008; Strasser et al., 2009; University of California Riverside, 2008; Whitcomb, 2009, 2013, 2018; World Federation for Medical Education, 2015, 2020).

Effectively engaging the varied stakeholders was quite challenging (Association of American Medical Colleges, 2012; Frenk et al., 2010; Hays, Strasser, et al., 2019; Penner, 2018; Snadden et al., 2011; Whitcomb, 2013). Snadden et al. advised that it required “finding common ground, creating a win–win relationship, building common vision, mission and goals, promoting ownership [and] acting on a set of agreed guiding principles” (listed as dot points in original) (2011, p. 520). Personal visitations and face-to-face meetings were important for relationship building (Lanphear & Strasser, 2008; Snadden et al., 2011) and “should be considered best practice” (Penner, 2018, p. 528). Good communication was paramount and regular reporting to stakeholders was an important engagement strategy (Association of American Medical Colleges, 2012; Cookson, 2013; Kebaetse et al., 2014; Snadden et al., 2011). The early adoption of “a communications and stakeholder engagement plan” was advised by the University of South Carolina School of Medicine Greenville (Association of American Medical Colleges, 2012, p. 125). Moreover, the stakeholder relationships needed continuous nurturing to ensure sustainability and longevity (Kebaetse et al., 2014; Snadden et al., 2011).

Clearly articulated, formal agreements with key stakeholders were usually required for accreditation (Australian Medical Council, 2012; Field, 2011; Liaison Committee on Medical Education, 2006, 2008, 2020; World Federation for Medical Education, 2000, 2015, 2020). Snadden et al. cautioned that while written and signed agreements that include conflict resolution mechanisms “may seem unnecessary during the initial enthusiasm that goes with new developments they will prove essential in time” (2011, p. 521). Tensions could particularly arise between main and branch campuses (Snadden et al., 2011) and between private-public partnerships that had inherently different governance policies and procedures (Whitcomb, 2013).

Four specific relationships and partnerships were especially important for the new medical school – with the parent university, health services, the local community, and with other institutions. Each is explicated below.

#### 2.3.3.5.1 Relationship to the parent university:

The literature was consistent in its call that the medical school must have a close but autonomous relationship with its parent university (Association of American Medical Colleges, 2012; Australian Medical Council, 2012; Cookson, 2013; Hamdy & Anderson, 2006; Liaison Committee on Medical Education, 2006; Salter et al., 2016; World Federation for Medical Education, 2015, 2020). The autonomy is required because “medical schools are qualitatively and quantitatively different to most other university departments”, since they have a number of unique concerns such as patient care and clinical staffing (Cookson, 2013, p. 715). When this distinctive nature is not well-understood by university leadership and/or other divisional leaders, it can lead to conflicts and frustrations for the new medical school (Association of American Medical Colleges, 2012; Cookson, 2013; Penner, 2018; Snadden et al., 2011).

#### 2.3.3.5.2 Partnering with health services:

Synergy between the health sector and the new medical school was quintessential (Association of American Medical Colleges, 2012; Australian Medical Council, 2012; Cookson, 2013; Hurt & Harris, 2005; Karle, 2010; Lanphear & Strasser, 2008; Smego et al., 2010; Snadden et al., 2011; University of California Riverside, 2008; Whitcomb, 2009, 2010, 2013, 2018, 2020; World Federation for Medical Education, 2000, 2015, 2020; Worley et al., 2019). The health sector provided vital real-world clinical learning environments for students while the medical school ensured its graduates were competent and work-ready in the service of society and the health sector (Association of American Medical Colleges, 2012; Australian Medical Council, 2012; Cookson, 2013). Symbiosis between the two, informed and improved medical education, while also “meeting community needs and advancing health equity agendas” (Lawrenson et al., 2017, p. 64).

Karle encouraged the “involvement of the full spectrum of the health care system in the educational process” (2010, p. 167) – that is, utilising all available health facilities regardless of size and scope to provide students with wide clinical exposure in varied settings (Fogarty et al., 2012; Hays et al., 2003; Lanphear & Strasser, 2008; Lawson et al., 2004; Norris et al., 2006; Olds & Barton, 2015; Whitcomb, 2009). For example, Hays, McKinley, and Sen Gupta encouraged affiliations with private health services and health-related community services such as funeral homes and domestic violence services (2019).

#### 2.3.3.5.3 Engaging the local community:

The importance of community engagement was recognised in the literature (Association of American Medical Colleges, 2012; Castelo-Branco et al., 2016; Condon et al., 2017; Fogarty et al., 2012; Hays et al., 2003; Hays, Strasser, et al., 2019; Hurt & Harris, 2005; Lanphear & Strasser, 2008; Lawrenson et al., 2017; Lawson et al., 2004; Norris et al., 2006; Olds & Barton, 2015; Simoyan et al., 2011; Snadden et al., 2011; Strasser & Lanphear, 2008; Strasser et al., 2009; Tesson et al., 2009; University of California Riverside, 2008; Whitcomb, 2009; World Federation for Medical Education, 2015, 2020). Medical schools sought to serve the communities they are socially related to (i.e., related to geographically, ethnically, philosophically, etc.) in order to improve health through their ethos, curriculum design, and research priorities (Association of American Medical Colleges, 2012; Fogarty et al., 2012; Hays et al., 2003; Hays, Strasser, et al., 2019; Lanphear & Strasser, 2008; Lawrenson et al., 2017; Lawson et al., 2004; Olds & Barton, 2015; Simoyan et al., 2011; Strasser & Lanphear, 2008; Strasser et al., 2009; Tesson et al., 2009; University of California Riverside, 2008; Whitcomb, 2009; World Federation for Medical Education, 2015, 2020).

Community-engaged medical schools not only produced more physicians for their communities, but also “a different kind of physician ... [one who connects] with their community” (Simoyan et al., 2011, p. s222). Community support and participation was pivotal to successful establishment and was garnered not only for things like fund-raising, political momentum, and clinical experiences, but also for governance, administration, curriculum design, educational innovation, research agendas, program evaluation, student recruitment, student support, graduate retention, and staff appointments (Association of American Medical Colleges, 2012; Castelo-Branco et al., 2016; Condon et al., 2017; Fogarty et al., 2012; Hays et al., 2003; Hays, Strasser, et al., 2019; Hurt & Harris, 2005; Lanphear & Strasser, 2008; Lawrenson et al., 2017; Norris et al., 2006; Simoyan et al., 2011; Snadden et al., 2011; Strasser & Lanphear, 2008; Strasser et al., 2009; Tesson et al., 2009; University of California Riverside, 2008).

#### 2.3.3.5.4 Collaborating with other institutions:

New medical schools sought opportunities for collaboration with a wide variety of other institutions such as other medical schools, universities, education providers, health facilities, research units, health advisory groups, community organisations, medical associations, local businesses, industry links, media entities, funding bodies, and governmental organisations (Association of American Medical Colleges, 2012; Australian Medical Council, 2012; Castelo-Branco et al., 2016; Eichbaum, Bowa, et al., 2014; Eichbaum et al., 2015; Field, 2011; Frenk et al., 2010; Hamdy & Anderson, 2006; Kebaetse et al., 2014; Lanphear & Strasser, 2008; Lawson et al., 2004; Liaison Committee on Medical Education, 2008; Mokone et al., 2014; Norris et al., 2006; Simoyan et al., 2011; Smego et al., 2010; Snadden et al., 2011; University of California Riverside, 2008; Whitcomb, 2009, 2013, 2018; World Federation for Medical Education, 2000, 2015, 2020; Worley et al., 2019). Frenk, et al. noted, “the solidarity developed from sharing mission, resources, knowledge, and experiences can strengthen and motivate all participating institutions” (2010, p. 1941). Different organisational arrangements such as “networks, consortia, alliances and partnerships” (Frenk et al., 2010, p. 1940) were optimally leveraged for each of these relationships (Frenk et al., 2010; Smego et al., 2010; Whitcomb, 2009, 2013, 2018).

In under-served or resource-constrained settings, local and regional collaborations significantly strengthened member institutions, improved health-care systems, improved research activity, pooled resources, and built regional capacity (Condon et al., 2017; Eichbaum, Bowa, et al., 2014; Eichbaum et al., 2015; Hamdy & Anderson, 2006; Mokone et al., 2014; Pericleous, 2011; Whitcomb, 2013). Similarly, non-local, cross-cultural partnerships and twinning arrangements helped build capacity, improve quality, and provide resources (including financial aid) for under-served or resource-constrained medical schools (Chavez et al., 2012; Delgado et al., 2017; Drobac & Morse, 2016; Eichbaum, Bowa, et al., 2014; Eichbaum et al., 2015; Frenk et al., 2010; Gifford, 2007; Hamdy & Anderson, 2006; Karle, 2006; Mokone et al., 2014; Williams et al., 2008).



### **2.3.3.6 Staffing:**

The staff of a medical school were their “ultimate resource”, as “teachers, stewards, agents of knowledge transmission, and most importantly role models for students – reproducing the profession by training the next generation of professionals” (Frenk et al., 2010, p. 1941). New medical schools needed academic, clinical, research, and administrative personnel – all in sufficient numbers to meet the desired educational and missional objectives (Association of American Medical Colleges, 2012; Australian Medical Council, 2012; Cookson, 2013; Drobac & Morse, 2016; Karle, 2010; Liaison Committee on Medical Education, 2006, 2008, 2020; Texas Higher Education Coordinating Board, 2008; University of California Riverside, 2008; Whitcomb, 2009; World Federation for Medical Education, 2015, 2020). The Australian Medical Council encouraged best practice in medical education with “an academic environment that allows scientific and clinical staff to interact in teaching, research, and health care delivery, in order to disseminate existing knowledge and to generate new medical knowledge” (2012, p. iv). Different pedagogical models required different staff/student ratios, with student-centred approaches such as small-group learning usually requiring more staff (Bin Abdulrahman & Saleh, 2015; Castelo-Branco et al., 2016; Karle, 2010; Smith, 2009; World Federation for Medical Education, 2015, 2020). Given the pioneering nature of new medical schools, recruiting resilient, adaptable, and dedicated faculty was paramount (Association of American Medical Colleges, 2012; Cookson, 2013; Hamdy & Anderson, 2006).

Recruiting strategies included advertising in newspapers, medical journals, and academic websites (Association of American Medical Colleges, 2012). Most new medical schools advertised locally, regionally, nationally, and internationally (Association of American Medical Colleges, 2012; Cookson, 2013; Fogarty et al., 2012; McDonald et al., 2014; Mokone et al., 2014; Simoyan et al., 2011; Snadden et al., 2011; Williams et al., 2008). Local networking was another common method of recruitment (Association of American Medical Colleges, 2012; Smego et al., 2010; Snadden et al., 2011). Part-time or joint appointments, to allow clinicians to continue in clinical practice, were common (Association of American Medical Colleges, 2012; Fogarty et al., 2012; Hays, Strasser, et al., 2019; Liaison Committee on Medical Education, 2008; Snadden et al., 2011; Whitcomb, 2009). Sharing staff amongst partner medical schools was another possible strategy (Eichbaum et al., 2015; Eichbaum, Nyarango, et al., 2014) as long as it didn't weaken one or the other institution (Field, 2011; Sabde et al., 2020). Volunteer adjunct or affiliate faculty were also commonly utilised (Association of American Medical Colleges, 2012; Cristobal & Worley, 2012; Liaison Committee on Medical Education, 2008; McFee & Aust, 2005; Mokone et al., 2014; Norris et al., 2006; Olds & Barton, 2015; Simoyan et al., 2011; Smego et al., 2010). By relying on a large cohort of part-time and/or volunteer clinical faculty, some new medical schools were able to achieve a student-preceptor ratio of 1:1 (Association of American Medical Colleges, 2012). Other medical schools also achieved this ratio by keeping their class sizes small (Cathcart-Rake et al., 2017).

Recruiting sufficient staff was a significant challenge for many new medical schools (Association of American Medical Colleges, 2012; Bonner et al., 2018; Eichbaum, Bowa, et al., 2014; Field, 2011; Frenk et al., 2010; Howe et al., 2004; Hurt & Harris, 2005; Karle, 2010; McDonald et al., 2014; Mokone et al., 2014; Nausheen et al., 2018; Norris et al., 2006; Reis et al., 2009; Smego et al., 2010; Smith, 2009; Snadden et al., 2011; Tesson et al., 2009; Whitcomb, 2009). Finding staff of the right 'fit' to the ethos, vision, and curricular approach was not always easy (Association of American Medical Colleges, 2012; Cookson, 2013; Hurt & Harris, 2005). Accomplishing the desired representation of diversity in staff appointments was noted to be challenging for several new medical schools (Association of American Medical Colleges, 2012; Drobac & Morse, 2016; University of California Riverside, 2008). The uncertainty and risk involved with being part of a new medical school was one reason proposed for the difficulty attracting staff (Association of American Medical Colleges, 2012; Nausheen et al., 2018; Snadden et al., 2011). Some medical staff were simply not interested in academic roles (Colquhoun et al., 2009), while others were overburdened with clinical roles in medically under-served areas with workforce shortages (Snadden et al., 2011). Nonetheless, several other new medical schools reported having no difficulties recruiting staff and being oversubscribed by applicants for positions – particularly when they were partnering with a large hospital whose clinical staff were all potential applicants for academic positions (Association of American Medical Colleges, 2012; Williams et al., 2008).

Some new medical schools reported significant problems retaining their appointed staff (Mokone et al., 2014; Nausheen et al., 2018), while others reported high rates of retention (Association of American Medical Colleges, 2012; Fogarty et al., 2012). Worley et al. warned that high turnover of faculty should be expected and “single person vulnerabilities” should be avoided (2019, p. 1). Differing expectations of university versus medical school staff regarding teaching and research outputs, criteria for promotions, levels of remuneration, and so on, were another source of challenge for some new medical schools (Association of American Medical Colleges, 2012; Cookson, 2013; Mokone et al., 2014).

Ensuring sufficient support for clinical faculty to grow and improve as educators, teachers, and supervisors – that is, ‘faculty development’ – was seen as an essential element (Association of American Medical Colleges, 2012; Castelo-Branco et al., 2016; Frenk et al., 2010; Hays, Strasser, et al., 2019; Hurt & Harris, 2005; Khalil & Kibble, 2014; Lanphear & Strasser, 2008; Lawson et al., 2004; Liaison Committee on Medical Education, 2006, 2008, 2020; Mokone et al., 2014; Nonailada, 2020; Norris et al., 2006; Smego et al., 2010; Snadden et al., 2011; University of California Riverside, 2008; World Federation for Medical Education, 2000, 2015, 2020). This ranged from group training activities, formal courses of study, and conference opportunities to individual support, feedback, and remediation support (Association of American Medical Colleges, 2012; Chavez et al., 2012; Fogarty et al., 2012; Hamdy & Anderson, 2006; Nonailada, 2020; Strasser et al., 2009; University of California Riverside, 2008). Some medical schools had mandatory faculty development requirements (Association of American Medical Colleges, 2012; Fogarty et al., 2012; Hurt & Harris, 2005; Smego et al., 2010), and provided annual professional development funding for each staff member (Association of American Medical Colleges, 2012). Castelo-Branco et al. warned not to “underestimate the amount of faculty development that is necessary” (2016, p. 1207).

#### **2.3.3.7 Student numbers:**

Class size decisions depended on several factors in the local context such as population size; health system status; workforce needs; the pool of eligible applicants; numbers of local students going elsewhere to study medicine; cost-effectiveness; and the adequacy of available resources including funding, facilities, and staff (Australian Medical Council, 2012; Bin Abdulrahman & Saleh, 2015; Cathcart-Rake et al., 2017; Hays, McKinley, et al., 2019; Hays, Strasser, et al., 2019; Hurt & Harris, 2005; Karle, 2010; Liaison Committee on Medical Education, 2008; Olds & Barton, 2015; Pericleous, 2011; Reis et al., 2009; Snadden et al., 2011; Whitcomb, 2009; World Federation for Medical Education, 2015, 2020). Karle noted, “it can be difficult to define the optimal size of a medical school measured by the number of students or graduates, but a fair estimate would be 200–300 graduates per year within an acceptable range of 50–500” (2010, p. 166), while Hays, Strasser, and Sen Gupta recommended, “new programs are likely to require an initial cohort of between 60 and 100 to become viable” (2019, p. 399). Accreditors emphasised the adequacy of resources at all stages of the program in relation to the size of the student intake (Australian Medical Council, 2012; Liaison Committee on Medical Education, 2006; World Federation for Medical Education, 2000, 2015, 2020).

Individual institutions reported between 25 and 152 students in their charter classes (Association of American Medical Colleges, 2012; Cathcart-Rake et al., 2017; Cristobal & Worley, 2012; Delgado et al., 2017; Fogarty et al., 2012; Hamdy & Anderson, 2006; Hays, 2001; Howe et al., 2004; Hurt & Harris, 2005; Mangan, 2002, 2009; Mokone et al., 2014; Nausheen et al., 2018; Pericleous, 2011; Schuster et al., 2020; Simoyan et al., 2011; Smego et al., 2010; Strasser & Lanphear, 2008; Strasser et al., 2009; Tesson et al., 2009; University of California Riverside, 2008; Whitcomb, 2009, 2010, 2013, 2018). New branch campuses of existing medical schools reported between 8 and 32 students in their initial cohorts (Cathcart-Rake et al., 2017; Pinder et al., 2008; Williams et al., 2008; Worley et al., 2019). Many new medical schools proposed to quickly scale their class sizes up in subsequent years (Association of American Medical Colleges, 2012; Fogarty et al., 2012; Hays, 2001; Howe et al., 2004; Hurt & Harris, 2005; Mangan, 2002; Mokone et al., 2014; Nausheen et al., 2018; Smego et al., 2010; University of California Riverside, 2008; Whitcomb, 2009), and a few increased by a magnitude of fifty percent in some consecutive years (Association of American Medical Colleges, 2012; Hurt & Harris, 2005; Nausheen et al., 2018; Texas Higher Education Coordinating Board, 2008; Whitcomb, 2009, 2013; Williams et al., 2008).

Arguments were made between the quantity of graduates required to address workforce and health system needs, and the quality of education provided and graduates produced (Karle, 2010). Smaller classes often provided a better learning experience with smaller ratios of students to staff and patients, resulting in more hands-on experiences, interactivity, and improved mentoring (Condon et al., 2017; Karle, 2010; Lawson et al., 2004; Whitcomb, 2018). This had the potential to produce a better graduate (Condon et al., 2017). However, Karle warned that “small schools can also create problems due to the ineffective use of limited resources, from low governmental support and/or low income from tuition fees; difficulties in the recruitment of qualified teachers; weak or non-existing research attainment; program deficiencies as a result of missing medical disciplines; or sub-standard educational facilities and equipment” (2010, p. 164).

### **2.3.3.8 Student recruitment:**

The Liaison Committee on Medical Education explicated that “medical schools must select students who possess the intelligence, integrity, and personal and emotional characteristics necessary for them to become competent physicians” (2020, p. 16). Furthermore, admissions policies and procedures needed to reflect institutional mission and purpose (Association of American Medical Colleges, 2012; Frenk et al.; Hurt & Harris, 2005; Karle, 2010; Liaison Committee on Medical Education, 2020; Schuster et al., 2020; Snadden et al., 2011; Strasser et al., 2009; Tesson et al., 2009; World Federation for Medical Education, 2000, 2015, 2020).

Transparent admissions policies outlining appropriate entry requirements and defining clear processes to screen and choose between applicants were required (Australian Medical Council, 2012; Bin Abdulrahman & Saleh, 2015; Eichbaum, Nyarango, et al., 2014; Frenk et al., 2010; Karle, 2010; Liaison Committee on Medical Education, 2006, 2008, 2020; Snadden et al., 2011; World Federation for Medical Education, 2000, 2015, 2020). Snadden et al. advised that new medical schools should finalise these two years before the first students commenced (2011). In some regions such as North America, new medical schools were not allowed to advertise for, nor recruit any applicants until they had been granted preliminary accreditation (Whitcomb, 2009, 2010, 2013).

Admissions criteria usually included a varied combination of aptitude scores; national entrance examination scores; academic achievement scores such as high school or university Grade Point Averages (GPAs); performance in preparatory courses; interview performance; and personal statements (Bin Abdulrahman & Saleh, 2015; Cathcart-Rake et al., 2017; Cristobal & Worley, 2012; Howe et al., 2004; Lawson et al., 2004; Sabde et al., 2020; Schuster et al., 2020; Strasser & Lanphear, 2008; Strasser et al., 2009; Tesson et al., 2009; University of California Riverside, 2008; World Federation for Medical Education, 2015, 2020). Multiple mini-interviews were a popular interview methodology for several new medical schools (Association of American Medical Colleges, 2012; Olds & Barton, 2015; Reis et al., 2009; Strasser & Lanphear, 2008; Strasser et al., 2009; Tesson et al., 2009). Some medical schools required official criminal history checks and also independent occupational health assessments of fitness to practice (Howe et al., 2004).

Inherent inequalities and bias in certain admissions methodologies that privileged urban and affluent applicants – such as academic merit, standardised testing, and privatisation – needed to be acknowledged and accounted for (Cathcart-Rake et al., 2017; Condon et al., 2017; Eichbaum et al., 2015; Eichbaum, Nyarango, et al., 2014; Frenk et al., 2010; Karle, 2010; Olds & Barton, 2015; Strasser & Lanphear, 2008; Strasser et al., 2009; Tesson et al., 2009; World Federation for Medical Education, 2015, 2020). Many medical schools and accreditation standards emphasised the need to make explicit entry provisions for equity, diversity, rurality, minorities, under-served populations, and local applicants (Association of American Medical Colleges, 2012; Australian Medical Council, 2012; Cristobal & Worley, 2012; Drobac & Morse, 2016; Eichbaum et al., 2015; Eichbaum, Nyarango, et al., 2014; Fogarty et al., 2012; Frenk et al., 2010; Hays et al., 2003; Howe et al., 2004; Hurt & Harris, 2005; Karle, 2010; Lanphear & Strasser, 2008; Lawson et al., 2004; Liaison Committee on Medical Education, 2006, 2008, 2020; Nausheen et al., 2018; Olds & Barton, 2015; Salter et al., 2016; Schuster et al., 2020; Simoyan et al., 2011; Snadden et al., 2011; Strasser & Lanphear, 2008; Strasser et al., 2009; Tesson et al., 2009; University of California Riverside, 2008; World Federation for Medical Education, 2000, 2015, 2020). Several medical schools developed high school engagement initiatives, pipeline pathways, outreach programs, and preparatory courses to increase their applicant pool and support disadvantaged applicants (Association of American Medical Colleges, 2012; Hurt & Harris, 2005; Lawson et al., 2004; Olds & Barton, 2015; Schuster et al., 2020; Simoyan et al., 2011; Strasser & Lanphear, 2008; Tesson et al., 2009; University of California Riverside, 2008; Worley et al., 2019). Except for the purposes of “explicit affirmative action” (Australian Medical Council, 2012, p. 12), discrimination and bias were to be guarded against when admitting students (Australian Medical Council, 2012; Liaison Committee on Medical Education, 2008, 2020; World Federation for Medical Education, 2015, 2020).

New medical schools had the opportunity to implement innovative approaches to selecting ‘fit for purpose’ medical students even in the face of limited evidence (Eichbaum, Nyarango, et al., 2014; Hays, 2018; Howe et al., 2004; Hurt & Harris, 2005; Olds & Barton, 2015; Tesson et al., 2009; Whitcomb, 2013). For example, Hays suggested a 2- to 4-week immersive probation that may help to identify personal qualities beyond academic achievement (2018). The Northern Ontario School of Medicine, on the other hand, were particular to base their admissions innovations on strong evidence and offered their processes as exemplars for existing medical schools to consider (Tesson et al., 2009).

Involving the local community, in determining innovative approaches to student recruitment that would complement the curriculum in producing the desired outcomes, was advised (Castelo-Branco et al., 2016; Strasser & Lanphear, 2008; Strasser et al., 2009; Tesson et al., 2009; World Federation for Medical Education, 2000, 2015, 2020). This served an additional purpose of developing ambassadors for the new medical school amongst engaged community members (Association of American Medical Colleges, 2012; Tesson et al., 2009). Frenk et al. suggested that rural communities could select their own candidates, pay for their education (potentially with government support), and employ them afterwards (2010, p. 1942). Cristobal and Worley recorded very successful local retention of medical school graduates, in an under-serviced area of the Philippines, using a similar community-involved approach financed by international philanthropic subsidies (2012).

There were very few accounts of challenges with student recruitment. One medical school reported challenges with early student recruitment due to their initially failed accreditation and the associated bad press (Hurt & Harris, 2005; Mangan, 2002). The same medical school was also noted to not have achieved its stated desire to recruit a racially diverse student body for their charter class with only 2 out of their 30 initial students being “black” (Mangan, 2002, p. 2). Another new medical school noted that a 1996 amendment to their state legislation prohibited affirmative action by disallowing “race-conscious admissions” (Olds & Barton, 2015, p. 202). This medical school instead implemented its own measurable and actionable criteria for diversity, based on characteristics such as English as a second language; first in family to go to college; and geographic connections to medically under-served areas (Olds & Barton, 2015). This same medical school also reported difficulty recruiting local students as per their social mission, due to their region having the lowest college attendance and standardised test scores. They approached this problem by developing their applicant pool through expanded pipeline strategies stretching as far down as kindergarten (Olds & Barton, 2015).



### **2.3.3.9 Curriculum design and implementation:**

The Australian Medical Council defined 'curriculum' as the "statement of the intended aims and objectives, content, assessment, experiences, outcomes and processes of a program, including a description of the structure and expected methods of learning, teaching, feedback and supervision" (2012, p. ii). Curriculum decisions needed to align with the vision/mission/objective of the new medical school (Cookson, 2013; Cristobal & Worley, 2012; Hamdy & Anderson, 2006; Hays, 2001; Hays & Sen Gupta, 2003; Hays et al., 2003; Hays, Strasser, et al., 2019; Howe et al., 2004; Hurt & Harris, 2005; Kebaetse et al., 2014; Liaison Committee on Medical Education, 2006, 2008; Strasser & Lanphear, 2008; Tesson et al., 2009; World Federation for Medical Education, 2000, 2015, 2020). Alignment with the available educational resources and clinical services was also important (Colquhoun et al., 2009; Hays, Strasser, et al., 2019; Liaison Committee on Medical Education, 2008, 2020; Snadden et al., 2011; World Federation for Medical Education, 2000, 2015, 2020).

Discussions regarding curriculum often began with reflections about the kind of doctor to be produced, using the concept of 'competencies' (Bin Abdulrahman & Saleh, 2015; Castelo-Branco et al., 2016; Cristobal & Worley, 2012; Eichbaum et al., 2015; Eichbaum, Nyarango, et al., 2014; Frenk et al., 2010; Hamdy & Anderson, 2006; Härtl et al., 2017; Khalil & Kibble, 2014; Lockyer & Patterson, 2005; Smith, 2009). Competencies were defined as the "the habitual and judicious use of communication, knowledge, technical skills, clinical reasoning, emotions, values, and reflection in daily practice for the benefit of the individual and the community being served" (Epstein & Hundert, 2002, as cited in Frenk et al., 2010, p. 1943). Frenk et al. explained further that competencies go beyond knowledge of facts to include things like patient-centred care, evidence-based practice, quality improvement, interdisciplinary teamwork, public health promotion, research skills, critical inquiry, life-long learning, management and leadership capabilities, and socially responsible professionalism (2010, p. 1933). Curricula can, thus, be defined through "a competency outcome approach, rather than ... a traditional input-oriented model" (Cristobal & Worley, 2012, p. 3).

Modern medical education has moved in emphasis from 'traditional' models of curriculum to 'integrated' models (Bin Abdulrahman & Saleh, 2015; Castelo-Branco et al., 2016; Eichbaum et al., 2015; Frenk et al., 2010; Hamdy & Anderson, 2006; Howe et al., 2004; Khalil & Kibble, 2014; Lawrenson et al., 2017). Traditional models usually consisted of a series of discipline-based topics such as 'anatomy', 'physiology', 'pathology', and so on, in the basic sciences or pre-clinical years followed by a further series of siloed topics such as 'medicine', 'surgery', 'paediatrics', and so on, in the clinical years (Australian Medical Council, 2012; Bin Abdulrahman & Saleh, 2015; Frenk et al., 2010; Karle, 2010; Khalil & Kibble, 2014; Tesson et al., 2009). They were characterised by minimal clinical exposure in the pre-clinical stages followed by clinical immersion in the later stages.

Integrated models, on the other hand, consisted of a 'spiral curriculum' with both horizontal integration of topics and skills (by year) and vertical integration (across years) (Association of American Medical Colleges, 2012; Australian Medical Council, 2012; Bin Abdulrahman & Saleh, 2015; Cookson, 2013; Frenk et al., 2010; Hamdy & Anderson, 2006; Härtl et al., 2017; Hays, 2001; Hays & Sen Gupta, 2003; Hays et al., 2003; Howe et al., 2004; Hurt & Harris, 2005; Khalil & Kibble, 2014; Lawson et al., 2004; Mokone et al., 2014; Nausheen et al., 2018; Reis et al., 2009; Tesson et al., 2009; World Federation for Medical Education, 2015, 2020). They were frequently 'learner-centred' as well as 'patient-centred' by being case-based or problem-based and/or body-system-based and emphasising early parallel clinical exposure (Association of American Medical Colleges, 2012; Australian Medical Council, 2012; Bin Abdulrahman & Saleh, 2015; Castelo-Branco et al., 2016; Cookson, 2013; Cristobal & Worley, 2012; Frenk et al., 2010; Hamdy & Anderson, 2006; Härtl et al., 2017; Hays, 2001; Hays & Sen Gupta, 2003; Hays et al., 2003; Howe et al., 2004; Hurt & Harris, 2005; Khalil & Kibble, 2014; Lanphear & Strasser, 2008; Lawson et al., 2004; Lockyer & Patterson, 2005; Mokone et al., 2014; Nausheen et al., 2018; Reis et al., 2009; Simoyan et al., 2011; Smego et al., 2010; Smith, 2009; Strasser et al., 2009; Tesson et al., 2009). Integrated models also tended to have improved coverage of public health and socio-cultural aspects of medicine as well as the personal and professional aspects of being a doctor, such as communication, ethics, and professionalism (Association of American Medical Colleges, 2012; Australian Medical Council, 2012; Bin Abdulrahman & Saleh, 2015; Castelo-Branco et al., 2016; Cookson, 2013; Cristobal & Worley, 2012; Hamdy & Anderson, 2006; Härtl et al., 2017; Hays, 2001; Hays et al., 2003; Lawson et al., 2004; Liaison Committee on Medical Education, 2008, 2020; Mokone et al., 2014; Olds & Barton, 2015; Schuster et al., 2020; Smego et al., 2010; Strasser et al., 2009; Tesson et al., 2009; University of California Riverside, 2008; World Federation for Medical Education, 2000, 2015, 2020). Small-group,

self-directed learning, and interprofessional education were also encouraged (Association of American Medical Colleges, 2012; Castelo-Branco et al., 2016; Cristobal & Worley, 2012; Frenk et al., 2010; Hamdy & Anderson, 2006; Hays, 2001; Hays et al., 2003; Hays, Strasser, et al., 2019; Howe et al., 2004; Hurt & Harris, 2005; Liaison Committee on Medical Education, 2008, 2020; Mangan, 2009; Strasser et al., 2009; Tesson et al., 2009; World Federation for Medical Education, 2000, 2015, 2020).

Even in integrated curricula, there was often a structural division between earlier pre-clinical/pre-clerkship and later clinical/clerkship stages (Association of American Medical Colleges, 2012; Hamdy & Anderson, 2006; Khalil & Kibble, 2014; University of California Riverside, 2008). Pre-clerkship years were commonly divided into 'blocks' or 'modules', while clinical clerkship years were commonly divided into clinical 'placements', 'rotations', or 'clerkships' (Association of American Medical Colleges, 2012; Härtl et al., 2017; Khalil & Kibble, 2014; University of California Riverside, 2008). An increasing trend towards community-based 'longitudinal integrated clerkships', particularly in curricula emphasising primary care, was noted (Association of American Medical Colleges, 2012; Condon et al., 2017; Cristobal & Worley, 2012; Hays, 2001; Hays et al., 2003; Hays, McKinley, et al., 2019; Hurt & Harris, 2005; Lawson et al., 2004; Smego et al., 2010; Strasser & Lanphear, 2008; Strasser et al., 2009; Tesson et al., 2009; University of California Riverside, 2008). Some medical schools also described a content 'thread' such as clinical skills, pharmacology, or behavioural science spanning several blocks and years (Association of American Medical Colleges, 2012). Khalil and Kibble asserted that more important than an integrated curriculum was the development of integrative thinking in the students (2014).

The traditional split into clear pre-clinical and clinical divisions originated from Abraham Flexner's famous 1910 report and recommendations (Frenk et al., 2010; Karle, 2010; Khalil & Kibble, 2014), and facilitated research productivity within the siloed disciplines and departments (Tesson et al., 2009). The organ-system approach was pioneered in the 1950s by the Case Western Reserve University (Tesson et al., 2009; Whitcomb, 2009). Bin Abdulrahman and Saleh summed it up with:

*Medical education has evolved over the years from the so called "traditional" curriculum to "modern" curriculum. The former has been criticized for being teacher-centered, knowledge-giving, discipline-led, hospital-oriented, opportunistic (apprenticeship) and consisting of a standard program, while the latter has been advocated for being student-centered, problem-based, integrated, community-oriented, systematic, and consisting of a core program and electives. (2015, p. 10)*

While many new medical schools used the opportunity to innovatively construct their curriculum themselves (Association of American Medical Colleges, 2012; Smith, 2009; Strasser & Lanphear, 2008; Strasser et al., 2009; Tesson et al., 2009; Whitcomb, 2009), other new medical schools accessed pre-existing medical curricula and modified it for their contexts (Castelo-Branco et al., 2016; Lawson et al., 2004; Mokone et al., 2014; Pericleous, 2011; Snadden et al., 2011). Most satellite new programs used the same curriculum as their parent program (Cathcart-Rake et al., 2017; Penner, 2018; Snadden et al., 2011; University of California Riverside, 2008; Whitcomb, 2009, 2013; Worley et al., 2019), but a few offered a differing curriculum as a separate track (Whitcomb, 2009, 2013). Some medical schools described significant community involvement in their socially accountable curriculum design (Hays et al., 2003; Lanphear & Strasser, 2008; Strasser & Lanphear, 2008; Strasser et al., 2009; Tesson et al., 2009). Adherence to out-dated and overloaded curricula were the primary challenges for new medical schools (Frenk et al., 2010; Karle, 2010; World Federation for Medical Education, 2000, 2015, 2020).

Embedded within the curriculum, assessment methods needed to be 'fit for purpose', aligning with course objectives and learning outcomes while also being objective, fair, transparent, valid, and reliable (Australian Medical Council, 2012; Cookson, 2013; Hamdy & Anderson, 2006; Härtl et al., 2017; Hays, 2018; Hays & Sen Gupta, 2003; Hays et al., 2003; Hays, Strasser, et al., 2019; Howe et al., 2004; Liaison Committee on Medical Education, 2008, 2020; Tesson et al., 2009; World Federation for Medical Education, 2015, 2020). Common assessment methods included written examinations; laboratory practicals; written essays on topics such as evidence-based medicine; service learning projects; research projects; patient and procedural logs; case presentations; professionalism ratings; portfolios; Objective Structured Clinical Examinations (OSCE); and written and verbal formative and summative feedback (Association of American Medical Colleges, 2012; Australian Medical Council, 2012; Bin Abdulrahman & Saleh, 2015; Bonner et al., 2018; Condon et al., 2017; Cookson, 2013; Hamdy & Anderson, 2006; Härtl et al., 2017; Hays, 2018; Hays et al., 2003; Howe et al., 2004; Khalil & Kibble, 2014; Lawson et al., 2004; Liaison Committee on Medical Education, 2008, 2020; Mokone et al., 2014; Pericleous, 2011; Snadden et al., 2011; University of California Riverside, 2008; World Federation for Medical Education, 2000, 2015, 2020). Some of these were progressive and others were end-of-year cumulative (Association of American Medical Colleges, 2012; Australian Medical Council, 2012; Howe et al., 2004). Written examinations included multiple choice questions; and clinical context-rich questions such as short-answer questions, extended matching questions and modified essay questions (Association of American Medical Colleges, 2012; Condon et al., 2017; Cookson, 2013; Hamdy & Anderson, 2006; Härtl et al., 2017; Howe et al., 2004; Khalil & Kibble, 2014). Critical self-reflection, peer feedback, and interprofessional team assessments were also a feature of some medical schools (Association of American Medical Colleges, 2012; Howe et al., 2004; Schuster et al., 2020). Pass/fail grading systems rather than letter grading systems were also reported (Association of American Medical Colleges, 2012; Cookson, 2013). A few medical schools reported joining collaborative consortia to share banks of assessment items (Lawson et al., 2004).

### **2.3.3.10 Clinical training sites:**

Good clinical encounters with direct patient care and hands-on learning were noted as essential (Association of American Medical Colleges, 2012; Australian Medical Council, 2012; Field, 2011; Liaison Committee on Medical Education, 2006, 2008; Strasser & Lanphear, 2008; World Federation for Medical Education, 2000, 2015, 2020; Worley et al., 2019). Students' clinical responsibilities were to be commensurate with their level of training, but also to increase over time as they prepare to graduate into registered clinical practice (Australian Medical Council, 2012; Cathcart-Rake et al., 2017; Cristobal & Worley, 2012; Liaison Committee on Medical Education, 2020; World Federation for Medical Education, 2000, 2015, 2020).

This required exposure to adequate numbers of ambulatory and hospitalised patients, with a broad case mix of health and illness presentations, in a range of outpatient and inpatient health service settings including primary care clinics, tertiary care hospitals, and community support services (Association of American Medical Colleges, 2012; Australian Medical Council, 2012; Colquhoun et al., 2009; Drobac & Morse, 2016; Field, 2011; Frenk et al., 2010; Hays, McKinley, et al., 2019; Hays, Strasser, et al., 2019; Howe et al., 2004; Karle, 2010; Lanphear & Strasser, 2008; Lawson et al., 2004; Liaison Committee on Medical Education, 2008, 2020; Mangan, 2009; Mokone et al., 2014; Norris et al., 2006; Salter et al., 2016; Smego et al., 2010; Snadden et al., 2011; Strasser & Lanphear, 2008; Strasser et al., 2009; Tesson et al., 2009; University of California Riverside, 2008; Whitcomb, 2009, 2013, 2018; World Federation for Medical Education, 2000, 2015, 2020). Furthermore, the case mix of patient encounters needed to appropriately reflect regional health needs; under-represented populations; and all the clinical disciplines and specialties (Association of American Medical Colleges, 2012; Australian Medical Council, 2012; Colquhoun et al., 2009; Drobac & Morse, 2016; Eichbaum et al., 2015; Eichbaum, Nyarango, et al., 2014; Fogarty et al., 2012; Frenk et al., 2010; Hamdy & Anderson, 2006; Hays, 2001; Hays et al., 2003; Hays, McKinley, et al., 2019; Hays, Strasser, et al., 2019; Hurt & Harris, 2005; Lanphear & Strasser, 2008; Lawrenson et al., 2017; Lawson et al., 2004; Norris et al., 2006; Schuster et al., 2020; Smego et al., 2010; Snadden et al., 2011; Strasser & Lanphear, 2008; Strasser et al., 2009; Tesson et al., 2009; University of California Riverside, 2008; Whitcomb, 2009, 2013; World Federation for Medical Education, 2000, 2015, 2020).

To achieve this, formal affiliations with a wide range of public and private health service facilities had to be developed (Association of American Medical Colleges, 2012; Australian Medical Council, 2012; Cathcart-Rake et al., 2017; Colquhoun et al., 2009; Condon et al., 2017; Cookson, 2013; Cristobal & Worley, 2012; Fogarty et al., 2012; Frenk et al., 2010; Härtl et al., 2017; Hays, McKinley, et al., 2019; Hays, Strasser, et al., 2019; Hurt & Harris, 2005; Karle, 2010; Lanphear & Strasser, 2008; Lawson et al., 2004; Liaison Committee on Medical Education, 2006, 2008, 2020; Norris et al., 2006; Olds & Barton, 2015; Smego et al., 2010; Snadden et al., 2011; Strasser & Lanphear, 2008; Tesson et al., 2009; University of California Riverside, 2008; Whitcomb, 2009, 2010, 2013, 2018, 2020; Williams et al., 2008; World Federation for Medical Education, 2015, 2020). Historically, tertiary teaching hospitals were the primary – and often only – sites for clinical placements, however, medical schools were increasingly utilising more community-based health facilities (Association of American Medical Colleges, 2012; Bin Abdulrahman & Saleh, 2015; Colquhoun et al., 2009; Condon et al., 2017; Cookson, 2013; Drobac & Morse, 2016; Fogarty et al., 2012; Frenk et al., 2010; Hamdy & Anderson, 2006; Härtl et al., 2017; Hays et al., 2003; Hays, McKinley, et al., 2019; Howe et al., 2004; Hurt & Harris, 2005; Karle, 2010; Kebaetse et al., 2014; Lanphear & Strasser, 2008; Lawrenson et al., 2017; Lawson et al., 2004; Lockyer & Patterson, 2005; Mangan, 2009; McFee & Aust, 2005; Mokone et al., 2014; Norris et al., 2006; Olds & Barton, 2015; Strasser & Lanphear, 2008; Strasser et al., 2009; Tesson et al., 2009; University of California Riverside, 2008; Whitcomb, 2009, 2013, 2018).

Clinical training sites had to be evaluated for the quality of their educational potential and accredited as appropriate teaching locations for new medical schools (Australian Medical Council, 2012; Liaison Committee on Medical Education, 2008; University of California Riverside, 2008; Whitcomb, 2013, 2018; World Federation for Medical Education, 2000, 2015, 2020). Condon et al. showed that smaller student groups at a site were better than larger groups, and that smaller rural sites can provide effective clinical training (2017). They also reported poorer student performance when a clinical site was shared by two different medical schools possibly due to “an environment of competition for patient interactions, and clinician/faculty attention” (Condon et al., 2017, p. 266).

As mentioned earlier (in section 2.3.3.6 'Staffing' above), health service staff involved with teaching and supervising students needed to be supported with training, mentoring, troubleshooting, professional development, and performance appraisals for their roles (Association of American Medical Colleges, 2012; Castelo-Branco et al., 2016; Frenk et al., 2010; Hays, Strasser, et al., 2019; Hurt & Harris, 2005; Khalil & Kibble, 2014; Lanphear & Strasser, 2008; Lawson et al., 2004; Liaison Committee on Medical Education, 2006, 2008, 2020; Mokone et al., 2014; Nonailada, 2020; Norris et al., 2006; Smego et al., 2010; Snadden et al., 2011; University of California Riverside, 2008; World Federation for Medical Education, 2000, 2015, 2020). Furthermore, clinical training also needed support by clinical skills laboratories, simulated patients, and mannequin simulations (Association of American Medical Colleges, 2012; Bin Abdulrahman & Saleh, 2015; Cathcart-Rake et al., 2017; Frenk et al., 2010; Hurt & Harris, 2005; Lawson et al., 2004; Liaison Committee on Medical Education, 2008; Smego et al., 2010; Snadden et al., 2011; Strasser et al., 2009; Tesson et al., 2009; University of California Riverside, 2008; Whitcomb, 2009, 2013; World Federation for Medical Education, 2000, 2015, 2020).

Ensuring adequate breadth, depth, quantity, and quality of clinical encounters, clinical teachers, and clinical facilities were significant challenges for many new medical schools (Association of American Medical Colleges, 2012; Colquhoun et al., 2009; Eichbaum, Bowa, et al., 2014; Field, 2011; Karle, 2010; Lanphear & Strasser, 2008; Nausheen et al., 2018; Norris et al., 2006; Whitcomb, 2013, 2018; Williams et al., 2008). For example, at least one new medical school reported being unable to implement their desired model of longitudinal integrated community-based clerkships due to the diversity of clinical sites involved (Association of American Medical Colleges, 2012, p. 34). Whitcomb noted that a number of institutions that considered establishing a new medical school yet decided not to proceed, often did so due to the difficulty in securing the required clinical affiliations (2013, p. 13).



### **2.3.3.11 Buildings and facilities:**

Providing adequate physical facilities to support the educational program and achieve its desired outcomes was a basic requirement for a new medical school (Association of American Medical Colleges, 2012; Australian Medical Council, 2012; Bin Abdulrahman & Saleh, 2015; Cookson, 2013; Field, 2011; Hurt & Harris, 2005; Liaison Committee on Medical Education, 2006, 2008, 2020; Tesson et al., 2009; Whitcomb, 2009, 2013, 2018; Williams et al., 2008; World Federation for Medical Education, 2000, 2015, 2020; Worley et al., 2019). This included administrative, instructive, research, and social spaces, furnishings, and supplies; as well as educational, clinical, technological, and research equipment and materials (Association of American Medical Colleges, 2012; Australian Medical Council, 2012; Bin Abdulrahman & Saleh, 2015; Cookson, 2013; Field, 2011; Fogarty et al., 2012; Hurt & Harris, 2005; Kebaetse et al., 2014; Liaison Committee on Medical Education, 2006, 2008, 2020; Norris et al., 2006; Smego et al., 2010; Snadden et al., 2011; Strasser et al., 2009; Tesson et al., 2009; University of California Riverside, 2008; Whitcomb, 2009, 2013, 2018; Williams et al., 2008; World Federation for Medical Education, 2000, 2015, 2020; Worley et al., 2019). Accreditors expected that safety, maintenance, and upgrade aspects were also accounted for (Australian Medical Council, 2012; Liaison Committee on Medical Education, 2008, 2020; Tesson et al., 2009; World Federation for Medical Education, 2015, 2020).

Facilities ranged from quite rudimentary to highly sophisticated provisions (Frenk et al., 2010). Instructional spaces included small group tutorial rooms; large group lecture theatres; independent study spaces; clinical skills laboratories including simulation facilities and mock consultation rooms; multi-purpose laboratories for anatomy, physiology, biochemistry, histology, and pathology teaching/learning including specimen museums and cadaver storage; libraries; and computer rooms (Association of American Medical Colleges, 2012; Bin Abdulrahman & Saleh, 2015; Cookson, 2013; Fogarty et al., 2012; Hurt & Harris, 2005; Kebaetse et al., 2014; Liaison Committee on Medical Education, 2006, 2008; Norris et al., 2006; Smego et al., 2010; Snadden et al., 2011; Strasser et al., 2009; Tesson et al., 2009; University of California Riverside, 2008; Whitcomb, 2009, 2013; World Federation for Medical Education, 2000). Additional supportive infrastructure included elements such as food outlets; relaxation areas; transport options; car parking; shower facilities; student lockers; security systems with 24-hour access; on-call sleep areas; heating/cooling; cleaning; signage; snow removal; accessibility for students with different abilities; prayer halls; and the humane care of research animals (Association of American Medical Colleges, 2012; Australian Medical Council, 2012; Bin Abdulrahman & Saleh, 2015; Cookson, 2013; Field, 2011; Fogarty et al., 2012; Hurt & Harris, 2005; Kebaetse et al., 2014; Liaison Committee on Medical Education, 2006, 2008, 2020; Norris et al., 2006; Schuster et al., 2020; Smego et al., 2010; Snadden et al., 2011; Strasser et al., 2009; Tesson et al., 2009; University of California Riverside, 2008; Whitcomb, 2009, 2013, 2018; Williams et al., 2008; World Federation for Medical Education, 2000, 2015, 2020; Worley et al., 2019).

Furthermore, affiliated health service facilities also needed to be fitted out to appropriately support the presence of students and learners (Association of American Medical Colleges, 2012; Frenk et al., 2010; Kebaetse et al., 2014; Liaison Committee on Medical Education, 2006, 2008, 2020; Tesson et al., 2009; World Federation for Medical Education, 2000, 2015, 2020).

Buildings and space were commonly obtained in a phased manner using several different approaches, such as leasing or renting properties (Fogarty et al., 2012; Whitcomb, 2009, 2013); re-purposing and renovating existing buildings (Association of American Medical Colleges, 2012; Hurt & Harris, 2005; Snadden et al., 2011; Tesson et al., 2009; University of California Riverside, 2008; Whitcomb, 2009, 2010, 2013, 2018); and purpose-building new constructions (Association of American Medical Colleges, 2012; Hurt & Harris, 2005; Mokone et al., 2014; Romano, 2001; Smego et al., 2010; Tesson et al., 2009; University of California Riverside, 2008; Whitcomb, 2009, 2010, 2013, 2018; Worley et al., 2019). Significant outlays of funding were usually required and had to be obtained from multiple public, private, philanthropic, and community sources (Association of American Medical Colleges, 2012; Field, 2011; Karle, 2010; Kebaetse et al., 2014; Whitcomb, 2009, 2010, 2013, 2018). Collaborations with other institutions were also usually required (Field, 2011; Karle, 2010; Kebaetse et al., 2014; Whitcomb, 2009, 2010, 2013, 2018; Worley et al., 2019). For example, some medical schools co-located their new buildings with existing hospital and health facilities (Association of American Medical Colleges, 2012; Härtl et al., 2017; Whitcomb, 2009, 2013), while other universities provided land to build new teaching hospitals (Association of American Medical Colleges, 2012; Frenk et al., 2010; Mokone et al., 2014; Whitcomb, 2013).

Procuring adequate physical space was a significant challenge for many new medical schools (Association of American Medical Colleges, 2012; Field, 2011; Karle, 2010; Whitcomb, 2010, 2013). Rural-based medical schools and distributed community locations were particularly challenged by smaller teaching facilities (Bonner et al., 2018; Lanphear & Strasser, 2008; Nausheen et al., 2018). New medical schools were also challenged by a lack of access to research facilities and capabilities (Cathcart-Rake et al., 2017; Eichbaum et al., 2015; Field, 2011; Karle, 2010; Nausheen et al., 2018). Several medical schools reported over-running their original building timeframes, necessitating the initial use of temporary accommodations instead (Hurt & Harris, 2005; Smego et al., 2010; Snadden et al., 2011; Whitcomb, 2009, 2010; Williams et al., 2008). In some situations, desired enrolment numbers were constrained by the limited temporary spaces while awaiting the final buildings (Whitcomb, 2009, 2010). Nonetheless, a few medical schools reported completing their buildings on time and within budget (Association of American Medical Colleges, 2012; Frenk et al., 2010; Strasser et al., 2009; Tesson et al., 2009). One new medical school reported that through collaborative relationships with existing universities in the area already, they were able to successfully expand into regional locations without the construction of any new campuses, buildings, nor centres (Norris et al., 2006).

Modern medical education pedagogies that facilitate active and engaged learning such as small-group discussions, standardised patient consultations, and simulated scenarios usually required more instructional space (Frenk et al., 2010; Whitcomb, 2013). Space constraints had the potential to negatively impact educational objectives by driving less-active pedagogies that did not require as much space like large-group didactic lectures (Frenk et al., 2010). Creative ways to provide space needed to be considered (Kebaetse et al., 2014). Ideally, spaces were to be designed to encourage group learning, collaboration, mutual support, and a sense of community (Association of American Medical Colleges, 2012; Hurt & Harris, 2005; Lockyer & Patterson, 2005; Schuster et al., 2020), even when the medical school was distributed across several locations (Lockyer & Patterson, 2005). Furthermore, not building for immediate needs only, but accounting for potential future growth and expansion was also important (Association of American Medical Colleges, 2012; Whitcomb, 2009).

#### **2.3.3.12 Information and technology resources:**

In our current era of sophisticated digital capabilities and information explosion, Frenk et al. cautioned, “educational institutions must now be re-engineered to adapt to this transformation, otherwise they risk becoming obsolete” (2010, p. 1944). Accordingly, incorporating information and communications technology (ICT) for education and administration was commonplace in new medical schools (Association of American Medical Colleges, 2012; Australian Medical Council, 2012; Bin Abdulrahman & Saleh, 2015; Bonner et al., 2018; Chavez et al., 2012; Cookson, 2013; Drobac & Morse, 2016; Fogarty et al., 2012; Frenk et al., 2010; Hays, 2018; Hays et al., 2003; Hays, Strasser, et al., 2019; Howe et al., 2004; Hurt & Harris, 2005; Kebaetse et al., 2014; Khalil & Kibble, 2014; Lanphear & Strasser, 2008; Lawson et al., 2004; Liaison Committee on Medical Education, 2006, 2008, 2020; Lockyer & Patterson, 2005; Mokone et al., 2014; Penner, 2018; Reis et al., 2009; Smego et al., 2010; Snadden et al., 2011; Strasser & Lanphear, 2008; Strasser et al., 2009; Tesson et al., 2009; University of California Riverside, 2008; Whitcomb, 2018; Williams et al., 2008; World Federation for Medical Education, 2000, 2015, 2020; Worley et al., 2019). Technology was a solution for shortages of other kinds of resources including staff (Hays, 2018; Kebaetse et al., 2014; Snadden et al., 2011). ICT facilities included a varied combination of computers, internet access, smart phones, tablets, personal digital assistants, audio-visual equipment, videoconferencing facilities, smart boards, educational intranets or virtual learning environments, and clinical simulators including virtual reality

(Association of American Medical Colleges, 2012; Bin Abdulrahman & Saleh, 2015; Chavez et al., 2012; Cookson, 2013; Fogarty et al., 2012; Hays, 2018; Hays et al., 2003; Hays, Strasser, et al., 2019; Howe et al., 2004; Hurt & Harris, 2005; Kebaetse et al., 2014; Lanphear & Strasser, 2008; Lawson et al., 2004; Liaison Committee on Medical Education, 2008; Lockyer & Patterson, 2005; Smego et al., 2010; Snadden et al., 2011; Strasser & Lanphear, 2008; Strasser et al., 2009; Tesson et al., 2009; University of California Riverside, 2008; World Federation for Medical Education, 2000, 2015, 2020; Worley et al., 2019).

E-learning principles, practices, and resources were included in most modern curricula and needed to be consistent with strong educational principles (Association of American Medical Colleges, 2012; Australian Medical Council, 2012; Bonner et al., 2018; Cookson, 2013; Fogarty et al., 2012; Frenk et al., 2010; Hays, 2018; Hays et al., 2003; Hays, Strasser, et al., 2019; Howe et al., 2004; Hurt & Harris, 2005; Kebaetse et al., 2014; Khalil & Kibble, 2014; Liaison Committee on Medical Education, 2006, 2008, 2020; Lockyer & Patterson, 2005; Smego et al., 2010; Snadden et al., 2011; Strasser & Lanphear, 2008; World Federation for Medical Education, 2000, 2015, 2020). It was imperative to train medical workforce to be able to access and critically analyse information from a variety of electronic and printed sources rather than relying on any single source (Association of American Medical Colleges, 2012; Australian Medical Council, 2012; Frenk et al., 2010; Liaison Committee on Medical Education, 2008; Lockyer & Patterson, 2005; Reis et al., 2009; University of California Riverside, 2008; World Federation for Medical Education, 2015, 2020). They also needed to be well-versed in using technological systems to record and store health data in the course of patient-care, research, and quality improvement (Association of American Medical Colleges, 2012; Australian Medical Council, 2012; Frenk et al., 2010; Hurt & Harris, 2005; Lawrenson et al., 2017; Lawson et al., 2004; Reis et al., 2009; Simoyan et al., 2011; Tesson et al., 2009; University of California Riverside, 2008; World Federation for Medical Education, 2015, 2020). Additionally, they needed to be adaptable and future-ready to embrace rapidly changing technologies, including ones that have not yet been developed (Frenk et al., 2010; Hays, 2018; Lawrenson et al., 2017; Mullan, 2003; Smith, 2009; University of California Riverside, 2008; Whitcomb, 2018). Given this greater reliance on information from electronic and internet sources, the roles of libraries and librarians have also transformed (Association of American Medical Colleges, 2012; Australian Medical Council, 2012; Fogarty et al., 2012; Frenk et al., 2010; Hurt & Harris, 2005; Kebaetse et al., 2014; Liaison Committee on Medical Education, 2008, 2020; Smego et al., 2010; University of California Riverside, 2008; Whitcomb, 2013; World Federation for Medical Education, 2015, 2020).

Good quality ICT and e-learning resources were particularly imperative for geographically distributed models of education (Association of American Medical Colleges, 2012; Bonner et al., 2018; Cookson, 2013; Drobac & Morse, 2016; Fogarty et al., 2012; Hurt & Harris, 2005; Kebaetse et al., 2014; Lanphear & Strasser, 2008; Mokone et al., 2014; Penner, 2018; Reis et al., 2009; Smego et al., 2010; Snadden et al., 2011; Strasser & Lanphear, 2008; Strasser et al., 2009; Tesson et al., 2009; Williams et al., 2008; Worley et al., 2019) and distant collaborations with other organisations (Eichbaum, Bowa, et al., 2014; Eichbaum et al., 2015; Frenk et al., 2010; Kebaetse et al., 2014). With the benefit of ICT, students could “have the same access to curriculum materials, educational resources, specialist teachers and other information they would have if they were in a large city teaching hospital” (Strasser & Lanphear, 2008, p. 4) and “any space [could be] seen as a teaching/learning space” (Strasser & Lanphear, 2008, p. 5).

Even though access to digital information did not necessarily require sophisticated technology (Drobac & Morse, 2016), implementing ICT in a new medical school could become quite expensive and logistically-complex (Frenk et al., 2010; Hays, Strasser, et al., 2019; Kebaetse et al., 2014; Snadden et al., 2011). This could exacerbate inequities in medical education both locally and globally (Drobac & Morse, 2016; Frenk et al., 2010; Kebaetse et al., 2014). Nonetheless, the benefits of new technologies sometimes resulted in their uptake being “faster and more widespread in poor than in rich countries” (Frenk et al., 2010, p. 1945). Technological failure or inadequacy was a common challenge facing new medical schools (Frenk et al., 2010; Kebaetse et al., 2014; Lanphear & Strasser, 2008; Penner, 2018; Worley et al., 2019). Students complaining of inadequate library resources were also reported (Castelo-Branco et al., 2016; Delgado et al., 2017).

### **2.3.3.13 Accreditation:**

Accreditation is the formal sanctioning of a medical school to confer medical degrees which will allow their graduates to seek official licensing as doctors (Australian Medical Council, 2012; Field, 2011; Frenk et al., 2010; Liaison Committee on Medical Education, 2006). Accreditation standards were used to assess whether the medical school and its program of study were sufficient to provide graduates with the knowledge, skills, and professional attributes necessary to practise as doctors, and meet the health needs of patients and populations (Australian Medical Council, 2012; Frenk et al., 2010; Liaison Committee on Medical Education, 2006, 2008, 2020; Whitcomb, 2013; World Federation for Medical Education, 2000). Accreditation standards covered aspects such as governance, curriculum content, program delivery, clinical exposure, assessments, student selection, student support, and physical space (Australian Medical Council, 2012; Field, 2011; Hays, 2018; Liaison Committee on Medical Education, 2006, 2008, 2020; World Federation for Medical Education, 2000, 2015, 2020).

However, not all countries had systems for accreditation, and even when they existed, there were great disparities of quality (Frenk et al., 2010; Karle, 2010; World Federation for Medical Education, 2000, 2015, 2020). As a result, many calls for global reform, along with national and international standardisation, were made (Frenk et al., 2010; Howe et al., 2004; Karle, 2010; Rizwan et al., 2018; World Federation for Medical Education, 2000). The World Federation for Medical Education (WFME), devised international standards that were broadly accepted and were useful as a template and/or benchmark for national and regional standards (Bin Abdulrahman & Saleh, 2015; Karle, 2010; Mokone et al., 2014; Rizwan et al., 2018; World Federation for Medical Education, 2000, 2015, 2020).

Some authors asserted that accreditation should be based on both national and international standards (Bin Abdulrahman & Saleh, 2015; Frenk et al., 2010; Hays, 2018; Karle, 2008). Other authors cautioned against the wholesale use of homogenised medical accreditation standards from other regions – particularly ‘Western’ or high-income regions – because they were often not appropriate nor feasible for the local setting (Eichbaum et al., 2015; Eichbaum, Nyarango, et al., 2014). Rather, these authors advised the regional development of similar but context-appropriate standards, which could benefit the quality of local medical education (Eichbaum et al., 2015; Eichbaum, Nyarango, et al., 2014; Frenk et al., 2010; Hamdy & Anderson, 2006; World Federation for Medical Education, 2000, 2015, 2020). Frenk et al. highlighted that the “harmonisation of global standards with local adaptability to diverse contexts ... is ever more relevant ... in our mobile and interdependent world” (2010, p. 1937). Global standards could bring “consistency, transparency, and open accountability” (Frenk et al., 2010, p. 1937), but uniformity might also contribute to undesirable workforce migration and brain-drain across national borders (Frenk et al., 2010; World Federation for Medical Education, 2000). Accreditation bodies ensured that medical schools were aligned to their societal purpose and were, thus, well-placed to incentivise social accountability by requiring better implementation of social missions in medical schools (Frenk et al., 2010; Karle, 2010; World Federation for Medical Education, 2000).

Obtaining accreditation was a major hurdle for new medical schools to overcome (Association of American Medical Colleges, 2012; Field, 2011; Hurt & Harris, 2005; Smego et al., 2010; Whitcomb, 2009, 2013, 2018). Preparing for accreditation needed to commence from the very beginning of the establishment effort (Bin Abdulrahman & Saleh, 2015; Hays, Strasser, et al., 2019; Snadden et al., 2011). Accreditation was usually a costly and stressful process requiring lengthy, resource-intensive preparation by the new medical school, which may only have a small cohort of staff who were also managing other establishment priorities (Association of American Medical Colleges, 2012; Field, 2011; Hurt & Harris, 2005; Karle, 2010; Smego et al., 2010; Snadden et al., 2011; Whitcomb, 2009, 2013; World Federation for Medical Education, 2000). Holding a mock accreditation visit could help better prepare the staff of the new medical school (Association of American Medical Colleges, 2012). Moreover, the peer-review process of accreditation was recognised as an opportunity for the institution to learn and improve, if also used for self-evaluation and consultation (Castelo-Branco et al., 2016; Hays, Strasser, et al., 2019; Liaison Committee on Medical Education, 2006, 2008, 2020; World Federation for Medical Education, 2000).



While accreditation standards were not overly prescriptive and left scope for different methods of attainment (Hays, 2018; Whitcomb, 2013), the intense pressure for acceptance caused many new medical schools to make conventional, “safe” choices leading to very similar-looking programs to the detriment of innovation (Hays, 2018, p. 1). The intensive timetable for submission of accreditation documents “ultimately favors expediency over creativity” (Association of American Medical Colleges, 2012, p. 22). Furthermore, new medical schools might find that accrediting bodies were cautious to approve educational models and innovations they had never encountered before (Castelo-Branco et al., 2016; Hurt & Harris, 2005; Smith, 2009). Providing sufficient evidence that the intent of the standard can still be met along with robust evidence from international research and examples were essential in such situations (Castelo-Branco et al., 2016; Hays, Strasser, et al., 2019; Penner, 2018). Emphasising to the accrediting agency that their own international reputation could be well-served by approving cutting-edge medical education could be a helpful strategy (Castelo-Branco et al., 2016).

Common reasons for new medical schools to struggle or fail accreditation included limited availability of appropriate academic staff; inadequate access to clinical environments; unsatisfactory research provisions; insufficient financial and physical resources; poor post-graduate employment and training opportunities; lack of realistic forward planning; non-traditional models; short preparation times; and unsatisfactory documentation (Field, 2011; Hurt & Harris, 2005; Whitcomb, 2009, 2013, 2018).

To summarise, a thematic analysis of the 21<sup>st</sup> century literature identified thirteen key considerations when establishing a new medical school, that served as an initial framework of understanding for my research phenomenon. In the next section, I consider the strengths and limitations of my scoping review and conclude the chapter by listing the gaps identified in the literature.

## **2.4 Strengths and limitations of this literature review:**

As explained in section 2.2.1 'Review questions' above, a scoping review is ideal for analysing this broad, complex and heterogenous topic of new medical school establishment, especially given the dearth of prior research and the complete absence of published literature reviews and applied theories. A scoping review enabled a systematic, yet broadly inclusive methodology required for a medical education topic of this nature, while also accommodating the "limits of systematicity" (Eva, 2008, p. 852).

The unlimited date ranges and publication types used for this review are both strengths and limitations. They facilitated broad coverage spanning several decades of a poorly studied topic. However, too large a scope can limit the analysis to a superficial treatment and/or a lengthy treatise. In this review, I erred on the side of the latter to lessen the former. In this situation, limiting the articles to English-language only can be seen as a strength as it provided some level of bounding.

Scoping review methodology, which involves the iterative refinement of inclusion and exclusion criteria based on 'best fit', lends itself to interpretive subjectivity. Collaborating with others, submitting to peer-review, and considering alternative interpretations are ways to minimise overt bias in this process (Eva, 2008). However, due to the academic requirements for independent research within doctoral projects, the first two of these were only possible in restricted forms involving my supervisors.

Splitting the retrieved articles into two sets by century of publication also carries some strengths and limitations. Including all 118 articles enabled insights on historic trends that strengthened the perspectives of my subsequent original research. Utilising only the 78 articles published in the 21<sup>st</sup> century for the thematic analysis enabled more contemporary interpretations. Comparing the thematic findings against the 20<sup>th</sup> century literature and discovering significant resemblance strengthened these interpretations (see Appendix 11.2 'Comparing 20<sup>th</sup> century and 21<sup>st</sup> century literature'), but also suggests that retrieving 20<sup>th</sup> century literature may have been an unnecessary component of the review.

## 2.5 Gaps in the literature:

This scoping review helped to identify three initial gaps in the literature on the topic of new medical school establishment:

1. No literature reviews have been published on the topic, suggesting the evidence-base on the process of new medical school establishment has not been robustly critiqued.
2. No theoretical frameworks for the process of new medical school establishment have been identified nor applied.
3. Minimal research has been conducted on the process of new medical school establishment.

As my research progressed, my empirical case study findings helped identify two further significant gaps in the literature:

4. There is minimal coverage in the literature of how founding leaders and teams should go about obtaining the initial green-light for establishment from governing authorities.
5. There is minimal discussion in the literature about the personal costs and burnout commonly experienced by founders of new medical schools.

Furthermore, as listed in section 1.6.3 'Empirical original contributions' there were several other less significant gaps uncovered by my data, that were not initially identified during the scoping review of the literature. My thesis will address each of these gaps.

## 2.6 Summary of chapter:

This chapter presented a scoping review on the topic of new medical school establishment. It addressed the gap that no literature reviews on this topic have ever been published. The review was undertaken to answer the questions, *What does the medical education literature say about how new medical schools are established?*, *What literature is helpful for founding teams seeking to establish a new medical school?* and *What are the key factors that need to be considered when establishing a new medical school?*; and to provide an initial framework of understanding of the research topic.

The database search retrieved a total of 118 articles, 40 of which were published in the 20<sup>th</sup> century between 1927 and 1998, and 78 published in the 21<sup>st</sup> century up till January 2021. From these 118 articles, data was charted, and results were collated, summarised, and reported.

The key findings of this scoping review were that:

- Literature proliferation reflects the socio-political forces of each era regarding medical workforce numbers with peaks of publications in the 1960s and in the new millennium following calls for more new medical schools to supply more medical workforce.
- The literature is empirically and theoretically under-developed with articles being primarily descriptive pieces by founding deans or other leaders of new medical schools outlining personal and institutional experiences without report of research methodologies nor underpinning theoretical frameworks.
- Thirteen key considerations when establishing a new medical school were detailed including reasons for establishment; location choices; leadership and governance; costs and funding; partnerships; staffing; student numbers; student recruitment; curriculum design and implementation; clinical training sites; buildings and facilities; information and technology resources; and accreditation.

The strengths and limitations of this scoping review were noted and the gaps in the literature were highlighted. My doctoral research seeks to address each of these gaps. In the next chapter, I explain my research design to accomplish this.

## 3 RESEARCH DESIGN

### 3.1 Introduction to chapter:

In this chapter, I explain Critical Realism as my philosophical stance of choice. Both Multiple Case Study methodology and Social Accountability axiology sit comfortably within this paradigm and are particularly illuminating for my research question. Furthermore, I have adopted a theoretical framework from the business literature – Institutional Entrepreneurship – to devise a novel conceptual framework to examine my research phenomenon. Critical Realist approaches help to develop a deep understanding of how to successfully establish new medical schools in medically under-served areas by appraising the underpinning causal or generative mechanisms. Finally, I critically assess the validity of my research and note ethical considerations.

### 3.2 Research aims, questions, and objectives:

In chapter 1 'Introduction', I described the personal influences that precipitated my interest in establishing new medical schools in areas of need, and the years of critical thought, collegial discussion, and wide reading that culminated in this doctoral research undertaking. The aim of my research was to develop a deep understanding of the phenomenon of new medical school establishment in medically under-served areas. I wanted to understand the many factors at play in the process and how challenges can be approached. A key intention was to identify elements that were important for successful establishment of a new medical school. The research question posed was:

***How are new medical schools successfully established in medically under-served areas?***

Secondary questions to guide my research process were:

- *Why was this medical school established in this location?*
- *What factors and processes required consideration?*
- *What challenges were faced by the founding team and how were these challenges approached?*
- *What factors particularly contributed to successful establishment?*

My research objectives were to develop a scholarly understanding of the process of establishment and derive a way to structure information – both for myself and for future founders of new medical schools. A key objective of this study was to conduct research that could practically benefit future founding teams of medical schools in medically under-served areas. Having identified the various gaps in the literature (see ‘Literature Review’ section 2.5), another objective was to contribute to health professional education research and evidence-based literature on this topic. A Critical Realist philosophy and Social Accountability axiology underpinned my pursuit of these aims and objectives.

### **3.3 Philosophical orientation:**

Medical education derives from two distinct parent fields – clinical medicine and higher education. Epistemological approaches in these parent fields range widely from scientific positivism to social constructionism, and critical theory to postmodernism, with variations in between. Medical education usually straddles these parent areas, pragmatically espousing various eclectic and pluralistic approaches (Bligh & Anderson, 2000; Gordon, 2016; Prideaux, 2002; Thistlethwaite & Hammick, 2010; Varpio et al., 2020; Yardley & Dornan, 2012). As a clinician and educator, both medical science and social science influence my thinking and practice. I found I could comfortably espouse multiple epistemological views in harmonious parallel – depending on the practical need at hand. Critical Realism is a philosophical stance that aligns with this pragmatic pluralism.

#### **3.3.1 Critical Realism:**

Critical Realism (CR) is a philosophy of science that recognises both objective and interpretive perceptions of reality (Alexander, 2013; Archer et al., 1998; Bhaskar, 2011, 2018) and is explained as:

*an integration of a realist ontology (there is a real world that exists independently of our perceptions, theories, and constructions) with a constructivist epistemology (our understanding of this world is inevitably a construction from our own perspectives and standpoint, and there is no possibility of attaining a “God’s eye point of view” that is independent of any particular viewpoint). [emphasis in original as italics] (Maxwell & Mittapalli, 2010, p. 146)*

Critical Realism contends that there is a real world with which we interact and our concepts and theories refer to this real world (Maxwell, 2012). Our understanding of this real world can be more or less accurate, but no position or theory can claim to be a full and accurate representation of any phenomenon – that is, our knowledge is never complete and infallible, but rather, is partial and subject to revision (Archer et al., 1998; Bhaskar, 2011, 2018; Danermark et al., 2019; Gorski, 2013; Maxwell, 2012; Pawson et al., 2004). Researchers are, thus, encouraged to view every theory from both the ‘believing’ and ‘doubting’ perspectives – that is, using theory for what insights can be gained, but also examining where blind spots and distortions might be (Maxwell, 2012). CR takes a pragmatic, inclusive approach towards different research methods, without discounting any that have shown some ability to increase our understanding of the world (Danermark et al., 2019; Maxwell, 2012). It is, thus, well suited to the eclectic nature of medical education research (Bligh & Anderson, 2000; Gordon, 2016; Prideaux, 2002; Varpio et al., 2020; Yardley & Dornan, 2012).

*Emerging out of the positivist/constructivist ‘paradigm wars’ of the 1980s ... CR uses components of both approaches to provide a detailed account of ontology and epistemology, making CR a comprehensive philosophy of science. ... [It] functions as a general methodological framework for research but is not associated with any particular set of methods. (Fletcher, 2017, p. 181)*

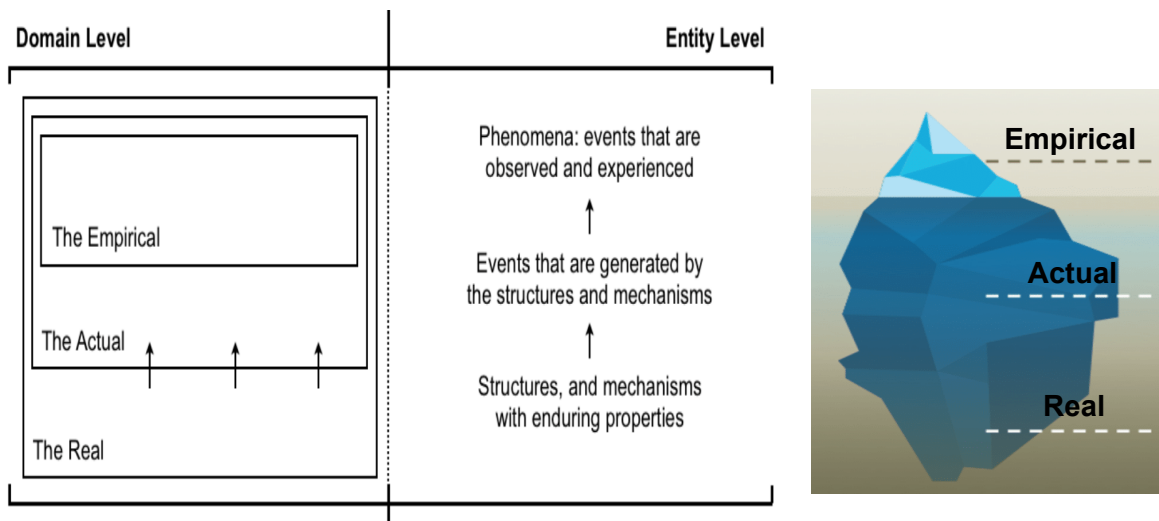
We understand the world through both mental and physical constructs – both of which are as real as the other (Archer et al., 1998; Bhaskar, 2011, 2018; Fletcher, 2017; Maxwell, 2012). In other words, the ideas and meanings held by individuals (i.e., their concepts, beliefs, feelings, intentions, etc.) are as real as physical objects and processes even though they may not be directly observable (Danermark et al., 2019; Maxwell, 2012). The real mental and physical constructs are not independent and separate in social life, but rather they interact and influence each other (Maxwell, 2012).

Critical Realism describes three nested domains or layers of reality (Alexander, 2013; Danermark et al., 2019; Fletcher, 2017; Scambler, 2018):

1. the Empirical domain, where phenomena are experienced directly or indirectly by observers/participants
  - At this level, events, objects, and experiences can be measured empirically and can be explained through the filter of human interpretation.
2. the Actual domain of factual phenomena, whether experienced by anyone or not
  - At this level, events occur whether or not we experience or interpret them and can be different from what is understood at the empirical level.
3. the Real domain, which hosts the generative or causal mechanisms that create 'Reality'
  - At this level, the inherent properties of an object, event, or situation act as causal forces to produce the factual phenomena of the Actual domain and the experiences of the Empirical domain.

The nested nature of these domains is visually represented in Figure 3-1 below (Zachariadis et al., 2013). They have also been likened to an iceberg with the empirical domain being the visible portion (Fletcher, 2017).

**Figure 3-1: The Stratified Ontology of Critical Realism**



(Adapted with permissions from Zachariadis et al., 2013 and Fletcher, 2017)



Since meaning and mental phenomena are considered as real and not just as theoretical abstractions or social constructions, there are implications for research methodology including data collection, analysis, and interpretation (Maxwell, 2012). This is particularly so for notions of causality: “Mental phenomena are inextricably involved in the causal process that produce behaviour and social phenomena ... Reasons can plausibly be seen as real phenomena in a causal nexus leading to [an] action” (Maxwell, 2012, p. 16). Fletcher asserts that, “It is the primary goal of CR to explain social events through reference to these causal mechanisms and the effects they can have throughout the three-layered ‘iceberg’ of reality” (Fletcher, 2017, p. 183). Furthermore, Critical Realism emphasises the importance of context for causal explanation, so causal claims must be grounded in valid site-specific explanations (Maxwell, 2012; Pawson et al., 2004; Williams, 2018).

The term ‘critical’ in Critical Realism can have multiple connotations (Alexander, 2013; Archer et al., 1998; Bhaskar, 2011, 2018; Danermark et al., 2019; Gorski, 2013) including:

- critiquing both positivist and constructionist perspectives of the world
- laying bare generative mechanisms at a social level, with the subsequent potential for social and emancipatory critique of human relationships and power dynamics
- using scientific practice for critical reflection on the common admixture of rational reasoning with myths and ignorance

All three connotations are important for my research. I have utilised both positivist and constructivist ways of thinking and researching, while acknowledging their limitations and constraints. I have considered sociological mechanisms and meanings, specifically issues of environmental structure, human agency, power dynamics, political strategy, and social accountability. I have undertaken research using scientific methodologies to examine my study phenomenon deeply and critically.

Seven guiding principles for critical realist research include (Alexander, 2013; Danermark et al., 2019):

1. The research should not be designated as either quantitative or qualitative but rather as critical.
2. The research could involve a range of methodological tools.
3. The research should be guided by theory.
4. The research should reveal the causal mechanisms that explain phenomena.
5. These causal mechanisms should be uncovered by applying various logic and reasoning strategies including induction, deduction, abduction, retrodution, and retrodiction (explained in section 3.4.4.1.1 below).
6. The research may not fully predict but could support informed discussions about the potential consequences of the causal mechanisms.
7. The research should produce generalisable claims.

These principles steered my research approach to collect and analyse the data, answer my questions, and develop a novel conceptual framework for establishing new medical schools in medically under-served areas. Social accountability also underpinned my approach, as outlined in the following section.

### **3.3.2 Social accountability:**

Social accountability is defined as “the measures that are made by an organisation to be aware of concerns to the community surrounding it. It is reflected in a commitment to health and safety, civil and human rights and betterment of the community” (Law Dictionary, n.d.). It is further described as the:

*measure of an organization's state of being mindful of the emerging social concerns and priorities of internal and external stakeholders (community, employees, governmental and nongovernmental organizations, management, and owners). It is reflected in the organization's verifiable commitment to certain factors (which may or may not be tied directly to its processes) such as (1) willing compliance with employment, health and hygiene, safety, and environment laws, (2) respect for basic civil and human rights, and (3) betterment of community and surrounding. (BSI Group India, n.d., p. 2)*

In medical education, more specifically, social accountability is defined as:

*the obligation of medical schools to direct their education, research and service activities towards addressing the priority health needs of the community, region, and/or nation they have a mandate to serve. The priority health needs are to be identified jointly by governments, healthcare organisations, health professionals and the public. (Boelen & Heck, 1995, p. 3)*

The Training for Health Equity Network (THEnet) add the phrase, “with a particular focus on the medically underserved”, in their definition (Training for Health Equity Network, 2011, p. 5).

Social accountability began to gain traction in medical education towards the end of last century, with the understanding that even if medical schools were founded with the intention to improve the well-being of their region, they could drift away from this mission over time, and therefore needed to periodically re-examine themselves to find the right balance between academic freedom and commitment to society (Boelen, 1995; Boelen et al., 2016; Gibbs & McLean, 2011; *Global consensus for social accountability of medical schools*, 2010). Social accountability can be “achieved through a structured and purposeful partnership in action between the educational institution and the wider health structures existing in the community, area, or region [it] serves” (Boelen et al., 2016, p. 1). It involves a move away from implicit hope to the explicit pursuit (Association for Medical Education in Europe, 2015; Boelen, 2016; Boelen & Woollard, 2011; Woollard, 2006) of societal values important for good health care delivery, such as quality, equity, relevance, and effectiveness (Boelen, 2016; Boelen & Woollard, 2011; Woollard, 2006). As such, it is designated as the best-end of a measurable spectrum of social obligation that ranges from social responsibility, through social responsiveness, to social accountability (Boelen, 2016, 2018; Boelen et al., 2016; Boelen & Woollard, 2011).

Principles of social accountability to guide medical schools (Training for Health Equity Network, 2011; World Health Organization, 2010) have been explicated as:

- Education, research, and services should be guided by the health and social needs of targeted communities.
- Schools should partner with the health system to produce locally relevant competencies.
- Students should be recruited from the communities with the greatest needs.
- Community-based practitioners should be recruited and trained as teachers and mentors; and staff should exemplify and promote commitment to public service.
- Programs should be located in or near the communities they serve; and most of the learning should take place in the community rather than at the university and/or hospital.
- The curriculum should integrate basic and clinical sciences with population health and social sciences; introduce early clinical contact which can increase the relevance and value of theoretical learning; and include pedagogical methodologies such as student-centred, problem- and service-based learning, all supported by information technology.

Furthermore, criteria for excellence in social accountability for medical schools have been defined around the documented plans, actions, and impacts of a medical school regarding its organisation and function; education; research; and contribution to health services (Association for Medical Education in Europe, 2015, 2018).

Personal values relating to social justice and pro-social action aligned me with these scholarly considerations of social accountability. Additionally, the emancipatory connotations of Critical Realism include a broad consistency with Critical Theory, which promotes betterment for under-privileged individuals or groups in society (Alexander, 2013; Archer et al., 1998; Bhaskar, 2011, 2018; Danermark et al., 2019). Both social accountability and Critical Realism are interested in “replacing undesired social structures with desired ones” (Danermark et al., 2019, p. 210). Thus, social accountability is an underpinning, motivating stance of my research with its emphasis on ‘medically under-served areas’. Social accountability influenced my choice of cases (see section 3.4.1.3 ‘Choosing the cases’ below) and provided an additional lens with which to interpret my data.

### 3.4 Research methodology:

To answer my research question, I chose to undertake Case Study Research (CSR) and specifically, the Multiple Case Study (MCS) methodology. CSR is ideally suited to situations that have “a distinctive need to understand a complex social phenomenon ... and retain a holistic and real-world perspective” (Yin, 2014, p. 4). The focus is on a sample ‘case’ for in-depth inquiry of the phenomenon within its real-world context (Yin, 2014, pp. 6, 16). CSR recognises that complex social phenomena are usually more than the sum of their parts, and have to be understood as a whole (Thomas, 2011). Thus, it is a preferred methodology for ‘how’ or ‘why’ research questions that call for extensive exploration and explanation of a multifaceted phenomenon (Thomas, 2011; Yin, 2014). MCS research is a variant of CSR that examines multiple cases of the phenomenon, each within their own contexts (Stake, 2006; Thomas, 2011; Yin, 2014). Evidence from MCS is often considered more compelling and robust than from single CSR, as cross-case conclusions can be drawn (Thomas, 2011; Yin, 2014).

Yin describes three features of a case study (2014):

1. there are many more variables of interest than data points
2. it relies on multiple sources and types of evidence and utilises triangulation (i.e., convergence) of data
3. the prior development of theoretical propositions (i.e., hypotheses) guide data collection and analysis

CSR is primarily a qualitative methodology, however it comfortably embraces different epistemological orientations (Thomas, 2011; Yin, 2014), making it compatible with Critical Realism. Yin notes three different applications of CSR that highlight its aptness for both my philosophical orientation and my research question (2014):

1. to explain presumed causal links in real-world interventions that are too complex for survey or experimental methods
2. to describe an intervention and the real-world context in which it occurred
3. to enlighten those situations in which the intervention has no clear, single set of outcomes

A key goal of my Critical Realist research was to understand possible causal mechanisms for success when establishing new medical schools in medically under-served locations. In the next section, I explain how I defined these concepts to choose my cases.

### **3.4.1 Case Study methods:**

#### **3.4.1.1 Defining ‘the case’:**

A key initial step in CSR is to define the “unit of analysis” or “the case” (Yin, 2014, p. 31). For my research, I defined the case as ‘a new medical school’.

In my research, the term ‘medical school’ encompasses the terms ‘medical course’, ‘medical college’, ‘medical university’, ‘school of medicine’, ‘faculty of medicine’, and ‘medical program’. These are variously defined as:

- “an educational institution, or a department of one, that teaches medicine” (HarperCollins, 2021a)
- “a university or part of a university where people study to become doctors” (Macmillan Education, 2021)
- “a school with a curriculum leading to a medical degree” (MedicineNet, 2021)
- “an educational institution providing a complete or full programme leading to a basic medical qualification, that is, a qualification that permits the holder to obtain a licence to practise as a medical doctor or physician” (Karle, 2010, p. 166)

To set boundaries around the concept of ‘new’, I chose to limit this research to medical schools that had been established within the 15 years prior to data collection as an objective cut-off. Further criteria used to set boundaries around my cases are explained next.

### **3.4.1.2 Bounding the cases:**

To further clarify the boundaries around the defined cases, inclusion and exclusion criteria were applied (Thomas, 2011; Yin, 2014): the new medical schools had to be ‘successfully established in medically under-served areas’. To indicate that they were ‘successfully established’, the new medical schools had to be provisionally, if not fully accredited; to have graduated at least two cohorts of doctors; and to still be operational at the time of data collection. These would show they had achieved a certain level of successful functionality. ‘Medically under-served areas’ is a statement describing a geo-socio-political situation of medical workforce shortage, inadequate access to health services, and poorer health outcomes (see ‘Introduction’ section 1.4.1). Bounding the cases within this context was essential to the social accountability ethos of my research. Satisfying this inclusion criteria was through self-reports from the medical schools about their regions.

Exclusion criteria encompassed the inability to conduct a site visit due to travel safety concerns; inability to access key founding members such as the Founding Dean; inability to conduct most of the research in English; and an existing medical school just going through rebranding or curriculum redesign rather than being new per se. In the next section, I describe how and why I chose my cases.

### **3.4.1.3 Choosing the cases:**

In CSR, cases can be chosen for a variety of reasons such as being a good example of the phenomenon and/or context under study (a key or exemplary case); being different from the norm (an outlier case); or being something in the researcher’s personal experience about which they want to find out more (a local knowledge case) (Thomas, 2011). In MCS, cases are chosen using replication logic rather than sampling logic (i.e., using statistical strategy to choose cases to represent the whole population) (Schwandt, 2007; Yin, 2014). Literal replication chooses cases predicting similar results while theoretical replication chooses cases predicting contrasting results for an anticipatable reason (Yin, 2014).

Guided by the above definitions and boundaries, I used targeted, purposive selection to choose three exemplary cases of new medical schools successfully established in medically under-served areas:

1. The Northern Territory Medical Program (NTMP) in Darwin, Australia
2. The Northern Ontario School of Medicine (NOSM) in rural Canada
3. The University of Botswana Faculty of Medicine (UBFoM) in Botswana

These three medical schools represented various combinations of literal and theoretical replications. For example, NTMP and NOSM were literal replications because of the similar economies and cultures of their parent countries and UBFoM was the theoretical replication with a contrasting economy and culture. Similarly, NOSM and UBFoM were literal replications because they were completely de novo medical schools, while NTMP was the theoretical replication as it was a new satellite program of an existing medical school.

The medical schools were recruited by contacting the Dean or head of each with an invitation to participate in my research (see Appendix 11.3 'Sample invitation to head of case study medical schools'). The Dean of the NTMP case in Australia was also one of my thesis supervisors and the implications of this for my research is noted in section 3.4.3.1.1 'Critical Realist approaches to the data collected' below. The Dean of NOSM in Canada was a collaborator of Flinders' medical school with many points of personal and collegiate connection. UBFoM in Botswana was identified as a suitable case study based on published articles accessed during the literature review. The authors were contacted by e-mail with information about my research and they facilitated contact with the Acting Dean of their medical school.

Three other medical schools were also recruited (in the Philippines, Indonesia, and Nepal), however, these were not pursued due to the large volume of rich data, with saturation, from the original three cases. One of these cases also had to be excluded due to persisting socio-political unrest in the region causing safety concerns impacting the ability to conduct a site visit. The Covid-19 global pandemic impeding international travel further cemented the decision to withdraw these three extra case studies. In section 3.4.3 below, I describe the multi-source, multi-modal data collected from each case study medical school, but first, I reflect on my choice of CSR methodology over other possible approaches.



#### **3.4.1.4 Reflexivity: Choosing a CSR methodology over other possible approaches**

As noted earlier, Critical Realism takes a pragmatic, inclusive approach towards different research methods, without specific association to any particular set (Danermark et al., 2019; Ellaway et al., 2020; Fletcher, 2017; Maxwell, 2012). One methodology congruent with CR is Realist Inquiry, which asks the compound question, “What works for whom, under what circumstances, how, and why?” (Ellaway et al., 2020, p. 985). It uses a ‘CMO’ configuration to understand the real world where “Context + Mechanisms = Outcomes” (Ellaway et al., 2020; Pawson et al., 2005; Pawson & Tilley, 2004; Williams, 2018). Furthermore, it prescribes a structured approach to literature review (Realist Synthesis) and the evaluation of complex educational interventions (Realist Evaluation) (Ellaway et al., 2020; Pawson et al., 2005; Pawson & Tilley, 2004; Williams, 2018). As such, Realist Inquiry was a plausible consideration for my research approach.

Nonetheless, as discussed in section 3.4 above, I chose a Multiple Case Study approach because:

- it comfortably embraces different epistemological orientations (Thomas, 2011; Yin, 2014), including Critical Realism
- it is a preferred methodology for ‘how’ research questions (Thomas, 2011; Yin, 2014)
- it encourages a holistic perspective when understanding complex social phenomena (Yin, 2014)
- it enlightens situations in which the intervention has no clear, single set of outcomes (Yin, 2014)
- it is congruent with CR in its approach to the use of theory (Ellaway et al., 2020; Fletcher, 2017; Yin, 2014)

In the next section, I explain how I have extensively used theory in my MCS research.

### 3.4.2 Utilising theory:

Both CSR and CR encourage engaging with existing theories to help explain what is going on in reality (Fletcher, 2017; Yin, 2014). Fletcher explains that “CR aims to find the best explanation of reality through engagement with existing (fallible) theories about that reality” (2017, p. 186) – that is, a hypothesis about why the specific acts, events, structure, and thoughts occur in the research phenomenon (Samuel et al., 2020; Yin, 2014). An initial theory can be confirmed, explained, or refuted during research, to help construct a fresh or more accurate understanding of reality (Fletcher, 2017; Samuel et al., 2020; Yin, 2014). Using existing theory has advantages and limitations since it can help structure thoughts and findings but could also miss or lose information that doesn’t conform:

*A useful high-level theory gives you a framework for making sense of what you see. Particular pieces of data, which otherwise might seem unconnected or irrelevant to one another or to your research questions can be related by fitting them into the theory. ... However no theory will hang all data equally well; a theory that neatly organizes some data will leave other data dishevelled and lying on the floor, with no place to put them. (Maxwell, 2013, p. 49)*

Thus, when utilising a theory for its benefits, care must also be taken to acknowledge and critique its limitations (Fletcher, 2017; Maxwell, 2013; Samuel et al., 2020; Varpio et al., 2020; Yin, 2014). Additionally, in CSR, identifying and addressing possible “rival explanations” for the findings is an important part of the research process (Yin, 2014, p. 104). Using theory to better understand the complex mechanics of medical education phenomena, is particularly important due to the potential educational and health impacts on individuals and societies (Samuel et al., 2020; Varpio et al., 2020).

As identified in 'Literature Review' section 2.5, one significant gap in the medical education literature was that an overarching theory had never before been applied to the process of new medical school establishment. To address this gap, I explored various theories of organisational and educational change including complexity theory, actor network theory, implementation theory, and Fullan's educational change theory – none of which adequately addressed my research question. Using the realist approach of theory adjudication (i.e., making sense of observations, sifting through rival explanations, and weeding out alternative theories) to identify the theory of best-fit (Pawson et al., 2004), I chose 'Institutional Entrepreneurship' (IE), from the business literature, because it offered a deep understanding of how to successfully launch a new venture and initiate complex institutional change. Furthermore, it opened a vista of academic scholarship from the business domain useful for my research including theories of entrepreneurship, institutions, resources, leadership, management, structure, agency, power, and politics (explored in chapter 8 'Discussion').

Comparing the tenets of IE to the findings of my literature review and preliminary case analysis confirmed applicability to my research on new medical school establishment. In the sections below, I explain this congruence and also how this initial theoretical framework needed modification and extension to fully examine my research phenomenon. In the next section, I define IE and outline its key concepts.

#### **3.4.2.1 *Institutional Entrepreneurship:***

IE is defined as "the activities of actors who have an interest in particular institutional arrangements and who leverage resources to create new institutions or to transform existing ones" (Maguire et al., 2004, p. 657). DiMaggio, who originally coined the phrase, described that "new institutions arise when organized actors with sufficient resources (institutional entrepreneurs) see in them an opportunity to realize interests that they value highly" (DiMaggio, 1988, p. 14). IE is descended from two parent fields – Institutional Theory and Entrepreneurship Theory and uses concepts from both (Garud et al., 2007). The original meaning of the French term 'entrepreneur' is "one who undertakes" (Young & Grinsfelder, 2011, p. 544) and 'entrepreneurship' in this context refers more to institutional innovation than strictly to profit-making business enterprises.

IE literature illuminates several requisites for an organisation to be successfully created or changed: 'field conditions', 'institutional entrepreneurs', 'resources', 'rationales', and 'relationships' (Hardy & Maguire, 2017). IE also discusses the need to account for the 'paradox of embedded agency' (Garud et al., 2007; Hardy & Maguire, 2017; Leca & Naccache, 2006), while broader entrepreneurship literature discusses the importance of 'opportunity recognition or creation' (George et al., 2016; Phillips & Tracey, 2007). I outline these concepts here, but also examine them more extensively in chapter 8 'Discussion'.

'Field conditions' refer to the situational context or environmental milieu which can either be conducive or detrimental to the new venture (Bleakley et al., 2011; Hardy & Maguire, 2017; Kao, 1989). Situations of uncertainty, deficit, problems, tensions, change, or crises often precipitate the institutional establishment or change (Hardy & Maguire, 2017), but could also equally obstruct or prevent it (Bleakley et al., 2011; Kao, 1989).

'Institutional entrepreneurs' are the individuals, teams, organisations, communities, or groups that respond to the uncertainty or problems in their field by proposing and pursuing the new venture (Battilana et al., 2009; Hardy & Maguire, 2017). Institutional entrepreneurs need to be capable of changing their fields by dislodging existing practices, introducing new ones, and ensuring they become widely adopted by others in the field (Hardy & Maguire, 2017). Critics of change management literature challenge the notion of 'heroic' individuals who successfully lead change and suggest that other actors can equally function as entrepreneurs under the right field conditions (Battilana et al., 2009; Hardy & Maguire, 2017).

The 'paradox of embedded agency' refers to a theoretical dilemma between stability and change in human behaviour and cognition. Actors embedded in an existing field often do not have the faculties to envision anything different to the norm (Garud et al., 2007; Hardy & Maguire, 2017; Leca & Naccache, 2006). Dominant actors in a field often have the power to accomplish change but lack the impetus, because maintaining the status quo facilitates their current position of power and dominance (Garud et al., 2007; Hardy & Maguire, 2017; Maguire et al., 2004). Less dominant players who are less invested in the norm, may have more incentive and more ties to other fields allowing them envision and desire change, yet may not have sufficient influence to accomplish this change (Garud et al., 2007; Hardy & Maguire, 2017; Maguire et al., 2004). Institutional entrepreneurs must account for this paradox – whether implicitly or explicitly – when trying to initiate change and innovation. Furthermore, 'opportunity recognition or creation' is a vital remit of an entrepreneur (George et al., 2016; Phillips & Tracey, 2007). Being able to gauge the social, political, economic, and environmental milieu or field conditions to harness favourable circumstances or to skilfully create such circumstances is fundamental to their activities of change and innovation.

More specifically, institutional entrepreneurs can change field conditions by using three intervention strategies or three R's – 'Resources', 'Rationales', and 'Relationships' (Hardy & Maguire, 2017). Institutional entrepreneurs need to procure sufficient resources for the new venture. This is usually quite challenging for most endeavours (Clough et al., 2018; Rawhouser et al., 2017; Zane & DeCarolis, 2016), but solutions and approaches have been suggested. For example, 'entrepreneurial bricolage' or "making do with what is at hand" (Baker & Nelson, 2005, p. 329) has been studied and used particularly in resource-constrained situations, but cautions and problems with its use have also been identified (Bacq et al., 2015; Baker & Nelson, 2005; Clough et al., 2018; Phillips & Tracey, 2007; Senyard et al., 2009). Institutional entrepreneurs also need to build relationships and make alliances that will support and further their activities (Alvarez & Busenitz, 2001; Clough et al., 2018; Katre & Salipante, 2012; Rawhouser et al., 2017; Smith & Lohrke, 2008; Zane & DeCarolis, 2016). To do this they will need to construct compelling rationales to 'sell' their idea and garner support (Hardy & Maguire, 2017). People will pledge their commitment to a dynamic and passionate vision even in the face of significant resource-constraints (Rawhouser et al., 2017). These three intervention strategies or 'R's' are not independent of each other but intertwine in complex and non-linear ways to successfully accomplish the new venture (Hardy & Maguire, 2017; Rawhouser et al., 2017). In the next section, I explain how I related these IE concepts to new medical school establishment.

### **3.4.2.2 Applying IE to new medical school establishment:**

Institutional Entrepreneurship has only ever been applied to medical education in one prior publication where Varpio et al., argued that leaders of health professions education units functioned as institutional entrepreneurs – as evidenced by how they constructed arguments to resolve institutional problems; how they strategically cultivated relationships; and how they worked to increase the publicity and visibility of their unit (2017). Varpio et al. did not extend their parallel of IE with health professional education units to other aspects of medical education organisations.

Establishing a new medical school can be considered an example of social entrepreneurship. Social entrepreneurship is variously defined as “a process involving the innovative use and combination of resources to pursue opportunities to catalyze social change and/or address social needs” (Mair & Marti, 2006, as cited in Spinelli, 2016, p. 144), or “innovative, social value-creating activity that can occur within or across the nonprofit, business, or government sectors” (Austin, Stevenson & Wei-Skillern, 2006, as cited in Spinelli, 2016, p. 144). Thus, social entrepreneurship is a sub-set of entrepreneurship where ‘value-creation’ results in social benefit rather than economic gain (Spinelli & Adams, 2016). The process of establishing a new medical school, particularly in medically under-served areas, is congruent with these definitions of social entrepreneurship. Thus, concepts of entrepreneurship, social entrepreneurship, and institutional entrepreneurship can be applied to the activity.

During my process of theory adjudication, IE’s conceptual congruency to my research phenomenon became evident. My review of the medical education literature inductively yielded thirteen key considerations for new medical school establishment (see ‘Literature Review’ section 2.3.3) and each consideration could be deductively mapped to one or more of the IE requisites (see Table 3-1 later). Moreover, preliminary analysis of my case study data further confirmed the applicability of IE as a theoretical framework for my research. However, some areas where the initial framework required modification and extension also began to emerge. The next section describes how I devised a novel conceptual framework for the phenomenon of new medical school establishment using IE as a starting point and expanding on it based on my empirical findings.

### **3.4.2.3 Devising a novel conceptual framework – the Eight C’s Framework (8CF):**

My novel conceptual framework was developed through iterative research processes of literature review, data analysis, critical reflection, and collegial discussion. Initially, using a process of abduction – also known as theoretical redescription (described further in section 3.4.4.1.1 below) – I re-conceptualised five IE elements using five alliterative descriptors:

- ‘Field conditions’ ≈ ‘Context’
- ‘Institutional entrepreneurs’ ≈ ‘Catalysts’
- ‘Resources’ ≈ ‘Collecting’
- ‘Rationales’ ≈ ‘Convincing’
- ‘Relationships’ ≈ ‘Connecting’

The three ‘R’ intervention strategies described by IE were deliberately phrased as verbs in my framework, to highlight the practical, action-oriented objective of my research (see section 3.2 ‘Research aims, questions, and objectives’ above). In this way, my framework began as ‘5CF’.

As my research progressed, my preliminary empirical findings helped identify another gap in the medical education literature regarding what is required to get the all-important initial authoritative approval to proceed with establishment (see ‘Literature Review’ section 2.5 above and Table 3-1 below). Critical reflection, further data analysis, and collegial discussion of this gap inductively led to the addition of another ‘C’ word, ‘Conducing’. The dictionary definition of this uncommon verb is “help[ing] to bring about (a particular situation or outcome)” (Lexico.com, 2021). Congruence with this definition and several IE concepts was also recognised:

- ‘Opportunity recognition/creation’ & ‘Paradox of embedded agency’ ≈ ‘Conducing’

These essential considerations for the institutional entrepreneur or ‘Catalyst’ had not originally emerged as separately germane to the conceptual framework and, thus, had not been initially included. However, as my research progressed, the imperative nature of this additional action-oriented ‘C’ verb became evident (detailed in ‘Discussion’ section 8.2.3). Thus, the theory-based ‘5CF’ grew into a ‘6CF’, supported by further theory and important empirical findings.

Through further analyses of my case data and with one of my research sub-questions emphasising the 'Challenges' faced when establishing new medical schools (see section 3.2 'Research aims, questions, and objectives' above), a seventh 'C' word emerged as important for my conceptual framework. Thus, '6CF' expanded pragmatically into '7CF'.

Continued empirical analyses and public presentations of my research at academic conferences revealed that the sequelae or outcomes of establishing medical schools in medically under-served contexts needed expression in my framework. Critical Realism also highlighted the importance of 'outcomes' in its use of the CMO configuration to understand the real world where "Context + Mechanisms = Outcomes" (Pawson et al., 2005; Pawson & Tilley, 2004; Williams, 2018). This led to the addition of the eighth 'C' in my conceptual framework:

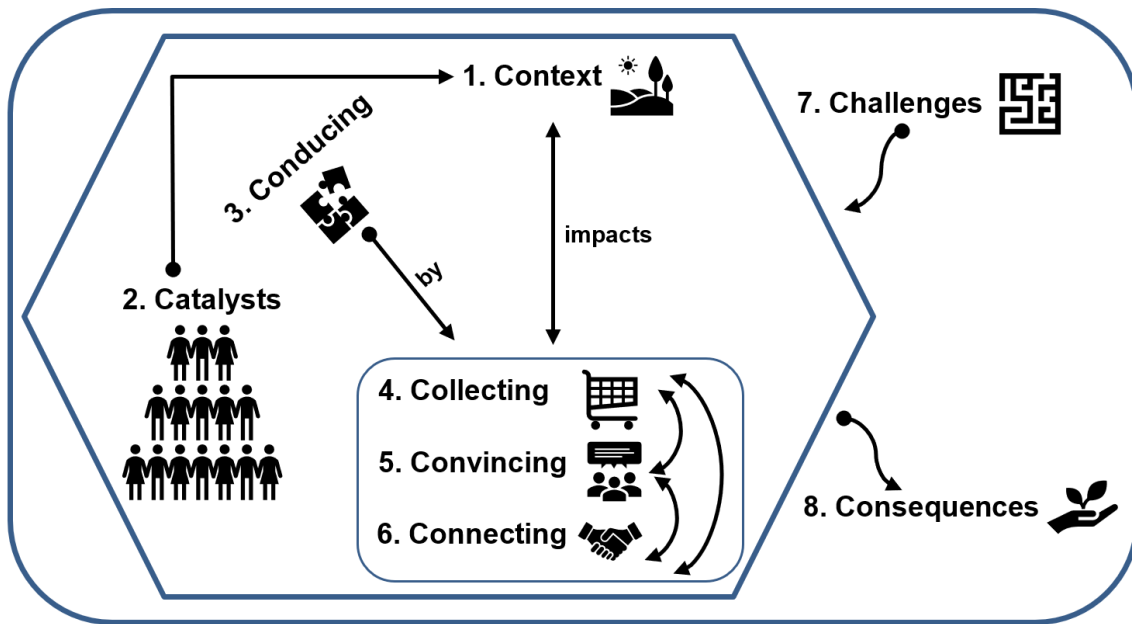
- 'Outcomes'  $\approx$  'Consequences'

Thus, through an iterative research process, an original theoretical '5CF' was empirically and pragmatically expanded into the final '8CF'.

To summarise, my novel conceptual framework of new medical school establishment utilises eight alliterative descriptors to highlight important aspects of the process: 'Context', 'Catalysts', 'Conducting', 'Collecting', 'Convincing', 'Connecting', 'Challenges', and 'Consequences', each of which is further explained below. Figure 3-2 visually depicts the Eight C's Framework (8CF) and illuminates the multi-dimensional interactions between the various elements.



Figure 3-2: Concept Map of the Eight C's Framework (8CF) (Figure 1-3 reproduced)



(© Author)

#### 3.4.2.3.1 Context:

The 'Context' of a phenomenon is recognised as crucial in Critical Realism, Case Study Research, and Institutional Entrepreneurship (Hardy & Maguire, 2017; Kao, 1989; Maxwell, 2012; Pawson et al., 2004, 2005; Pawson & Tilley, 2004; Williams, 2018). Founding leaders/teams need to be aware of and account for the unique social, political, economic, geographic, educational, and cultural environment, milieu, or 'field conditions'. They need to identify both conducive and detrimental field conditions and will need to act accordingly (see 'Conducing' later). For new medical schools, the contextual considerations will include workforce needs, existing health services, educational options, access to human resources, geographic locations, and governmental support.

#### 3.4.2.3.2 Catalysts:

The 'institutional entrepreneurs' or 'Catalysts' of new medical schools are the founding leaders, comprising academic, clinical, political, and community stakeholders. They will "establish new trajectories as they develop a vision, mobilize people, and motivate others to achieve and sustain the vision" (Henfridsson & Yoo, 2014, p. 932). For new medical schools there could be different groups of Catalysts who are active in different aspects of establishment – for example, community leaders and politicians may precipitate the founding of the new medical school but the Founding Dean, Planning Committee, and other academic and clinical staff may steer the successful implementation of the vision.

My case studies revealed that some Catalysts will be more central to the activities of establishment while other human agents are more peripheral to the effort, yet no less essential. In my research, I categorised the central players as 'Champions' and the more peripheral players as 'Colleagues'. My distinctions of these did not strictly adhere to same definitions of 'central' versus 'peripheral' actors in the IE discussions of 'the paradox of embedded agency' (Garud et al., 2007). Instead, I distinguished between Champions and Colleagues more functionally, relating to the roles they played in establishing a new medical school. In chapter 8, where I critique my derived conceptual framework and my use of theory, I explain why these further two 'C' words did not extend 8CF into 10CF (see section 8.4.1 'Critiquing my use of theory').

Catalysts need to conduce change in their contexts with the adept use of both opportunistic and strategic action. They might do this using an interwoven combination of collecting resources, convincing rationales, and connecting relationships. However, for new medical schools, a critical initial step is to obtain the authoritative 'green-light' to proceed with establishment. I discuss this aspect of the establishment process under its own action-oriented verb, 'Conducing', next.

#### 3.4.2.3.3 Conducing:

Founding leaders/teams need to be able to harness conducive circumstances and negate detrimental ones in their contexts (Bleakley et al., 2011; Hardy & Maguire, 2017; Kao, 1989). Business literature refers to this as ‘opportunity recognition or creation’ – a vital part of successful entrepreneurship (George et al., 2016; Phillips & Tracey, 2007). Opportunities can be both “discovered” and/or “created” by savvy entrepreneurs who might use factors such as “prior knowledge, social capital, cognition/personality traits, environmental conditions, alertness, and systematic search”, to do so effectively (George et al., 2016, p. 309).

Additionally, accounting for the ‘paradox of embedded agency’ – that is, overcoming the tendency to maintain the status quo – can be understood as part of ‘Conducing’. Maximising their individual and collective leadership and management capabilities by understanding change processes and entrepreneurship principles will facilitate a successful endeavour (Phillips & Tracey, 2007).

As explained in section 3.4.2.3 above, this ‘C’ was empirically added to my conceptual framework in recognition of the gap in the literature regarding how to get the initial green-light for the new medical school from the governing authorities. For my analysis, I classified the governing authorities to include university, healthcare, community, and/or government leaders since these were the common avenues of approval for most countries and contexts. In some countries and contexts such as North America, accrediting bodies were also involved in providing the initial green-light (Whitcomb, 2009, 2013, 2018), whereas in other places like Australia and Botswana, the accreditors were involved only later in the process. Thus, in my research, I did not include accreditation considerations under ‘Conducing’ but rather under ‘Convincing’ (see section 3.4.2.3.5 below).

#### **3.4.2.3.3.1 Reflexivity: Active versus passive, agency versus structure**

During analysis, it became clear that each case study had ‘conducting factors’ (passive) and ‘conducting activities’ (active) that helped make their contexts more favourable. When used in this way, ‘conducting’ became an adjective rather than a verb. In my research, I have considered both the adjective and the verb understandings of ‘Conducting’ consistent with the passive and active aspects of opportunity recognition/creation noted in the business literature.

Similarly, the words ‘convincing’ and ‘connecting’ can also be used as active verbs (e.g., “convincing the stakeholders”, “connecting two organisations”) or passive adjectives (e.g., “convincing rationales”, “connecting link”). In my research, I have taken advantage of both active and passive connotations of these concepts. Doing so has illuminated the fundamental roles of passive environmental structure as well as active human agency underpinning successful new medical school establishment (discussed in-depth in chapter 8 ‘Discussion’).

#### **3.4.2.3.4 Collecting:**

Founding leaders/teams need to collect all the required resources including human, economic, physical, material, intellectual, educational, ideological, and technological. These are not original to medical education and most entrepreneurial ventures will require similar resources (Clough et al., 2018; Rawhouser et al., 2017; Zane & DeCarolis, 2016). For new medical schools, specific resources that need to be collected include finances; human resources including staff and students; curriculum designs; educational materials; laboratory equipment; physical buildings and learning spaces; and supportive technology (see ‘Literature Review’ section 2.3.3 above and Table 3-1 below). For consistency across my case studies, I standardised the required resources into six categories of ‘Funds’; ‘Staff’; ‘Curriculum’; ‘Clinical training sites’; ‘Facilities’ (incorporating physical spaces, educational equipment, research laboratories, library facilities, and technological resources); and ‘Students’. I separated clinical training sites into their own category (even though they could have been subsumed into ‘Facilities’), to indicate their importance as a resource that needs collecting for new medical schools. Similarly, staff and students deserved individual consideration rather than as a single category of ‘human resources’. Intellectual and ideological resources are considered under section 3.4.2.3.5 below.

Given the interwoven nature of Conducting, Collecting, Convincing, and Connecting (discussed further in section 3.4.2.4 below), Catalysts might use any of the other intervention strategies to assist them in gathering the required resources. Conversely, they might also use their varied resources – human, material, and conceptual – to facilitate their other activities.

#### *3.4.2.3.5 Convincing:*

Founding leaders/teams will need to construct compelling rationales, arguments, and narratives to convince the various stakeholders. “[T]he emergence of novelty is not an easy or predictable process as it is ripe with politics and ongoing negotiation. What may appear to be new and valuable to one social group may seem threatening to another”, caution Garud et al. (2007, p. 960). Catalysts should expect to encounter socio-political resistance and opposition and will need to be ready with persuasive techniques of ‘Convincing’ (explored further in chapter 8 ‘Discussion’).

For new medical schools, there will be macro-level (i.e., environmental), meso-level (i.e., institutional), and micro-level (i.e., individual) (Preston et al., 2016; Tracey et al., 2011) rationales that need persuasive expression. Macro-level rationales, such as the problems in the current field conditions, the reasons for establishment, and the potential positive outcomes, might be especially important in convincing some high-level stakeholders such as government officials, policy makers, communities, and university leaders. Meso-level rationales regarding curriculum design, access to resources, and quality of training will be particularly important in convincing stakeholders such as accreditation bodies, teaching clinicians, and potential students (see ‘Literature Review’ section 2.3.3 above and Table 3-1 below). Micro-level rationales regarding the competence and quality of the individual graduate may also be important to accreditation bodies, teaching clinicians, and potential students. Ultimately, a combination of several different arguments and rationales will be convincing to different stakeholders (Hardy & Maguire, 2017; Maguire et al., 2004; Whitcomb, 2009).

#### 3.4.2.3.6 Connecting:

The importance of collaborative partnerships for new medical schools through symbiotic and strategic alliances is already well-recognised in the medical education literature (see section 2.3.3.5 'Partnerships and relationships'). Gathering support and forging alliances can be particularly difficult for new ventures because of their "liability of newness" (Katre & Salipante, 2012, p. 971; Smith & Lohrke, 2008, p. 315). IE literature illuminates the importance of "affective and cognitive trust" as the entrepreneurs and their collaborators "develop exchange relationships" (Smith & Lohrke, 2008, p. 315) (explored further in chapter 8 'Discussion').

#### 3.4.2.3.7 Challenges:

All new initiatives will encounter problems, obstacles, and set-backs as they start up. Some of these 'Challenges' can be predicted, while others will be unforeseen (Whitcomb, 2009). The medical education literature revealed several common challenges for new medical schools such as obtaining sufficient funds, recruiting staff, timely completion of buildings, and obtaining accreditation (see 'Literature Review' section 2.3.3). Since being forewarned is being forearmed, Catalysts could pre-prepare for the predictable challenges while also being ready to deal with the unforeseen ones. Challenges could be encountered at every stage and with every facet of the establishment process.

#### 3.4.2.3.8 Consequences:

Founding teams will need to consider the 'Consequences' of the new medical school in their medically under-served area. As they proceed with establishment, there might be several macro-level (i.e., environmental), meso-level (i.e., institutional), and micro-level (i.e., individual) (Preston et al., 2016; Tracey et al., 2011) outcomes – including both intended and unintended ones. Catalysts might be able to pro-actively ensure positive Consequences while mitigating negative ones by using the appropriate Conducting, Collecting, Convincing, and Connecting strategies. In my research and my use of the 8CF, I have considered 'negative' outcomes under Challenges and have used the eighth 'C' of Consequences to focus on the positive and desirable outcomes of establishing a new medical school in a medically under-served location.

#### **3.4.2.4 Interactions of the Eight C's:**

As Figure 3-2 depicts, all eight C's interrelate with each other in complex, multi-dimensional, non-linear interactions. Catalysts conduce favourable contextual conditions and effect change or innovation by collecting the required resources by convincing stakeholders with compelling rationales, and by connecting stakeholders in collaborative relationships. Each of the verb C's (conducing, collecting, convincing, and connecting) can support and improve each other. They also impact and are impacted by the context – either to improve or impede. Challenges can be experienced with every 'C' and will need to be overcome. Different consequences may eventuate depending on different Cs and their interactions. Effective catalysts will need to skilfully navigate all these interactions to ensure a successful endeavour. Table 3-1 in the next section further illustrates the interleaving conceptual connections of each C.

#### **3.4.2.5 Congruence of 8CF with IE and the medical education literature:**

Table 3-1 depicts the linkages between Institutional Entrepreneurship concepts, the thirteen key considerations (13KCs) from my literature review (see section 2.3.3) and the corresponding elements of my Eight C's Framework. It shows that every 'C' concept can be linked back to one or more IE concept, as well as to specific elements of new medical school establishment discussed in the medical education literature.

Table 3-1 also highlights a significant fourth gap in the medical education literature – discussions of how founders of new medical schools recognised or created the opportunity to establish a new medical school; how they overcame the paradox of embedded agency within their existing environments; and how they obtained the required permissions and 'green-light' to proceed. These important considerations, well-known in the entrepreneurial domain, may not be well understood by medical educators and founding teams of medical schools. My research seeks to address this by including 'Conducing' as an important element of the 8CF.

**Table 3-1: Linking IE, 8CF and literature review**

<b>IE Concepts</b>	<b>13KCs</b>	<b>8CF</b>
<b>Field conditions</b>	Reasons for establishment Location choices Clinical training sites	Context Challenges Consequences
<b>Institutional entrepreneur</b>	Leadership & governance Staffing	Catalysts Challenges Consequences
<b>Opportunity recognition / creation</b>	<b>Literature Gap #4</b>	Conducting Challenges Consequences
<b>Paradox of embedded agency</b>		Context Conducting Challenges Consequences
<b>Resources</b>	Costs & funding Staffing Students Curriculum Clinical training sites Buildings & facilities Information & technology resources	Collecting Challenges Consequences
<b>Rationales</b>	Reasons for establishment Accreditation Curriculum design & implementation	Convincing Challenges Consequences
<b>Relationships</b>	Partnerships Staffing Students Clinical training sites Accreditation	Connecting Challenges Consequences

Having devised 8CF as a conceptual framework based on theory, the medical education literature, and my preliminary empirical findings, it was further useful as an analytical framework for data analysis, which I explain in section 3.4.4 below. In the next section, I describe the multi-source, multi-modal data collected for my Case Study Research.



### **3.4.3 Data collection:**

Collecting multi-source, multi-modal data is vital for CSR: “The case study’s unique strength is its ability to deal with a full variety of evidence – documents, artefacts, interviews, and observations” (Yin, 2014, p. 12). Through this multiplicity of evidence, the assumption of CSR is that “with a great deal of intricate study, looking at our subject from many and varied angles, we can get closer to the ‘why’ and the ‘how’” (Thomas, 2011, p. 4).

In my research, for each case study medical school, data was collected through:

- site visits
- observational data of the general structure, function, and context of the medical school
- confidential semi-structured interviews with key staff, community members, and government officials involved with establishing the medical school
- confidential gathering of documents and audio-visual materials relevant to establishment

Since English was the primary language of communication for staff and students at all three case-study medical schools (as per criteria mentioned in section 0 above), all gathered materials were in English and did not require translation. Appendix 11.8 tabulates a summary of the data collected for each case study.

Site visits involved traveling to the locations of the case study medical schools for a period of 2 – 3 weeks to make observations, conduct interviews, and gather other data. Primary sites of the medical schools as well as a few distributed satellite locations were visited for each medical school. Observational data were gathered through field notes, reflective writings, photographs, and videos. Site visits were conducted in November 2016 (NTMP), June 2017 (NOSM), and September 2018 (UBFoM).

Interview participants were identified using targeted, purposive recruitment. Lists of potential participants were compiled with assistance from a key staff member from each medical school. Potential participants included key staff leaders from the university and health services, and community members or government officials involved with the medical school's establishment. Further participants were recruited through snowball recruitment (Allen, 2017) – that is, each participant was asked for suggestions of others who should be considered for interview. Potential participants were contacted by e-mail to request their voluntary participation (see Appendix sections 11.4, 11.5, and 11.6 for sample recruitment documents). Numbers of participants interviewed for each case study were 16 (NTMP), 17 (NOSM), and 20 (UBFoM).

Interviews of 1 – 2 hours duration were conducted – either in-person while on-site or virtually through videoconferencing facilities such as Skype or Zoom (see Appendix 11.7 'Guiding questions for semi-structured interviews'). The interviews were digitally audio-recorded and were confidentially transcribed by a professional transcription service. Participants were given the opportunity to check their transcript before it was de-identified prior to analysis. All transcripts were de-identified by removing any names, job descriptions, and any other personally identifying statements and assigning codes instead. Although participants were not identifiable as individuals, the names of the medical schools with which they were affiliated were still known – interviewees were informed of this prior to gaining their written consent to participate (see Appendix documents 11.5 and 11.6).

Other data such as relevant working documents and audio-visual materials about establishment were confidentially collected. Some of these were publicly available from journal articles, websites, and other publications, while others were provided by staff from the case study medical schools. Appendix 11.8 summarises the data collected for each case study. All the collected data were approached with a Critical Realist perspective, as explained next.

#### 3.4.3.1.1 Critical Realist approaches to the data collected:

Realist approaches acknowledge that informants are not “all-knowing, nor that they will necessarily agree on how, for whom and in what circumstances a programme will work” (Pawson & Tilley, 2004, p. 12). However, all data could be treated as “evidence” from which inferences about the real world can be made:

*The main implication of realism ... is that data are usefully seen, not simply as “texts” to be interpreted, or as “constructions” of participants (although they are this), but as evidence for real phenomena and processes (including mental phenomena and processes) that are not available for direct observation. These data are used to make inferences about these phenomena, which can then be tested against additional data. [emphasis in original as italics] (Maxwell, 2012, p. 103)*

Since the NTMP was a satellite program of my own university, some further considerations were pertinent. For instance, extra care with anonymity was required to protect my participants from being identifiable (more details in section 3.4.6 below). Additionally, some of my supervisors were potential participants and their position ‘inside’ my phenomenon of research was regularly acknowledged. I, too, had an ‘emic’ perspective (i.e., as an insider) of the NTMP and Flinders University (Maxwell, 2012). This was utilised for its benefits as well as recognised for its limitations and potential conflicts (see NTMP section 4.6 ‘Strengths and limitations of this case study’). In the next section, I further describe Critical Realist approaches to data analysis.

### **3.4.4 Analysis:**

#### **3.4.4.1 Analytical approaches:**

Analysis in CR research is less data-driven (as in Grounded Theory or other primarily inductive approaches) and more theory-driven and researcher-driven (Fletcher, 2017). In this section, I outline my analytical processes including the five iterative stages used in my CR research; five methods of logic and inference; connecting and categorising strategies; and the physical and software tools used.

Danermark et al. describe five stages in explanatory research based on Critical Realism (2019, p. 130):

1. Description: concrete description of the complex, composite research phenomena
2. Analytical resolution: separating the complex composite into various components for further scrutiny
3. Abduction/theoretical redescription: interpreting and redescrbing the different components using hypothetical and/or different conceptual frameworks and theories (further explained in section 3.4.4.1.1 below)
4. Retroduction: identifying contextual conditions for the causal mechanisms underpinning the various components (further explained in section 3.4.4.1.1 below)
5. Retrodiction and contextualisation: investigating, explaining, and evaluating the relationships between various components and causal mechanisms, both theoretically and empirically ('retrodiction' is further explained in section 3.4.4.1.1 below)

Raduescu and Vessey suggest that when utilising a "domain specific theory" that is only moderately "Related" to the area of research (as opposed to "Strongly" or "Weakly" related), an iterative use of these stages is more appropriate than either a rigid linear approach or an unstructured approach (2009, pp. 1 – 9). Since Institutional Entrepreneurship could be considered only a moderately 'Related' theory to the domain of new medical school establishment, the iterative use of the five stages was appropriate for my analysis. Furthermore, I used a combination of inductive, deductive, abductive, retroductive, and retrodictive processes for my analysis in flexible, iterative, and complementary ways (Alexander, 2013; Danermark et al., 2019; Maxwell, 2012, 2013; Meyer & Lunnay, 2013), as explained next.

#### 3.4.4.1.1 Using induction, deduction, abduction, retroduction, and retrodiction:

The logic and inference strategies of induction, deduction, abduction, retroduction, and retrodiction are variously useful in critical realist research to identify the causal mechanisms underpinning the research phenomenon (Alexander, 2013; Danermark et al., 2019). In this section, I explain each and how I used them in my analytical process.

I used inductive processes by looking for "rough trends" or "demi-regularities" in my data (Danermark et al., 2019, p. 179; Fletcher, 2017, p. 185). I first used this during my literature review to thematically identify the 'Thirteen Key Considerations of New Medical School Establishment' (13KCs) (see 'Literature Review' section 2.3.3). This partially answered one of my secondary research questions: *What factors and processes require consideration?* I

then used an inductive process within a deductive analysis of my first case, the NTMP in Australia, first using the 13KCs as deductive codes and then looking for thematic factors contributing to successful establishment. Yin describes this as Pattern Matching (also called Congruence Method), which is an analytic strategy of CSR when an empirically based pattern – that is, one based on the findings from the case study – is compared with a predicted pattern made before data collection (2014). If the empirical and predicted patterns appear to be similar, it strengthens the internal validity of the results (Yin, 2014). Later, I also used inductive processes within the 8CF deductive analysis of each case study, looking for demi-regularities within the information for each ‘C’ being coded.

I used deductive processes during the first-pass coding of each case study. Initially, deductive codes from the 13KCs were used, however, once 8CF was developed, deductive codes were derived from this – one for each ‘C’. Further deductive codes derived from the 13KCs were used as sub-codes of the ‘Convincing’ code (‘Accreditation’) and also the ‘Collecting’ code (‘Funds’, ‘Staff’, ‘Curriculum’, ‘Clinical training sites’, ‘Facilities’, and ‘Students’). Thus, these were used as ‘etic’ categories for the data (i.e., codes using the researcher’s concepts) and were both organisational and theoretical categories (Maxwell, 2012, p. 13). As mentioned above, after first-pass coding with these deductive codes, my second- and third-pass coding was more inductive, looking for demi-regularities to identify themes within each deductive code. This process generated more ‘emic’ categories for the data (i.e., codes using the participants’ own words) (Maxwell, 2012, p. 12). This flexible, simultaneous use of both deductive and inductive processes helped mitigate a rigid, prescriptive interpretation of the data (Fletcher, 2017; Meyer & Lunnay, 2013).

Abduction (also called ‘theoretical redescription’) is when individual phenomena are interpreted or recontextualised within a conceptual framework (Danermark et al., 2019; Fletcher, 2017). Abduction is also useful to creatively look at the aberrant data and to propose reasons and theories for it (Meyer & Lunnay, 2013). Abductive thinking is frequently used to understand something in a new way by observing or interpreting it in a different conceptual framework (Danermark et al., 2019). I used abduction when I re-categorised Institutional Entrepreneurship and Critical Realist concepts using ‘C’ words and constructed my 8C’s framework. My description of each case study later in this thesis using the 8CF as an organising structure (see chapters 4, 5, and 6) is also a kind of abduction – where empirical data is re-described using theoretical concepts (Fletcher, 2017).

Retroduction is explained as, “a thought operation through which we can move from knowledge of one thing to knowledge of something else ... involving a reconstruction of the basic conditions for anything to be what it is” (Danermark et al., 2019, pp. 117, 224). It is useful to identify the underlying contextual conditions for a particular causal mechanism to effect the observed empirical findings (Fletcher, 2017). Using retroduction we pose and answer the question “*What makes X possible?*” (Danermark et al., 2019, p. 118). It is a reasoning process that moves from concrete to abstract and back to concrete again by posing and answering the question, “*How do these findings ultimately inform existing theory?*” (Danermark et al., 2019; Fletcher, 2017; Radulescu & Vessey, 2009). Several complementary strategies assist retroduction including counterfactual thinking; social and thought experiments; studying pathological circumstances and/or extreme cases; and comparing different cases (Danermark et al., 2019). In counterfactual thinking we “use our experiences and knowledge of social reality, as well as our ability to abstract and to think about what is not, but what might be”, to ask questions like “How would this be if not ... ? Could one imagine X without ... ? Could one imagine X including this, without X then becoming something fundamentally different?” (Danermark et al., 2019, p. 122) Thought experiments are a kind of counterfactual thinking, often useful in situations when social experimentation is not possible (Danermark et al., 2019). Studying pathological or extreme cases can often uncover the causal mechanisms better than normal situations (Danermark et al., 2019). Comparing several cases of a phenomenon “provides an empirical basis for retroduction, a method to sort out contingent differences in order to identify what is common and more universal” (Danermark et al., 2019, p. 126). The comparative case study strategy was inherent in my MCS research. Examining the ‘Challenges’ of each case study medical school used the strategy of studying pathological or extreme circumstances. Counterfactual thinking was helpful in drawing together all my findings and proposing potential strategies for future founding teams (see chapter 8 ‘Discussion’).

Retrodiction is defined as “[utilising] present information or ideas to infer or explain (a past event or state of affairs)” (Merriam-Webster, 2021). My retrospective MCS research, drew on this understanding to make inferences about what happened historically when my case study medical schools were established. In Critical Realism, retrodiction is described as the process of “investigating how different mechanisms interact (reinforce, moderate, or counteract one another) and affect social events” (Danermark et al., 2019, p. 224). McAvoy and Butler further explain that undertaking a cross-case analysis in MCS research helps to consolidate the findings into a single combined framework of understanding about the underpinning generative mechanisms involved in the phenomenon:

*Through a process of retrodiction, the individual causal frameworks created for each case study are merged to explain differences and to create a single combined framework which is used to determine the most viable explanation of the mechanisms, how they are activated (or not) and what impact the mechanisms have. (2018, p. 165)*

As such, undertaking a cross-case analysis (see chapter 7) assisted my retrodictive process, and contributed to better identification of the causal success factors involved with establishing a new medical school – specifically those of structure, agency, power, politics, and social accountability (elucidated in chapter 8 ‘Discussion’).

While acknowledging that realist approaches to understanding causality are not the single correct way and that other useful approaches also exist (Maxwell, 2012), these five methods of logical and theoretical inference together assisted in the identification or generation of explanatory hypotheses for the causal mechanisms underlying the successful establishment of new medical schools in medically under-served areas. In the next section, I explain how connecting and categorising strategies were similarly used in my analytical process.

#### 3.4.4.1.2 Categorising and connecting strategies:

Maxwell notes that causal explanation requires the complementary use of both 'categorising' and 'connecting' strategies (2012). Categorising strategies, such as coding, split up and rearrange the data based on "similarity" (Maxwell, 2012, p. 109). Connecting strategies, such as narrative analysis, preserve "contiguity" in the data to understand the chain of events and the causal processes involved (Maxwell, 2012, p. 109). Similarity relationships within the data are virtual relationships, based on resemblances or commonalities that are usually independent of time and space proximities and therefore lose some contextualisation (Maxwell, 2012). Contiguity relationships within the data, on the other hand, are based on real connections and associations and are already inherent to case study analysis due to the emphasis on the case's context (Maxwell, 2012).

Both deductive and inductive coding were key categorisation strategies in my analysis. On the other hand, re-constructing the story of each medical school's establishment through chronologies, and narrative descriptions were important connecting strategies. Comparative matrices and concept maps combined both categorising and connecting techniques (Maxwell, 2012). Writing drafts of my case study chapters harnessed the principle of "writing is analysis" (Richardson & St. Pierre, 2005, p. 1423) and utilised both narrative connecting and structural categorising of my data. I utilised 8CF to structure each case study description under the headings of 'Context', 'Catalysts', 'Conducing', 'Collecting', 'Convincing', 'Connecting', 'Challenges', and 'Consequences' (see chapters 4, 5, and 6) and to assist categoric comparisons during my cross-case analysis (chapter 7). Progressive narratives of my research moved from primarily descriptive to more analytic, as encouraged by Maxwell (2012). Together, these strategies encompassed the description, conceptualisation, comparison, concretisation, and contextualisation encouraged in Critical Realist research (Danermark et al., 2019). After a brief description of the analytical tools I used in my research (next section 3.4.4.1.3), I explain how 'generalisability' is approached in critical realist and case study research (in section 3.4.4.2 below).



#### 3.4.4.1.3 Analytical tools:

Analysis was conducted with the aid of several tools such as qualitative analysis software (QSR Nvivo 9, 10, 11, and 12); concept-mapping software (Xmind Pro 7, 8, and Zen); spreadsheet software (Microsoft Excel 2013, 2016, and Office 365); word-processing software (Microsoft Word 2013, 2016, and Office 365); bibliography software (EndNote X8 and X9); memo-writing software (Microsoft Sticky Notes in Windows 7 and 10); paper notations; and white-board notations (preserved via photography).

#### 3.4.4.2 **Generalisability in CR and CSR:**

One of the guiding principles of CR research is that it needs to produce generalisable claims (see section 3.3.1 'Critical Realism' above). Concerns are sometimes raised about the generalisability of findings from qualitative research, and also case study research. Both Critical Realist and Case Study authors counter such concerns, since generalisability significantly contributes to theory building:

*Generalizability of qualitative studies is usually based not on explicit sampling of some defined population to which the results can be extended, but on the development of a theory of the processes operating in the case studied, ones that may well operate in other cases, but that may produce different outcomes in different circumstances. (Maxwell, 2013, p. 138)*

*Case studies ... are generalizable to theoretical propositions and not to populations or universes. ... your goal will be to expand and generalize theories (analytic generalizations) and not extrapolate probabilities (statistical generalizations). (Yin, 2014, p. 21)*

Yin further points out that theory building is not the only goal of case study research but also applicability to other concrete situations, both similar and different:

*Note that the aim of an analytic generalization is still to generalize to ... other concrete situations and not just to contribute to abstract theory building ... generalizations, principles, or lessons learned from a case study may potentially apply to a variety of situations, far beyond any strict definition of the hypothetical population of "like-cases". (Yin, 2014, p. 41)*

Factors that lend plausibility to the generalisations made from case studies include (Maxwell, 2013):

- universality of the research phenomenon
- depth of study of the phenomenon
- similarity of the dynamics and constraints of the research phenomenon to that of other situations
- participants' assessment of the generalisability of the phenomenon as well as the generalisations made by the researcher
- corroboration from other studies

Each of these factors are identifiable in my research. As noted earlier, new medical schools are established around the globe relatively commonly (see 'Introduction' and 'Literature Review' sections 1.2 and 2.3.1 respectively). The concept of 'isomorphism' in Institutional Theory identifies that most organisations with a similar purpose end up with similar institutional structures and practices regardless of context and circumstances (Deepphouse, 1996; DiMaggio & Powell, 1983; Seyfried et al., 2019). These points support the generalisability of my research phenomenon. I strove for depth of study with my research design and methods. I sought corroboration from the literature on new medical school establishment, particularly the only other published multiple case study (Whitcomb, 2009, 2010, 2013, 2018). My participants provided their assessments as part of my member-checking process (see section 3.4.5 'Dissemination of results' below). The similarity of my research phenomenon to the establishment of entrepreneurial ventures was used as the foundational basis for my theoretical framework.

All of these factors can assist the plausibility of the generalisations I have drawn from my research. Thus, I have presented my novel conceptual 8CF, not only as an analytical framework for my research on establishing new medical schools, but also as a potential strategic framework for future founding teams, policy makers, government officials, institutional administrators, university academics, health service clinicians, and medically under-served communities. Furthermore, I suggest that 8CF could be generalised for other ventures of establishment, innovation, and entrepreneurship and could, thus, be strategically used in cross-domain and trans-disciplinary ways.

### **3.4.5 Dissemination of results:**

Interview participants were offered the opportunity to review a draft version of each case study chapter during analysis as part of the member-checking process. They will also be given the opportunity to read the final version of this thesis.

I regularly presented my research at local, national, and international academic meetings and conferences (see section 'Key Presentations and Publications During Candidature' in the front matter). Several manuscripts are also currently being prepared for publication.

#### ***3.4.5.1.1 Reflexivity: How I have dealt with citeable data when presenting my results***

As per CSR methodology, multi-source, multi-modal data was collected for each case study (see section 3.4.3 'Data collection' above). This included citeable information from sources like journal articles or web sites as well as raw data from sources like interviews or field observations. In many instances, a piece of information about the case came from multiple sources both citeable and raw. In these instances, I have treated all sources as raw data for the case and have not cited published matter individually. Participant quotations have been used to illustrate a point or showcase the raw data but may not have been the only source of the same idea. However, when an idea or piece of information came only from citeable sources and not also from my interviews or observations, appropriate citing and referencing have been carefully employed. From the points of view of both academic integrity and Critical Realism, it is important to make transparent this approach to result-writing and source-acknowledgement.

### **3.4.6 Ethical considerations:**

This research was conducted in accordance with the National Health and Medical Research Council (NHMRC) National Statement on Ethical Conduct in Human Research (2007; updated 2015 and 2018) and received human research ethics approval from:

- Flinders University Social and Behavioural Research Ethics Committee (SBREC) (Project number: 7306) in April 2016, with modifications approved in July 2017 and February 2018
- Lakehead University, Ontario, Canada (REB Project #: 020 17-18/Romeo file number: 1465871) in June 2017, with annual renewals till 2021
- Laurentian University, Ontario, Canada (REB file number: 6011069) in June 2017, with annual renewals till 2021
- University of Botswana Institutional Review Board (Reference number: UBR/RES/IRB/BIO/097) in August 2018, with annual renewals till 2021

The key ethical principles upheld in this research included merit and integrity; beneficence; respect; and justice (National Health and Medical Research Council et al., 2018). Merit and integrity related to the appropriateness and thoroughness of research design and conduct; and the transparency and clarity of reporting. Beneficence related to the potential benefit to health care and medical education in medically under-served areas including for the researchers, participants, collaborators, and wider society. Respect related to the considerations paid to the welfare and autonomy of the participants and their communities. Justice related to fair processes of inclusion, exclusion, and recruitment, without burden nor exploitation of any particular person or group. This research was deemed as 'Low or Negligible Risk Research' by Flinders University as it did not involve sensitive research topics, invasive procedures, nor participants in vulnerable populations.

Principles of anonymity and confidentiality were upheld to the highest standards. Participant names were kept confidential, and their recorded interviews were confidentially transcribed by a professional transcription service. Participants were given the opportunity to check their transcript before it was de-identified prior to analysis. All transcripts were de-identified by removing any names, job descriptions, and any other personally identifying statements and assigning codes instead. Although participants were not identifiable as individuals, the names of the medical schools with which they were affiliated were still known – interviewees were informed of this prior to gaining their written consent to participate (see Appendix documents 11.5 and 11.6). Since the NTMP was a satellite program of my own university, extra care with anonymity was required to protect my participants from being identifiable. Additionally, if participant quotations presented in this thesis appeared to address sensitive issues or could potentially identify the participant themselves or another participant, the transcript codes were withheld in my reporting and replaced with the notation ‘Participant number withheld for added anonymity’.

All electronic data collected for this study was stored on a password-protected laptop computer and a Flinders University password-protected server. All physical data (e.g., books, paper documents, artefacts, etc.) were securely stored in a locked cupboard at Flinders University. When travelling during site visits, physical data were stored in locked suitcases or laptop bags. While the data/information was held securely and in strict confidence, the raw data was not de-identified. The data will be securely stored for at least seven years after the finalisation of this thesis. The de-identified material is available for secondary data analysis if required. Participants were informed of these details prior to providing their informed consent (see Appendix documents 11.5 and 11.6).

### 3.4.7 Research validity:

Case study proponents suggest that research validity can be achieved by following certain methodological strategies (Yin, 2014):

- reliability strategies such as using a case study protocol and developing a case study database
- construct validity strategies such as using multiple sources of evidence, establishing a good chain of evidence, and having key informants review draft reports
- internal validity strategies such as using pattern matching, explanation building, addressing rival explanations, and using logic models
- external validity strategies such as using theory and replication logic

However, Critical Realism critiques both positivist and constructivist reductions of research validity into procedural criteria which become proxies for quality (Maxwell, 2012, 2013). Instead, the research's interpretations and conclusions should be assessed for their relationship to reality and their treatment of plausible alternatives or rival hypotheses (Maxwell, 2012, 2013). "Validity is not a commodity that can be purchased with techniques ... Rather, validity is like integrity, character, and quality, to be assessed relative to purposes and circumstances" (Brinberg & McGrath, 1985, as cited in Maxwell, 2012, p. 129). Assessing validity, thus, requires evaluating the rigour of research methods used, the appropriateness of the data generated by these methods, and the credibility of the conclusions drawn from this data (Maxwell, 2012). Case study author, Thomas, concurred that a better judgement of quality lies in the assessment of the conception, construction, and conduct of the study:

*The quality of a case study depends less on ideas of sample, validity, and reliability and more on the conception, construction, and conduct of the study. It depends on your initial idea, the ways you choose your case, the thoroughness with which you describe its context, the care you devote to selecting the appropriate methods of analysis and the nature of the arguments you deploy in drawing your conclusions. (2011, p. 71)*

This is more demanding than ticking off a list of design features, but is more rigorous and critical (Maxwell, 2012).

The following questions provide a framework to critically evaluate Critical Realist research quality (Maxwell, 2012):

1. Are the methods appropriate to the question being asked?
2. Is the selection of cases and participants theoretically justified?
3. Are the variables, events and meanings being studied in their social context?
4. Do the conclusions follow from the data?
5. Is there adequate discussion both for and against the researcher's arguments?

In the 'Discussion' chapter, I critique my research using this framework (see section 8.4.2 'Critiquing validity'), but I commence my critique in the next section where I discuss the implications of reconstructed logic versus logic-in-use.

### **3.4.8 Reflexivity: Reconstructed logic versus logic-in-use**

Critical Realist researchers need to distinguish between "reconstructed logic" and "logic-in-use" (Maxwell, 2012, p. 164). Reconstructed logic is after-the-fact reconstructions of design, packaged and written neatly, giving the impression of smooth, structured, and linear adherence to pre-determined research methods. Logic-in-use, however, acknowledges that the research process is rarely so tidy and usually runs in messy cycles of iterative development until clearer and fuller understanding develops. Logic-in-use is, thus, more authentic, or 'real' than reconstructed logic.

For this reason, Maxwell encourages the use of a more "interactive approach" to research design where the fundamental elements of research goals, research questions, conceptual framework, methods, and validity are treated with a flexible and interconnected modular structure, allowing each element to influence and change the other elements at any time in the research process (Maxwell, 2012, 2013). This allows the fluid and iterative reality of logic-in-use to be acknowledged and harnessed from the outset of the research.

Logic-in-use accounts for the real experiences of my own research journey. Maxwell's interactive approach provides a scholarly framework that fosters the twists and turns that contribute to a slow-growing and ever-deepening understanding of my research phenomenon. However, reconstructed logic also has a very important and effective place in telling others of my research. My audience benefits when my complicated story and complex concepts are packaged into succinct and eloquent accounts that will aid their understanding and hold their interest. Thus, I have employed a flexible but open and transparent use of both logic-in-use and reconstructed logic in my Critical Realist research.

### **3.5 Summary of chapter:**

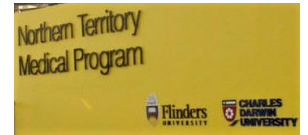
In this chapter, I presented my research design and methodology to investigate the successful establishment of new medical schools in medically under-served areas. I identified as a Critical Realist and detailed the implications of this for the conduct of my Multiple Case Study research of three international medical schools.

The Critical Realist techniques of combining deduction, induction, abduction, retrodiction, retrodiction, and connecting and categorising strategies, helped me posit the causal or generative mechanisms underlying my research phenomenon. I identified that Institutional Entrepreneurship theory was applicable to the phenomenon of new medical school establishment. From IE concepts, CR principles, the medical education literature, and the empirical findings of my research, I derived a novel conceptual framework – the 8 C's Framework – consisting of 'Context', 'Catalysts', 'Conducting', 'Collecting', 'Convincing', 'Connecting', 'Challenges', and 'Consequences'. This framework was useful as an analytical tool, a descriptive structure for my case study chapters, an explanatory hypothesis for successful new medical school establishment, and a strategic tool for systematic use by future founding teams and other stakeholders.



I argued for the generalisability of my research findings based on Critical Realist and Case Study criteria – generalisable not only for future new medical schools but also for other ventures of establishment, innovation, and entrepreneurship in other domains and disciplines. I discussed how critiquing the quality of Critical Realist research and assessing the validity of conclusions and interpretations is not simply a matter of ticking off a checklist of procedural criteria. A series of critical questions evaluating the appropriateness of the research methods for the research question and the relationship of the conclusions to reality can be used instead. Acknowledging the reality of 'logic-in-use' but also the usefulness of 'reconstructed logic' assisted a transparent presentation of my research design in this chapter. In the next chapter, I present the first of my three case-study medical schools – the Northern Territory Medical Program in Darwin, Australia.

## 4 CASE STUDY 1: THE NORTHERN TERRITORY MEDICAL PROGRAM



### 4.1 Introduction to chapter:

*It was an idea whose time had come. (NTMP-02)*

*The idea ... that if we were to ever change the health workforce in the Northern Territory, it, actually, needed [its] own medical school. (NTMP-13)*

In this chapter, I present the first case study – the Northern Territory Medical Program (NTMP) – a satellite program of Flinders University’s College of Medicine & Public Health (FCMPH). First, is a broad overview of the NTMP. Then, using the Eight C’s Framework (8CF), I explain how the NTMP was established outlining its Context; the Catalysts; the activities of Conducting, Convincing, Collecting, and Connecting; its Challenges; and its Consequences. I conclude with a summary of the case study, including its strengths and limitations.

### 4.2 NTMP overview:

The Northern Territory Medical Program is a medical school in Darwin in the Northern Territory (NT) of Australia, that opened its doors to first-year students in 2011. It is a satellite campus of Flinders University (Flinders) in Adelaide, South Australia (SA), and a joint initiative with Charles Darwin University (CDU) in Darwin (see Figure 4-1). It grew from a pre-existing unit of Flinders University – the Northern Territory Clinical School (NTCS) – that had already been training Flinders’ third- and fourth-year medical students since 1998 (more details in ‘Conducting’ section 4.3.3.1 below).

Figure 4-1: Map of Australia Highlighting Locations of Flinders University & NTMP



(Adapted with permission from Bruce Jones Design)

Flinders University, which commenced in 1966, announced its medical school and the co-located tertiary teaching hospital, Flinders Medical Centre (FMC) in 1971 for a 1974 student intake (Flinders University, 2017). Flinders School of Medicine (Flinders Medical School), originally under the Faculty of Health Sciences, was re-organised into a flattened structure as the College of Medicine & Public Health in 2017 (Flinders University, 2017). Flinders Medical School grew from its initial local beginnings with expansion over the decades to its current distributed state, spanning the North-South corridor of central Australia. It has two primary hubs in Adelaide and Darwin with several clinical training sites in the regional, rural, and remote regions of both SA and NT (see Figure 4-2).

Figure 4-2: Distributed Sites of Flinders Medical School Across SA & NT



(Used with permission from Flinders University)

Currently, the Flinders medical course is a four-year graduate-entry program conferring the Doctor of Medicine (MD) degree. It is an integrated, body-systems-based course with an emphasis on team-based learning, longitudinal placements, programmatic assessment for learning, and early clinical exposure. The course is broadly grouped into two with Years 1 and 2 sharing a similar structure and Years 3 and 4 sharing another similar, more clinical structure. Years 1 and 2 students spend most of their time in their respective pre-clinical hub (Adelaide or Darwin), while Years 3 and 4 students spend most of their time in clinical placements in any of the urban or rural sites. Substantial staff teamwork and technological resources are required to streamline information and experiences such that students have an equivalent medical education regardless of location.

The NTMP in Darwin admits a cohort of 24 domestic students each year – 12 are graduate-entry students with previously completed Bachelor degrees and the other 12 are third year Bachelor of Clinical Science (BCS) students from CDU. The 12 graduate-entry students graduate with the MD degree from Flinders while the 12 BCS students graduate with two degrees – the BCS degree from CDU and the MD degree from Flinders University. By comparison the Adelaide hub admits a class of 111 domestic students, 86 of whom are graduate-entry students and 25 are double degree students studying the Adelaide-based BCS degree at Flinders University. An additional 30 full-fee-paying international students (graduate-entry only) are also admitted to the Adelaide hub.

The NTMP has two primary administrative locations in Darwin – a building on the CDU campus with facilities for the Years 1 and 2 students and a building on the Royal Darwin Hospital (RDH) campus, two kilometres away, for the Years 3 and 4 students (see Figure 4-3 and Figure 4-4). Other significant clinical training sites for the NTMP (see Figure 4-5) are located in Katherine, Nhulunbuy, Tennant Creek, Alice Springs and Palmerston (a satellite city of Darwin) (Flinders University, 2020). Student placements to more rural and remote communities across the Northern Territory are organised from Darwin.

**Figure 4-3: The Charles Darwin University Pharmacy & Medical Science Building**



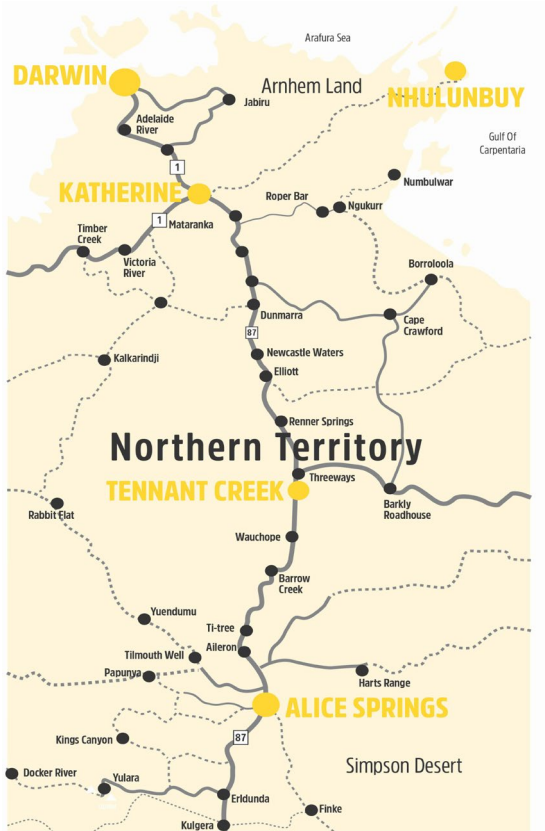
(Used with permission from DKJ)

Figure 4-4: The Flinders NT Building at Royal Darwin Hospital



(Used with permission from Hames Sharley Architects)

Figure 4-5: NTMP Clinical Sites (in yellow)



(Used with permission from Flinders University)

The next section details how the NTMP was established using 8CF to structure the description of its Context; the Catalysts; the activities of Conducting, Convincing, Collecting, and Connecting; its Challenges; and its Consequences.

## 4.3 Establishing the NTMP:

### 4.3.1 Context:

*[The NT] is a different world. (NTMP-16)*

*I think that is part of being so remote. You're kind of out sight or out of mind. And so, it wasn't easy for the big pools of money, which come from established programs and known grants. It was hard for them to say, "Yes, we'll ship money up to Darwin, where no one ever goes except to shoot crocodiles". (NTMP-07)*

Context refers to the unique social, political, economic, geographic, educational, and cultural environment or 'field conditions', within which the new medical school needs to be successfully established (see 'Utilising theory' section 3.4.2.3.1). In this section, I outline the situation prior to the NTMP's establishment and highlight the contextual barriers.

Australia is a large island country with 6 states and 2 territories spanning the traditional lands of over 250 First Nations (Australian Government, n.d.; Australian Institute of Aboriginal and Torres Strait Islander Studies, n.d.). It has a population of ~25.4 million; and a land mass of ~7.6 million square kilometres (Australian Government, n.d.; Worldometer, 2021a). The Northern Territory is located in the north-central region of Australia, bordered by the states of Western Australia (to the west); South Australia (to the south); Queensland (to the east) and the ocean bodies of Timor Sea, Arafura Sea, and Gulf of Carpentaria (to the north and north-east) (Encyclopædia Britannica, 2021c) (see Figure 4-1). Its northern region is tropical, while the southern region is semi-arid desert (Encyclopædia Britannica, 2021c).

The NT has a population of ~ 247,000 and land mass of ~ 1.3 million square kilometres (Northern Territory Government, 2021b; Population Australia, 2021). The capital city of Darwin on traditional Larrakia land is the most populated (~59%), while Alice Springs on traditional Arrernte land ranks second (~16%) (Alice Springs Town Council, 2021; Larrakia Nation, n.d.; Northern Territory Government, 2021a; Population Australia, 2021; Worldometer, 2021a). The main occupations are public and defence services (~21%); health and social services (~10%); education and training (~9%); and construction (~8%) (Encyclopædia Britannica, 2021c; Population Australia, 2021). The median age of Territorians is ~33 years of age, which is lower than the Australian average of ~37 years, and the gender balance is slightly skewed to males (108 men to every 100 women) – both thought to be due to the strong mining, defence and construction aspects of the economy (Northern Territory Government, 2021a). The NT also experiences a much higher turnover (17%) of residents moving in and out (with a net outflow) than any other jurisdiction of Australia – particularly within the age demographic of 20s to 30s (Northern Territory Government, 2021a). Approximately 9% of Australia’s Indigenous population live in the NT (Northern Territory Government, 2021a). Around 30% of Territorians are Aboriginal people and most (~80%) live in remote or very remote areas of the Territory in over 600 isolated communities (Australian Institute of Health and Welfare, 2018; Encyclopædia Britannica, 2021c; Northern Territory Government, 2021a; Zhao et al., 2013).

The Northern Territory’s health issues reflect their relatively young median age; their northern tropical or central arid rural and remote lifestyles; and their large proportion of Aboriginal people (Encyclopædia Britannica, 2021c; Health Direct, 2021; Zhao et al., 2013). The health of Indigenous Australians tends to be worse than that of non-Indigenous people throughout the country with higher morbidity and mortality rates associated with diabetes; kidney disease; sexually transmitted diseases; tuberculosis and other infectious diseases; chronic conditions; and drug and alcohol abuse (Australian Institute of Health and Welfare, 2018; Encyclopædia Britannica, 2021c; Health Direct, 2021; Zhao et al., 2013). Many rural and remote communities do not have easy geographic nor cultural access to health care services (Health Direct, 2021; Zhao et al., 2013).



Prior to the establishment of the NTMP, the Northern Territory was the only state/territory in Australia that did not have its own medical school. Territorians who wanted to become medical doctors had to move interstate. Reports indicated that every year, ~ 20 young Territorians obtain Undergraduate Medical Admissions Test (UMAT) results competitive for entry into an undergraduate-entry medical course in Australia, yet only ~6 of them applied for entry to James Cook University – the closest undergraduate-entry medical school (Northern Territory Government, 2008). Anecdotal information suggested some did not pursue the idea of studying medicine because of the need to move away from home (Northern Territory Government, 2008).

Those who did leave the NT to pursue medical studies frequently did not return after a prolonged period of living, studying, and working elsewhere. Staffing the NT health system was difficult, and doctors had to be imported from interstate or overseas. These imported doctors were not always well equipped – professionally and socially – to deal with the unique challenges of the Territory. The relative geographic isolation of the Territory and relative paucity of social, educational, and professional opportunities constrained the doctors and their families. Consequently, the Territory experienced an on-going high turnover of transitional staff, with most doctors staying only for a few years, before moving back or moving on to other locations, similar to the general migratory trend of the NT:

*And so, they were still almost fully reliant on recruiting. And when you have to recruit from elsewhere, you got to pay money, and people come, they go and, there's that sort of churn and all of that sort of thing. (NTMP-14)*

This was the medical, educational, social, political, and geographical backdrop against which the NTMP was established. To summarise, the contextual barriers faced by a new medical school in this milieu included:

- a smaller and more isolated population compared to other Australian states/territories
- many rural and remote communities without easy access to hospitals or doctors
- reliance on a non-local medical workforce imported from interstate or overseas with subsequent high turnover
- a high proportion of Aboriginal residents with attendant poorer health and social indices
- Territorians needing to move interstate to pursue studies and a career in medicine

Despite these barriers, there were also several contextual enablers that facilitated establishment, which will be discussed in section 4.3.3 'Conducing' below. In the next section, I describe the major players or Catalysts that helped to establish the NTMP in this Context.

#### **4.3.2 Catalysts:**

*This is where we needed to find our champions, so certainly a number of doctors in the NT who have a very high regard for Aboriginal people and they're excellent doctors, very caring about Indigenous health and they were our champions and they could see what we were trying to do ... the paediatricians, the nephrologists, and the GPs; these were key people in the NT and it was fantastic to get their support. And they were the key opinion leaders, they were able to help carry the idea across. ... In particular, in the NT, we couldn't rely on doctors alone because there weren't enough, so we have a lot of other health professionals who were champions as well. (NTMP-13)*

Catalysts are the 'institutional entrepreneurs' or the founding leaders, comprising academic, clinical, political, and community stakeholders who were instrumental in establishing the new medical school (see 'Utilising theory' section 3.4.2.3.2). In my research, I have further classified key players as 'Champions' and ancillary players as 'Colleagues'. In this section, I outline the key stakeholders in the NTMP's establishment, and highlight that strong leaders are crucial drivers of success.

The Catalysts who helped establish the NTMP include a variety of individuals, groups, organisations, and communities including academics, clinicians, government officials, educational bodies, health services, and local businesses. Aboriginal communities and organisations were also involved. Details of the roles played by the Champions (see Table 4-1) and their Colleagues (see Table 4-2) in the NTMP's establishment will unfold in the sections to follow.

**Table 4-1: NTMP's Champions**

**Individuals**

- Dean of Flinders University School of Medicine (Flinders)
- Associate Dean(s) of the NTMP
- Vice Chancellors of Flinders and Charles Darwin University (CDU)
- Flinders in the NT (i.e., NTCS staff and later NTMP staff)
- Some Flinders staff in SA
- Some clinicians in NT-based health services
- Minister for Health (previously the Shadow Minister for Health), Nicola Roxon
- Officials in the Department of Health (in Canberra with the Federal Government)

**Departments, Organisations**

- Northern Territory Rural Clinical School (NTCS) (belonging to Flinders)
- Flinders University particularly the School of Medicine in Adelaide
- Charles Darwin University
- Northern Territory Government
- Australian Federal Government, particularly the Department of Health
- Centre for Remote Health in Alice Springs (belonging to Flinders)
- FCD Health
- ACIL Tasman
- Northern Territory General Practice Education (NTGPE)
- Australian Advanced Research and Education Network (AARENet)

**Committees**

- NTMP planning & implementation committees comprising of Flinders staff in NT and SA, CDU staff, NT clinical and health service staff

Table 4-2: NTMP's Colleagues

#### Individuals

- The consultant hired to conduct the feasibility study in 2008
- Prime Minister Kevin Rudd (2008)
- Prime Minister Julia Gillard (2011)
- Teaching clinicians in NT-based health services
- Teaching clinicians in SA-based health services, particularly Flinders Medical Centre (FMC)

#### Organisations

- James Cook University (JCU)
- Training for Health Equity Network (THEnet)
- Hospitals:**
  - Royal Darwin Hospital (RDH)
  - Alice Springs Hospital (ASH)
  - Katherine District Hospital (KDH)
  - Gove District Hospital (GDH) in Gove/Nhulunbuy
  - Flinders Medical Centre in Adelaide
- GP Clinics in Darwin and the rest of the NT:**
  - Including the Palmerston Super Clinic
- Aboriginal Community Controlled Health Services:**
  - Danila Dilba clinic in Darwin
  - Congress clinic in Alice Springs
  - Wurli-Wurlinjang clinic in Katherine
  - Yirkala/Lanapoi clinic in Nhulunbuy/Gove
- Aboriginal Organisations:**
  - Aboriginal Medical Services Alliance Northern Territory (AMSANT)
  - Australian Indigenous Doctors Association (AIDA)
  - Leaders in Indigenous Medical Education (LIME)
- Other organisations:**
  - Batchelor Institute
  - Menzies School of Research (belonging to CDU)
  - Poche Centre for Indigenous Health (belonging to Flinders)
  - Australian Medical Council (AMC)
  - Two Canadian universities with similar interstate, satellite medical programs

#### Communities

- Territorians & their families
- Aboriginal communities and their elders around the NT
- Initial cohorts of students

#### **4.3.2.1 Strong leaders are crucial drivers of success:**

This case study highlights that passionate, committed, visionary leaders leading the charge were vital to successful establishment of the new medical school:

*I think there was strong leadership in that, and a lot of perseverance from people like [the Associate Dean of the NTMP]. So, he really led the charge here in Darwin, he was really committed to having this done. And also [the Dean of Flinders Medical School in Adelaide], in particular, who had a vision and contributed strongly to that vision and was willing to take risks and that was good. So, I thought the right people were involved. (Participant number withheld for added anonymity)*

*This was the idea of a few very passionate, strong leaders ... I think that they were just a handful of very passionate people and they saw more and more the need for this. ... So, you'd have to be somewhere to see the need, to know that it is possible and to know that you could be part of solving that problem for people. (NTMP-07)*

Key characteristics of these strong leaders included the ability to see a need and conceive of a solution; then to pursue the vision with passion, commitment, and a willingness to take risks.

Additionally, commitment from the highest levels of university authority enabled the fast-tracking of policies and procedures that benefitted the establishment of the NTMP:

*The whole thing happened very rapidly, surprisingly rapidly, and I think a lot of that comes down to the fact that the Vice-Chancellor of the university wanted it to happen. I think if you don't have that authority right at the top, then you're working much more slowly. But having someone like that who could basically, imprimatur, make it so, cut through the red tape. There was a lot of fast tracking of documentation, so I think that was critical. ... [The Vice Chancellor] really liked the idea of Flinders University having a footprint across the two states. (NTMP-11)*

In this case, the combination of authority or power and commitment was instrumental in timely establishment.

Apart from having strong leaders, having the right people on the team with good interpersonal relationships and shared goals was also critical:

*So, it's interpersonal relationships, it's having the right people on the team, having the same vision about what we wanted to achieve for the Northern Territory is absolutely critical, and if people have that willingness, then they'll work the rules and the regulations, and procedures to make it happen and I think that was absolutely key. (NTMP-11)*

The NTMP's Catalysts showcased that persistence and tenacity to "make it happen" were keys to success, with their attitude of:

*Don't say something can't happen because we'll make it happen. (NTMP-05)*

In the next section, I describe how some of these tenacious Catalysts recognised and harnessed opportunities and addressed contextual barriers to obtain the initial green-light for the NTMP.

### **4.3.3 Conducing:**

Conducing circumstances, events and actions help make the contextual milieu more favourable for a new venture (see 'Utilising theory' section 3.4.2.3.3). In my research, I used 'Conducing' to focus on how the initial authoritative 'go ahead' can be obtained. Human agents or Catalysts can be both passively and actively involved in this stage of establishment and in the NTMP's story, I identified three major actions undertaken by various Catalysts – either deliberately or incidentally – that helped:

1. Building on smaller medical education initiatives in the area
2. Harnessing opportunities in the socio-political climate
3. Hiring a political lobbyist

#### **4.3.3.1 Building on previous medical education initiatives in the area:**

*It was built on a strong foundation of some 15 years or so of experience. (NTMP-02)*

In 1993, to improve the NT's General Practitioner (GP) workforce, the Royal Australian College of General Practitioners (RACGP) commenced GP registrar training in the NT, via the Northern Territory General Practice Education (NTGPE) regional training body (Northern Territory General Practice Education, 2012). From 1995, to further encourage the NT's future doctor workforce, the RACGP/NTGPE also facilitated elective placements in a variety of urban, rural, and remote locations of NT, for senior medical students from all over Australia. At its peak, this program placed 120 – 160 medical students per year from various universities in NT communities. To illustrate, 157 medical students undertook placements in the NT through this program in 2011 alone (Northern Territory General Practice Education, 2012). Feedback from these students about clinical training in the NT was very positive:

*We could see that not only were the students going to have an exciting clinical experience, but they were actually having an amazing experience from a cultural perspective. ... And the most solid feedback they gave us was, most commonly, "This was the most interesting and the most informative learning experience of my whole medical training and this was a really powerful experience". (NTMP-08)*

The NT was, thus, proving itself as fertile ground for medical training both at a student and registrar level.

In 1996, Flinders University in South Australia won a tender (competing against many other Australian universities) to establish a rural clinical school in Darwin – the Northern Territory Clinical School (NTCS). Every other state of Australia already had rural clinical schools associated with various universities and Flinders already had a rural clinical school in the Riverland of South Australia. The NTCS enabled clinical placements for Flinders' medical and allied health students from South Australia, across various health services in the NT. Initially, these were short placements of 6 – 8 weeks, but from 1998, the NTCS also provided longitudinal placements for the medical students of two full years. Cohorts of 16 – 24 Flinders' medical students per year began to undertake their Years 3 and 4 in the NT after completing their Years 1 and 2 in Adelaide. From 2001, the NTCS collaborated with James Cook University (JCU), in Townsville, Queensland (QLD), to also host 8 senior JCU medical students per year, alongside the Flinders students. Both universities had similar programs of instruction for their final two years and could, thus, follow the same curriculum for their combined NTCS-based students. This program of hosting 8 senior medical students from JCU and Flinders in Adelaide each, for their final two years, continued in parallel to the NTMP for several years after establishment.

Data from the NTCS (McDonnell Smedts & Lowe, 2007, 2008; Northern Territory Clinical School, 2008) and also from Flinders' other rural sites showed that students who undertook longer placements in rural locations were more likely to return to similar areas for their eventual practice:

*We'd had such success with the clinical school, and ... we certainly had data that supported the fact that students who come for a period are more likely to stay here.*  
(NTMP-06)

As the NT-trained medical students and GPs rose in seniority within the NT's health system, they became champions and proponents for the idea of a full medical school in the NT:

*And the words that were coming out quite consistently were that they wanted a full medical program based in the Territory. They didn't want to be reliant on having to recruit doctors from interstate and even with the Northern Territory Clinical School, even though that showed a dramatic increase in uptake compared to every other program in Australia, it still was nowhere near 100%, it was nowhere near 50%. ... there were a number of people who did that program and stayed, and they rose to have more senior positions in Royal Darwin Hospital, starting to have some influence, and started staying, "Yeah, we could actually do something different".* (NTMP-14)



Establishing a partial medical school in the NT through the NTCS, was always viewed as an essential “first step” by the NT Government:

*And my understanding at the time was that the motivation was very strong from the NT Government to have locally trained practitioners and that [the NTCS] was the first step. We felt really strongly that we had a good clinical context for teaching students. (NTMP-08)*

Even though Flinders had a sub-quota allowing for 10 of its 16 NTCS two-year places to be filled by Territorians, it was never fully utilised because it still required them to go to Adelaide for two full years first:

*We instigated a sub-quota of students from the Northern Territory into the program of up to ten students from the Northern Territory. And I don't think we ever actually filled the ten spots, interestingly, because they had to come down to Adelaide for two years and then go back to the Territory. And I think the aspiration even back then was that people wanted to have the whole medical program [in the NT] but we couldn't work out a way of doing it. (NTMP-14)*

Flinders University's previous presence in the NT was of particular advantage, when they wanted to expand from the NTCS into the NTMP:

*Flinders had been operating here for some time, understood the environment and had some people ... who understood the Territory and knew how to do business here. (NTMP-02)*

*Flinders had a long history of incremental growth and development of education training and research in the Territory, so we had well-established relationships with all of these groups. So, collectively between the Flinders staff in Darwin and Alice Springs and Katherine and Nhulunbuy, we already had good relationships with those stakeholders. We knew one another, so it was based on pre-existing relationships of trust and that was important. (NTMP-04)*

These “pre-existing relationships of trust” enabled expansion into the new arena of a full medical school.

To summarise, even though the idea of having a full medical school in the Northern Territory had been brewing in some minds from the late-1990s, it required the foundations laid by the RACGP and NTCS programs to gain any traction. The early Catalysts of the NTMP used the possibilities, relationships, and workforce evidence created by previous medical education initiatives to lend weight to their plans. In the next section, further socio-political opportunities that facilitated Conducing are explored.

#### **4.3.3.2 Harnessing opportunities in the socio-political climate:**

*Circumstances came together fortuitously in a good political environment to build the school. (NTMP-02)*

In 2007 and 2008, several activities, events, and circumstances at the levels of the Territory, the nation, and Flinders Medical School served to cement the idea of a full NT medical school, within the minds of key leaders, including those with authoritative power.

At the Territory level, the NT Government commissioned a review of all its health services and held a health summit attended by public servants, clinicians, and community leaders from all over the Territory. One of the 2008 NT Health Summit's recommendations included that the NT should have its own full medical school:

*I think the big difference was that the proposal for the full medical program in the Territory was now being driven from people in the Territory. ... [They] saw it as really important and doable. (NTMP-14)*

At the national level, the opposition Labour party (led by Kevin Rudd), began their 2007 campaign for the up-coming Federal elections which included promises of significant investments into NT infrastructure. As part of their campaign, the Shadow Minister for Health (Nicola Roxon) visited Flinders Medical School in Adelaide. Flinders University leaders presented her with the idea of expanding in the NT, to host all four years of the medical course, and she indicated political interest in the notion. When the Rudd government came into national power the following year, there was a coincident Global Financial Crisis (GFC), which provided impetus for various national economic stimulus initiatives – such as the National Broadband Network (NBN) and the Health and Hospitals

Fund (HHF) (more details in 'Collecting' and 'Consequences' sections 4.3.5.1 and 4.5.1 below respectively). Commensurate with their previous campaign promises, and in support of developing a full medical school, the NT became the starting point for some of these stimulus initiatives:

*Then the GFC hit, and suddenly this idea that we had seeded in [the Health Minister's] mind about a medical program in the Territory became an opportunity for major infrastructure investment in the Territory. (NTMP-14)*

At Flinders University, several events, activities, and circumstances strengthened their resolve for a full medical school for the NT:

- A book detailing the history and successes of the NTCS was published (Northern Territory Clinical School, 2008). Celebrating what had been accomplished also served to inspire dreams of what might yet be possible.
- A feasibility study for establishing the NTMP was commissioned. This supplied a strong foundation for future grant applications and political lobbying.
- A senior staff member visited two Canadian medical schools that had successfully set up interstate satellite medical programs and gained important insight and encouragement for Flinders to do the same.
- Flinders and CDU Vice Chancellors were long-standing colleagues and friends and were very willing to work together to build this new medical school in the Territory (see more details in section 4.3.4 'Connecting' below). Previous leaders of the two universities did not share this bond and may not have approached the project with the same enthusiasm and commitment.
- Flinders Medical School strengthened its commitment to social accountability and joined an international consortium – the Training for Health Equity Network (THEnet) – of several like-minded medical schools (Training for Health Equity Network, 2011):

*It was probably when ... the agenda in the school changed to social accountability, that we then started saying, "Well, this is not just about placement opportunities for us in terms of the advantages for us, with having a Northern Territory experience, but it actually is far more about what benefit is there for the Northern Territory and what do they want". (NTMP-14)*

Each of these elements were important and influential. My research suggests that the final two – the friendship between the two university Vice Chancellors and the social accountability ethos of the medical school – were the most vital, at the university level.

Some participants suggested the beneficial coming together of these disparate socio-political circumstances and coincidental situations was “serendipity”:

*You can't underestimate serendipity. (NTMP-02)*

*Well, it's certainly a lot of serendipity and that is really about aligning people or organisations', institutions' different agendas. (NTMP-13)*

Others, however, explain that human agencies of persistence and opportunism underpin the harnessing of serendipity or “happenstance”:

*It's happenstance, in a lot of this. It's the right people at the right place at the right time. It may happen with different sets of people and different sets of circumstances at different times equally well, but an awful lot of what happens is not something you can necessarily plan. It's taking an opportunity, making an opportunity, and then taking it and that has an unpredictable path. ... It seems to work but I think you can't plot it all out to the n<sup>th</sup> degree. You've got to have broad goals and duck and weave in order to achieve them. Sometimes you get lucky and sometimes you don't, and when you don't get lucky, you get persistent. (NTMP-16)*

While NTMP participants described this aspect of Conducing as “serendipity” or “happenstance”, entrepreneurial literature documents it as ‘opportunity creation or discovery’, which I will explore in ‘Discussion’ section 8.2.3 later.

Even though the disparate socio-political situations discussed in this section had different magnitudes of impact, they exerted powerful Conducing forces. Individually, they may not have had sufficient impetus, but together, they created the perfect storm of opportunity for the new medical school. In the next section, I discuss how hiring a political lobbyist assisted the NTMP Catalysts to harness political opportunities with greater skill and efficacy.

#### **4.3.3.3 Hiring a political lobbyist:**

In 2009, Flinders Medical School hired a political lobbying organisation, ACIL Tasman, to campaign the Federal and Territory Governments for their official approval and financial aid. ACIL Tasman worked with Flinders staff to produce all the required proposals and documents:

*So, this is when ACIL Tasman really got to work and lobbied Territory politics, Canberra politics, all of that. They produced materials, they took us to meetings, they did a lot of work like that. We visited Canberra, we visited the Northern Territory, we spoke to [government] department officials, and the department officials in particular ... were really excited and wanted to do this and wanted to work out a way of getting this just through. (NTMP-14)*

Having government officials invested in the vision was imperative and ACIL Tasman helped Flinders navigate the protocols and bureaucracy inherent in the process. Professional lobbyists' assistance was particularly invaluable for the political connections and acceptance they facilitated:

*So, we paid a lobbyist to lobby on our behalf, and he was great, our lobbyist was. Say, if you'd walk into a Minister's office and say, "Hi, I'm from Flinders, blah, blah, blah", they'd just ignore you. Whereas, if we walked in with a lobbyist they'd say, "Oh! Hi! How are you?" Complete difference in how you were accepted. ... It's quite amazing, the degree to which we could get ins to people by employing a lobbyist. I highly recommend it if you're going to do anything. (NTMP-01)*

In October 2009, Flinders Medical School achieved Conducing success with Federal Government approval to establish the NTMP in the place of the NTCS. With this support, the Catalysts were able to proceed with all the tasks required to fully implement the vision of a complete medical school in the NT. In the next three sections, I describe the activities of Connecting, Collecting, and Convincing that resulted in successful establishment.

#### **4.3.4 Connecting:**

Symbiotic relationships through strategic partnerships with a variety of stakeholders are vital to successfully establishing a new medical school (see 'Utilising theory' section 3.4.2.3.6). All the people and organisations that Flinders University collaborated with, to successfully establish the NTMP, were mentioned in section 4.3.2 'Catalysts' above. In this section, I discuss that the most important was with Charles Darwin University, but also note there was a paucity of data regarding connections with Aboriginal stakeholders, that may have contributed to some of the challenges discussed later.

##### **4.3.4.1 Strong and successful alliance with Charles Darwin University:**

Neither Flinders nor CDU could proceed with a plan to establish a medical school in the Northern Territory without the other's assistance. CDU was the university for the Northern Territory and could claim regional jurisdiction, but had no experience running a medical school, and had previously failed in bids to start one. Flinders University not only had decades of experience running a recognised and reputable medical school in SA, but also had significant experience with medical education in the NT through the NTCS. Thus, an alliance was essential:

*How would a medical program from Flinders articulate with CDU's core business, given that CDU is the Northern Territory university, [with] substantial funding from government and a remit to provide education for Territorians? ... So, Flinders playing in that space of being a visitor university – although Flinders has been here for a very long time, running programs – stepping up to a full medical program versus just a clinical program, had the potential to have another university saying, "This isn't their plate, this isn't their space. Why would either the Australian Government or the Territory Government be funding another university to do that?" But also knowing the background that CDU had tried in the past to get a medical program – it was playing in the space of trying to get the clinical school but without a medical program, couldn't get a clinical school – so needed Flinders as a partner. (NTMP-05)*

Being collaborators rather than competitors was of great benefit to both institutions. Flinders University could now legitimately operate in CDU's geographic space and could use CDU's infrastructure (e.g., buildings, libraries, student support systems, etc.) without having to create them de novo. For CDU, having a medical school lent considerable weight to its local, national, and international reputation and profile:

*CDU was a key partner that we wanted to get on side, and they were very enthusiastic, 'cause they could see that ... a full medical program being run here ... and CDU could then say, "Well, we've got a medical school here in the Territory". We understood and, I think, that's still the case that we really couldn't be running this as a standalone medical school relying very heavily on the resources, both human and other resources, in Adelaide. (NTMP-02)*

As noted earlier ('Conducting' section 4.3.3.2 above), the friendship between the two Vice Chancellors was particularly facilitative for this vital partnership:

*And fortuitously, at the time, we had two Vice Chancellors that actually knew each other ... and were keen to work together ... and that was incredibly important because if you're trying to do something like a partnership between two universities who traditionally really compete, you need a commitment from the leadership, and we had a really strong commitment from the leadership. And looking back at the history of the relationship between the two universities, there are other periods where it would not have happened because there wasn't that level of collegiality in that leadership group. (NTMP-02)*

This top-level commitment and collegiality resulted in several points of connection between the two institutions:

- The CDU campus is one of two sites for the NTMP buildings in Darwin.
- CDU was involved with changing NT legislation to allow cadavers on their campus for anatomy teaching at the new medical school (more details in 'Consequences' section 4.5.3 below).
- Flinders provided a template of its Bachelor of Clinical Science course for CDU's BCS degree, which is a feeder course into the NTMP.
- CDU provides student support services to NTMP students such as library access, information technology (IT) accounts, student services, campus security, and so on.
- FCD Health is a business entity formed by the two universities to jointly build and run the Palmerston Super Clinic as a local health service and educational facility.

The Vice Chancellors' pre-existing friendship provided the affective and cognitive trust required for a smooth and symbiotic alliance – concepts that I will explore in 'Discussion' section 8.2.4.2 later.

In Australia, this kind of partnership between two universities to share a medical school was unique at that time. Other universities were encouraged to consider it when establishing a new medical school and specifically, larger established medical schools were encouraged to support smaller regional universities to do so:

*Well, other smaller regional universities who have been trying to get medical schools established in their own university have not had the collaborative relationship that Flinders was able to establish with Charles Darwin and I think that has been a huge factor in them not being successful in getting a medical school into a regional university. ... I think it's very important that, actually it's the larger universities who have established medical schools, who need to support the smaller regional universities to get an accredited medical school and be successful. (NTMP-13)*

Subsequent to the NTMP's establishment, Australia has seen this multi-university partnering strategy used in other regional areas for initiatives such as the Murray-Darling Medical Schools Network in New South Wales and Victoria (Australian Government Department of Health, 2018); and the Regional Medical Pathway in Queensland (ABC Capricornia, 2020; CQUniversity Australia, n.d.; University of Queensland, 2020). Collaborations of this sort can mitigate competition, both between the allying institutions and from external parties – as happened in one circumstance with the NTMP and JCU (see 'Challenges' section 4.4.1 below). In the next section, I discuss the paucity of data regarding another key connection that may have contributed to other challenges as well.



#### **4.3.4.2 Paucity of data on connections with Aboriginal stakeholders:**

*So, there were the Aboriginal Community Controlled Health Services, who we very much run alongside, as well as AIDA, the Australian Indigenous Doctors Association. It was important to get them on side because the strong focus was around Aboriginal health and graduating Aboriginal doctors. (NTMP-02)*

A driving vision for the NTMP's establishment was to add to Australia's Aboriginal medical workforce (see section 4.3.6 'Convincing' below). The key Aboriginal organisations and groups that the NTMP connected with were listed in section 4.3.2 'Catalysts' above. Even though engaging with Aboriginal stakeholders was fundamental to pursuing this vision, my research yielded limited data about these relationships. NTMP participants only mentioned them briefly and matter-of-factly. The lack of an Aboriginal voice in my participant group may also have contributed to this paucity (discussed further in section 4.6.2 'Limitations' below).

Historically, during the early days of the NT Clinical School, it was noted that relationships with individual Aboriginal communities where students were placed, were actively built and maintained by Flinders University academics and visiting GPs. This personal connection with the communities enabled good communication and enhanced relationships that enriched student experiences. However, in the era of the NTMP, such intensive and personal relationship cultivation was hindered by time, budget, and staffing constraints. As a result, there may have been some deterioration in the level of engagement with some of these remote communities:

*I guess the story I'm telling you is one of success that relates to [previous] collaboration with other organisations [like RACGP and NTGPE], in order to address medical student placements in remote ... but an observation that we've lost our capacity in those remote sites considerably. (NTMP-08)*

Whether this deterioration of connection contributed to difficulties implementing the Indigenous imperative will be discussed in the 'Challenges' section 4.4.3 below. In the next section, I detail how the NTMP collected several other resources.

### **4.3.5 Collecting:**

*In this field, establishing something new, there really is a whole sweep of things that you need but only realise as you roll it out. (NTMP-13)*

Founding leaders of new medical schools need to collect all the needed economic, human, physical, material, intellectual, educational, and technological resources (see 'Utilising theory' section 3.4.2.3.4). This section details how the Catalysts of the NTMP collected their required funds; staff; curriculum; clinical training sites; facilities (which includes physical spaces, educational equipment, research laboratories, library facilities, and technological resources); and students. The challenges encountered with each will be briefly noted in this section but will be discussed more fully in section 4.4 'Challenges' later.

#### **4.3.5.1 Funds:**

A large amount of money was already being allocated to medical education in the NT by the Territory and Federal Governments for the NTCS, even before the NTMP was established:

*There [were] huge amounts of money involved in the rural clinical schools. This is part of why I said it's not a low income [situation]. ... We must've spent millions of dollars per student, almost, I suspect. It's an enormous quantity of money. ... We had hundreds of thousands of dollars' worth of technology. (NTMP-01)*

To establish the NTMP, even more money was required, and multiple sources had to be accessed. The NTMP staff were very strategic about identifying and applying for various pots of money:

*You need multiple sources of funding and messaging because it's a lot of money and you're not likely to get it from one source. You need to go through everything you can possibly get. So, we were approaching the Department of Health; at that time there was the Office of Aboriginal and Torres Strait Islanders, ATSI, and we were looking at regional grants. We were looking at anything that we could. (NTMP-13)*

In the Australian tertiary education system, university fees alone are not enough to establish and sustain a new medical school, and the chief funding sources are governmental. In the political climate of the time, the Federal Government did not want to fund any more medical student places in Australia. This, however, changed a few years later and a spate of new medical schools were subsequently established across the country. For the NTMP, a solution was found for the Federal Government to provide funds to the Territory Government, which could then be disbursed to the NTMP. This work-around obviated the need to increase federally-funded medical student places at Flinders University and gave the NT Government increased jurisdiction over student selection criteria. The medical student places of the NTMP essentially became Territory-funded seats which allowed the NT to sanction the preferential intake of Territorians – a geographic distinction that was not permitted for federally-funded seats (explained further in section 4.3.5.6 'Students' below).

*So, to have got [government funds] approved really meant that there were no big barriers in the way because getting the funding is a huge barrier. (NTMP-13)*

The NTMP also successfully applied for the Health and Hospitals Fund (HHF) – a federal post-GFC economic stimulus initiative for health-related building projects – to pay for the new NTMP buildings on the CDU and RDH campuses. Separately, FCD Health also obtained HHF money for the new Palmerston Super Clinic – a key clinical training site for the NTMP (see section 4.3.5.4 'Clinical training sites' below). A further side-ways source of federal funding for the NTMP, was the National Broadband Network (NBN) – a government initiative to provide reliable, high-speed internet access across Australia – the roll-out of which began in the Northern Territory (noted in 'Conducting' section 4.3.3.2 above). Closely related to the NBN, was the technological and financial support of the Australian Advanced Research and Education Network (AARENet), a non-profit consortium of universities and government to provide complex computer and telecommunication network (“telcos”) connectivity:

*Together, we were brokering complex funding arrangements between the Northern Territory Government, Flinders, Charles Darwin, AARENet, state governments, and trying to cut deals with the telcos and NBNs on top of all of that. (NTMP-16)*

Overall, the NTMP obtained funding and grants to the tune of AU\$40 million during its establishment phase. Participants acknowledged that the NTCS and NTMP were not low-budget enterprises and were not expected to be:

*The amount of money we've drawn into the Territory from the Commonwealth is unbelievable. Everything from building remote communities in Gove, Katherine, and Alice, and here. It's probably fifty to a hundred million. .... The amount of money in this is truly stupendous ... if you are talking about low cost, something like the rural clinical school is not the way to do it, bearing in mind that the aim of this wasn't low cost. The aim of this, under the Hospital and Health Fund [sic], was to splurge a whole lot of money. (NTMP-01)*

Other participants, however, felt there was not enough funding:

*I think that perhaps with more funding, we may have been able to do it a little bit better ... yes, there's a reasonable amount of funding involved, I'm not sure that it's still quite enough to do it really well. (NTMP-06)*

Several areas that could have benefitted from more funding are discussed in the 'Challenges' section 4.4.8 below.

#### **4.3.5.2 Staff:**

Finding appropriately qualified staff already living in the NT was not always possible. Appointments were sometimes by nomination rather than standard processes of advertising and interviewing, because of the general paucity of relevant human resources. One solution for the NTMP, was to employ whatever human resources they could, and to depend on them to rise to the occasion:

*We went everywhere for educators. ... So, there was a lot of networking. There was a lot of, "Who do you know? What do they do? What could they do?" ... It was a matter of finding who was around that either could do the job or was willing to learn how to do the job and apply themselves to the task. (NTMP-07)*

Other strategies to attract new staff – particularly clinicians – included offering professional recognition as knowledgeable experts; academic resources and university titles; personal connections; and clinical collegiality:

*When you start with this sort of stuff, you can start with a neglected bunch of physicians, rural or remote physicians. Clinicians who feel themselves neglected and you can place them with medical students – they feel sort of noticed because they have medical students with them. ... and there's a range of ways that Flinders uses to try and attract people, often with smallish amounts of money, [giving] people lots of titles [like] lecturers and professors and associate professors and conjoint associate lecturer. ... Offer them access to some resources and things like that. You have to do a fair bit of pleading. It helps to be a local. ... I'd be there, asking them to take students and the next day I'd be seeing their patients. It certainly helped. (NTMP-01)*

Clinical and personal connections helped with the “pleading”. Clinicians at the RDH were already involved with NTCS students and saw teaching as an innate part of their role and reputation:

*People do see [teaching] as part of their role. The hospital sees this as an important role. We get a lot of junior staff here partly because of our reputation for teaching. (NTMP-01)*

In addition to staff in the NT, there was a “phalanx” of Adelaide-based staff – academic, administrative, and clinical – involved with the NTMP:

*So, it wasn't a bunch of people up [in the NT] doing it on their own; it was really the whole phalanx of academic and professional staff in [Adelaide] working to get the program established which was a big piece of work and working out how to deliver the program and then delivering it. So, a lot of our teaching in the first two years happens by distance ... a lot of lectures beamed in here by videoconference [from Adelaide]. ... We couldn't do without the sort of expertise that's there and also without the direct input of the teachers. (NTMP-02)*

Adelaide-based staff were vital to the design and delivery of the course, for the NTMP as well as South Australia.

There were, however, several local functions such as building management, human resourcing (HR), information technology (IT) and audiovisual (AV) technical support that could not be covered by staff in Adelaide:

*But for us running a distributed program, far away from the mothership in Adelaide; yes, we rely on people in Adelaide, absolutely, on central resources. But in terms of a lot of the functions that we have to carry out, we need staff on site. So, for example, we couldn't rely on IT support just out of Adelaide. We've got a team here and in Alice Springs that keep all our IT and AV stuff going, 'cause it's mission critical to us, it has to work in order for us to be able to deliver the program. Similarly, we've got other professional staff here that manage finance, HR, buildings and so forth, because we have to have them here ... you need people that understand the local environment context and have the relationships and so forth. (NTMP-02)*

The “mission critical” aspects of technology will be further discussed in section 4.3.5.5 'Facilities' below.

Recruitment, retention, and burnout of staff all posed problems for the NTMP and will be further discussed in the 'Challenges' section 4.4.4 below. The divisive tension of an “us and them” mentality experienced between NTMP staff and Adelaide staff will also be discussed in 'Challenges' section 4.4.5 below.

#### **4.3.5.3 Curriculum:**

The curriculum for the NTMP necessarily came from Flinders Medical School in Adelaide, which already had an approved curriculum for a full medical school. A key idea was that it was one course in two places, with one set of objectives such that students would get an equivalent education regardless of location:

*At the time, it was very much the matter that it's one course but a new location but that we had to be context-specific to that location ... So, whether you're in Adelaide or in the Northern Territory, the university will deliver you towards a shared set of outcomes. They're not different courses, they're the same course ... So that students felt that were getting an equivalent education but then you also had to, therefore, nut through the structures, the teaching strategies, the assessment strategies, the teaching teams, the implications for resources. So, a lot of that was around making sure that we had the library resources, and the teaching resources, and the laboratory resources, and all that sort of thing. (NTMP-11)*

How much the NTMP could adapt this Adelaide-originated curriculum became a challenge, arising from different views on ownership, contextualisation, and accreditation (explained in the 'Convincing' and 'Challenges' sections 4.3.6.2 and 4.4.6 below respectively).

Nonetheless, establishing the NTMP precipitated several innovations across both locations (discussed further in the 'Consequences' section 4.5.3 below).

#### **4.3.5.4 Clinical training sites:**

*For me the key messages are, "What community relationships do you need?" By community, I am including your acute hospital and so that's at the administration level but also at the supervision level, so the clinicians. And what resources do you have? And what infrastructure do you need? (NTMP-03)*

Since the NTMP grew from the pre-existing NTCS, most of the clinical training sites had already been sourced and partnered with, several years earlier. These included various tertiary hospitals, GP clinics, Aboriginal health services, and remote community clinics around the NT (see Figure 4-5 and Table 4-2 above).

One new addition was the Palmerston Super Clinic, co-owned by CDU and Flinders via their joint business, FCD Health, and built using HHF money. This GP clinic included a student annex with parallel consultation rooms for students and supervisors to conduct clinical training. Over time, many of the students' GP placements have been moved from other GP clinics to this one, to take advantage of the dedicated teaching focus:

*Then when the Federal Government rolled out the super clinic program nationally, the Dean decided that it would be a very useful direction for us to head, if our community-based medical education program was invested in a super clinic environment, rather than in small general practices around the community. ... We have gradually moved students from other private business, I guess, general practices into the super clinic environment. ... it does give us more capacity in terms of the opportunity for a group of doctors who are all in one location where there is a teaching focus, rather than relying on the one GP in the practice who agrees they would really like to teach students and they do, but they don't have space for the student. (NTMP-03)*

I discuss the pros and cons of purpose-built clinical training sites for new medical schools, in the 'Cross-case Analysis' section 7.7.4 later.

#### **4.3.5.5 Facilities:**

CDU and RDH assisted NTMP students with facilities such as library services, computer system access, campus security access, and student support services. Detailed memoranda of understanding were negotiated to ensure these services were equivalent to those available to the medical students in Adelaide:

*We arrived at a point where everyone was confident that those students would have access to the same resources, they could have access to a library, they could have access to IT, they could have access to enrolment support and those sorts of things. (NTMP-05)*



The NTMP buildings on both the CDU and RDH campuses (paid for by HHF money) were delayed in their construction. The CDU building was not ready by February 2011 for the inaugural Year 1 students to begin classes, so the Palmerston Super Clinic (~20 km away) was used instead for several months. Completion of the new RDH building on public hospital property was also delayed, due to bureaucracy and logistical competition by other health service buildings similarly funded by HHF. That building delays are a common experience for new medical schools, is discussed in 'Cross-case Analysis' section 7.7.5 later.

To establish the NTMP as a distributed site of Flinders Medical School, with the same curriculum, intensive technology, internet, and audio-visual connectivity, was imperative. Important lessons regarding the required level of technological sophistication were learned from two Canadian examples of medical schools with interstate satellite campuses (mentioned in 'Conducting' section 4.3.3.2 above). One Canadian example had state of the art technology for videoconferencing (VC) across their distributed sites, yet still experienced regular technical problems that wasted significant lecture time. The other Canadian example did not experience the same technical delays because they employed a crew of dedicated technicians at the various sites to control and adjust the technology in real-time, so that the lectures could proceed smoothly.

*So that was a warning, the technology was going to be an issue which it was for the first few years. (Participant number withheld for added anonymity)*

The NTMP did experience significant problems with their information and communication technology (ICT) (detailed in 'Challenges' section 4.4.7 below).

Reliable ICT is “mission critical” for the dependant, distant site, as failure can significantly degrade the learning experience for their students:

*We are completely reliant on the technology working up here. ... Without the videoconferences connecting and being able to communicate back and forth to the lecturers as they're happening, ... without a good bandwidth, all of these things massively degrade the students' experience of the medical program and their learning. ... In that first five minutes, if the videoconference at the far end fails, what you will hear is, "Look, it looks like we've lost Darwin. We'll play on anyway". So now, you've got one cohort of students that hasn't seen that particular lecture.*  
(NTMP-12)

The Adelaide site could proceed with the live lecture even if the technology failed, but the Darwin site would miss out. The NTMP students would be negatively impacted and would no longer have an education equivalent to their colleagues in SA. Thus, it was crucial for the NTMP to employ on-site ICT staff (as mentioned in section 4.3.5.2 'Staff' above), who could quickly address any problems even at the Adelaide source end:

*One of the key notions to impart is that the problems with distance education are often caused at the source, and they have a solution at the source, but they are experienced remotely. So, the people that have a stake in solving them, don't have the ability to solve them. And that's where all of this [ICT support in Darwin] comes in ... so that the people who have the stake in ensuring that every VC, every lecture happens, has the ability to ensure that.* (NTMP-12)

#### **4.3.5.6 Students:**

The NTMP's inaugural Year 1 cohort who commenced in 2011, comprised 24 graduate-entry students (the BCS degree had not yet commenced at CDU), of whom 10 were Indigenous students. The first 12 BCS students commenced at CDU in 2012 and joined the 2014 NTMP Year 1 cohort.

At the time of NTMP's establishment, Flinders was using the Graduate Entry Medical School Application System (GEMSAS) to admit all of its domestic students. This national system ranked applicants by a combined admissions score calculated from their Graduate Medical School Admissions Test (GAMSAT) score, a weighted Grade Point Average (GPA) for their Bachelor degree and an interview score given by whichever medical school interviewed them. Applicants could indicate their preferences for different graduate-entry medical schools around Australia, and if applying to Flinders, they could indicate a preference for the NTMP. Later, Flinders changed its admissions procedures to no longer use GEMSAS. This change was partially influenced by NTMP experiences and will be discussed further in 'Consequences' section 4.5.3 below. Indigenous students were admitted through slightly different criteria that were considered equivalent to components such as the GAMSAT (see 'Consequences' section 4.5.2 below).

Australian medical schools, by law, cannot preferentially admit students into federally-funded university seats, based on their state of geographic residence nor on their non-Aboriginal ethnicity. Rurality (coming from a rural location) and Aboriginality are the only sub-quotas that can be afforded during medical student recruitment. This legal requirement had the potential to constrain the NTMP away from its reasons for establishment – to train Territorian and Aboriginal doctors (see 'Convincing' section 4.3.6 below). However, NTMP seats are funded by the Territory Government rather than the Federal Government (see section 4.3.5.1 'Funds' above) and, thus, can legally dictate parameters for student recruitment to preference Territory residents and Aboriginal candidates over other applicants. It can also require a return-of-service from students admitted into the NTMP through the Northern Territory Bonded Medical Scheme (explained in 'Consequences' section 4.5.1 below). Thus, NTMP students are selected using all of the same criteria as Adelaide-based students but with additional Territory-dictated priorities that match the social and workforce vision of the NT:

- i. Indigenous NT residents
- ii. Non-indigenous NT residents
- iii. Indigenous non-NT applicants
- iv. Non-indigenous, non-NT applicants

No international students are accepted into the NTMP.

Influenced by their growing social accountability ethos to serve the needs of the regions they are located in, Flinders Medical School leaders recognised that they also needed to provide an entry pathway into medicine for high-school leavers rather than just graduate entrants. Medical training would become more relevant and accessible to high-school-leavers and their families in both SA and the NT:

*We decided that we wanted to have a stream for high school students as well, because we wanted this to be about Northern Territory families, having the opportunity for their kids to stay in the Territory if they wanted to do Medicine. They didn't have to, they could still go interstate, but they could. So, purely a graduate program wasn't going to work. We had the year before, here in Adelaide, come to the same conclusion, that we needed to have a high school entry stream to become relevant to families in South Australia as well. So, we developed the Bachelor of Clinical Science-MD program, and we started that [in Adelaide] a year before we started it in Darwin. But it meant we had the template, so we could basically give that to Charles Darwin University. (NTMP-14)*

The BCS students at both CDU and Flinders University were admitted based on their high school performance using the Australian Tertiary Admission Rank (ATAR) score and their Undergraduate Medical Admissions Test (UMAT) results. These students did not go through an interview process, so their admission was based entirely on academic merit. Furthermore, if they maintained the required grades during their first two years of BCS studies, they could proceed to Year 1 of the MD program – again, based on academic merit.

The early NTMP students (all graduate-entry) experienced a lot of difficulty in their progress through medical school with a high failure rate. This will be further explored under 'Challenges' in section 4.4.2 below. In the next section, I discuss some of the ideological resources helpful in establishing the NTMP.

### 4.3.6 Convincing:

*I think we are doing something really important. (NTMP-03)*

*There was a determination that we should look at the establishment of a medical school ... primarily to be able to grow our own. ... We're wanting to get doctors who are well-prepared to work in the Northern Territory because it is different to working in other areas of Australia because of comorbidity and large number of Aboriginal patients, etcetera. (NTMP-06)*

Champions of new medical schools need to construct compelling rationales, arguments, and reasons to convince the various stakeholders and overcome socio-political resistance (see 'Utilising theory' section 3.4.2.3.5). In this section, I describe how the founding leaders of the NTMP went about Convincing their Colleagues, sceptics, and accreditors with macro-level, meso-level, and micro-level arguments.

Establishing the NTMP was considered locally, regionally, and nationally important with four driving rationales:

1. to address the workforce shortage of doctors in the Northern Territory
2. to allow Territorians to stay in the NT to study medicine
3. to increase the number of Indigenous doctors in Australia's workforce
4. to address Aboriginal and remote health inequities through targeted medical education

*There was the idea that the Territory needed to have its own medical program. Why was it that Territory kids had to leave the Territory to study medicine ... and how do we build our own Indigenous workforce? Here we are, we are really struggling with recruiting and retaining health professionals in the Territory. The pool that would seem to be untapped is our Aboriginal population. (NTMP-05)*

Targeted medical education in the NT needed to emphasise the impact of social, cultural, and geographic inequities, and encourage socio-cultural accountability and humanitarianism:

*The vision was really to provide a fair and improved health experience for local people who did not have access ... they saw the gap and what was really third-world conditions as being unfair and unnecessary. ... more and more we understood how important it was to have the cultural accountability, the social issues addressed in the medicine. [Students] weren't just coming only to see tropical disease. They needed to come and see what resources are available to people, and what the health history is of people who live remotely, and how some of the cultural issues affect healthcare on a short or long-term basis, and the impact of having to leave your family, and the expense of having to fly to somewhere. ... So, it was more about humanitarianism than diseases. (NTMP-07)*

Previous approaches to increasing the number of Aboriginal doctors had, thus far, been insufficient to provide Australia with enough Indigenous doctors:

*If we were ever going to improve the current rate of producing Indigenous doctors it had to be a revolution, not evolution, because ... at the current rate we were going it would take over 170 years to just get one Indigenous doctor into every single [Aboriginal Medical Service] across Australia. (NTMP-13)*

Establishing the NTMP with an emphasis on graduating more Aboriginal doctors was a very attractive rationale to gain both the Territory and Federal Governments' support:

*There was an idea that we could increase the number of Aboriginal graduates, which was very attractive to the Australian Government. And also build the medical workforce for the Northern Territory by establishing a school that allowed Territorians to be able to study the full curriculum here in the Territory. So, I guess those were the driving ideas. (NTMP-02)*

These macro-level rationales were useful to convince high-level stakeholders such as government officials and health service leaders. However, both sceptics and accreditors also required more meso-level and micro-level arguments.

#### **4.3.6.1 Convincing the sceptics:**

Although a full medical program in the NT was greatly desired by many stakeholders, there were several who were sceptical – particularly some staff and clinicians in both SA and the NT. SA-based sceptics felt imposed upon by both the ideology and the unexpected work associated with the new medical school:

*I mean some of them were dragged, kicking, and screaming which was not ideal. ... and possibly that's because not enough work was done at the front end, to actually sell the vision and the implications of it for the people on the ground. So, they all felt like it was a bit sudden and last minute and "No, no one told me I was going to have to do this". (NTMP-11)*

Convincing them required better communication and an appeal to their sense of innovation and social contribution:

*The issue of, "Well, what's in it for me?", for people here [in Adelaide]. "You're asking me to do all this extra work, what's in it for me?" That was a legitimate question. And it was mainly answered by culture and environment, "That's what's in it for you, being part of this culture and this excitement of what we're doing, the opportunity to innovate in your curriculum and to be part of making a difference for a whole territory, even though you live here in Adelaide". (NTMP-14)*

NT-based sceptics were concerned that there were not enough local resources for a full medical school to be successful:

*Now there wasn't a huge level of support, it has got to be said. The [RDH] hospital doctors didn't support us hugely ... but we eventually brought everyone around to it. ... A lot of people thought we didn't have the teaching resources for it. In time, they've realised that Cairns has got it and everywhere else has got it and Canberra's got it and it became obvious that we do. (NTMP-01)*

The tension between Flinders staff and the RDH doctors lasted quite some time, including after the NTMP had commenced operations. Convincing the hospital doctors required improved communication by the university and appointing hospital-based liaison personnel to ensure this. Time also allowed the new changes to eventually become the norm:

*I think it was resolved probably partly by time. As it became, not the new program any longer, but the routine part of work. And by [introducing roles] like the Clinical Dean. And meetings ... between the University and the Hospital. Key hospital clinical leads for each discipline. ... So, communication. I'm not sure that we always did it as well as we could have. We certainly were working really, really hard though, and I think the failings were probably lack of time and not enough people to do the work rather than deliberate intent to not inform. (NTMP-03)*

Some NT clinicians may not have wanted a full medical school in the NT for personal reasons such as not wanting to be involved in academic medicine. For this group, respectful acknowledgement of their concerns was more important than convincing them otherwise:

*But there were other doctors for whom Indigenous health was important because the bulk of their patients were Indigenous, but they didn't see themselves as teachers, they didn't see themselves as researchers; they had come just to Northern Territory for the clinical practice, and they weren't readily prepared to step out of that field or their comfort zone. ... In addition, they were doubtful that a medical school would be successful, they doubted their own abilities to teach and take on a student and were uncertain about how this might impact their lives. ... and so, what we had to do was listen to their anxieties and concerns, address them where we could, recognise that there were some people who were never going to be persuaded to take students and then keep those people appropriately still in the loop but not send them a lot of annoying emails about things that didn't impact them. (NTMP-13)*

Encountering sceptics when establishing a new medical school is not always a bad thing – their scepticism could provide valuable feedback for the venture:

*You really have to listen to the people who seem to be opposing it because actually sometimes they've got really good ideas and we've just been a bit too narrowly focused or one-sided to hear what the problem is. (NTMP-13)*



One group that failed to convince their sceptics was a smaller lobby-group within Flinders Medical School that wanted to establish a smaller contingent of the NTMP in Alice Springs. The health services in Alice Springs had a long history of health professional education for medical, nursing, and allied health students, interns, and specialist trainees – similar to the Royal Darwin Hospital. The proponents of the Alice Springs idea believed that their milieu was adequate to sustain a full program for a small cohort:

*[We] thought that was a great training ground of having a very small program where you had a small cohort of students that really had to get on together because they had to go forth and spend time together, and that was a good learning opportunity for them. (Participant number withheld for added anonymity)*

Sceptics of this idea were unsure the NTMP was viable even in Darwin so concurrently trying to establish a smaller hub in Alice Springs was out of the question:

*So [the] argument [against it] was that they needed a critical mass here [in Darwin] and anything less than a cohort of 24 was too small. ... I think the people in Adelaide were sceptical about us running in Darwin and people in Darwin were pretty sceptical about us having the resources to run it in Alice Springs. ... and so, I think it was too hard a leap, to think that not only could we start the program down here [in Darwin] but that we could also do it in a small place like Alice Springs, which had even less expertise than here and less resources than here. (Participant number withheld for added anonymity)*

However, the notion of a full program in Alice Springs had still not completely died in some minds:

*So, we lost that one, but we're still trying. ... I mean, NOSM [in Canada] has got a highly distributed program and Alice Springs is a relatively well-resourced place compared to some of the smaller places where they send their students. So, I'm convinced having seen the program running up here [in Darwin] that we can run it down there. ... but we'll meet the same sort of scepticism of clinicians in Alice Springs saying, "No, you couldn't possibly run the program down here. It'll be a second-rate program", and so forth. (Participant number withheld for added anonymity)*

Given the significant fears of failing accreditation posed by the NTMP in Darwin alone (outlined in the next section), it is not entirely surprising that the Alice Springs lobby lost their case.

#### **4.3.6.2 Convincing the accreditors:**

Accrediting the NTMP was a high-stakes exercise for Flinders Medical School because the medical course would be evaluated as a single course regardless of the location. Flinders' Adelaide-based course, including the Years 3 and 4 components of the NTCS, already had full accreditation valid for several more years. Introducing Years 1 and 2 with the NTMP required an out-of-cycle approval by the Australian Medical Council (AMC). By expanding into a full course in the NT, the Adelaide-base stood to lose its entire accreditation:

*So, one of the things that we were most concerned about for accreditation was that accreditation was for the whole program, and [should] the Northern Territory aspect of that ... fail accreditation, the whole program would fail accreditation. ... there were a number of people at Flinders who thought we were far too ambitious running a Northern Territory Medical Program and that was putting the Flinders program at risk. And so, for accreditation, it was very much an emphasis on being able to prove to the AMC that ... the quality in the Territory was going to be no different to the quality in South Australia ... any graduates of the Territory program, you would absolutely say were of the same quality as the Adelaide-based ones. (NTMP-05)*

Flinders Medical School had to prove to their accreditors that the NTMP's educational experiences and graduate competencies would be on par with those of the Adelaide hub's.

This accreditation pressure led to Flinders Medical School insisting the course must be identical in both locations leaving little scope for contextualising in the NT. The resultant tension between the staff at the two locations is further explored in the 'Challenges' section 4.4.6 below. Nonetheless, Flinders staff at both locations worked extremely hard to pass AMC review and used the process to tighten up the course as a whole:

*So, there were a lot of the hearts in throats throughout that whole process, and I think people really committed to making sure that [it] went well. But it was a lot of work. I think it took about a year to put together all of the documentation and information ... And in fact, in a way, it helped people understand what the tasks were because, you go through the accreditation sails as if with a fine-tooth comb and you go, "We've got a hole". So, it really helped drive the whole process. (NTMP-11)*

In 2010, Flinders successfully obtained interim accreditation for the change to their previously accredited program which now included the NTMP. The founding leaders of the NTMP and other Flinders staff had successfully convinced the accreditors of the quality of the new satellite medical program with adequate proof of the micro-level rationales regarding curriculum design and delivery across the whole program. This allowed student recruitment for the NTMP to proceed in time for their commencement in 2011:

*We got a fantastic report from [the accreditors] which encouraged everybody immensely. (NTMP-14)*

In 2016, the whole Flinders program overcame the significant challenge of accreditation yet again, this time obtaining full accreditation for the maximum allowable period of 10 years. In the next section, I describe several other challenges faced by the Catalysts during establishment and how they were approached and addressed.

#### **4.4 Challenges:**

*The challenges seemed to be helpful, an almost necessary kind of growing pains. (NTMP-07)*

All new ventures encounter problems and set-backs as they start up – both expected and unexpected (see ‘Utilising theory’ section 3.4.2.3.7). In this section, I explore eight major challenges faced during the NTMP’s establishment:

1. Another university lobbying in competition
2. Early students failing to progress
3. Implementing the Indigenous imperative
4. Staff recruitment, retention, and burnout
5. ‘Us and Them’ regional divisions
6. Identical versus contextualised curriculum
7. Technological difficulties
8. Insufficient funds for some aspects

#### **4.4.1 Another university lobbying in competition:**

The aspirations of a competing institution – James Cook University (JCU) – had the potential to jeopardise the establishment of the NTMP by Flinders:

*JCU would very much love to be here in this space rather than Flinders. JCU do see themselves as the university for northern Australia. (NTMP-02)*

JCU, based from Townsville in rural north Queensland, shares the same social accountability imperative as Flinders and both universities are collegial members of THENet (Training for Health Equity Network, 2011). As noted earlier, since 2001, JCU had collaborated with Flinders to enable eight JCU students to complete their final two years of medical school in the NT (see ‘Conducting’ section 4.3.3.1).

Despite this history of collaboration and shared ethos, competitive sensitivities still arose when Flinders was lobbying to establish the NTMP. An NT-state report was written outlining the contributions of different universities to the NT and it discussed the roles of CDU and JCU but did not mention Flinders, disregarding the strong contribution of the NTCS:

*But we didn't know anything about it until we saw the report. And the whole report talked about what's CDU doing, what James Cook are doing, and Flinders was not mentioned at all. It was a blatant attempt to get James Cook in and Flinders out ... [Flinders leadership] said "These people who wrote this report knew perfectly well what Flinders was doing". So [leadership] went up there and got Flinders back on the map. (NTMP-09)*

The countering efforts of Flinders leadership, the track-record of the NTCS, and the extensive collegiality between Flinders and CDU likely provided an advantage to Flinders in its competition against JCU for the NTMP. Even though they successfully overcame this early challenge, Flinders faced several more challenges, including high failure rates with their early students, discussed next.

#### **4.4.2 Early students failing to progress:**

*Student outcomes in our earliest years were not as positive as we would have liked. I think that was possibly our admissions processes. (NTMP-03)*

In December 2014, the NTMP graduated only 8 of their 24 inaugural students on time, four years after commencement, and none of them were Indigenous. Several other students from the inaugural cohort did eventually graduate a year or two later, including the first Indigenous doctor in 2015. However, 9 dropped out of the course completely (Campbell et al., 2021). Miscalculated benchmarking of both staff and student expectations was thought to be the problem:

*So, that's probably the saddest thing ... when I look back ... the progression of that first group of students. I'm heartened partially by the fact that everyone seems to make that mistake when they start something new. The first group of students are different. They end up doing amazing things but few of them get through, but I still find it sad that you have to make that mistake that everyone seems to make, that miscalculation somehow. The benchmarking isn't quite there, or it takes a while to calibrate. ... I don't think it was just us. I think there was a calibration problem for the students as well, I think they overestimated how much they could do. And it took a number of them a long time to be able to admit that and recognise that but some of them got through. So, would they have been the ones that we necessarily would've picked as our first lot and said to the others, "No ..."? ... I don't think we had that calibration, you see. So, if we made it tougher, we may have missed the ones that actually did get through. (NTMP-14)*

Whether improved calibration could have been achieved earlier, without the benefit of experience, is a matter for speculation. Would they have accurately identified the inaugural students who would succeed versus the ones who would drop out? One year later, in 2015, the NTMP's graduation numbers had improved to 22.

Flinders Medical School's own internal research revealed that an older age; a longer time since undergraduate studies; a non-science background; and lower scores in the science section of the GAMSAT adversely impacted medical student performance (Sladek & Frost, 2014). The NTMP's inaugural cohort had a statistically significant higher number of students with one or all of these indices compared to Adelaide-based cohorts (Sladek & Frost, 2014). To illustrate, the average age of the NTMP's inaugural cohort was 42, which when compounded with other family, work, and community responsibilities, likely contributed to their struggles to progress through the course:

*Our first cohort ... contained a higher proportion of older students and they are statistically a problem ... their prognosis is poor. And it's not 'cause there's anything wrong with them. It's because they've got busy lives and they're suddenly faced with an academic load which is much greater than anything they've seen in their uni days. They've got kids and mortgages. The problem with the NTMP's first cohort, many of them had jobs that they just assumed they could continue; that a few uni studies wouldn't interfere with their normal, everyday life. ... They [didn't] believe that they'll have to give things up. (NTMP-09)*

However, this was hypothesised to be due to an inaugural year effect, since the NTMP cohorts continued to have higher numbers of students with similar risk factors, yet their academic performance improved and became statistically indistinguishable from Adelaide cohorts over time (Sladek & Frost, 2014).

Several of the same risk factors were also true of the Indigenous students in the inaugural cohort. Not only did these students struggle with the expectations of medical school, but Flinders staff found that realising their dream to increase Indigenous capacity was not straightforward, as discussed next.

#### 4.4.3 Implementing the Indigenous imperative:

The NTMP leaders' vision to increase the number of Aboriginal doctors led to a large recruitment of 10 Indigenous students into the inaugural cohort. Most of these students had the same risk factors for poor medical school performance mentioned in the previous section. Additionally, their social situations were often more complex with significant financial and social responsibilities to their families, extended families, and communities; fewer academic role models; and less physical space in their homes for private study. Many of them were in the group that struggled to progress and eventually dropped out. The extensive support required by these students was not well-understood in the early days of the NTMP:

*We were inexperienced with them, basically. And, I think, underestimated the support needs of those students. (NTMP-03)*

Staff reflected that their early Indigenous recruitment processes were not assiduous enough:

*I think there should've been a better scrutiny of the students that were coming through the Indigenous Entry Stream. And we shouldn't have been so determined to get a large number of Indigenous students in that first cohort because ... we ended up setting people up to fail. (NTMP-06)*

This was a benchmarking problem not only for Flinders staff, but also for their advisors from Aboriginal communities:

*In retrospect, I don't think the [Aboriginal] people we took advice from necessarily understood exactly what a four-year graduate program involved necessarily as opposed to a six-year program where you sort of got a couple of years to find your feet. ... I think we were also a bit captured by the fact of, "Wow, look at all these Indigenous students that we're recruiting. Isn't this amazing to have half the class Indigenous almost?" And we lost sight of that benchmarking, which created then an enormous pain for students, staff, and everybody. (NTMP-14)*

*So, I think we've gotten a lot better ... at our selection of [Indigenous] students. We've gotten better at how we support students, how we identify students that are struggling, and we've got good mechanisms in place to support them and intensify effort with those students that require it. ... so, we've got smaller numbers coming into the program now, but we know – we're confident that if they can get in, they can finish the course. (NTMP-02)*

Since its inception, the NTMP has admitted 33 Indigenous students (24 from the NT itself) and has successfully graduated 9 of them. Even though the absolute numbers are relatively small, they represent 14% of students and graduates each from Flinders University – the largest Indigenous representation of all Australian medical schools (Worley et al., 2019). However, more than 12 Indigenous students have withdrawn from their studies completely (Campbell et al., 2021).

Apart from the difficulties implementing the student element of their Indigenous imperative, the NTMP also faced challenges with recruiting, retaining, and burning out their Indigenous staff. This was in the context of problems recruiting, retaining, and burning out non-Indigenous staff as well. These are discussed next.

#### **4.4.4 Staff recruitment, retention, and burnout:**

Recruiting and retaining high-calibre staff posed a challenge for the NTMP. Local pools of qualified and experienced staff are small in medically under-served areas, thus, the required staff need to be attracted and imported in:

*One of the challenges for the Northern Territory area ... there aren't lots of academics sitting around looking for jobs. You actually have to attract people in and it's a difficult process, and people come, and they stay for two years, and they go, and then you're recruiting again. So, it was a very high turnover of staff. (NTMP-11)*

Recruiting and retaining Aboriginal staff was also very hard due to the smaller available local and national pool. There was also a high risk of burning them out:

*I think that still the hard thing is our Indigenous Transition Pathways unit. Recruiting people to work in it and retaining people who work in it. ... I think that continues to be hard because there are just not enough Aboriginal people. And the good ones are snapped up and you know, the good ones that come to work for us, it is so hard, we easily burn them out. You know, everybody wants a piece of them. (NTMP-03)*

Some early Aboriginal staff left after a few years. Staff appointed to replace them did not feel qualified to take on the same leadership responsibilities. They required support and encouragement to recognise their capabilities.



Due to the intensity of start-up activities, burnout was experienced by many staff, both Indigenous and non-Indigenous, and contributed to the NTMP's staff retention "casualties":

*I do think that the start-up phase is a very intense phase and I think there's always a risk, especially in a low-resourced environment for burn out, and I think there were some burn out casualties in that first phase. (NTMP-11)*

*Giving birth to a major project like this isn't without its casualties, I guess. (NTMP-02)*

Burnout and attrition could be a natural risk for passionate, innovator staff:

*So, the innovator staff can be so passionate that they don't necessarily gel as a team, and I think that's what happened to some extent with the first group of staff. (NTMP-14)*

Significantly, high turnover was also experienced in the crucial leadership role of 'Associate Dean of the NTMP' – a role equivalent to 'Founding Dean' – which changed hands three times between 2010 and 2014. The individuals in these roles were noted to be strong, passionate, and committed leaders who also experienced elements of burnout:

*We worked really hard and got completely burned out through this, hitting against this wall of Flinders University. ... Everyone involved was burned out including me. (Participant number withheld for added anonymity)*

Despite the instability of NTMP staffing and leadership, the program itself remained stable due to backing from leaders of Flinders Medical School in Adelaide and the NT Government:

*The program has a structure which is determined from [Adelaide] and so if there was a danger that clinical skills would totally break down because [staff left]. ... It couldn't be a large break down. ... The other thing that gave it stability ... was the very, very supportive NT Government health service. ... [The head] was quite clear that he was going to do everything he possibly could to keep the program stable and running. (NTMP-09)*

Having a shared vision and the ability to work as a team also assisted with keeping the program on track, despite the staff and leadership attritions:

*So, we were all aligned with the same goal in mind, that gave us strength to work independently and yet interdependently as a true team. (NTMP-13)*

Even though there was a sense of teamwork, there were also some 'us and them' tensions between the NTMP and the Adelaide-based staff and clinicians, discussed next.

#### 4.4.5 'Us and Them' regional divisions:

Both staff and students of the NTMP experienced a tension with the staff and students at Flinders Medical School in Adelaide leading to divisive feelings of 'us and them'.

The NTMP students experienced a sense of disengagement from the Adelaide-base because 90% of the lectures were videoconferenced from Adelaide to Darwin and the Adelaide-based teachers did not always actively involve them during lectures. The NTMP students felt like they were a "third wheel" or the "poor cousins":

*The experience that we're the third wheel which you'd often get if you were the little square in the window on a didactic lecture. The students in Adelaide see us as a small thing down there and ... like you're the poor cousin ... but a lotta clinicians were getting up and just launching into their lectures without acknowledging us, "Darwin, give us a sound check", and all that. ... clinicians are always just used to students in front of them at the FMC lecture halls and they had to think that they've got another audience in the Northern Territory. So, we've had to work on making sure that the clinicians and whoever was doing lectures do involve us. (NTMP-04)*

The Adelaide-based lecturers had never previously had to teach in this distributed fashion, and they required a paradigm-shift to actively engage with the NT students via the technology.

Adelaide-based staff had concerns that the NTMP would “water down” the quality of the medical course and that they themselves might be stretched beyond their capacities. Clinicians from the co-located Flinders Medical Centre had previously been very engaged with Flinders Medical School and felt some ownership over the course. Decisions to establish the NTMP as a satellite program were made primarily by university staff and not the FMC clinicians and this major change was initially difficult for them to get on board with:

*Flinders has been ... a very strong on-campus program, so lots of face-to-face, lots of involvement from clinicians in the ... Flinders Medical Centre and very much in ownership by clinicians of that program, teaching into it, driving it, and I think they were very concerned that their closeness to the program would be watered down by a Northern Territory cohort of students, that they would be expected to be stretched further and ... that the risk was that they were going to have these people from the North who weren't quite up to scratch, pulling that program down. ... and they were doing more and over and above their normal work by contributing to a new program. (NTMP-05)*

Some of this tension may have been avoided if the Adelaide-based staff had more ownership in the project from earlier on:

*The ownership of it started with the Territory pitching for funding for the Hospitals and Health Fund [sic]. Perhaps one of the things that might've made that difference is that if it was also driven from some of those people who became the change agents in South Australia. Perhaps if they had been on board earlier, the message in South Australia and the excitement about a program coming on board might've been owned a bit more. So, we were all excited about being successful, South Australia just saw it initially as more work for South Australia. (NTMP-05)*

In this context, the tensions experienced by the NT-based staff may have stemmed from their loyalties to the NT region rather than to Flinders as an institution:

*The staff who [were] recruited from the Northern Territory, to somewhere like Flinders, have the interest of the Northern Territory at heart. ... The Flinders view was that Flinders was who you were loyal to rather than anyone else. (NTMP-01)*

Collaboration and teamwork were emphasised to deal with the staff ‘us and them’ mentality by fostering cross-site visits and teaching teams:

*[We] worked very closely on building partnerships between teachers in Adelaide and in the Territory and we launched this idea called teaching teams ... getting a collaborative model going and not a kind of Adelaide to do this to Darwin, and Darwin delivers Adelaide’s [program] in Darwin. But actually, getting it as a two-way street, exchange of ideas. (NTMP-11)*

It was important for this to be a “two-way street” rather than a neo-colonial situation of Darwin being subservient to Adelaide’s ideas.

Time also helped to resolve many of the staff and student regional divisions as the idea of working across distributed locations became the norm:

*I think that as the program has matured and new people come in that have only known it as one program, that helps ... and as it became more established and once it was accredited by the AMC ... it has become much more normal to be a one dispersed program than it was right at the [start]. (NTMP-05)*

AMC accreditation eventually assisted with this normalisation and acceptance, but initially precipitated significant regional tensions over how contextualised the curriculum should be for each hub, discussed next.

#### **4.4.6 Identical versus contextualised curriculum:**

*So, I think there was an appetite here for contextualising the program and there was a strong pushback from Adelaide about having everything identical. ... It was part of that whole nervousness about the enterprise. Is this project gonna work? Is it a folly? Is it gonna collapse in a heap? We’ve got to have rigid control. It’s got to be identical [for the] AMC. (NTMP-02)*

Adding to the regional tensions were differences over who owned the course and how much NT-specific contextualisation could occur. NT-based staff felt it was their course and should be tailored to NT needs:

*We put this huge amount of work in, we got the team, we're ready to start going. ... I suddenly become aware that Flinders in South Australia think they're planning it, not us! And we'd hear odd things. ... "They think we're going to have every lecture at exactly the same time in exactly the same places as Flinders". What? What about making it Territory-specific and things like that? (Participant number withheld for added anonymity)*

Flinders Medical School in Adelaide, on the other hand, argued that it was their course and too much contextualisation would jeopardise accreditation for both locations (as discussed in section 4.3.6.2 'Convincing the accreditors' above):

*The biggest challenge all the time was negotiating how much autonomy they're gonna have. In the very earliest planning stages, we had major confrontations month after month with [NT-based staff], who said, "This is going to be our school. It's going to be our way and we'll run it in something that's appropriate to the NT context". And so, we were ... saying, "Well actually, we're the ones who hold the license to run the course, we're the ones who are accredited by the AMC so you're actually going to have to do it our way because of the AMC". ... The AMC told them, "It's one course. It's one course in two places. You can't have two courses. If you want two courses, then the NTMP will have to come to us independently". (NTMP-09)*

The AMC confirmed the position of the Adelaide staff that the curriculum needed to be identical in both locations for accreditation to be granted. The NTMP staff were aware they would not be able to gain accreditation and establish a new medical school without the credibility and experience of Flinders University staff in Adelaide.

Even though they accepted it, the NTMP staff did feel constrained in many ways. They did not have the freedom to offer contextualised resources to their NT-based students, as this might be seen as unfair to the Adelaide students. All content had to be available to both groups:

*That was a new way of thinking for the Northern Territory to fit into a program that was absolutely tightly held, and everything had to look the same, be the same, you couldn't just put up something that you thought the students might be interested in online because no, all students had to have the same. (NTMP-05)*

Flinders Medical School in Adelaide also had to acknowledge that a rigid insistence on an identical curriculum could lead to poorer educational experiences for the Darwin students:

*And after a while, they began to find that, just recording the Adelaide lectures and delivering them into Darwin, it's not a very high-grade educational approach. ... In the end, I think we came to a pragmatic solution because there were some things that couldn't be delivered in the same way in the Northern Territory ... we realised that this kind of insistence on absolute fidelity to that Adelaide content was actually not as helpful – and yes, they did need to do a lot more contextualised teaching at Darwin. (NTMP-11)*

Over time – and after two successful accreditation reviews – the rigid need for an identical program had lessened. A greater sense of sharing and symbiosis between the Adelaide and Darwin hubs had evolved. Context-specific resources were offered by each hub to enhance the educational experience for students at the other hub:

*Really, the mantra now is we have same learning outcomes, same assessments but different pathways. And ... we've contextualised the curriculum here and continue to do that more and more. ... I think over the years, as we've bedded things down here, the program is well established now. It's part of the landscape, people are much more relaxed. So, when we talk about contextualising the program they said, "Oh that sounds great! That sounds really interesting. Tell us more". (NTMP-02)*

This shared and symbiotic curriculum required significant time, energy, and resources to ensure that timetables, room bookings, laboratory facilities, teaching expertise, and videoconferencing were all streamlined. Many technological challenges had to be overcome to achieve this sense of consistency and are discussed next.

#### 4.4.7 Technological difficulties:

In the early days of the NTMP, the technology frequently failed and required great effort and expense to fix and maintain. This account of recurrent trouble with the link from Darwin to Katherine illustrates the complexity:

*We're always having trouble with the people in Katherine with their teleconferencing. ... We flew up some people from Sydney, from Melbourne, from Telstra to Katherine. ... all at huge cost – [they] walked in, took one look and said “No”. Why not? “You're too far from the exchange”. ... So [we] had to get them to change all of that around and finally we got it all working. We had this great session ... then the next day it was all broken. It didn't start working and we couldn't find out why. It turns out there's this sort of ant in Katherine which is attracted to electric signals, and it dug its way into our aerial and ate out and shorted the electrical signals. We had to get that all rewired again and then we had to get a man come once a week and put ant bait around our aerial. Eventually, we got our teleconferencing to Katherine. In the meantime, students were trying to study that whole time. In the meantime, that was a year or a year and a half and hundreds of thousands of dollars to get to that point. (NTMP-01)*

Having problems and costs associated with keeping the technology performing smoothly was not entirely unexpected – Flinders University had already been warned of this from the two Canadian exemplars they visited (discussed in section 4.3.5.5 'Facilities' above). Nonetheless, having the ants eat the wiring is a unique challenge, and could not have easily been foreseen nor accounted for.

The frustration and cost of repeatedly failing technology was not borne only by the Catalysts of the NTMP but also the students. The 'mission-critical' nature of the technology for the distant site of a distributed program was already discussed earlier (section 4.3.5.5 'Facilities' above). Even though expense was not spared for this mission-critical aspect of the NTMP, there were several other areas that did not have sufficient funds allocated, as discussed next.

#### 4.4.8 Insufficient funds for some aspects:

Despite the huge investment of funds into the NTMP (noted in section 4.3.5.1 'Funds' above) there were several areas that could have benefitted from still more money:

- the start-up period
- the Adelaide-base of Flinders Medical School
- failing student support
- Indigenous student support
- expanding the buildings

Funding for the NTMP was calculated to begin from the intake of students in 2011 rather than from 2009 when the project was officially sanctioned:

*What was hard about it, in a sense, was that ... we weren't really given any start-up funding. We were given funding to deliver the program ... from the point of entry of students. ... but obviously it took more than that, like we needed to have staff in place before the day the students arrived. (NTMP-03)*

All the money obtained for the NTMP was required to be spent within the NT. Flinders Medical School staff in Adelaide were vital to the NTMP effort yet received no additional funding for their work on the project. Had money been available for the Adelaide hub as well, it may have reduced some of the resistance and stress experienced from Adelaide-based staff (discussed in 'Convincing' and 'Challenges' sections 4.3.6.1 and 4.4.5 above respectively):

*And there was really very little in the way of money that came [to Adelaide] to do this. All the money was spent in the Territory. In retrospect, we probably could've asked for some significant seeding funds to seed stuff [in Adelaide] which we didn't get, so that made things hard. ... So, the, "What's in it for me?" thing made that more obvious to people [in Adelaide]. (NTMP-14)*



The funding model used for the NTMP stuck closely to the business plan developed by the consultant who undertook the feasibility study in 2008. This was quite a “lean” model that did not account for the students who failed and had to repeat portions of the course:

*I was always concerned that the initial model put forward by the consultant ... was too lean. I felt that it didn't allow for what we eventually needed to do which was the retention model. It didn't allow for significant numbers of students actually having to be retained at a year level until they've shown that they could achieve the standards. And I think that created costs and drew on personnel in a way that wasn't anticipated in that early funding model. (NTMP-11)*

Indigenous students received an extra subsidy, but this was still not enough for their practical needs. They required enough financial support to replace the finances that they had previously provided for their families and communities, who depended on them. Furthermore, this support was often required for more than just the standard four years of the course:

*So, the Indigenous students were able to get the subsidy, but the subsidy really didn't cover all the expenses they had before they entered medical school, that they had been supporting their extended families while fully employed. ... So, if we wanted them to focus on their medical degree, we had to be able to fund them – release them from worry ... and what we hadn't taken into account was that a number of the Indigenous students who needed to sit re-sits ... They took extra time within a year and extra years to complete the degree and that hadn't been allowed for in the budgeting process. (NTMP-13)*

NTMP budgeting and building also did not account for physical spaces that would allow for growth of the program in the future:

*I probably would've planned some of the building a little bit more, plan for growth rather than plan for current numbers. ... I think there's an appetite to grow the program if we can find the funding to do that. (NTMP-02)*

The space was built to support a class size of 24 but did not incorporate scope for expansion without significant re-design and expense. Nonetheless, despite these several challenges and negative outcomes, the NTMP also achieved many positive Consequences, which are explored next.

## **4.5 Consequences:**

The Consequences of establishing a new medical school in a medically under-served area will span macro-level, meso-level, and micro-level outcomes. Founding leaders will need to consider the intended and unintended consequences that might eventuate and could work to maximising positive ones while minimising negative ones (see 'Utilising theory' section 3.4.2.3.8). In this section, I explore several positive outcomes of establishing the NTMP.

One simple yet historic macro-level consequence is that the Northern Territory, as a state, now has its own full medical school when once it did not. I identified four other consequences of NTMP's establishment that emerged from the data:

1. Improved junior doctor workforce
2. Improved Indigenous applicant preparatory support
3. Opportunity for innovation
4. Improved technology access for the region

#### **4.5.1 Improved junior doctor workforce:**

*Particularly the first-year students were ambassadors of the program in a way that no one else could be and so they were fantastic and it's exciting to see them graduate and do what we hope they would do and that is practice in the NT, so that has been good to see the progression. (NTMP-13)*

A key reason for establishing the NTMP was to increase the medical workforce for the NT. At the time of this research, this intended, macro-level consequence was realised at least for their junior doctor workforce. Since NTMP seats were Territory-funded, not only could the NT Government impose admissions criteria (as noted in sections 4.3.5.1 'Funds' and 4.3.5.6 'Students' above), they could also institute a return-of-service agreement. Through the Northern Territory Bonded Medical Scheme (NTBMS), all NTMP graduates would be employed by the Territory after their graduation (initially for two years but later increased to four years). This provided a steady stream of junior medical workforce for Territory health services. Having lived, trained, and worked within the Territory for a minimum of 8 years (4 years of medical school plus 4 years post-graduation), NTMP graduates might be more likely to continue to work in the Territory and to be well-prepared to provide high quality contextualised health care.

The NTMP had graduated 131 doctors between its first graduating cohort in 2014 and 2020, (Campbell et al., 2021). 97 of these (74%) had remained in the NT, however, many of them were still undertaking their return-of-service obligation (Campbell et al., 2021). Of the 69 graduates who had completed their obligations already, 37 were still working in the NT, representing 28% of the NTMP's total output (Campbell et al., 2021). Even though the NTMP's companion vision to increase the Aboriginal medical workforce for Australia has not yet had the same clear outcomes, improvements to Aboriginal medical education have been achieved and are discussed next.

#### **4.5.2 Improved Indigenous applicant preparatory support:**

Informed significantly by the struggles of the early NTMP Indigenous students (detailed in 'Challenges' section 4.4.3 above), Flinders' procedures for their Indigenous Entry Scheme (IES) have been improved and recalibrated. Changes were made so that both staff and applicants can be more confident that an Indigenous student admitted through this streamlined pathway will be able to manage the demanding requirements of the MD course:

*There was an incremental recalibration about selection and admission processes. So, we have Aboriginal students coming in through Indigenous Entry Stream and we recalibrated that until, well, now we're very confident that that's a very rigorous process and if the applicants can get through that preliminary program that we have in place, then we're confident they can complete the course. (NTMP-02)*

The IES admissions processes now included more specific definition of what could be counted as equivalent to the GAMSAT score; passing two short preparatory courses at the NTMP; and a closer scrutiny of each individual applicant and their social situations.

The two required preparatory courses are a 2-week in-person Preparation for Medicine Program (PMP) and a 12-week online Flinders University Extended Learning in Science (FUELS) courses. These courses had no clear domain of responsibility within the NTMP as the participants were not yet actually admitted into the medical school. NTMP staff, however, assumed responsibility for these courses in their passion to nurture more Indigenous doctors for Australia. They also made the courses available to Indigenous applicants aspiring to study medicine in any medical school and not just the NTMP. Some successful participants have, indeed, gone on to study medicine at other Australian universities rather than the NTMP. The Indigenous applicant preparatory courses were not the only educational innovations triggered by the NTMP – more are discussed in the next section.

### 4.5.3 Opportunity for innovation:

Establishing the NTMP caused Flinders Medical School to review and update its whole curriculum. The NTMP was able to directly strengthen important elements of the existing curriculum such as the social determinants of health and rural health:

*We needed to tweak the existing curriculum to take into account that it was being taught in different places. We needed to make sure that we were consistent with our learning objectives, right across. ... the Northern Territory was able to contribute to that curriculum in a really positive way, particularly around the social determinants of health, and particularly around thinking about delivering in non-urban settings ... so that instead of just having the [NTMP] students being the outliers, it was a course that catered to this whole cohort of students. (NTMP-05)*

Innovating within the curriculum for the NTMP afforded widespread opportunities for innovation across other areas of the medical school:

*And what something like that does is it gives the opportunity for innovation in all sorts of areas to come out. So, you're innovating here but you can't then say no to everybody else who wants to innovate in other areas. So, it tends to bubble up opportunity for innovation in all sorts of areas. (NTMP-14)*

In fact, innovation was not limited to the medical school, but also spread to the NT legal system. An unusual area where the NTMP precipitated change was with the NT Government's legislation on human cadavers. Previously, cadaver storage was not allowed outside a hospital, however, to fully implement Flinders Medical School's anatomy curriculum, cadavers were required on the CDU site in a state-of-the-art laboratory designed with very sophisticated audio-visual connectivity to the anatomy teaching laboratory in Adelaide. NTMP and CDU staff successfully lobbied the NT Government for a change of cadaver laws – underscoring both the tenacity of the staff and also the willingness of the NT Government to facilitate this new medical school in their jurisdiction.

Technological innovation was also widespread – beginning with Flinders University itself. The expanding technology needs of the NTMP, caused Flinders University to review and improve its entire Information Technology Support (ITS) unit:

*The Northern Territory Medical Program was a significant ramp up, leading the way in videoconferencing activity in particular, but all computing and networking activity emanating from the rural and remote areas. Those areas that had a consistent demand for more [technology] than the university was geared to deliver because it was still very much focused on Adelaide. (NTMP-16)*

Even though Flinders University – particularly the medical school – had distributed campuses in many rural towns of SA for more than a decade, the ITS unit still had procedures and protocols that were very Adelaide-centric. The improvements to the structure and function of the ITS unit helped some of its services to be provided in a more equitable way to the rural campuses. Further technological improvements precipitated by the NTMP are discussed in the next section.

#### **4.5.4 Improved technology access for the region:**

The federally-funded National Broadband Network (NBN) for faster, more reliable internet across Australia, began its roll-out in the Northern Territory – precipitated partially by socio-political imperatives but also partially by NTMP’s establishment (discussed in ‘Conducting’ and ‘Collecting’ sections 4.3.3.2 and 4.3.5.1 above respectively):

*[The NBN] was one of the landmark infrastructure projects. The history of which is a good story and not entirely smooth ... but [the new Labour government] really did step up in saying, “We’ve got black spots that really need to be fixed” ... and one of those was the connection into Darwin ... of course, we [Flinders University] had a perfect requirement for it and so we put together the case in support ... There were other imperatives, political and social community imperatives, but we certainly put in a strong case and it worked. (NTMP-16)*

This enabled Flinders to implement their distributed curriculum across two states with its heavy reliance on technology and videoconferencing:

*We ended up getting better bandwidth which enabled us to do more things in terms of IT which we wouldn't have been able to do a couple of years beforehand. (NTMP-14)*

Improving technological pathways for the NTMP had the collateral effect of improved connectivity for the whole area. In particular, large users of technology – such as the NT Government, NT schools, Charles Darwin University, and the NT police force – all benefitted. This was an unintended positive consequence for the whole community.

Having presented how the NTMP was successfully established through the lens of my Eight C's Framework, I conclude this chapter with a discussion of the strengths, limitations, and personal reflections of this case study.

## **4.6 Strengths and limitations of this case study:**

### **4.6.1 Strengths:**

This first case significantly shaped my research. It confirmed the findings of the literature review and corroborated the 'Thirteen Key Considerations of New Medical School Establishment' (see 'Literature Review' section 2.3.3). It also supported my choice of 'Institutional Entrepreneurship' as a theoretical framework by revealing correspondence in the concepts (see section 3.4.2 'Utilising theory'). Furthermore, it helped refine research methods including data collection and data analysis.

### **4.6.2 Limitations:**

Several groups of key informants could not be interviewed for this case such as CDU staff; government officials; inaugural students; and Indigenous staff and students. Including the 'voices' of these informants would have enhanced the findings of this case study – particularly the Aboriginal voice. This limitation was addressed in subsequent cases with representatives from the missing groups recruited as participants.

Relative to the other two case studies, the NTMP had the least number of publications to include as source data, about its establishment and its outcomes. Publications and internal documents regarding the NTCS and Flinders Medical School provided some additional but limited input. Thus, there is scope for more publications on the NTMP, including from this research.

#### **4.6.3 Researcher reflexivity:**

This case was originally chosen as a pilot study to develop my skills in case study research and data analysis (Yin, 2014). However, my initial data collection and analysis yielded such rich information and insights that the study was upgraded to a full case. Since it was a satellite program of an existing medical school rather than a completely new medical school, its usefulness as a theoretical replication of the other cases was recognised and utilised (see section 3.4.1.3 'Choosing the cases') and comparisons could be made.

Furthermore, being a program of my own university provided insider or 'emic' perspectives (Maxwell, 2012) into the structure and function of the NTMP and Flinders Medical School. As noted in section 3.4.3.1.1 'Critical Realist approaches to the data collected', this was utilised for its benefits as well as recognised for its limitations and potential conflicts. For example, I had tacit knowledge on aspects of curriculum and admissions, that enabled insights and comparisons with the other case study medical schools. On the other hand, I was aware that some participants were careful and/or biased in how they described certain aspects of leadership within the medical school because of our mutual relationships outside this research.



## 4.7 Summary of chapter:

In this chapter, I used the experiences and interpretations of people involved with the NTMP's establishment and their descriptions of events, to construct my own understanding of the case. I combined these with the concepts of Institutional Entrepreneurship (IE) and the Eight C's Framework to develop a rich picture of the case, and to understand the generative mechanisms contributing to NTMP's particular experiences of establishment. 8CF was also used as a structural device to present the details of the case.

The NTMP's 'Context' revealed that the remote nature of the NT; its higher proportion of Aboriginal people; and its high turnover of residents – including health care staff – contributed to poorer health outcomes and a challenging health workforce. Additionally, there were no educational opportunities for Territorians who wanted to study medicine who had to move elsewhere to do so.

The NTMP's 'Catalysts' included NT-based clinicians and staff who were already involved with the NTCS (Flinders University's clinical school in Darwin) as well as SA-based leaders and academics at Flinders who were motivated by social accountability mores. The NT Government and CDU (the local NT university) were also deeply invested. Additionally, federal government officials were enthusiastic about the new medical school. NT health services and Aboriginal organisations were further key stakeholders in the venture.

Three specific activities were identified as 'Conducting' a favourable milieu for the NTMP to be given the authoritative green-light for establishment. The success of previous smaller medical education initiatives provided evidence and impetus for further possibilities. Several socio-political circumstances at the national, Territory, and university levels came together in an opportune way to facilitate the NTMP's establishment. Furthermore, hiring a political lobbyist was essential to the effort.

'Connecting' – particularly with CDU, in multiple points of connection – was essential for the NTMP. This kind of partnership was unique for two Australian universities and others were encouraged to consider it. The consequence of not collaborating was competing, as was seen in one challenge with JCU.

'Collecting' resources for the NTMP was a matter of successful project management. Funds were accessed from several sources and grants – most of them governmental. Staff recruitment for the NTMP faced the challenges typical of all medically under-served locations but was also significantly supported by SA-based Flinders' staff. The curriculum was based on Flinders' pre-existing curriculum but adapted to be relevant to both NT and SA. Clinical training sites had been gathered for the NTCS, but a further purpose-built site for the NTMP included the Palmerston Super Clinic. Facilities such as buildings and student services were either newly constructed for the NTMP or were negotiated in partnership with CDU and RDH, while technology was implemented in collaboration with AARENet and the Federal Government. Students were chosen by academic and interview criteria but were also stratified by NT-Government dictated preferences.

Several compelling rationales of national, regional, and local importance were 'Convincing' for the NTMP to be established. Sceptics were encountered amongst both NT and SA clinicians and university staff. A few proponents who wanted to establish a smaller hub of the NTMP in Alice Springs were unsuccessful in their 'Convincing' efforts. Convincing the accreditors of the viability and quality of the NTMP, was a high-stakes exercise for Flinders, as it stood to lose accreditation, even for its well-established SA-based program.

The NTMP faced eight major 'Challenges' during establishment. Another university lobbying in competition to build a medical school in the NT threatened to derail Flinders' efforts to do so themselves. Many of the early students failed to progress through the course in the expected time frame and several eventually dropped out. Improved admissions processes and student support helped solve this problem. Implementing the vision to graduate a large number of Aboriginal doctors was more challenging than anticipated. Understanding Aboriginal student needs better and recalibrating their admissions and support procedures helped improve this aspect. Staff recruitment, retention, and burnout were also significant challenges faced by the NTMP. This was compounded by a divisive mentality of 'us and them' between SA and the NT which required improved communication dynamics and teaching-team collaborations. The level of curriculum contextualisation allowed by the NTMP compared to Flinders Medical School in Adelaide caused significant tension in the early period – mainly driven by accreditation fears. Over time and after two successful accreditation reviews, this fear had lessened and the NTMP was able to contextualise their program with more agility. The heavy reliance on technology to implement Flinders' curriculum across such a large expanse of geography came with significant challenges and required large investments of money and effort to overcome. Despite the large amounts of money available to the NTMP, several other areas could have benefitted from more funds.

'Consequences' are the macro-level, meso-level, and micro-level outcomes of establishment policies and processes. The most important consequence was that the Territory now had its own full medical school improving the educational opportunities for Territorians. Four other consequences were discussed in this case study. (1) An improved junior doctor workforce for the Territory through a return-of-service agreement with the NT Government. (2) Improved admissions and preparatory procedures for Indigenous applicants with the consequence that they are less at risk of failing their studies once accepted into medical school. (3) Several opportunities for innovations throughout the university and even the NT legal system. (4) Improved technological infrastructure for the whole area.

To close, the NTMP case study enabled an examination of how to successfully establish a new medical school as a satellite location, geographically remote from the parent university. In the next chapter, I present the second case study – the Northern Ontario School of Medicine.

## 5 CASE STUDY 2: THE NORTHERN ONTARIO SCHOOL OF MEDICINE



### 5.1 Introduction to chapter:

*The first [thing] is a perceived need ... a belief that there's value in some way to those involved in actually starting a new medical school. I mean there are a lot of various components and costs and it's quite complicated, so starting a new medical school isn't something to be taken lightly. In the case of NOSM, a huge driving force was the advocacy from the communities ... the people across Northern Ontario saying that if we're ever going to have enough doctors and other health professionals, if we're ever going to improve the health of people in Northern Ontario, we need our own Northern Ontario School of Medicine. (NOSM-05)*

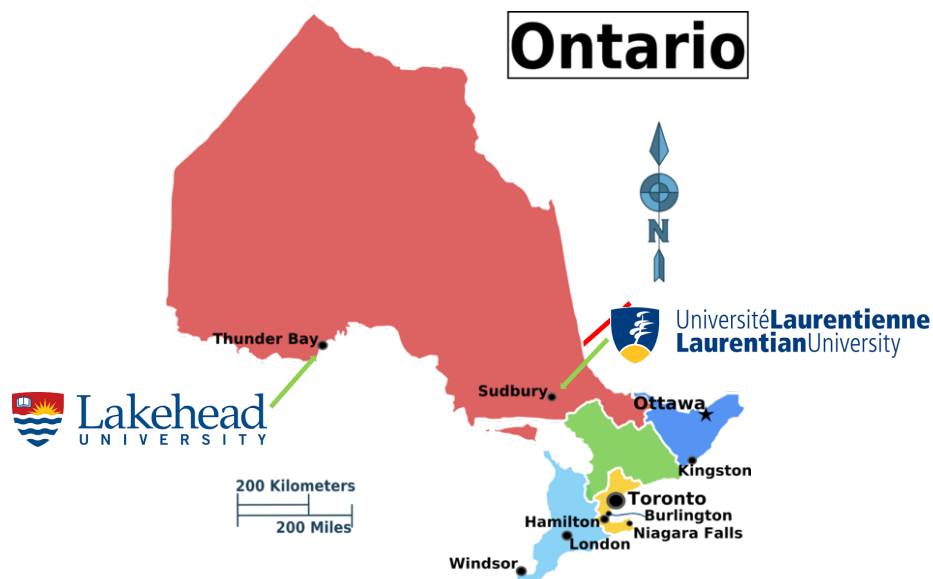
In this chapter, I present the second case study – the Northern Ontario School of Medicine (NOSM). First, is a broad overview of NOSM. Then, using the Eight C's Framework (8CF), I explain how NOSM was established outlining its Context; the Catalysts; the activities of Conducting, Convincing, Collecting, and Connecting; its Challenges; and its Consequences. I conclude with a summary of the case study, including its strengths and limitations.

### 5.2 NOSM overview:

NOSM is a medical school in rural and remote northern Ontario, Canada, that opened its doors to students in August 2005. It is a joint initiative of two universities that are geographically ~1000km apart: Lakehead University (Lakehead) in the north-western city of Thunder Bay (population ~117,000) and Laurentian University (Laurentian) in the north-eastern city of Sudbury (population ~155,00) (Northern Ontario School of Medicine, n.d.-a, n.d.-d) (see Figure 5-1).

NOSM has a unique governance structure as its own incorporated legal entity yet answerable to the Senates of both universities for academic program matters. A Board of Directors oversees corporate and fiscal matters while an Academic Council deals with academic issues (Tesson et al., 2009). The Dean of NOSM is also its Chief Executive Officer (CEO) and its Board of Directors includes personnel from the two universities, the Northern Ontario community, as well as Indigenous and Francophone representatives. NOSM's Board began as a large and inclusive group with 35 Directors, but has since reorganised to comprise 16 competitively elected members and 3 ex-officio positions for the CEO and the two University Presidents.

Figure 5-1: Lakehead University & Laurentian University in Ontario, Canada

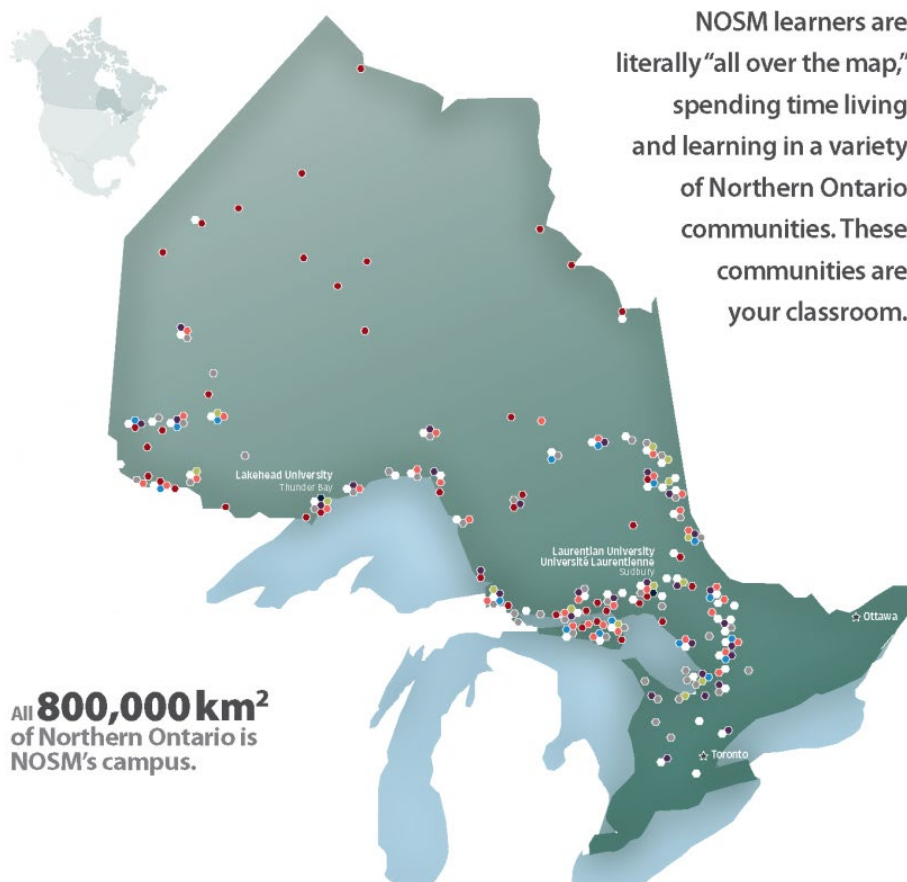


(Map used under a Creative Commons license; logos used with permissions from Lakehead University and Laurentian University)

With a vision of “innovative education and research for a healthier North” (Northern Ontario School of Medicine, 2012), NOSM provides education and training for the entire span of a doctor’s training. It offers exposure programs for high schools students; a Doctor of Medicine (MD) degree; advanced specialty (residency) training programs; and on-going professional education and development (Tesson et al., 2009). For my case study, I focus on NOSM’s MD program.

NOSM's MD degree is a four-year program of study for students who already have a university degree. It is an integrated, body-systems-based course with an emphasis on community engagement, rural immersion, case-based learning (CBL), and electronic distance education. The course is grouped into three phases with Years 1 and 2 sharing a similar structure; Year 3 as a longitudinal integrated community-based clinical clerkship; and Year 4 as rotations through regional tertiary hospitals. Years 1 and 2 students spend most of their time at their respective university (Lakehead in Thunder Bay or Laurentian in Sudbury) with several weeks' immersion in small Indigenous communities; Year 3 students spend their entire year in a mid-sized rural community; and Year 4 students undertake rotations at tertiary hospitals in larger regional towns or cities. Graduates are conferred a joint degree by both Lakehead and Laurentian Universities. NOSM considers all of Northern Ontario as its 'classroom' – with students placed at 90+ different locations and communities (Northern Ontario School of Medicine, 2020, n.d.-b, n.d.-d) (see Figure 5-2).

**Figure 5-2: Learning Sites for NOSM Students**



(Used with permission from NOSM)

NOSM currently admits 64 students each year – 36 based in Sudbury and 28 based in Thunder Bay (Northern Ontario School of Medicine, 2012, 2020; Tesson et al., 2009). 92% of NOSM students are from Northern Ontario while the other 8% are from other rural and remote parts of Canada (Northern Ontario School of Medicine, 2020). Moreover, 7% of students are Indigenous and 22% are Francophone (Northern Ontario School of Medicine, n.d.-d).

As of 2020, NOSM has graduated 714 doctors including 475 female, 239 male, 47 Indigenous, and 145 Francophone doctors (Northern Ontario School of Medicine, 2020). 62% of these go into family medicine (mostly rural), compared to the Canadian average of 38% (Northern Ontario School of Medicine, n.d.-d). Additionally, NOSM graduates are significantly more likely to practice in Northern Ontario, compared to graduates of other Ontario medical schools (Northern Ontario School of Medicine, n.d.-d). Specifically, NOSM reports a 94% retention of doctors who completed both their basic medical education and their residency training in Northern Ontario (Northern Ontario School of Medicine, 2016; Strasser, 2016).

The next section details how NOSM was established using the 8CF to structure the description of its Context; the Catalysts; the activities of Conducting, Convincing, Collecting, and Connecting; its Challenges; and its Consequences.

## 5.3 Establishing NOSM:

### 5.3.1 Context:

*The fragile nature of the economy of Northern Ontario and the less than favourable social conditions experienced by many who live there have generated resentment towards and/or alienation from the rest of the province. (Tesson et al., 2009, p. 23)*

Context refers to the unique social, political, economic, geographic, educational, and cultural environment or 'field conditions', within which the new medical school needs to be successfully established (see 'Utilising theory' section 3.4.2.3.1). In this section, I outline the situation prior to NOSM's establishment and highlight the contextual barriers.

Ontario is an eastern-central province of Canada's ten provinces with a population of ~14.7 million (World Population Review, 2021b). About ~800,000 people live in the 800,000 square kilometres of Northern Ontario (Krotz, 2021) which calculates to ~6% of the province's population spread over ~88% of its land-area (*Northern Ontario*, 2021; Tesson et al., 2009). This skewed concentration of people in southern regions compared to harsher northern areas is typical for most Canadian provinces. Northern Ontario has 145 municipalities, 150 unincorporated communities (including large ones such as Kenora), and five regional cities (Thunder Bay, Sudbury, Sault Ste. Marie, Timmins, and North Bay) (Krotz, 2021). The broad people groups of Northern Ontario include Anglophone, Indigenous (First Nations and Metis), and Francophone (Lanphear & Strasser, 2008). 106 different First Nations communities live in Northern Ontario (Krotz, 2021). Mining, forestry, and tourism are Northern Ontario's primary industries (*Northern Ontario*, 2021).

Rural Canadians have poorer health status than their urban counterparts with the worst health status experienced by those in the most remote areas (Tesson et al., 2009). The region's socio-historic context has led to issues of poverty, racism, gender inequality, domestic violence, lack of access to higher education, lack of access to health care facilities, substance abuse, poor diet, and poor mental health (Northern Ontario School of Medicine, 2012; Tesson et al., 2009).



Rural and remote Canada – as with most other rural and remote regions of the world (Frenk et al., 2010; Rabinowitz et al., 2008; World Health Organization, 2006) – struggles to recruit and retain sufficient medical workforce due to similar problems of high turnover of imported staff. Over the decades, Ontario’s Ministry of Health had introduced many programs to address Northern Ontario’s medical workforce deficit but with limited success (McKendry, 1999; Pong, 2008; Tesson et al., 2009).

NOSM was established in 2005 as Canada’s first new medical school in 38 years (Tesson et al., 2009). The previous most recent medical schools had been established in 1967 (University of Calgary in Calgary, Alberta, and Memorial University in St. John’s, Newfoundland) and 1966 (McMaster University in Hamilton, southern Ontario) (Emigh, 2005; *List of medical schools in Canada*, 2021; Northern Ontario School of Medicine, 2012). This dearth of new medical schools in the late 20<sup>th</sup> century was not unique to Canada (see ‘Literature Review’ section 2.3.1). In Canada specifically, the 1984 Federal Provincial Advisory Committee on Health Manpower report and the 1991 Barer and Stoddart report had a braking effect on establishing new medical schools (Fleming & Sinnot, 2018; McKendry, 1999; Northern Ontario School of Medicine, n.d.-a; Tesson et al., 2009).

Just prior to McMaster’s establishment in southern Ontario in 1966, proponents in Northern Ontario had lobbied government unsuccessfully to establish Ontario’s next new medical school at Lakehead University in Thunder Bay. In subsequent decades, there were further unsuccessful individual lobbies by Lakehead and Laurentian Universities for a new medical school situated in Northern Ontario. At those times, it was deemed that expanding the rural activities of the existing urban medical schools would be sufficient and more cost-effective to address Northern Ontario’s workforce issues (Tesson et al., 2009) – an attitude also held by many other international locales of the era (see ‘Literature Review’ section 2.3.3.1). Thus, when NOSM was established in 2005, Ontario had five other medical schools, all in southern Ontario: Queen’s University in Kingston, University of Western Ontario in London, University of Ottawa in Ottawa, University of Toronto in Toronto, and McMaster University in Hamilton (*List of medical schools in Canada*, 2021).

This was the medical, educational, social, political, and geographical backdrop against which NOSM was established. To summarise, the contextual barriers faced by a new medical school in this milieu included:

- a sparse population in a vast geographic distribution with harsh winter conditions
- a socio-political sense of isolation and alienation from southern Ontario – the seat of political power
- difficulty recruiting and retaining an adequate medical workforce
- no recent experience nor expertise with establishing a new medical school in the entire country
- resistance from existing urban medical schools for a new stand-alone rural-based medical school
- two interested universities (Lakehead and Laurentian) that were 1000km apart and could have competed for limited resources

Despite these barriers, there were also several contextual enablers that facilitated establishment, which will be discussed in section 5.3.3 'Conducting' below. In the next section, I describe the major players or Catalysts that helped to establish NOSM in this Context.

### **5.3.2 Catalysts:**

*There needs to be not just the perceived need and the advocacy and the political and the university and all those things, but also some individual or group of individuals who have the drive and the commitment to keep pursuing this even against the odds so to speak. (NOSM-05)*

Catalysts are the 'institutional entrepreneurs' or the founding leaders, comprising academic, clinical, political, and community stakeholders who were instrumental in establishing the new medical school (see 'Utilising theory' section 3.4.2.3.2). In my research, I have further classified key players as 'Champions' and ancillary players as 'Colleagues'. In this section, I outline the key stakeholders in NOSM's establishment and highlight the importance of the Founding Dean.

The Catalysts who helped establish NOSM include a variety of individuals, groups, organisations, and communities including academics, clinicians, government officials, educational bodies, health services, local businesses, and local councils. Communities across Northern Ontario, including Indigenous and Francophone groups, were also heavily involved. Furthermore, the early students of NOSM were also recognised as vital to successful establishment. Details of the roles played by the Champions (see Table 5-1) and their Colleagues (see Table 5-2) in NOSM's establishment will unfold in the sections to follow.

**Table 5-1: NOSM's Champions**

<p><b>Individuals</b></p>	<ul style="list-style-type: none"> <li>• Staff in Lakehead and Laurentian Universities including the Presidents, Vice-Presidents, Associate Deans, and so on</li> <li>• Mayors of five Municipalities of Northern Ontario</li> <li>• Consulting Dean</li> <li>• Founding Dean</li> <li>• Invested clinicians and leaders of health services in Thunder Bay and Sudbury</li> <li>• Community leaders including First Nations leaders</li> <li>• Several prominent Canadian medical educators who helped design the 'NORMS model'</li> </ul>
<p><b>Organisations</b></p>	<ul style="list-style-type: none"> <li>• Lakehead University in Thunder Bay, Northwestern Ontario</li> <li>• Laurentian University in Sudbury, Northeastern Ontario</li> <li>• Sudbury Regional Hospital</li> <li>• Thunder Bay Regional Hospital</li> <li>• Northwestern Ontario Medical Program (NOMP, of McMaster University) in Thunder Bay</li> <li>• Northeastern Ontario Medical Education Corporation (NOMECE, of University of Ottawa) in Sudbury</li> </ul>
<p><b>Committees</b></p>	<ul style="list-style-type: none"> <li>• Northern Ontario Rural Medical School (NORMS) Liaison Council</li> <li>• Implementation Management Council (IMC)</li> <li>• NOSM Board of Directors</li> </ul>
<p><b>Communities</b></p>	<ul style="list-style-type: none"> <li>• First Nations communities particularly in Northwestern Ontario</li> </ul>

**Table 5-2: NOSM's Colleagues**

### Individuals

- Robert McKendry
- Minister of Health (two individuals)
- Minister of Northern Development & Mines
- Provincial Premier (two individuals)
- Teaching clinicians all over Northern Ontario
- Several former Deans of other medical schools

### Organisations

- Provincial Government of Ontario
- Five Municipalities of Northern Ontario
- Regional hospitals and community health services
- Price Waterhouse Coopers
- Committee on Accreditation of Canadian Medical Schools (CACMS)
- Liaison Committee on Medical Education (LCME)
- FedNor
- Health Sciences North
- Ministry of Training, Colleges & Universities
- Ministry of Health & Long-Term Care
- Health Canada (Federal Ministry for health)
- Centres for Rural and Northern Health Research (CRaNHR)
- Society for Rural Physicians of Canada
- Sudbury Chamber of Commerce
- Ontario Medical School Application Service (OMSAS)
- Technology partners: Ontario Research and Education Network (ORION), K-net, Contact North, Ontario Telemedicine Network, North Network, Northern Ontario Health Information Network

### Committees

- Expert Panel
- Northern Hospitals Teaching Council (representing the 26 regional hospitals of Northern Ontario)
- Consortium of Academic Health Libraries (COAHL) (network of Ontario's five other medical school libraries)

### Communities

- All over Northern Ontario
- Indigenous communities
- Francophone communities
- Initial cohorts of students

### **5.3.2.1 The Founding Dean was critical to success:**

In this case study, some of the unique characteristics required for the 'Founding Dean' role were recognised:

*We had a number of applicants for the job, but it is a very, very critical phase because you need someone who actually has an interest and a willingness and the energy to do what needs to be done and that needs to be considerable. (Participant number withheld for added anonymity)*

In 2002, a leading international authority on rural medical education from Australia was appointed as NOSM's Founding Dean. Several participants noted the choice of this particular individual to have been an "inspired" decision:

*I think hiring [the Founding Dean] was an excellent move. He's just totally dedicated. He's just single-mindedly dedicated to this. (Participant number withheld for added anonymity)*

*I have great admiration for the job that [the Founding Dean] has done. ... His appointment was an inspired choice by the search committee. (Participant number withheld for added anonymity)*

His single-minded dedication and sophisticated understanding of how rural medical education could be designed to produce the desired outcomes, were significant factors in NOSM's subsequent success:

*So, I don't think we had quite the sophistication that [the Founding Dean] brought to it, recognising that you had to select local students, train them here, and train them in an environment which encouraged generalism. He had a much broader philosophy which I think proved to be – the school has been entirely successful in trying to do those things. (Participant number withheld for added anonymity)*

Nonetheless, Table 5-1 and Table 5-2 show that many other Champions and Colleagues also played significant roles in NOSM's successful establishment. In the next section, I begin the story with how these Catalysts harnessed opportunity and addressed contextual barriers to obtain the initial green-light to establish NOSM.

### **5.3.3 Conducing:**

Conducing circumstances, events, and actions help make the contextual milieu more favourable for a new venture (see 'Utilising theory' section 3.4.2.3.3). In my research, I used 'Conducing' to focus on how the initial authoritative 'go ahead' can be obtained. Human agents or Catalysts can be both passively and actively involved in this stage of establishment and in NOSM's story, I identified three major actions undertaken by various Catalysts – either deliberately or incidentally – that helped:

1. Previous successful medical education initiatives in the area
2. Supportive reports written by experts, consultants, and committees
3. Intense political lobbying by coalitions of stakeholders

#### **5.3.3.1 Previous successful medical education initiatives in the area:**

*There was a "self-awakening" to the fact that quality educational programs could, in fact, be delivered in areas far from a medical school and that busy community practitioners could not only provide quality patient care but could also become very effective teachers. (Tesson et al., 2009, p. 56)*

Northern Ontario's first medical education initiative began in 1972 with rural clinical placements for medical students from McMaster University in north-western Ontario through McMaster's Northwestern Ontario Medical Program (NOMP).

In 1991, two post-graduate Family Medicine (FM) training programs commenced – in Thunder Bay through McMaster's NOMP and in Sudbury through University of Ottawa's Northeastern Ontario Medical Education Corporation (NOMECE). NOMP and NOMECE – and their affiliations to southern medical schools – were foundational in instigating medical education capacity in Northern Ontario:

*I think the physicians who [had] become involved in both of the Family Medicine programs. ... [showed] enthusiasm and belief that this could work; belief that you could get good quality medical education in rural settings. (NOSM-17)*

These organisations were independent legal entities who received their funding directly from the Ministry of Health yet were academically answerable to their parent universities – foreshadowing NOSM's similar governance model.

In 1997, the Ontario Provincial Government funded the Northern Academic Health Sciences Network (NAHSN) to run a range of undergraduate and post-graduate health-related educational initiatives across Northern Ontario. These were significant because they signalled the North's growing capacity to provide health-related education without governance from the southern medical schools (Tesson et al., 2009).

Extensive tracking data of graduates from these programs provided sound research evidence of workforce retention in the area. Local graduates could contribute to the health workforce and also to the educational workforce as teachers and supervisors. Specifically, tracking data from the NOMP and NOMEK Family Medicine residency programs showed a retention rate of 67.5%, with their graduates being seven times more likely to work in Northern Ontario (Tesson et al., 2009). Furthermore, ~40% of them also become part of the clinical teaching workforce (Tesson et al., 2009).

These various medical education activities undertaken by assorted stakeholders substantiated the potential success of a much larger medical education initiative in Northern Ontario – a full medical school with even more allied health, research, and specialty training possibilities. A full medical school was also supported by several influential experts, consultants, and committees, as discussed next.

#### **5.3.3.2 Supportive reports written by experts, consultants, and committees:**

In 1999, Dr. Robert McKendry was commissioned as a 'Fact Finder' by the Ontario provincial government, to comprehensively report on Ontario's doctor demand, supply, and shortage. Lakehead and Laurentian Universities submitted a joint brief to McKendry indicating their willingness to work together to develop a new medical school for Northern Ontario with dual campuses in Thunder Bay and Sudbury. In his final report, McKendry recommended this joint new medical school to meet the needs of the northern rural areas (1999). His recommendation was viewed sceptically by the existing medical schools but precipitated a "growing wave of popular support in Northern Ontario" (Tesson et al., 2009, p. 7).

In 2000, Ontario's Minister of Health convened an Expert Panel to advise the Provincial Government on implementing McKendry's recommendations. Funded by a grant from FedNor (a federal government economic development agency), leaders from Lakehead, Laurentian, NOMP, NOMEK, Sudbury Regional Hospital, Thunder Bay Regional Hospital, and the Sudbury and Thunder Bay communities, formed the Northern Ontario Rural Medical School (NORMS) Liaison Council which submitted a full proposal for the new joint medical school to the Expert Panel. The model recommended in the NORMS proposal was designed by a team of innovative medical educators from across Canada including strong rural medical education advocates (NORMS Liaison Council et al., 2000; Tesson et al., 2009).

The positive findings of these individuals and committees provided documented evidence supporting the feasibility and desirability of a new stand-alone rural medical school in Northern Ontario. Such evidence was essential in convincing the Provincial Government to give the green-light to such an ambitious venture. However, concerted political lobbying by many groups of stakeholders was also crucial to gaining government support, as discussed next.

### **5.3.3.3 Intense political lobbying by coalitions of stakeholders:**

*There is a respected political theory that maintains that revolutions occur not as a result of absolute deprivation but, rather, in response to rising expectations. (Tesson et al., 2009, p. 11)*

In the wake of McKendry's report and the growing support for a new northern medical school, political lobbying began in earnest. In 2000, the Mayors of five municipalities of Northern Ontario directly lobbied the Minister of Health (who had convened the Expert Panel) by meeting her in Toronto. The NORMS Liaison Council with their submission to the Expert Panel, was a further force of collective action by the universities, health services, post-graduate training bodies, and communities of Northern Ontario.



However in late 2000, newspapers leaked information that the government's Expert Panel would only be recommending increased rural activities of the pre-existing medical schools rather than a new medical school (Tesson et al., 2009). This was presented as a capacity-building step with an eventual northern medical school to be considered at some indefinite future point (Expert Panel on Health Professional Human Resources, 2001).

The people of Northern Ontario were no longer satisfied with this as a solution to their health and workforce problems, and began to decry it through several public statements, media releases, and newspaper articles. The Minister of Northern Development and Mines was lobbied to fund an International Symposium on Rural Medical Education in Sudbury in 2001. Presentations from leading international medical educators on successes in rural medical education initiatives in Australia, Norway, Finland, Canada, and the United States provided strong evidence and encouragement for a new rural medical school in Northern Ontario. Soon the general population of Northern Ontario were able to discuss the kind of medical school they wanted for their region:

*It was a remarkable exercise not only in political lobbying but also in public education. Ordinary citizens talked in an informed way about what sort of medical school would be best for the North, and, perhaps most important of all, they identified it as their medical school which was being denied them. [emphasis in original as italics]*  
(Tesson et al., 2009, p. 11)

Eventually, the Provincial Government did indeed embrace the idea of a new medical school based entirely in Northern Ontario and made a firm financial commitment to it. In 2001, Ontario's Premier formed the Implementation Management Committee (IMC) to operationalise the new medical school and provided them with a working budget of CAN\$3 million. However, against all previous discussions and recommendations, the government announced that the new medical school would be at Laurentian University in Sudbury with only a satellite campus at Lakehead University in Thunder Bay.

The people of the north-western region felt betrayed by this inexplicable announcement of their reduced role in the new medical school, and they began to garner local and Indigenous community support for a full campus at Thunder Bay, as had been discussed from the beginning. They submitted a petition to the Federal Minister of Health with 35,000 signatories. Specifically, the backing of the Indigenous people was pivotal:

*And what turned the tide ... was the First Nations threw their support behind the dual and fully standalone or fully dual at Lakehead. ... [a First Nations leader] came to the Northwestern Ontario Municipal Association and basically just said, "A partial med school is not going to work for us. It will not solve the issues". ... The municipalities and the First Nations, they were really not working on the same page for almost anything. So, this was a great coalescence of energies. (Participant number withheld for added anonymity)*

Different stakeholders and communities of the region had never before come together with this level of cooperation and synergy. It enabled them to accomplish together what they could not have achieved individually:

*And we worked together and it's through joint effort, not only the First Nations, but partners like doctors, Chamber of Commerce, MPs [members of parliament], and even the local residents came together as one. It's through that effort that we were able to change the minds of the government. ... it's all because the North[west] came together as one and then we worked together. And we would never have accomplished what we accomplished ... on our own efforts. (NOSM-13)*

This groundswell of north-western solidarity exerted enough political pressure that eventually in 2002, a new, different provincial Premier publicly committed to the dual campus model for the new medical school with equal roles for Sudbury and Thunder Bay. Thus, political petitioning from the people of Northern Ontario was a lynchpin in NOSM's story of establishment. The political power wielded by their united stance tipped the scales in their favour – not only for approval for a new medical school, but also for the kind of medical school they wanted.

With this support in place, the Catalysts were able to proceed with all the tasks required to successfully establish the new medical school. The IMC's final business plan (PWC Consulting, 2002) and implementation guidelines closely reflected the original NORMS proposal including equal dual campuses in Sudbury and Thunder Bay, community-based distributed learning, and a unique governance structure of the medical school as a distinct not-for-profit legal entity separate from the two universities but recognised by both. In the next three sections, I describe the activities of Convincing, Collecting, and Connecting that facilitated establishment.

### **5.3.4 Convincing:**

Champions of new medical schools need to construct compelling rationales, arguments, and reasons to convince the various stakeholders and overcome socio-political resistance (see 'Utilising theory' section 3.4.2.3.5). Macro-level reasons had already convinced the people and the government that a new medical school in their area was warranted (as discussed in section 5.3.3 'Conducing' above). In this section, I describe how the founding leaders of NOSM went about Convincing their communities, clinicians, and accrediting bodies with more meso-level and micro-level arguments.

#### **5.3.4.1 Convincing the communities:**

Despite the big governmental announcement approving the establishment of a new medical school in Northern Ontario in response to the communities lobbying for this very thing, many people were still sceptical that this would actually come to be. They had become jaded by previous governmental announcements that never eventuated:

*The initial task ... was actually convincing people that there would be a Northern Ontario School of Medicine ... People in Northern Ontario and rural areas generally are used to this sort of pattern where the government makes an announcement and then nothing happens, and then the government announces the same thing again and then nothing happens and eventually nothing happens. (NOSM-05)*

The communities also needed convincing of the different model of community-engaged medical education, that the Founding Dean proposed to meet the needs of First Nations and other under-served communities.

Convincing the communities required a large investment of targeted resources by NOSM personnel. Three specific strategies they employed were to host large community-engaged curriculum workshops, to personally visit the communities, and to ensure wide representation on the NOSM Board.

NOSM leaders ran several curriculum workshops between 2003 and 2005, openly inviting the general populace of Northern Ontario to attend and provide input into the new medical school (more details in section 5.3.5.3 'Curriculum' below). NOSM's consultative processes and their willingness to incorporate much of the feedback from these workshops into operational elements of NOSM's structure and functioning, garnered significant trust and good-will with the communities of Northern Ontario. For example, an Indigenous rural immersion block for first year students was suggested at one of the early workshops and was subsequently piloted and implemented:

*First Nations people ... in particular, bought in to the fact that this was their medical school, and they ... felt that the First Nations health was a strong reason for the medical school being founded in the first place. I'm not really sure how true that was, but they felt that way. So, they really did feel very connected to it and the school was fairly smart in putting in this curriculum this immersion experience that students have of spending four weeks in an Indigenous community out of a six-week module and that really helped those communities to feel connected to the medical school 'cause they had the students there. (NOSM-04)*

As a result, even small Northern Ontario communities felt a great sense of connectedness and ownership with “their” new medical school.

NOSM staff also undertook an extensive “travelling roadshow” to visit all the various communities and build partnerships with them:

*But their first thing was this travelling road show ... they went to every single community: Sault Ste. Marie, Timmins, Bracebridge, small communities, big communities. ... that's where they got a lot of the ball rolling. (NOSM-16)*

It was both an information and recruiting exercise, to explain the crucial role that the communities could play in NOSM's mandate and curriculum (see also ‘Convincing’ and ‘Collecting’ sections 5.3.4.2 and 5.3.5.4 below respectively). This level of investment and personal contact was essential for NOSM to gather its Colleagues and implement its geographically-distributed, community-engaged vision.

Smaller communities had thought they might get left out of this new initiative, in favour of the larger towns and cities of the region. NOSM staff explained their socially accountable vision which included early student exposure to small rural communities:

*Once it was really articulated, that first and second year [student experiences] would be just about the little, tiny places and that they [the smaller communities] got to see [the students] before the big places ... the distributed little towns [said], “Oh, we aren't going to get short-changed in this”. (NOSM-06)*

Once the communities understood how medical education could successfully be undertaken in their smaller clinics and hospitals and how they could vitally contribute to the development of their own future workforce, they became enthusiastic and empowered to dynamically engage with NOSM's activities.

NOSM began with an unusually large Board of 35 Directors. This permitted a highly inclusive community and cultural membership which contributed to NOSM's good will amongst the communities. After more than a decade, for logistical reasons, this large Board was scaled down to a more manageable size of 19 members (mentioned in section 5.2 'NOSM overview' above). By this point, however, NOSM's track-record as a community-engaged and socially accountable medical school provided enough proof for the communities to rest secure with this governance change.

#### **5.3.4.2 Convincing the clinicians:**

*Doctors teach other doctors because they think they should. That's how we were all taught, and some do it because they hope it decreases their workload and some have an absolute passion for it. But the 'passion for it' is a very small group. (NOSM-16)*

Some clinicians were early adopters of the idea and quickly became Champions of the new medical school in their locale. They could see the value of having learners who were “extra work but enjoyable to have around” because of the “self-validation, self-worth and intellectual stimulation” that often came with “teaching young students what it had taken years to learn in clinical practice” (Tesson et al., 2009, pp. 50-51).

However, many other clinicians were more resistant. Influenced by their own training in large academic hospitals, they were sceptical because Northern Ontario did not have similar tertiary teaching hospitals. They had never seen nor experienced community-based, distributed medical education, and could not envisage the local possibilities:

*They didn't think that we actually had the skill set entirely here, and how would we make that happen, and nobody had actually ever done a distributed model ... this was radically different than any Canadian or American school was at that time. (NOSM-06)*

In fact, some of these clinicians had come to work in Northern Ontario specifically to get away from such large teaching centres and were disinterested in academic discussions. Scepticism from tertiary-hospital specialists worked in NOSM's favour, allowing them to design a curriculum with strong rural community-based generalist emphasis (explained further in section 5.3.5.3 'Curriculum' below).

Other clinicians resisted because they felt overworked without also having to teach medical students. They perceived medical students as a lot more work, unlike advanced training residents who could shoulder some of the workload even while training:

*GPs are interested in having residents. They were not interested in having medical students who can't really help them. (NOSM-16)*

Furthermore, some clinicians needed convincing because they were unsure of their abilities to teach, as they had never done it before.

Utilising their clinician-Champions, as well as the previously mentioned curriculum workshops and travelling roadshows, NOSM began to inform, educate, and convince the local clinicians. In some towns, it was the local councils that helped convince the clinicians:

*I can remember one conversation in one unnamed town where there was a great deal of reluctance, and we were sort of having this discussion with the docs in front of the local politicians. Local politicians very quickly said, "Oh, don't worry. We're taking these students", and that changed the conversation. (NOSM-04)*

Eventually, it was a snowball effect that enabled more and more clinicians to get on board (see 'Staff' section 5.3.5.2.1 below).

#### **5.3.4.3 Convincing the accreditors:**

*There potentially is another source of conflict for new medical schools ... and it usually comes from the established medical schools who believe that they are academically sound and that new kids on the block or new medical schools run the risk of not being academically sound, partly because they don't replicate the model of the traditional medical school. (NOSM-14)*

Canadian medical schools need to obtain dual accreditation by both the Canadian Committee on Accreditation of Canadian Medical Schools (CACMS) and the United States' Liaison Committee on Medical Education (LCME). In both countries, no new medical schools had been opened for several decades: in Canada, NOSM was being set up 35+ years after the last new medical school, and in the US, Florida State University (FSU) had been established 20+ years after its most recent predecessor (Association of American Medical Colleges, 2012; Hurt & Harris, 2005; Mangan, 2002). FSU had failed to obtain provisional accreditation twice, but because of state legislation, had to enrol students anyway, despite much negative publicity (Hurt & Harris, 2005; Mangan, 2002).

For NOSM, the stakes were significantly higher, since failing even provisional accreditation would mean the end of the entire project. Thus, one of the crucial initial tasks for the Founding Dean and other staff, was to secure and document sufficient infrastructure and resources to satisfy the accreditors. This was particularly pressure-packed given the level of innovation and community engagement they were proposing (detailed in 'Curriculum' and 'Consequences' sections 5.3.5.3, 5.5.2 and 5.5.6 later). They successfully met all the requirements to obtain provisional accreditation by June 2004 allowing them to solicit students shortly thereafter. Full accreditation was subsequently awarded in 2009, in time for the graduation of the charter class of students.

Of note was that FSU's and NOSM's experiences helped update the outmoded North American accreditation processes. Since no new medical schools had been opened in Canada and USA for several decades, CACMS and LCME were out of practice and needed to update their standards and protocols to approve a new medical school:

*Part of the reason of the difficulties for Florida State was the accrediting bodies were out of practice at actually accrediting new medical schools and the whole world of accreditation had developed and become much more precise and much more behavioural, evidence-based sort of thing. So, anyway, we were a beta test site for what's now a well-established system for considering accreditation for new medical schools. (NOSM-05)*

The potential for a new medical school to provide reciprocal benefit to their accrediting bodies is further discussed in 'Cross-case analysis' section 7.5 later. Successfully Convincing their communities, clinicians, and accreditors laid a foundation of relationships and legitimacy that enabled NOSM to proceed with their resource acquisition, discussed next.



### **5.3.5 Collecting:**

*Well, the ongoing challenge is, of course, to get enough resources. That is a challenge that probably every medical school has. (NOSM-10)*

Founding leaders of new medical schools need to collect all the needed economic, human, physical, material, intellectual, educational, and technological resources (see ‘Utilising theory’ section 3.4.2.3.4). This section details how the Catalysts of NOSM collected their required funds; staff; curriculum; clinical training sites; facilities (which includes physical spaces, educational equipment, research laboratories, library facilities, and technological resources); and students.

As indicated in McKendry’s survey, collecting enough resources would need to be a pan-Northern effort with the north-western and north-eastern regions pooling resources. Lakehead and Laurentian Universities; NOMP and NOMEK family medicine training; Thunder Bay and Sudbury hospitals and clinicians; and health services and communities from all over Northern Ontario, would need to be involved in collective effort.

#### **5.3.5.1 Funds:**

Given the geographically-distributed, community-engaged, and rurally-immersive nature of NOSM, it was always going to cost more than a traditional, single-university, single-site medical school – potentially even doubling the required amount. Their primary funding source was the Provincial Government who needed to provide start-up funding as well as on-going support.

*You don’t get those kinds of dollars without the government being on side. (NOSM-02)*

However, as is typical of most new medical schools, NOSM accessed several funding sources for their start-up support of CAN\$119+ million plus annual support of CAN\$35+ million. Other than the provincial government, other funders included:

- Northern Ontario Heritage Fund Corporation (NOHFC) (a provincial economic development fund)
- FedNor (a federal government economic development agency)
- Ontario Trust for Student Support (OTSS) (under the Ministry of Training, Colleges and Universities)
- 'The Northern Solution' (a public fundraising campaign for student bursaries)

There were several fortuitous circumstances that enabled NOSM to access these different pots of money:

- The initial provincial Premier involved in NOSM's establishment was from north-eastern Ontario. The next Premier who finally made the confirming announcement, remained committed to the vision even though not from Northern Ontario himself.
- NOSM in Sudbury was initially housed in pre-existing government buildings belonging to the Ministry of Northern Development and Mines. The minister of this Ministry also chaired the NOHFC and facilitated extra monies for NOSM's own purpose-built structures.
- In NOSM's inaugural year, the NOHFC announced a dollar-for-dollar matching scheme up to CAN\$5 million, for the student bursary monies through their OTSS.
- FedNor's then minister and Director General were also members of parliament for Thunder Bay and Sudbury, respectively. That specific year, FedNor had a unique opportunity to obtain an extra CAN\$6 million on top of their normal budget and they agreed to provide this amount towards NOSM's research facilities in the two locations.

Despite these large amounts of money being available for NOSM's establishment, a participant provided some perspective that even highly-resourced enterprises might feel they are cash-strapped:

*So, again, no one has enough money. I'm sure Bill Gates thinks he doesn't have enough money. ... All government, teachers, firemen, policemen, if you ask them, they'd say, "Oh, we're under-funded". ... I bet you couldn't find a single university professor in North America who wouldn't say they're under-funded. (NOSM-07)*

That medically under-served locations will need to find the right balance between their expensive ideals and cheaper yet comparable alternatives, will be further discussed in 'Cross-case Analysis' section 7.7.1 later.

As a final comment on financial matters, in Northern Ontario's pre-NOSM history there is an account of concerted community efforts to fund-raise for new hospitals. In the 1990s, a political decision was taken to refurbish old district hospitals instead of building new ones. This decision was not accepted by the communities, so they ran their own fund-raising campaigns to overturn the decision. A specific example is the community of Thunder Bay which raised CAN\$25 million over 6 – 8 years for their new hospital buildings. This underscores the willingness of Northern Ontario communities to rally their resources and lobby government to obtain something they feel strongly about. However, the general perception was that the government agreed to build these new regional hospitals only on the unspoken proviso that the communities would not keep asking for a new medical school as well. However, as NOSM's story proves, Northern Ontario communities could not be so easily placated.

### 5.3.5.2 Staff:

Soon after the formation of the Implementation Management Committee in 2001, Lakehead and Laurentian Universities jointly appointed an interim 'Consulting Dean' – an individual who had previously been Dean of a large urban Canadian medical school – to join the IMC, until the Founding Dean of NOSM could be appointed. The impact of the Founding Dean's appointment was discussed in 'Catalysts' section 5.3.2.1 above. More staff, including leaders, administrators, academics, and clinicians, were progressively accumulated with the help of search consultants. Pools for potential staff members included many of the Champions mentioned in section 5.3.2 'Catalysts' above, particularly from the listed stakeholder organisations. Creative arrangements for recruiting, sharing, and supporting scarce human health resources in the region were required to ensure different health service organisations did not destructively compete with each other (Tesson et al., 2009). Once NOSM was incorporated, it was able to hire its own personnel directly, rather than rely on channels via Lakehead and Laurentian Universities.

Characteristics sought in NOSM's pioneering staff included "tolerance for ambiguity, high energy and experience working in a distributed environment" (Tesson et al., 2009, p. 142). NOSM was also able to repatriate several qualified Northern Ontarians from USA, the United Kingdom, and other parts of Canada (Tesson et al., 2009). Commensurate with NOSM's distributed model, connected primarily through technology, staff were given the freedom to choose their personal location between the two campuses (Tesson et al., 2009).

To ensure success and meet NOSM's unique needs, it was important to choose "the right people to be on the bus" (participant metaphor). However, limitations with the pool of who was available "at the bus stop", meant that they sometimes had to make do with those who were "willing" even if not always "right":

*The problem was that this bus [was being constructed as we were] driving it and [we] could only choose from the people at the bus stop. [We] couldn't say, "Oh no, [we] don't like this" and "[We'll] wait till another one comes to the bus stop" ... We started off with a coalition of the willing ... Now, we're in a situation of being able to be more choosy [sic] and identify the able, and over time kind of leave behind the people who were willing but not able. (Participant number withheld for added anonymity)*

Over time, with increased capacity and reputation, NOSM was able "to be more choosy" with its staff appointments.

#### 5.3.5.2.1 Recruiting clinician teachers:

Before NOSM was established, there were approximately 500 doctors across Northern Ontario to whom NOSM could appeal to become clinical teachers – about 300 in the north-east and 200 in the north-west. Challenges with engaging these clinicians were detailed in the ‘Convincing’ section 5.3.4.2 above.

Logistically, the process often began with identifying a local well-respected physician to act as a liaison or Champion. Interested clinicians were further identified and recruited through the large, region-wide curriculum workshops (see section 5.3.4.3 ‘Curriculum’ below). Eventually, it was a snowball effect that enabled more and more clinicians to get on board:

*So over that six to eight months, people got excited and then we were able to engage other people. (NOSM-06)*

NOSM also invested significant time and resources into their ‘traveling road show’ to individual towns and communities to meet with all the clinicians across Northern Ontario:

*The big recruiting meeting was at a restaurant, and I remember that two people from NOSM came ... and they paid for the meal and told every doctor from [this area] to come to this thing, and they gave a talk on what NOSM is going to be doing and it was partly information, partly recruiting. ... I can’t even imagine how much money it cost to have dinner for every single doctor in all of Northern Ontario. (NOSM-16)*

Over time, recruiting NOSM’s own graduates as clinician teachers became easier because the culture changed, and new graduates had never known an environment in Northern Ontario when teaching was not also part of the clinical job:

*The new people coming up, the whole bunch of them were trained at NOSM, and they fully expect to do [teaching] because they think it’s part of the job. (NOSM-16)*

### **5.3.5.3 Curriculum:**

*So, one of the first hurdles on the journey was to get the curriculum started and get it owned by the communities; and probably the first big decision was around our Aboriginal communities to feel that they were strong supporters of this. (NOSM-06)*

NOSM's curriculum is unique in that they began with a blank-slate and sought input from the wider Northern Ontario community for its core aspects. They did this to stay true their values of social accountability and community engagement – “for the North, by the North, in the North” (Tesson et al., 2009, pp. 3-19).

NOSM ran several large curriculum workshops between 2003 and 2005 to which the general populace of Northern Ontario were openly invited to help design the curriculum:

*The idea was to invite anybody and everybody who had an interest to come and be involved in designing the main Northern Ontario dimensions of the curriculum for the school. (NOSM-05)*

The first workshop held in January 2003 was deliberately hosted in one of the smaller towns, Sault Ste. Marie, to showcase NOSM's pan-Northern ethos:

*We chose Sault Ste. Marie, because it wasn't Sudbury and it wasn't Thunder Bay, to show that the school was the School of Medicine for the whole of Northern Ontario. (NOSM-05)*

The event was oversubscribed with 500 expressions of interest, for a venue that could only accommodate 300. Attendees included 100 doctors, 80 academics, 50 Francophone, and 50 Indigenous people from all over Northern Ontario. The three-day event incorporated large and small group discussions and invited speakers with experience of community participation. Workshop attendees identified characteristics desired in a Northern Ontario doctor that closely aligned with other Canadian policies such as Educating Future Physicians for Ontario (Neufeld et al., 1998) and its successor – the CanMEDS competencies (Royal College of Physicians and Surgeons of Canada, 2021). Three characteristics were particularly important for Northern Ontarians – being a team player; being culturally competent with sensitivity to diversity; and having a passion for living and working in the North. Also, volunteer groups were formed to start writing clinical cases for NOSM's case-based learning curriculum.

The first workshop also clearly identified the need for a second Indigenous-focused workshop:

*If we are really going to understand what the Indigenous people are looking for, from their medical school, we needed to have a separate workshop which was just Indigenous people. (NOSM-05)*

This second workshop was held in Kenora in June 2003 and was attended by over 100 Indigenous Northern Ontarians. It revealed some key curricular desires:

*At the Aboriginal workshop, it became apparent that the First Nation people actually thought their exposure should be early as opposed to late. (NOSM-06)*

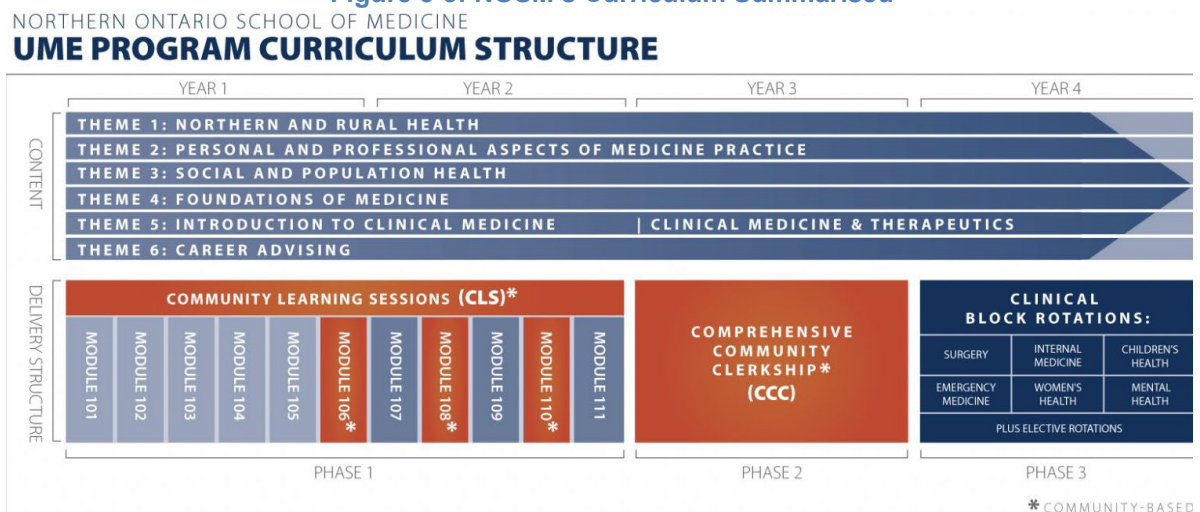
NOSM responded by ensuring early, immersive exposure to Indigenous communities for their first- and second-year students (as noted in 'Convincing' section 5.3.4.1 above).

In 2005, a similar Francophone-focused workshop was held in Sudbury with 160 participants (Lanphear & Strasser, 2008). Issues discussed included Francophone physicians who can talk to patients in their first language; higher rates of smoking and alcoholism; and reduced life expectancy. NOSM committed to the continued recruitment of Francophone students; curricular elements focused on Francophone health needs; language and culture; and student placements in Francophone communities (Lanphear & Strasser, 2008).

NOSM also conducted pilots of some curricular elements – such as a 4-week rural community immersion for first years and some CBL cases – using cohorts of non-medical students from Lakehead and Laurentian as well as medical students from southern medical schools. These test-runs were vital to the final design of their curriculum and on-line learning platform (Tesson et al., 2009).

NOSM’s curriculum (see Figure 5-3) was originally structured around five themes: northern and rural health; social and population health; foundations of medicine; clinical medicine; and personal and professional aspects of medical practice (Tesson et al., 2009); but a sixth theme related to medical careers has since been added (Northern Ontario School of Medicine, n.d.-c). Core concepts include patient-centred medicine; learner-centred education; generalism in health care; integration in health service delivery; interdisciplinarity; and doctors as teachers and researchers (Tesson et al., 2009).

**Figure 5-3: NOSM’s Curriculum Summarised**



(Used with permission from NOSM)



In the mid-1990's, Flinders University in South Australia had successfully pioneered the model of general practice and community-hospital-based longitudinal integrated clerkships in rural communities for a subset of their third-year students. The Founding Dean of NOSM – an Australian with strong collaborations with Flinders University – introduced this model for NOSM's entire third year cohort:

*I'll say in the first six months, [the Founding Dean] brought the Flinders model of a community clerkship in about third year and to his credit, he made us all convert to that ... that model is just what we would think about, we just didn't know about it, so once you know about it, it's like well of course, we're going to do that. (NOSM-06)*

Once other Catalysts in Northern Ontario were introduced to this model, they could see its benefits and applicability for their new medical school. NOSM is the first medical school in the world to train 100% of their students through community-based longitudinal integrated clerkships (Northern Ontario School of Medicine, 2012; Tesson et al., 2009). This is an example of practical innovation that contributed to NOSM's positive outcomes (discussed further in 'Consequences' section 5.5.6 below).

Initial scepticism from tertiary-hospital-specialists about the new medical school enabled NOSM to implement its community-based, generalist emphasis without interference from specialists who may have pushed for more a more hospital-based curriculum:

*Particularly [specialist] doctors really didn't believe it was going to happen. There's a paradox to this ... because it provided an opportunity. ... not only did they [not] believe it was gonna happen, but they didn't want it to happen and so they paid no attention at all. ... which did allow us the opportunity of designing the curriculum model that we have, which is a progressive learning model, and the first direct teaching by specialists and subspecialists in the tertiary care centres and regional hospitals is only in the fourth, the final year of the curriculum. (NOSM-05)*

Thus, NOSM's socially accountable curriculum was the product of strong community engagement with culturally-immersive experiences for first and second year students in small rural and Indigenous communities; longitudinal placements in medium-sized regional communities for third year students; and tertiary hospital rotations – in Sudbury or Thunder Bay or electives in other Canadian or international hospitals – reserved for their final year (see Figure 5-3).

The primacy given to rural, generalist medicine has likely contributed to NOSM's statistically large numbers of graduates subsequently working as rural generalists (see statistics noted in section 5.2 'NOSM overview' above). The ethos of the medical school and its underpinning values can have a powerful influence on subsequent career choices:

*My other theory, just so I put it on the table for you, is why we have been so successful in recruiting people to become family physicians, is that most medical schools teach you your general sciences, etcetera, and then they teach you the specialties, and at the end of it, they throw you into a general practice. And so, in your head as a learner, you kind of think of it as second-best type of stuff. Whereas we do it the other way around, we teach you the general stuff first ... and I think that has been very important to getting people to understand the benefits of being a primary care physician ... because you are exposed to generalism early and you recognise what skill is required to be a generalist physician especially in Northern Ontario. (NOSM-04)*

NOSM's example shows that, if a curricular element seems to just be an add-on, rather than a core component from the beginning, it will seem less important and a career focusing on it will seem less desirable. On the other hand, if an area of medical practice is supported, emphasised, and even celebrated throughout the course, students will be more likely to embrace it. I explore this key finding as fundamental to a socially accountable approach when establishing a new medical school, in 'Discussion' section 8.3 later.

#### **5.3.5.4 Clinical training sites:**

*You will also need not just clinicians but clinical sites, like hospitals, and other health service settings, and agencies, and the form they take varies a lot. In Northern Ontario, still there are largely autonomous hospitals, and other health service agencies, and community health centres, family health teams, Aboriginal health access centres, and each one of them has to be convinced that it's in their interest, and worthwhile to support and be part of developing and implementing a medical school. (NOSM-05)*

NOSM partnered with a large number of communities and clinical sites to implement their highly distributed and rurally immersive curriculum. As noted in section 5.2 'NOSM overview' above, NOSM considers the whole of Northern Ontario to be its classroom, and they have partnered with 90+ specific communities and locations to achieve this. NOSM brokered written agreements to host and teach NOSM students with each of these communities and/or health services.

NOSM's 'travelling roadshow' method of personal visitation (see also 'Convincing' and 'Staff' sections 5.3.4.1 and 5.3.5.2.1 above respectively) was essential to this level of community engagement and collaboration:

*We went to visit each one of those communities and some of those would be two- or three-day journeys because they're not easy to get to. Some of them are quite close. We sort of went to meet them on their terms. And I think they too weren't sure what they would teach medical students. We had to make it clear that ... the school owns the curriculum, that's the way the accreditors work, but to identify that these are the things we hope our students would learn here and how could you make that happen.*  
(NOSM-06)

The enduring positive impacts of the communities and students on each other are discussed further in the 'Consequences' sections 5.5.2 and 5.5.3 below.

#### **5.3.5.5 Facilities:**

NOSM has a physical presence in both Sudbury (Laurentian) and Thunder Bay (Lakehead) with at least one purpose-built structure on each university campus along with space re-purposed from pre-existing buildings. These house all the usual medical school facilities of small- and large-group teaching rooms; clinical skills and simulation units; anatomy and pathology laboratories; libraries; research laboratories; staff offices; and student study and social areas.

A contextual constraint made it harder for NOSM to have their own new buildings approved: in 2003, Northern Ontario changed their secondary education from thirteen to twelve years which created a double cohort entering tertiary institutions and a subsequent period of “super build” to construct new buildings on university and college campuses. Thus, initially NOSM was only given approval to extend existing buildings on Lakehead and Laurentian campuses, rather than constructing new ones. Later, they were able to obtain approval for new buildings for the medical school on each campus – both of which were built on time and under budget (Tesson et al., 2009). The top floors of both Lakehead and Laurentian NOSM buildings were dedicated to the research activities of the school and were fitted out with a grant from FedNor (mentioned in section 5.3.5.1 'Funds' above). NOSM's building infrastructure was valued at ~CAN\$48 million, but was leased from the two universities for an annual cost of ~CAN\$1 million, rather than being owned outright by NOSM (Northern Ontario School of Medicine, 2012).

Geographic distribution also required widespread technological connectivity for staff and students. Reliable internet connectivity in the communities was obtained through partnerships with providers who were committed to serving their communities. These partnerships attracted additional funding that not only benefitted the NOSM students, but also the communities, with an extensive network of videoconferencing sites and electronic library holdings (Tesson et al., 2009). All NOSM students were provided with new leased laptops in their first and third years, fully loaded with all the software and resources required for their study regardless of location. This included access to NOSM's full syllabus through their purpose-built electronic learning platform (Tesson et al., 2009). Using technology enabled NOSM's blended-learning delivery which included face-to-face classroom learning, synchronous learning via videoconferencing, and asynchronous individually-paced learning (PWC Consulting, 2002). Student presence in 90+ locations required arranging adequate living quarters in each. These were negotiated with the local communities and incorporated into their formal agreements.

#### **5.3.5.6 Students:**

Student recruitment, selection, and admissions processes began in July 2004 for the inaugural class of 56 students to commence in August 2005. From the very beginning, NOSM was able to attract over 2000 applications, implying a favourable public perception of its academic credibility (Tesson et al., 2009).

Admissions processes were evidence-informed, Northern-focused, and favourably disposed towards Indigenous, Francophone, northern and rural backgrounds, and/or intentions to work (Tesson et al., 2009). The admissions committee included not only NOSM staff, but also rural, Indigenous, and Francophone members of the public (Tesson et al., 2009).

*NOSM is training people from the North, and we are focusing almost exclusively all of our recruitment efforts on those people and supporting them along the way. (NOSM-03)*

As mentioned earlier, 91% of NOSM students are from Northern Ontario (section 5.2 'NOSM overview' above).

To account for the pervasive inequality of academic performance of people from urban versus rural, higher versus lower socio-economic backgrounds, and dominant versus minority cultures, NOSM's admissions process does not utilise Medical College Admission Test (MCAT) scores nor high school academic scores. The MCAT has never been validated for Aboriginal and Francophone cohorts, and it potentially adds a financial burden to applicants for travel to southern writing centres and/or preparatory courses (Tesson et al., 2009). Rather, NOSM uses only the Grade Point Average (GPA) of college or tertiary education performance. The GPA used by NOSM discounts the applicants' first year of study to allow for catch-up academic development, and is progressively weighted for later years of study (Tesson et al., 2009). Further, NOSM also applies its own additional 'rural adjustment factor' based on length of stay in, and size of community the applicant was from (Tesson et al., 2009).

NOSM also emphasises desirable personal characteristics identified via a day-long Multiple Mini Interview (MMI) process (Tesson et al., 2009). They specifically seek to identify evidence-informed characteristics that predict for family medicine and rural practice such as rural origin, female gender, tendency to give oneself to one's community, and career intentions (Tesson et al., 2009).

Along lines of social accountability, NOSM embraces a policy of marked inclusivity for its student admissions, to ensure representation from Indigenous, Franco-Ontarian, and remote communities. Recruitment efforts include having high school students visiting NOSM. This is particularly important for children from remote communities who might otherwise have minimal exposure to career options in healthcare. Furthermore, NOSM admits students with different disabilities and health constraints such as paraplegia, visual impairment, and organ transplantation. This is not only motivated by social justice for their students, but also an evidence-informed workforce production strategy, since people from minority groups are more likely to serve the under-served:

*Minority physicians are much more likely than are their counterparts to opt to practise in underserved areas, so increasing the proportion of minority groups graduating from medical schools is viewed as an effective way of meeting the needs of underserved areas. (Tesson et al., 2009, p. 120)*

Formal research on NOSM's early students indicates that their expressed affinity for working in the North was due to personal, familial, communal, and socio-political reasons in "a complex interplay between self-determination and social circumstances" (Tesson et al., 2009, p. 124). Personally, they indicated pleasure in the rural lifestyle, natural habitat, and outdoor hobbies of the North. Regarding family, students who enjoyed a good childhood with their families felt drawn to stay close to them – that is, within a day's drive. Regarding community, students who had grown up in smaller cities or rural/remote areas appreciated the safety and connectedness these offered. Socio-politically, many NOSM students exhibited a strong sense of social responsibility congruent with NOSM's own ethos (Tesson et al., 2009).

NOSM's early student cohorts were noted to have unique attitudes that marked them as valuable pioneers and ambassadors of the new medical school:

*The inaugural year students were different. They knew that they were taking a risk. They knew that they were shaping the school. ... The success of the school will depend on how they interact and how they help the school succeeding. So, that [was] the sense of advocacy in these students that I don't usually see in the more established schools. ... [Some students] were high profile researchers who didn't have to come to NOSM. ... They came because they wanted the adventure, they believed in rural health, they came from the area, and they wanted to do something different. (NOSM-12)*

Their sense of adventure, willingness to take risks, and be advocates for their region and their new medical school gave them a “vibrant” quality. Thus, the early students are counted amongst NOSM’s Champions (see Table 5-1 above). Once NOSM had proven itself as a quality institution, it was no longer “a risk” to study there, and later cohorts did not seem to exhibit the same vibrancy as the earlier ones:

*It is not as vibrant as the first few years. ... I’m not saying that the students now don’t have that. Many of them do, but it is not as obvious anymore. ... You know that you’re not taking a risk by going to NOSM anymore because all of the graduates did do so well. (NOSM-12)*

This account shows that the early NOSM students connected with the new medical school’s vision and ethos with laudable passion and dynamism. In the next section, I explore the results of NOSM’s connections to other stakeholders.

### **5.3.6 Connecting:**

NOSM’s story reveals that Connecting was fundamental to their successful establishment. Individual and collective stakeholders from different sectors – health, education, academia, government, business, Indigenous, Francophone, north-east, and north-west (see section 5.3.2 'Catalysts' above) – were able to “lay aside their territorial rivalries and effectively work together towards a common goal ... without any single one dominating the process” (Tesson et al., 2009, p. 10). Deep symbiotic alliances, where each party had significant skin in the game were required. In this section, I explore how these connections were characterised by non-competition, political collusion, self-sacrifice, and engaged ownership.

NOSM’s unique governance structure as a distinct legal entity but under the degree-granting authority of two academic Senates was an elegant solution for the non-competitive partnership between Lakehead and Laurentian Universities:

*NOSM’s innovative governance structure has enabled what would have otherwise been two small and competing regional medical schools (with fewer resources) to join forces and realize a combined synergy as one. Although this joint effort does present some challenges, it is by far the most effective and sustainable model that could have been devised. It is also a credit to the ongoing commitment of both institutions in serving the population of Northern Ontario that they have chosen to do so in such a manner. (Northern Ontario School of Medicine, 2012, p. 16)*

Advantages of the autonomy associated with this governance model include that NOSM can enter into independent contracts; can be more responsive to change with less bureaucracy; can be closer to its communities through its board representatives; can avoid several potential accreditation difficulties; and can manage its own finances without university intervention (Tesson et al., 2009).

The political collusion of the five municipalities of Northern Ontario to lobby for the establishment of NOSM (see 'Conducing' section 5.3.3.3 above) is similarly remarkable, in light of their historical competition for resources and political investment:

*Northern communities seeking help to build much-needed infrastructure often find themselves as supplicants to a southern-based political machine and, as such, they regard each other as rivals, ... because they are competitors for resources that are few and far between. (Tesson et al., 2009, p. 186)*

Likewise, also the concord of north-western communities to ensure equal status for Thunder Bay was historically and socio-politically remarkable (see same 'Conducing' section 5.3.3.3 above).

Two of the Champion organisations – NOMP and NOMECE – paid the ultimate self-sacrificial price for their pivotal roles in NOSM's establishment (see 'Conducing' section 5.3.3 above). Their historic successes with Family Medicine training and graduate retention provided data in favour of expanding the medical education capacity of Northern Ontario. Their faculty were key members of the NORMS Liaison Council and thereby contributors to important proposal documents and political lobbying efforts. Many of those same staff went on to become early faculty members of the new medical school. Once NOSM was established, NOMP and NOMECE ceased to exist and their activities were subsumed into NOSM's post-graduate training portfolio instead (Tesson et al., 2009). Thus, NOMP and NOMECE's involvement went beyond synergistic sharing to selfless cessation.



Finally, deep engagement and ownership is felt by NOSM and the communities of Northern Ontario towards each other. That the communities consider NOSM to be “their” medical school, has been explained in several other sections (see ‘Convincing’ and ‘Consequences’ sections 5.3.4.1 above and 5.5.2 below). In turn, NOSM considers the whole of Northern Ontario to be “its classroom” (see sections 5.2 ‘NOSM overview’ and 5.3.5.4 ‘Clinical training sites’ above).

When, where, and by whom was the need for pan-Northern partnerships first recognised? In previous decades both Lakehead and Laurentian had individually aspired to have their own medical schools but had not envisaged this as a partnership (Tesson et al., 2009). When did they begin to discuss a joint venture? Who were the Catalysts involved in those discussions? What was happening in the contextual milieu that precipitated their joint submission to McKendry? My research has no data to illuminate this period of history, but they are worthwhile questions to consider regarding the generative mechanisms of successful establishment.

Another concept to consider is whether the territorial rivalries might yet be smouldering under the surface. As happened at Peninsula Medical School in the UK, which began as a joint venture between Exeter and Plymouth Universities, but eventually morphed into two separate medical schools after thirteen years (BBC, 2012), might NOSM eventually demise into two separate medical schools? Although this is not an issue of establishment and is, thus, beyond the scope of my research, it is an issue relevant to aspects of collaboration and sustainability for the new medical school, and may be identifiable from challenges encountered during establishment, which are discussed next.

## **5.4 Challenges:**

All new ventures encounter problems and set-backs as they start up – both expected and unexpected (see ‘Utilising theory’ section 3.4.2.3.7). In this section, I explore three major challenges faced during NOSM’s establishment:

1. Dissenting politics
2. Vast geographic distribution
3. Interpersonal relationships

#### 5.4.1 Dissenting politics:

NOSM encountered dissenting politics in various aspects and stages of its establishment. Firstly, some members of the government's Expert Panel were in leadership positions of other existing medical schools and this potential conflict of interest may have contributed to the Panel's disappointing initial recommendations to only expand the rural activities of existing medical schools rather than establishing a new one (Expert Panel on Health Professional Human Resources, 2001). The tide of public opinion and outcry successfully overcame this as explained in 'Concluding' section 5.3.3.3 above.

NOSM also experienced tensions with Francophone groups who desired a bilingual medical school incorporating a full program of study in French. Laurentian University is mandated as a bilingual institution and offers most of its other courses in both English and French. However, a fully bilingual program was not in the government's remit nor funding for NOSM (Tesson et al., 2009). NOSM instead focused primarily on offering several Francophone community placement options to the students. However, the Francophone community recognised they were not as communally organised as their Indigenous counterparts, and thus, were not as successful in obtaining what they desired from NOSM:

*There was some recognition amongst Francophones, that the Aboriginal lobby had been much more aggressive and had got governance positions and had got a number of things that the Francophones would've liked, because they'd got [sic] their act together and were pretty firm in pushing for those and that has been successful, and I think it's an important aspect of NOSM, that the Francophones in some way felt they didn't quite get the profile of the Aboriginal groups. (NOSM-17)*

Francophone board representatives and the Francophone Reference Group continue to provide liaison with their communities and NOSM (Tesson et al., 2009).

The most significant aspect of dissenting politics in NOSM's story, however, was the government's polarising announcement of a new medical school in Sudbury with a satellite campus only in Thunder Bay. This served to deepen the pre-existing rivalry between the north-east and the north-west. The two regions of Northern Ontario did not often see themselves as one. North-eastern Ontario being closer to the south, only requires two or so hours of driving to get to Queen's Park in Toronto – the centre of the provincial government and its political power. Thus, the north-west can feel geographically and politically disregarded and isolated as reflected in the following quotation:

*People in Sudbury, when they talk about Northern Ontario, they mean the Northeast. And they're kind of vaguely aware of Thunder Bay in the Northwest, but they're quite indifferent, it's of no importance to them. When you're in Thunder Bay people don't actually talk about Northern Ontario, they talk about Northwestern Ontario or the region and they're openly hostile to Sudbury in the Northeast. And the reason for that, is that when you're in Toronto [in the south] nobody thinks about Northern Ontario, talks about Northern Ontario, most of the time, but if they do, they mean Sudbury in the Northeast. So, Thunder Bay in the Northwest is the forgotten part of Ontario. (NOSM-05)*

Once again, intense political lobbying and communal solidarity from the people of the north-west countered this (discussed in 'Conducing' section 5.3.3.3 above). However, lingering northern east-west tensions played a role in the early years of NOSM's functioning that required hard work by the medical school's leadership to resolve:

*And it then took years and years and years. It was only because the school became such a great success that now the NOSM model is seen as a great model.  
(Participant number withheld for added anonymity)*

NOSM's success in bridging these regional rifts has served as an exemplar for other pan-Northern collaborations (see 'Consequences' section 5.5.6 below). NOSM's success as a high-quality medical school, may provide a uniting element for the region, defending against the risk of an institutional split, similar to Peninsula Medical School (mentioned in the previous section 5.3.6 'Connecting'), based on geographic tensions. A further challenge posed by the vast geography of Northern Ontario is discussed next.

#### **5.4.2 Vast geographic distribution:**

*Geography has a strange way of making all these things very difficult. (NOSM-04)*

The vast geography and harsh climate of Northern Ontario imposes several added constraints to establishing and maintaining a new medical school in the region. As mentioned earlier, the sparse population is widely distributed with ~6% of the province's population spread over ~88% of its land-area (see section 5.3.1 'Context' above). Land areas are huge, driving distances are significant, winter conditions are harsh, and airports are limited. People from the south don't always understand the ground distances involved because flight times to north-western Ontario from the south are deceptively quick over Lake Superior:

*I like to tell the story of a patient I saw ... one who had come further for a 15-minute office appointment [in Thunder Bay] than it would take me to go to downtown Toronto [from Thunder Bay]. (A north-western participant; number withheld for added anonymity)*

Thus, all activities of Conducing, Connecting, Collecting, and Convincing become more arduous, resource-intensive, and complex for the Catalysts. For instance, increased travel time and logistics significantly increased costs (see section 5.3.5.1 'Funds' above). Increased costs affected both the medical school budget as well as the personal finances of medical students. For example, access to a car was imperative for the students as public transport was inadequate for their local and regional clinical placements.

Even as early as the IMC's 2002 Business Plan, several of the pros and cons of having such a largely distributed medical school were recognised. Reducing redundancy and duplication of resources across sites plus ensuring consistency of student experiences were two challenges of note (PWC Consulting, 2002). The challenge of relating interpersonally, across vast distances, for a venture of this complexity, is discussed next.

### 5.4.3 Interpersonal conflicts:

*There was conflict between individuals and leadership positions advocating their views very strongly. ... I don't think I would have used the word 'collaborative' in that time period. (Participant number withheld for added anonymity)*

In a project of this complexity, interpersonal conflicts are inevitable and require diplomacy, tact, and management skills to overcome. Interpersonal clashes were noted even between Champions, who may have disagreed about some aspects of the project even while championing the idea as a whole. NOSM's case study revealed interpersonal difficulties related to issues of power; staff turnover, burnout, and job security; and large scales of distribution to keep connected with.

Politics of power with bids for influence and position caused some of these interpersonal tensions, particularly over leadership of the new medical school:

*There's lots of power in a medical school in terms of the Dean, in terms of the Board, in terms of your upper executive, and so ... certainly some of that conflict was around who will get that power and who will be leading that power and would there be certain alliances that would support various individuals and their present positions and future positions. (Participant number withheld for added anonymity)*

Being involved with a medical school can hold inherent power and prestige for individuals and stakeholders, thus, interpersonal politics might be a matter of course in any location. For medically under-served areas, a regionally significant venture such as a 'new' medical school might compound this.

There was an early period of high physician staff turnover in senior levels due to differing expectations, role ambiguity, and competing demands of patient care and research pursuits (Tesson et al., 2009). Furthermore, the intensity of hard work required for a project of this scale caused some staff tensions and burnout:

*Well, I mean, it was hard work because there was so much of it, we had intense and impossible deadlines and timelines. I mean, just that made it hard work. (NOSM-05)*

This was particularly noted amongst non-clinical university employees who had not previously been cognisant that medical schools often require after-hours and over-time work akin to their partner health services. NOSM also faced a staff strike in its fourth year, over the issue of unionisation, which was seen as related to job security. NOSM survived this strike due to the dedication of non-union staff and supportive students. The strike ended after the appropriate labour relations agreements were negotiated.

Finally, maintaining strong connections with a vast and distributed network of stakeholders – particularly individual clinicians – was also challenging for NOSM:

*I think there are real challenges around engaging our 1400 faculty ... I think there [are] many faculty who don't feel a really strong connection to NOSM, who provide teaching and things like that but feel, on some level, undervalued and ... who still would be struggling with the concept that they are part of NOSM or that they are integral to NOSM. I mean, part of this is predictable from our geography, and part of this is predictable with the number of faculty, and part of this is predictable with the high clinical load that a lot of the people still carry. (NOSM-14)*

The magnitudes of scale with the geography and NOSM's community-immersion made this a predictable challenge. Despite these challenges and negative outcomes, NOSM also achieved many positive Consequences, which are explored next.

## 5.5 Consequences:

*It's been an absolute smashing success. (NOSM-07)*

The Consequences of establishing a new medical school in a medically under-served area will span macro-level, meso-level, and micro-level outcomes. Founding leaders will need to consider the intended and unintended consequences that might eventuate and could work to maximising positive ones while minimising negative ones (see 'Utilising theory' section 3.4.2.3.8). In this section, I explore several positive outcomes of establishing NOSM.

NOSM has conducted extensive research on its impact and outcomes and has published their findings widely (Centre for Rural and Northern Health Research, 2009; Hogenbirk, French, et al., 2015; Hogenbirk, Robinson, et al., 2015; Hogenbirk et al., 2016; Krotz, 2021; Mian & Hogenbirk, 2016; Mian et al., 2015; Northern Ontario School of Medicine, 2016; Strasser, 2016; Strasser et al., 2013; Strasser & Lanphear, 2008; Strasser et al., 2009; Wenghofer et al., 2017). Incorporating this supportive source material without exhaustively replicating it, I highlight six key findings of my case study of NOSM:

1. Improved workforce for Northern Ontario
2. Community engagement
3. Impact of students on the communities
4. Competent and competitive graduates
5. Improved research opportunities
6. Exemplar innovations

### 5.5.1 Improved workforce for Northern Ontario:

*There's a guy who I see there from Kenora, one of the outlying regions and every time he sees me, he gives me a hug and says, "... we have physicians in Kenora now that we never had before, I want to thank you for that". (NOSM-17)*

True to its prime reason for being established, NOSM has made great strides in addressing the region's physician shortage. As noted previously (in section 5.2 'NOSM overview' above), NOSM graduates are significantly more likely to practice in Northern Ontario, compared to graduates of other Ontario medical schools (Northern Ontario School of Medicine, n.d.-d).

NOSM's existence has made recruiting and retaining doctors in small Northern towns much easier. In the past, representatives from the towns would attend career fairs trying to recruit graduates from the southern Ontario medical schools, with very few returns for their efforts:

*[Before NOSM], it was an unmitigated disaster because we're very rural and all of the med schools previously were located in southern Ontario. ... And with us being from the far north, we would go down, and in the seven years they ran that tour, not one person came back to [my town] to work. So, when we hitched our wagon to NOSM, ... we've seen a higher rate of success. We've hired, I think, three NOSM graduates and ... probably eight physicians. ... the great thing that has also happened is we have retained all of these people 100%. (Participant number withheld for added anonymity)*

In some communities, very large decreases in vacant physician positions were noted – for example, down to 1 vacancy from 29 (Mian et al., 2015). One community also reported a decrease in their recruitment spending from CAN\$200,000 to CAN\$50,000 for a four-year return-of-service agreement (Mian et al., 2015).

Improved recruitment and retention were a result of two factors: (1) several NOSM graduates returned to work in the familiar towns where they had completed their third-year longitudinal clerkships; (2) health services teaching NOSM students or employing NOSM graduates developed an increased capacity and dynamism that attracted even more health professionals and infrastructure. Moreover, having a good supply of generalist doctors attracted specialists and other allied health professionals to the area.



NOSM also enhanced the reputation of the two host universities and affiliated health service facilities, thereby improving their ability to recruit new physicians, researchers, and other staff (Centre for Rural and Northern Health Research, 2009). NOSM facilitated the elevation of some community hospitals into teaching hospitals (Centre for Rural and Northern Health Research, 2009). Furthermore, Lakehead and Laurentian Universities reported increased student enrolments particularly in health-related graduate programs (Centre for Rural and Northern Health Research, 2009). Other impacts of NOSM's community engagement are discussed next.

### **5.5.2 Community engagement:**

*There's no medical school in Canada in which the university to which it was attached gave part of your responsibilities and authority for running it back to subset of the citizenry in the Northwest region – generally translating, the Aboriginal folks. (NOSM-02)*

As already mentioned several times, NOSM is impressive in the level of community engagement it has achieved (see 'Convincing', 'Collecting', and 'Connecting' sections 5.3.4.1, 5.3.5.4, and 5.3.6 above respectively). Driven by their commitment to social accountability, NOSM used wide consultative processes and inclusive policies. The communities responded with great civic pride:

*The ownership that community members took from this medical school was remarkable. And it was almost like people didn't ever think that the north would have their own medical school, so people were really proud. (NOSM-11)*

The resultant dynamic in the region and within the institution itself is unique:

*I mean, most medical schools ... have started without active community participation. I think that has created a special element and dimension to NOSM. (NOSM-05)*

In the next section, I explore the multi-dimensional impact of having students in the communities.

### 5.5.3 Impact of students on communities:

The economic impact of having medical students in a community are clear – they rent accommodation, purchase goods and services, and might bring their friends and family to visit. Data from the US and from NOSM itself, suggests that for every dollar spent on a medical school or teaching hospital, an additional US\$1.11 – US\$1.33 were re-spent on other businesses and individuals in the area (Centre for Rural and Northern Health Research, 2017; Tesson et al., 2009). NOSM’s direct economic contribution to Northern Ontario escalated from CAN\$67+ million in 2008 to CAN\$122+ million by 2017 (Centre for Rural and Northern Health Research, 2017; Hogenbirk, Robinson, et al., 2015; Hogenbirk et al., 2021). Although most of this spending was concentrated mainly in Thunder Bay and Sudbury, NOSM’s economic contributions to smaller communities were measured between CAN\$0.7 million and CAN\$5.4 million (Centre for Rural and Northern Health Research, 2017; Hogenbirk, Robinson, et al., 2015; Hogenbirk et al., 2021). Furthermore, students spent an extra ~CAN\$1 million in the region. Broader economic impacts were also noted such as the generally cheaper cost of living resulting in physicians and their families spending more on luxury items like “granite top counters and upscale bathroom fixtures” (Hogenbirk, Robinson, et al., 2015, p. 30).

As exciting and helpful as economic contribution is, the mutually transformative influence of NOSM students and the communities on each other, is even more inspiring. Students brought intellectual capital and role-modelled possibilities, which encouraged and empowered individuals and families in the communities:

*Students are empowering for everybody. So, they empower communities, they interact with their kids, they show them ... “Stick to your schooling and you could become a physician”, and that’s the kind of message they give them, and it’s usually a very positive message. ... and I think in general, this community ... has become a much more vibrant community because of that intellectual capital that’s been imported as part of the medical school. (NOSM-04)*

The students, in turn, were also transformed by the communities they engaged with:

*I think it’s transformative for the communities, but it’s more transformative for the student. They have this exercise when they come back from these communities, where they have to give a presentation about what they’ve learnt ... and there are many students who’ve been completely transformed by what they’ve seen in First Nations communities. (NOSM-04)*

The mutual benefit gained by both parties explains this dynamic synergy. The communities enthusiastically engaged with the students, hoping that a good experience of the community might encourage the students to return as doctors in the future. The students in turn felt welcomed, supported, and valued:

*People in the communities are so pleased to see [students] coming in because they see this person could be a future doctor for us here and so they welcome them, they take them into homes, they take them to play baseball and the students feel hugely welcomed in these areas in a way that is not true for a student in a teaching hospital standing around with other students looking at someone's operation, for that person, it's an intrusion. For these people this is not an intrusion, this could be their family doctor in times to come. (NOSM-17)*

The communities recognised that the students were valuable emissaries, who might encourage others to consider working there, even if not returning themselves:

*These [students] may not come back to your community but they live here, you kind of deputise them and say they're ambassadors for your community ... you know they're saying good things about your community to their colleagues. (NOSM-03)*

The teaching clinicians were also intellectually and professionally stimulated by the presence of students:

*I think the other nice thing that happens when you have learners here is it pushes ... the physicians ... They may be presented questions on a weekly basis... or somebody read something or researched, or they have an area of expertise that the GP may not ... and so that forces them to research and by extension, they get better at their game, too, right? ... So, I think having learners here is really good for everybody. And it's just a really nice energy to have in the building. ... They're more helpful than harmful, I think, in the general sense. They're an extra pair of knowledgeable, eager hands. (NOSM-03)*

The students became active members of the health team, bringing knowledge, energy, and eager helpfulness.

A final intriguing impact of NOSM on the local community was on their arts and entertainment industry. A witty and engaging television show entitled *Hard Rock Medical* about a fictitious new medical school in Northern Ontario was “loosely based” on NOSM and successfully ran for four seasons between 2013 and 2018 (*Hard Rock Medical*, n.d.; IMDb.com, 2021; Ontario Educational Communications Authority, 2018). In the next section, I discuss how NOSM’s real graduates successfully passed exams and were accepted into advanced training pathways.

#### **5.5.4 Competent and competitive graduates:**

From the earliest cohorts, NOSM graduates proved their competence and quality by performing well in competitive national licensing exams:

*By the first graduating class, our students [were] in the top quartile nationally. ... I actually think they were first or second in the first licencing exams of the inaugural class. ... But it would be factual to say that McMaster students didn't perform in the top quartile for a long time. While we came out of the gate running, because I think our case-based learning was very carefully written and we engaged our faculty early to do that. (NOSM-06)*

NOSM graduates were also readily accepted into competitive specialty training programs like Dermatology, through the “residency matching programs” prevalent in North America:

*It's my theory that our students do well in residency matching programs because they're good clinicians. They have good clinical skills. ... Our students have got into some the most competitive residency programs in Canada, surprising even though we say we are training generalists. ... Dermatology is the hardest residency program in Canada to get into ... we've two or three people get into dermatology, which is really quite astounding. (NOSM-04)*

NOSM's quality of clinical training, case-based learning, and faculty involvement were identified as contributors to this level of success. NOSM's curriculum design is touted as "superior", with its small group teaching and relevant clinical content:

*I tell people, "NOSM is better than my medical school", ... and I'm supposedly from one of the premier medical schools in Canada. These kids leave better off than I left off, that's for sure. It was a long time ago, obviously, but it's a superior training system. The overall package is better. ... the small group teaching that we do which is all relatively case-based is far superior to the didactic, stand up in front and tell you everything about porphyria. We did endless porphyria ... and I always think when I left [my medical school], I'd never seen a croup case. I mean nobody leaves NOSM not having seen a croup case, but we did. So, the overall pointing people in the right direction towards what's out there actually involved in medicine. I mean there's no question, it's superior. (NOSM-16)*

In addition to superior educational opportunities, NOSM also ensured improved research opportunities for the region, as discussed next.

#### **5.5.5 Improved research opportunities:**

*The other thing that I probably didn't recognise ... that a medical school does is the research side. We've got ... big research endeavours going on in Northern Ontario which wouldn't have been here without it. (NOSM-04)*

NOSM began pursuing its research agenda early, with forethought even during their early start-up phases. They recognised research was inextricably linked to their social mandate to improving health care and health outcomes (Tesson et al., 2009). NOSM partnered with the two Centres for Rural and Northern Health Research (CRaNHR) at both Lakehead and Laurentian Universities. Furthermore, as noted in section 5.3.5.5 'Facilities' above, an entire floor in each of NOSM's two buildings at the Lakehead and Laurentian campuses, are dedicated to research activities.

With funding from local, provincial, and federal levels of government, NOSM commissioned the *Creating a Sustainable Health Research Industry in Northern Ontario* report which provided an early guiding framework for future research directions (Tesson et al., 2009). NOSM also initiated several international health, education, and research conferences, giving it wide exposure on a world-stage (Northern Ontario School of Medicine, 2016; Tesson et al., 2009). A few practical examples of NOSM's wide exposure are discussed in the next section.

### **5.5.6 Exemplar innovations:**

NOSM's multiple positive outcomes or 'Consequences' suggest their models of distributed education, community-engagement, rural-immersion, and generalist emphasis could be exemplary and archetypal. A recent publication detailing NOSM's legacy in Northern Ontario, noted that NOSM has already had global impact as a model medical school:

*A lot of medical schools ... have consulted with us to replicate our model, and they've enjoyed tremendous success. ... I think people in Northern Ontario don't yet grasp that when [NOSM leaders] go on tours or to health conferences, the rooms are packed with people wanting to hear about the NOSM model because of the benefit it's had. (Anawati, 2018, as cited in Krotz, 2021, pp. 38-39)*

Furthermore, NOSM modelled innovations that benefitted non-medical entities as well. For example, NOSM's unique bicameral governance structure involving two universities, thousands of kilometres apart, provided proof that pan-Northern partnerships were feasible. Having seen the success of NOSM, similar pan-Northern collaborations in non-health sectors were implemented:

*Years later, the minister for Northern Development and Mines ... engineers setting up a Northern policy institute, using the same corporate model, the two university system members, to set up as pan-Northern institutions. So, people believe in pan-Northern institutions because ... NOSM exists and is a success and there's a sense of collective ownership and [it] isn't just a notion. (NOSM-05)*

Thus, NOSM represented a highly successful "experiment adapting medical education to meet the needs of a culturally and economically diverse population spread over a million square kilometres" (Tesson et al., 2009, p. 183).

Having presented how NOSM was successfully established through the lens of my Eight C's Framework, I conclude this chapter with a discussion of the strengths, limitations, and personal reflections of this case study.

## **5.6 Strengths and limitations of this case study:**

### **5.6.1 Strengths:**

This case study of NOSM was aided by a considerable amount of documentary data including published literature such as the book *The Making of the Northern Ontario School of Medicine* (Tesson et al., 2009), several journal articles (Hogenbirk, French, et al., 2015; Hogenbirk, Robinson, et al., 2015; Hogenbirk et al., 2016; Lanphear & Strasser, 2008; Pong, 2008; Rourke, 2002; Strasser, 2016; Strasser et al., 2013; Strasser & Lanphear, 2008; Strasser et al., 2009; Wenghofer et al., 2017), and official reports (Centre for Rural and Northern Health Research, 2009, 2017; Expert Panel on Health Professional Human Resources, 2001; McKendry, 1999; Mian & Hogenbirk, 2016; Mian et al., 2015; NORMS Liaison Council et al., 2000; Northern Ontario School of Medicine, 2012, 2016). This enabled a deeper and more detailed understanding of the case as well as more robust data triangulation and verification.

This case also received the largest amount of feedback from my interview participants, with 9 out of 17 participants reading and responding to a draft version of this chapter. Along with corrections and suggestions for improvement, their feedback indicated my treatment of the case was “thorough, accurate, and diplomatic”; “positive, but balanced”; and “very well organized”. This provided some internal validation to my findings and research approach.

Of my three cases, NOSM had achieved the best results in addressing issues pertinent to medically under-served areas. NOSM's approach to socially accountable medical education – particularly its models of community engagement, distributed education, and rural generalism – were note-worthy. It, thus, formed one of the strongest exemplars for new medical schools in medically under-served areas, for my research.

### **5.6.2 Limitations:**

The voices of some demographic and stakeholder groups were missing from my interview data – such as Provincial Government representatives and women – as none responded to recruitment efforts. It is unclear whether these missing perspectives and gender bias could have skewed my analytical findings. This limitation was addressed in my next case study and both female participants and government representatives were interviewed.

### **5.6.3 Researcher reflexivity:**

I had originally resisted the suggestion of NOSM as one of my cases because of presumptions regarding the similarities between Australian and Canadian contexts and the relative resource-rich nature of both. However, the extensive and rich data and insights obtained from this case were invaluable, not just in my understanding of this research phenomenon, but also in other aspects of my professional life. NOSM has frequently served as a model for social accountability, curriculum design, and community engagement in my work as an academic and medical educator in Australia and internationally.

## **5.7 Summary of chapter:**

In this chapter, I used the experiences and interpretations of people involved with NOSM's establishment and their descriptions of events, to construct my own understanding of the case. I combined these with the concepts of Institutional Entrepreneurship (IE) and my Eight C's Framework to develop a rich picture of the case, and to understand the generative mechanisms contributing to NOSM's particular experiences of establishment. 8CF was again used as a structural device to present the details of the case.

NOSM's 'Context' revealed that sparse population, geographic isolation, and minority representation had contributed to poorer health outcomes for the region. The same issues also contributed to the difficulties with health workforce recruitment and retention, which in turn further compounded poorer health. Historic missteps and shortfalls in workforce planning and medical education infrastructure also factored into the dearth of physician workforce in the region.



NOSM's 'Catalysts' included individuals, groups, organisations, and communities such as academics, clinicians, government officials, educational bodies, health services, businesses, local councils, Indigenous communities, and Francophone communities. Early NOSM students were a particular group of ambassadorial Champions of the new school.

Three specific activities were identified as 'Conducting' a favourable milieu for NOSM to be given the green-light for establishment. Previous smaller medical education initiatives had built educational capacity in the region and provided evidence of successful outcomes. Supportive research and reports from local stakeholders and international experts documented the feasibility of a new medical school in Northern Ontario. A concerted political stance by Northern Ontario community groups further convinced the decision-makers of the desirability of NOSM.

Three pivotal stakeholder groups required 'Convincing' for NOSM's establishment to proceed successfully. Northern Ontario communities required convincing that the new medical school really would be established and was keen to involve them collaboratively. NOSM's consultative workshops and personal visitations helped convince this group. Northern Ontario clinicians required convincing of their ability to teach and of the benefits of having learners involved in their clinical practices. Again, consultative workshops, personal visitations, and local council support to sell the vision and allay fears, were the mechanisms that convinced this stakeholder group. Official accrediting bodies required convincing that NOSM's innovative models and processes would still fulfil the highest standards of medical education and graduate competency. NOSM accomplished this with extensive planning and documentation backed by international research and evidence.

'Collecting' resources relied on a multitude of approaches and mechanisms to successfully accomplish. Funds were collected by convincing the funding bodies of the worthiness of the cause. Staff were recruited through typical strategies but their personal characteristics and abilities, including dedication to the project, were crucial to success. The curriculum was constructed through a socially accountable consultative process with the populace of Northern Ontario but also guided by international medical education research evidence. Clinical training sites were collected through extensive engagement with the communities and their health services. These, in turn, were developed by personal visitations and consultative processes. Facilities such as buildings, laboratories, housing, and technology were procured by funding and partnership mechanisms. Students who were pioneering and committed were admitted through evidence-based and socially accountable selection mechanisms favouring Northern, rural, and minority applicants.

'Connecting' was central to NOSM's successful establishment. Deep synergistic connections between individual and collective stakeholders from different sectors – health, education, academia, government, business, Indigenous, Francophone, north-east, and north-west – were required. Historic territorial rivalries had to be set aside and replaced with a collective cooperation characterised by non-competition, political collusion, self-sacrifice, and engaged ownership. Innovative models for pan-Northern partnerships were required to galvanise outcomes.

NOSM faced three major 'Challenges' during establishment. Dissenting politics were encountered in various aspects and stages of establishment requiring unifying coalitions to counter them. Vast geography and harsh winter climates added cost and complexity to establishing and maintaining NOSM. Resource-intensive investments of travel and technology were used to overcome this challenge. NOSM also faced interpersonal conflicts relating to issues of power; staff turnover, burnout, and job security; and large scales of geographic distribution. Diplomacy, negotiations, and dedication were required to overcome these challenges.

'Consequences' can be the macro-level, meso-level, and micro-level outcomes of establishment policies and processes. Six positive consequences of NOSM's establishment were discussed. (1) Improved workforce for Northern Ontario likely resulted from NOSM's pervasive socially accountable ethos that held a Northern, rural, under-served, and generalist focus from admissions through to post-graduate training. (2) Dynamic community engagement also resulted from NOSM's socially accountable consultative and collaborative processes. (3) NOSM students had economic, social, intellectual, symbiotic, and artistic impacts on the communities in which they learn – by virtue of their presence, their energy, their knowledge, and their willingness to be helpful even as learners. In turn, the communities often had reciprocal transformative impact on the students – by virtue of their willingness to open themselves and their problems to the students and to inculcate the students into the fabric of their lives. (4) NOSM graduates' success and competency in licensing exams and specialty training positions were likely effected by the strengths of their curriculum and training. (5) Stronger research capabilities in the area resulted from NOSM's early implementation of their research agenda with a deliberate push to contribute locally and internationally. (6) NOSM's many innovations and successes led to its recognition as a good role-model for both medical and non-medical ventures.

To close, the NOSM case study enabled an examination of how to successfully establish a new medical school in a geographically vast area as a dual and equal initiative of two distant universities. In the next chapter, I present my third and final case study, the University of Botswana Faculty of Medicine.

## 6 CASE STUDY 3: THE UNIVERSITY OF BOTSWANA FACULTY OF MEDICINE



### 6.1 Introduction to chapter:

*The country had a vision to go this route. This is still an ongoing project and it's an expensive project, but it's very important that as a nation, we must have this vision and commitment to invest. ... It's easy to say we can bring more doctors [trained in other countries], but it's very important to see we need to also localise our own training and invest in it. (UBFoM-07)*

In this chapter, I present a third case study – the University of Botswana Faculty of Medicine (UBFoM). First, is a broad overview of UBFoM. Then, using the Eight C's Framework (8CF) I explain how UBFoM was established outlining its Context; the Catalysts; the activities of Conducting, Convincing, Collecting, and Connecting; its Challenges; and its Consequences. I conclude with a summary of the case study, including its strengths and limitations.

### 6.2 UBFoM overview:

UBFoM is the inaugural medical school for the country of Botswana, situated with the University of Botswana (UB) in the country's capital, Gaborone. It began with 36 students in August 2009 as the 'School of Medicine' within the Faculty of Health Sciences and was later upgraded to its own 'Faculty' in 2014.

**Figure 6-1: University of Botswana entrance, Gaborone, Botswana**

Image removed for copyright reasons. Original available from <https://www.santheafrica.org/about/partners/african-collaborating-partner-sites/university-botswana>

UBFoM offers a medical course for high-school leavers to obtain a Bachelor of Medicine Bachelor of Surgery (MBBS). It also offers ten post-graduate specialty training programs to obtain a Master of Medicine (MMED) in Family Medicine, Paediatrics, Internal Medicine, Anaesthesia, Anatomical Pathology, Obstetrics & Gynaecology, Psychiatry, Surgery, Public Health, or Emergency Medicine. In this case study, I focus on the establishment of the MBBS program, but also explore some pertinent issues related to the MMED programs.

UBFoM's MBBS degree is a five-year under-graduate program using an integrated, body-systems-based approach with an emphasis on problem-based learning (PBL), spiral curriculum, and community orientation. The course is grouped into two phases with Years 1 and 2 sharing a similar structure of systems-based blocks, and Years 3 to 5 having a structure of 8-week clinical rotations. UBFoM currently admits 65 students each year into the MBBS program – all of whom are Batswana (citizens of Botswana, plural form, singular is 'Motswana') (Encyclopædia Britannica, 2021a; *Motswana*, 2021). The MMED programs each admit 4 trainees or “residents” per annum.

UBFoM has graduated 371 doctors between their first graduating cohort in 2014 and 2021. Their medical education is paid for by the Botswana government (specifically the Ministry of Education), and it includes a return-of-service agreement to work in Botswana's public health system (employed by the Ministry of Health). During their return of service, some graduates enter the MMED programs noted above, while others choose to pursue further training abroad, after completing their time. Through the MMED programs, UBFoM has graduated 20 family physicians, 18 internal medicine specialists, 12 public health physicians, 25 paediatricians, 5 emergency physicians and 1 anatomical pathologist, while the other programs are yet to graduate their first cohorts.

The next section details how UBFoM was established using 8CF to structure the description of its Context; the Catalysts; the activities of Conducting, Collecting, Convincing, and Connecting; its Challenges; and its Consequences.

## **6.3 Establishing UBFoM:**

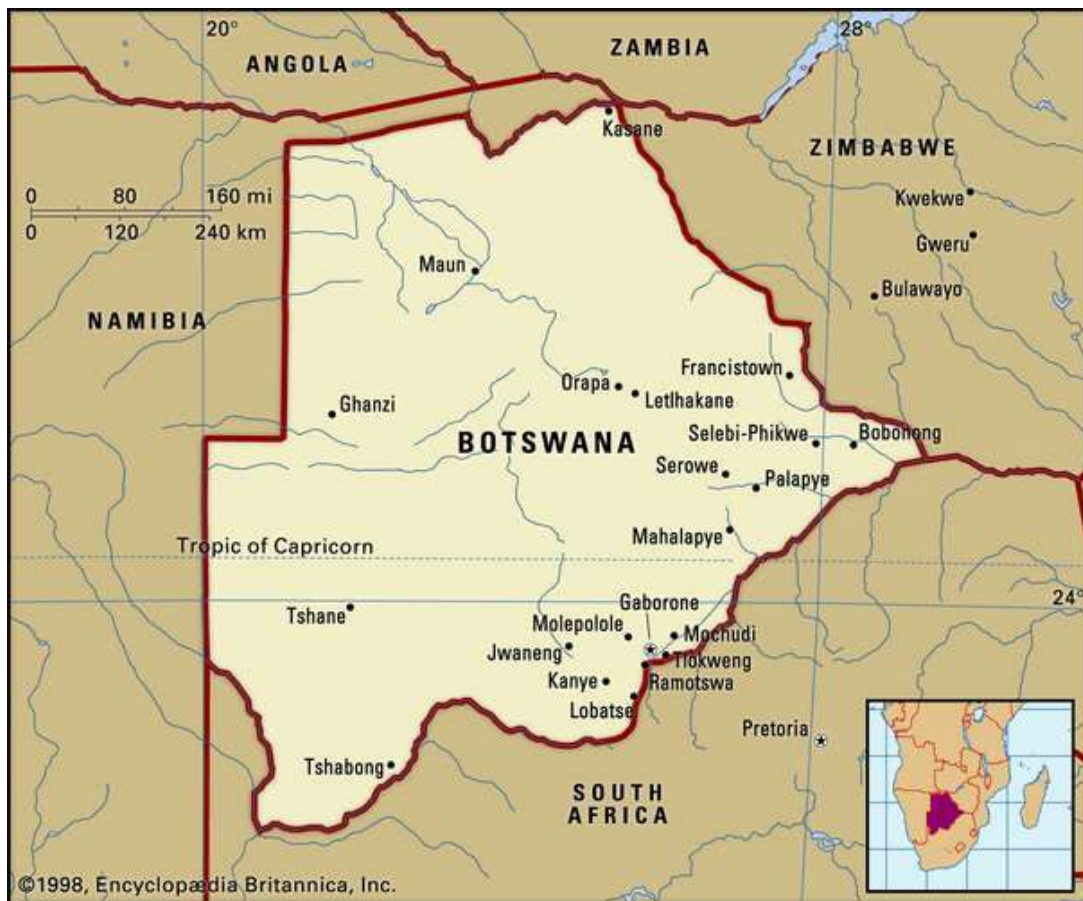
### **6.3.1 Context:**

*Botswana ... has a pretty good reputation from a point of view of stability and lack of corruption, etcetera. (UBFoM-09)*

Context refers to the unique social, political, economic, geographic, educational, and cultural environment or 'field conditions', within which the new medical school needs to be successfully established (see 'Utilising theory' section 3.4.2.3.1). In this section, I outline the situation prior to UBFoM's establishment and highlight the contextual barriers.

Botswana is a land-locked southern African nation with a population of ~2.4 million and a land mass of ~582,000 square kilometres (Encyclopædia Britannica, 2021a; World Population Review, 2021a; Worldometer, 2021b). It is bordered by Zimbabwe, South Africa, Namibia, and Zambia (Encyclopædia Britannica, 2021a; World Population Review, 2021a) (see Figure 6-2 below). Botswana's total population density is sparse with only 4 people per square kilometre, however, most people (~72%) are urban city dwellers (Encyclopædia Britannica, 2021a; Worldometer, 2021b). Gaborone is the capital with a population of ~208,000 (9%) (World Population Review, 2021a; Worldometer, 2021b). Francistown is the only other official city but there are large urban towns like Lobatse, Jwaneng, and Orapa; and large urban villages like Molepolole, Serowe, and Ramotswa.

Figure 6-2: Botswana Map



(Used with permission from Encyclopædia Britannica)

Botswana became an independent republic and Commonwealth member in 1966 after having been a British protectorate since 1885 (Embassy of the Republic of Botswana, 2021; Encyclopædia Britannica, 2021a). Its official languages are English and Setswana and its currency is the Botswana Pula (BWP) (Encyclopædia Britannica, 2021a; World Population Review, 2021a). Botswana's economy is primarily based on diamond mining, cattle export, and tourism. The country experienced a major economic boom in the 1980s with the gross domestic product per capita increasing more than a hundredfold (Encyclopædia Britannica, 2021a). Infrastructure improved and they rapidly developed into a middle-income country by the 1990s:

*When we got independence in 1966, we were one of the poorest countries in Africa, and in fact, the British were blamed for throwing us to the dogs, that we weren't going to survive. But when minerals especially diamonds were discovered at the close of the '60s, early '70s, Botswana became an economic miracle. ... Everybody was putting up buildings, all sorts of things, infrastructure. ... We're still one of the better performing countries in Africa, but we're no longer in a boom. (UBFoM-17)*

Most Botswana are indigenous Tswana people (79%) with other ethnicities including Kalanga and other Bantu groups (10%); indigenous San; white Africans; and Indian-Africans (World Population Review, 2021a). There are also many migrants from other African countries such as Zimbabwe, Congo, and Kenya, who are drawn by the relative economic, political, and social stability and advantage of Botswana (Embassy of the Republic of Botswana, 2021; Encyclopædia Britannica, 2021a; World Population Review, 2021a):

*Botswana as a country is relatively well-off compared to many of our neighbours. So, the living conditions, the living standards, the salaries, and even the health system is slightly better. And so, I think that is a major attraction to many people from the region. (UBFoM-01)*



Botswana has a relatively young population with a median age of ~24; a life expectancy of ~63; 1/3<sup>rd</sup> under the age of 15 years; and another 1/3<sup>rd</sup> aged between 15 and 29 (Encyclopædia Britannica, 2021a; World Population Review, 2021a). It has the world's third highest HIV/AIDS prevalence with ~25% of the population affected (Encyclopædia Britannica, 2021a; World Population Review, 2021a). Botswana was the first African country to provide free HIV antiretroviral medication to all citizens (since 2002) (Encyclopædia Britannica, 2021a, 2021b). Due to environmental desert conditions with a paucity of surface water, there is limited incidence of tropical diseases such as malaria, schistosomiasis, and trypanosomiasis (sleeping sickness) (Encyclopædia Britannica, 2021a).

Botswana has an extensive hierarchical network of free government health services with progressively increasing capabilities:

- Mobile clinics staffed by nurses, periodically going into the desert to serve small communities of ~20 people
- Health posts staffed by a single nurse in small villages of ~500 people
- Primary care clinics with or without maternity wings in larger villages
- 22 Primary hospitals with ~50 beds staffed by non-specialist medical doctors in small towns/large villages
- 7 tertiary district hospitals with ~400 beds staffed by specialists such as paediatricians, surgeons, gynaecologists, and anaesthetists in larger towns such as Lobatse (~75km from Gaborone), Mahalapye (~200km from Gaborone), and Maun (~850km from Gaborone)
- 3 tertiary referral hospitals: Princess Marina Hospital in Gaborone, Nyangabwe Hospital in Francistown (~430km from Gaborone), and Sbrana Psychiatric Hospital in Lobatse (next to the separate district hospital)

In addition, there are a few scattered private clinics in Gaborone and several private hospitals around the country (e.g., Gaborone Private Hospital, Seventh Day Adventist Hospital in Kanye, Bokamoso Hospital near Molepolole, Riverside Hospital in Francistown, and Jwaneng Mine Hospital). Private services are accessed by about one-third of the populace.

Prior to UBFoM's establishment, Botswana's medical workforce primarily consisted of expatriate doctors imported from other African countries such as Zambia, Uganda, and Kenya, but also other international locations such as Europe and Asia. The numbers of Botswana doctors working in Botswana were very low – ranging from 28 (14%) in 1988 to 47 (12%) in 1997 (University of Botswana Working Group on the Establishment of a Medical School, 1999). From independence in the 1960s through to the 1990s, Botswana sent 2 – 3 Botswana each year to go abroad to obtain their basic medical and advanced specialty training. Main destinations were African ex-Commonwealth countries such as Zambia, Kenya, Tanzania, Nigeria, and Ghana, however, as African economies broke down in the 1980s, more international locations such as Ireland, Norway, Scotland, USA, Canada, and Australia were also chosen. Regardless, the numbers of Botswana being trained as doctors were very low and only a few returned to work in Botswana:

*Actually, somebody called the 1985 to 1995, ... the Lost Decade because that was when very few people got trained to become doctors in Botswana. (UBFoM-04)*

The relative length of medical training and lack of career opportunities contributed to this Lost Decade:

*And at that time, very few of our students wanted to do medicine. ... So, people preferred short courses. If you went and did a three- or four-year degree, you came back sure of a job and ... a lot of them were saying, "Oh, seven years, and then I come and get an ordinary civil service salary. It's not worth it". (UBFoM-17)*

At this time in Botswana's history, the population was considered too small to justify the large expense of establishing their own medical school:

*Because you can imagine, this was a poor little country. It was just starting to develop, and people thought ... two things. One was population, that the population was too small; and second was money, there was no money to run a medical school. In our population that time ... '71, it was 570,000; ... 1991, 1.3 million ... So, the time we're talking about, which was late '80s, it was probably just crossing into one million. (UBFoM-17)*

Thus, in the '80s and '90s, the main contextual barriers faced by a new medical school in Botswana included:

- Very low numbers of Botswana doctors within the local health system to drive and assist the venture
- A perception that the country's population was too small to justify the large expense

Despite these barriers, there were also several contextual enablers that subsequently facilitated the establishment of Botswana's inaugural medical school, which will be discussed in section 6.3.3 'Conducting' below. In the next section, I highlight the major players or Catalysts whose actions ensured the eventual establishment of UBFoM in this Context.

### **6.3.2 Catalysts:**

*The founding staff, the teaching staff obviously were very competent people. They were all very committed – the Botswana particularly, I think all of them. ... they were all determined to make a success of it, despite some of the challenges that they faced in the system. (UBFoM-18)*

Catalysts are the 'institutional entrepreneurs' or the founding leaders, comprising academic, clinical, political, and community stakeholders who were instrumental in establishing the new medical school (see 'Utilising theory' section 3.4.2.3.2). In my research, I have further classified key players as 'Champions' and ancillary players as 'Colleagues'. In this section, I outline the key stakeholders in UBFoM's establishment and highlight government officials as particularly pivotal.

The Catalysts who helped establish UBFoM include a variety of local and international individuals, groups, and organisations, including government officials, academics, clinicians, educational bodies, health services, and aid organisations. International aid initiatives and members of the international medical education community had key involvements. The commitment and conviction of these Catalysts is highlighted by this participant:

*There were people who, I think, would have voluntarily stepped under a bus to make sure that this happened. (UBFoM-03)*

Details of the roles played by the Champions (see Table 6-1) and their Colleagues (see Table 6-2) in UBFoM's establishment will unfold in the sections to follow.

**Table 6-1: UBFoM's Champions**

#### Individuals

- Director of Health Services/Deputy Permanent Secretary of Health who later became the Permanent Secretary of Health
- The particular UB academic involved with all three of the 1989 Governmental Taskforce, the 1995 Feasibility Study, and the UB Working Group
- Former Permanent Secretary of Health, Dr. Sebina
- President Festus Mogae
- Early staff members of UBFoM including the Interim Founding Dean
- Undergraduate Dean from Hull York Medical School
- Involved local doctors and public health physicians (Botswana and foreign nationals) in both public and private sectors

#### Organisations and Governmental Ministries

- Ministry of Health
- Ministry of Education
- Ministry of Local Government and Lands (in charge of primary health care facilities)
- University of Botswana

#### Committees

- The 1989 Governmental Taskforce
- The 1995 Feasibility Study (also known as the 'Sebina Commission')
- The High Ranking Committee
- The UB Working Group (later rebranded as The Founding Dean's Planning Team)

**Table 6-2: UBFoM's Colleagues**

### Individuals

- Newly appointed staff of UBFoM including those employed later to institute various MMED programs
- Some Vice Chancellors of the University of Botswana
- Supportive members of the Ministries of Health and Education
- Involved clinicians at the hospitals and community clinics
- Local people of Botswana who influenced the government's 'Vision 2016' team
- Former President Quett Ketumile Masire

### Organisations & Ministries

- Baylor College of Medicine, Texas, USA
- Hull York Medical School, UK
- 6 medical schools in South Africa and Australia who partnered with UB for the Pre-Med Program (University of Cape Town, University of Kwazunatal, Orange Free State University, University of Pretoria, Univeristy of Melbourne, and Monash University)
- Other medical schools in Zambia, Kenya, Tanzania, Nigeria, Ghana, South Africa, Australia, Ireland, Norway, Scotland, Canada, USA, Czech Republic, and the Caribbean that also hosted Batswana medical students over the decades
- Botswana-University of Pennsylvania Partnership (BUP)
- Harvard-Botswana Partnership
- Botswana Centre for Disease Control
- Botswana Health Professions Council (BHPC)
- 3 Referral Hospitals: Princess Marina (Gaborone), Nyangabwe (Francistown), Sbrana Psychiatric (Lobatse)
- 2 District Hospitals: Maun, Mahalapye
- 2 Private Mine Hospitals: Jwaneng, Orapa
- Health Resources and Services Administration (HRSA) in the USA
- Consortium of South African Medical Schools (CONSAMS)
- 5 African medical schools visited by the 1989 Taskforce
- Other African medical schools visited by a later team from the UB Working Group
- Medical schools represented by the Feasability Study team such as Moi University (Kenya), Aga Khan University (Pakistan), Tromso University (Norway), and Keele University (England), UK
- World Health Organisation (WHO)

### **6.3.2.1 Government officers were pivotal to success:**

In UBFoM's story of establishment, several government officers such as Ministers of Health, the President of the country, and the Ministry of Education were fundamental to success. Their roles were particularly important to obtain the green-light for UBFoM's establishment, as elucidated in the next section on 'Conducing'.

### **6.3.3 Conducing:**

Conducing circumstances, events, and actions help make the contextual milieu more favourable for a new venture (see 'Utilising theory' section 3.4.2.3.3). In my research, I used 'Conducing' to focus on how the initial authoritative 'go ahead' can be obtained. Human agents or Catalysts can be both passively and actively involved in this stage of establishment, and in UBFoM's story I identified five major actions undertaken by various Catalysts – either deliberately or incidentally – that helped:

1. Lobbying from within the government
2. Engaging taskforces and experts to support feasibility
3. Harnessing people-power and professional-power for political influence
4. Mandating establishment from the highest authorities
5. Making a strong financial case to officials who controlled funding

These Conducing activities favourably influenced Botswana's government to commit to the major internal investment of an inaugural medical school, rather than continuing to train Botswana doctors abroad.

### **6.3.3.1 Lobbying from within the government:**

The idea of Botswana's own medical school was first raised in 1988 in an official document within the Ministry of Health (MoH) by the then Deputy Permanent Secretary (i.e., second-in-charge in the MoH) – a Motswana doctor trained in Zambia. He identified that Botswana's previous approach of sponsoring 2 – 3 Batswana per annum to study medicine abroad, in the hope that they would later return to provide Botswana's medical workforce, was insufficient. At that time only 14% of Botswana's medical workforce were local citizens (Matlhagela et al., 2018) and the rest were imported doctors from other countries or "expatriates". This placed the health system on uncertain footing:

*What is going to happen if Botswana stops being attractive to expatriates? ... With such a large percentage of doctors being expatriates, ... I think 90 percent, if they decided to go back to their countries, what will we do? (Participant number withheld for added anonymity)*

Despite this early recognition within the MoH, of the unsustainability of this model and its detriment to the growth of the health system, the idea was not supported by the Ministry of Finance (MoF). The balance of power in this debate lay with the "holders of the purse-strings", who won the argument against its cost-effectiveness, for a prolonged period of time:

*For the longest time, government was not convinced that it would be cost-effective to have a medical school. I think the Minister of Health for many years had been saying, you really can't sustain training people outside the country. And also, each country trains for its health system. So, if you want Botswana's health system to grow, you have to train people for Botswana's health system. ... But then the Ministry of Finance, on the other hand, was saying, "It's going to be a costly exercise, we can't afford it and we can't sustain it". And so, in the end, I think the Ministry of Finance won. (UBFoM-01)*

*People were very cynical ... especially the people who hold the purse-strings ... I think the Ministry of Health and the University – and I'm not sure about the Ministry of Education – were quite keen, but the rest of government, especially Ministry of Finance was not. (UBFoM-03)*

In the ensuing years, lobbying within government circles continued. The above-mentioned Motswana doctor became the Permanent Secretary of Health (i.e., first-in-charge within the MoH) and was able to wield more power and influence than before. A Government Taskforce (1989) and a Feasibility Study (1995) were commissioned (detailed in the next 'Concluding' section 6.3.3.2), and both affirmed the need for the country's own medical school:

*So, the finance people were really saying, "No, no, no. This is just too much of an undertaking". But these Feasibility Study guys said, "No. The opportunity cost of sending your students out and training them in an alien environment as opposed to being trained right here at home far offsets this sort of crude cost-benefit analysis".*  
(UBFoM-03)

How these taskforces and feasibility commissions further conducted Botswana's milieu is explored next.

### **6.3.3.2 Engaging taskforces and experts to support feasibility:**

In the late 1980's, the MoH convened a Government Taskforce consisting of senior personnel from the Ministries of Health and Education (Deputy Permanent Secretaries) and a senior science academic from UB. They examined the problem and visited medical schools in other African countries such as Tanzania, Kenya, Zambia, and Zimbabwe. Their 1989 report outlined three different options for Botswana to increase its Botswana medical workforce:

*One option was continue training externally. The second option was to arrange a link of the University of Botswana with another external medical school and train that way or [third,] establish a fully-fledged medical school. They said Botswana needs to look at these three options, and then look at the pros and cons. (UBFoM-01)*



In the mid 1990's, the government commissioned a Feasibility Study by an international team of leading medical educators and economists from medical schools in Kenya, Norway, Pakistan, and England. The team was chaired by a former Permanent Secretary of Health, Dr. Sebina (a Motswana doctor trained in Ireland) and was, thus, also called the "Sebina Commission" by some. Their 1995 report categorically recommended that Botswana should proceed with establishing its own medical school (Sebina et al., 1995):

*The feasibility study ... said, "it's not only feasible, it's also advisable and we strongly recommend you do it". (UBFoM-03)*

Furthermore, their report strongly recommended several medical education pedagogies that were cutting-edge for the time – such as body-systems-based integrated curricula, problem-based learning (PBL), community orientation, and the development of teaching health systems.

The reports from these taskforces and commissions were essential to eventual governmental approval for a new medical school. They provided the required research evidence and business case, supporting the feasibility and desirability of such an ambitious venture, against the monetary concerns of the MoF. Nonetheless, still more influence was required to tilt the political will towards a new medical school and two avenues of power are discussed next.

### **6.3.3.3 Harnessing people-power and professional-power for political influence:**

*We needed it. I think it was desperately needed. I think most people in the country felt so. (UBFoM-16)*

Circa 1996, the then President (Quett Ketumile Masire), initiated an information-gathering project called 'Vision 2016', to consult the general populace about future national strategic directions. The project was not specifically about the possibility of a local medical school, yet many community members – including in small rural villages – asked about it:

*People went around gathering information and as they went around the country ... they kept getting asked, "Where is this medical school? Where is our medical school? When are we going to be training our children?" (UBFoM-03)*

Although there is no clear data on the specific discussions within government circles at the time, interviewees surmised that these questions from Botswana's citizens may have been influential, since it was not long after, in 1998, that the government announced that Botswana would establish its own medical school (detailed in the next 'Conducting' section 6.3.3.4):

*The authorities must have realised, "We can't afford to keep this thing on the backburner or on ice". (UBFoM-03)*

*I think they just got too much under pressure. They just rethought the whole thing and decided to go ahead with it. (UBFoM-17)*

Thus, people power played an important role in Conducting for UBFoM.

Additionally, several doctors within the health system continued to advise the government of the importance of establishing their own medical school. Government officials respected the training of these professional citizens and paid them attention:

*There is still that respect for people who have been trained in medicine. And if you keep hearing from your medical people as they rise within the civil service and elsewhere that, "No, we've got to have this day, it is important", people will pay attention to that. (UBFoM-03)*

Thus, doctors were another powerful lobby group, influencing the opinions of politicians and other people. These different avenues of political power helped to conduce the milieu for the highest authority in the land to mandate a new medical school for the country, as discussed next.

#### **6.3.3.4 Mandating establishment from the highest authorities:**

In 1998, within a few months of assuming his Presidency, Botswana's new President (Festus Mogae), announced the landmark decision that Botswana would establish its own medical school. The Presidential Directive further dictated that this should be done in a staged way, by first forming partnerships with established medical schools abroad to train much larger numbers of Botswana doctors than previously (Stage One), while simultaneously working towards eventually localising the whole training (Stage Two) staffed by the Stage One doctors.

Implementation of the Directive was operationalised by a High Ranking Committee (HRC) and a UB Working Group each consisting of several government officers, UB academics, health service leaders, and eminent clinicians. At the turn of the millennium, to implement Stage One, Botswana introduced a preparatory 'Pre-med Program' at UB and increased the number of students sent abroad to study medicine to around 80 – 100 per year, by partnering with medical schools in South Africa, Australia, USA, the Caribbean, and the Czech Republic.

However, Stage One of the Presidential Directive, though successfully implemented, did not facilitate Stage Two as well as hoped: most graduates never returned to provide for Botswana's health and medical education workforce as originally intended (detailed in 'Challenges' section 6.4.1 below). A newspaper article reveals that a start date for the new medical school was still unknown by 2004 (Dithato, 2004). Nonetheless, the fact that it was ordered by the President himself, ensured that Stage Two would ultimately be implemented despite the early setbacks:

*And once President Mogae ... issued that Presidential Directive, it was now clear that there is a commitment, that this must happen. (UBFoM-03)*

As the country's highest authority, the President wielded significant legitimate and legislative power. His mandate cemented the political and operational pathways to the eventual full realisation of the vision.

### **6.3.3.5 Making a strong financial case to officials who controlled funding:**

Within the government, it was the Ministry of Finance that needed particular persuasion. If everyone sent abroad to study medicine had returned – such as, from the Presidential mandate’s Stage One – it may have been economically better to provide Botswana’s medical workforce that way. However, given the huge rates of non-returnees, it turned out to be the costlier option, since the government was essentially paying to train doctors for other countries’ health systems instead of their own:

*So, basically, we ended up training for other countries, so it was not economically viable. ... the numbers of doctors in the country were very small. It was thought that it contributed to the poor health indicators in the country. ... They knew that it was still going to be expensive even with having our own medical school, but ... it became more expensive because, basically, the government was pouring money into this product and the products will just stay where they trained and then the government does not get a return from its investment. (UBFoM-04)*

It is estimated that Botswana spent more than US\$500 million in sponsoring Botswana to study medicine abroad (Badlangana et al., 2016). The tipping point for the government was when workforce, educational, and international benefits were recognised as outweighing the financial costs:

*At least, if we train somebody in a particular environment, they would want to work there. So, if we train our own people here, they’ll stay. And what we’re also envisaging was that countries around Botswana would also be bringing their [students] – that’s one of the arguments that was advanced to start it. (UBFoM-04)*

Thus, both the President and the Ministry of Finance began to support the idea of a local medical school for the country. With these governmental approvals in place, the Catalysts were able to proceed with all the tasks required to establish the new medical school. In the next few sections, I outline how they progressed with Collecting, Convincing, and Connecting to successfully establish their new medical school.

### **6.3.4 Collecting:**

Founding leaders of new medical schools need to collect all the needed economic, human, physical, material, intellectual, educational, and technological resources (see 'Utilising theory' section 3.4.2.3.4). This section details how the Catalysts of UBFoM collected their required funds; staff; curriculum; clinical training sites; facilities (which includes physical spaces, educational equipment, research laboratories, library facilities, and technological resources); and students. The challenges encountered with each will be briefly noted in this section but will be discussed more fully in section 6.4 'Challenges' later.

#### **6.3.4.1 Funds:**

UBFoM is funded entirely by the Botswana government – specifically from the Ministry of Education (in consultation with the Ministries of Health and Finance), to the University of Botswana. Exact figures required for start-up and on-going costs could not be obtained from any of the data sources for this case study, other than that it ran into “*billions of pula*” (UBFoM-07). However, the 1995 Feasibility Study estimated start-up capital of ~ BWP 40 – 45 million and on-going costs of BWP 14 – 27 million (Sebina et al., 1995). In 2018, tuition costs were noted to be ~ BWP 37,500 per year per medical student (Matlhagela et al., 2018). Significantly, this was compared to the ~ BWP 1,000,000 per year per medical student that it had previously cost the Botswana government to send people abroad for medical training (Matlhagela et al., 2018).

Additional funds for specific projects were also obtained through various international grants. The United States' Centre for Disease Control provided US\$300,000 specifically for information technology infrastructure (Nkomazana et al., 2018). Medical Education Partnerships International (MEPI) grants were another aid initiative from the USA government, given to thirteen African medical schools specifically to build their human resources. It was a one-time grant of US\$10 million each, spread over five years, used by UBFoM to provide infrastructure at its distributed clinical training sites (see section 6.3.4.5 'Facilities' below) and for some staff recruitment and development (see section 6.3.4.2 'Staff' below).

The large MEPI grant gave UBFoM staff some agility, particularly to implement a distributed learning model and work around unfavourable leadership, that they could not have managed with UB funds alone:

*Providing infrastructure for decentralised learning, none ... would've happened without the MEPI grant. It was not just having that amount of money ... but just having money ... in general as a way of being able to do activities that the universities would not have done on their own. (UBFoM-05)*

*It was very fortunate, because we had it at the time that we were not in favour [with UB leadership] so we could do some things without having to beg a lot. (UBFoM-01)*

However, it also caused some inequities amongst staff within UBFoM, since staff involved with MEPI-funded aspects of the new medical school were able to benefit in ways that other staff could not:

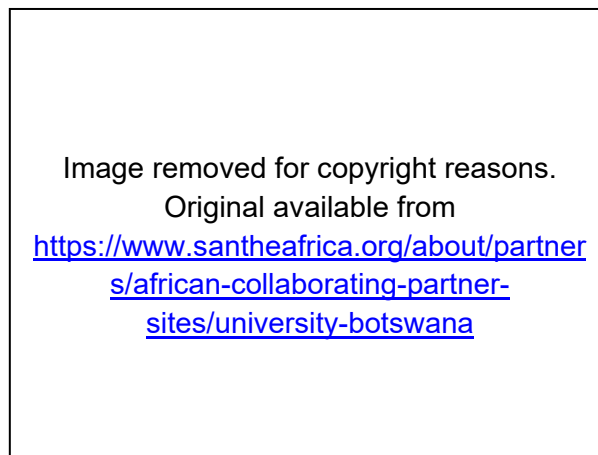
*So, there was this ambiguity of, "Is MEPI the floor of the school or the side of the school?". The people who were involved in MEPI were very much benefiting from MEPI and who were not were sometimes jaded about MEPI, that if you're not part of MEPI, you're not part of the real discussions and the real decisions. MEPI people were going to conferences here and there, and the others were not. So, I think there were also these unattended consequences. (UBFoM-05)*

Thus, the funding strategy of a new medical school could be limiting and/or liberating in various ways. Recognising this from the outset could mitigate some of the unintended consequences.

As a final comment on financial matters, in Botswana's pre-UBFoM history in the late '70s/early '80s, an illustrative story is told how the people of Botswana gave direct donations of cattle to build the original university (see Figure 6-3), since cattle were traditionally an important form of wealth:

*Botswana are traditionally farmers, so almost everyone would have some relationship [to] cattle, from family wealth, family inheritance. Most people would keep cattle. It's our tradition and our source of income. And people didn't have banks, but they [had] cattle. ... So, they were talking about starting up a higher education institution [in the '70s/'80s] and they needed funding and people were contributing. If you go to the library here, there's a monument [of] ... a man driving cattle [as] his contribution to the university. (UBFoM-15)*

**Figure 6-3: Monument of Cattle Donations to Build UB**



#### **6.3.4.2 Staff:**

Almost all UBFoM staff appointments were new to the university – only one was redeployed from the existing Science faculty for a year. Recruiting and retaining staff was a significant challenge that will be more fully explored in 'Challenges' section 6.4.2 below. Normal advertisement and recruitment channels did not initially yield a suitable Founding Dean, so collegiate links with the Baylor College of Medicine in Texas (Baylor), who were running HIV/AIDS projects in Botswana, were utilised to appoint a retired Professor Emeritus from Texas, as UBFoM's Interim Founding Dean in 2006.

UBFoM used a wide recruitment strategy to appoint Batswana and foreign nationals with medical or science backgrounds as staff. Between 2008 and 2013, between 2 and 23 new staff were appointed per annum; ~25% of whom were Batswana (Kebaetse et al., 2016). People at different stages of their careers were appointed from countries such as Australia, the UK, the US, Ethiopia, Tanzania, Uganda, Kenya, and Zimbabwe. MEPI money was used to fractionally employ people who were already in Botswana for other projects:

*And then we advertised and then we got people from everywhere. Not necessarily always in all the places we wanted to have people, because getting people was always a challenge. ... We actually did have a few [senior specialists] from everywhere – from Melbourne, from UK, from US ... And then we had younger people who'd just come out of residency training and just wanted to try something [new] – from the US, I think, mainly. And then we had people from other African countries. A lot of people from other African countries ... We actually used MEPI money to bring in teachers where we couldn't recruit ... [University of Pennsylvania] had lots of people on the ground providing HIV care, so we bought a tiny fraction of their time so that they could provide bed-side teaching. (UBFoM-01)*

Staff from non-African countries were initially high at ~50%, with staff from other African countries being ~25% (Kebaetse et al., 2016). However, after a major staff exodus circa 2011 (see 'Challenges' section 6.4.2 below), these country-of-origin figures were reversed with staff from non-African countries dropping to < 25% and non-Batswana, African staff rising to ~50% (Kebaetse et al., 2016).

UBFoM also tried enticing Batswana doctors living abroad to return:

*As part of the founding, we also went around to try and find where ... there was high concentration of Batswana doctors, just to find out where were they, what were they doing, what would make them want to come home. (UBFoM-01)*

Some Batswana doctors did return through this recruitment drive, but exact numbers could not be obtained. Of particular note, are the ones who returned for specialty training through the new MMED post-graduate programs – a career opportunity that had not been previously available within Botswana (see 'Consequences' section 6.5.3 below). However, one qualitative study identified that the primary reasons for Batswana health workers trained abroad returning to Botswana, were social rather than being attracted by improvements to the health system (Motlhatlhedi & Nkomazana, 2018).



Providing new staff with teaching skills and academic development – especially clinical staff – is an important consideration for all medical schools. Most UBFoM staff had no prior medical education expertise to guide them as they set things up, resulting in both teachers and learners having a sense of being “guinea-pigs”:

*There was no syllabus, no lessons that were prepared. There was no professor. [My colleague] was a novice lecturer. I was a novice lecturer. So, we were just feeling our way through. We were guinea-pig lecturers and our residents were guinea pigs ... we were just working day-to-day – yeah, setting up teaching materials, setting up the program, thinking through what needs to come, to be taught, when, and how, and so on. (UBFoM-11)*

MEPI money was used to provide staff development and training in new pedagogies like PBL. Eventually, UBFoM set up a Department of Medical Education which provided a more streamlined approach to faculty development. For example, all MMED residents undertake a module on medical education as part of their advanced training and UBFoM staff are encouraged to undertake an 18-month Fellowship in Medical Education through the Sub-Saharan Africa-FAIMER Regional Institute (SAFRI).

#### **6.3.4.3 Curriculum:**

The first curriculum for the new medical school approved by UB’s academic senate, was developed by the Interim Founding Dean, and, thus, resembled Baylor’s curriculum with a traditional lecture-based format and demarcated pre-clinical/clinical years. UBFoM staff recognised this did not align with their desired pedagogies of an integrated spiral curriculum, problem-based learning (PBL), community-orientation, and early clinical exposure, as originally advocated by the 1995 Feasibility Study, so the staff lobbied to change it. The Interim Founding Dean acknowledged his lack of expertise with these specific pedagogies and sanctioned UBFoM staff to re-write his original curriculum. Despite the time pressure, the staff were determined not to take short-cuts to implement their desired curriculum:

*So that was the starting point – trying to convince everybody who was around that “Guys, we cannot work with this [originally approved curriculum]. We need to quickly put together a curriculum that is PBL-based. ... Let’s try and really do a PBL program and not do shortcuts ... or pretend to be doing PBL which is not PBL”. (UBFoM-02)*

In late 2008, the Undergraduate Dean of the Hull York Medical School in the UK (established in 2003) (Hull York Medical School, n.d.), was in Botswana, visiting his friend, a senior member of the UB Working Group. The Hull York curriculum aligned with all the pedagogies that UBFoM aspired to. Wanting to help his friend, the UK academic obtained permission from Hull York to generously share their entire curriculum with UBFoM for free. Hull York did not see their curriculum as a commodity to be sold:

*That was a few years ago before education had become commodified in the way it is at the moment. (Participant number withheld for added anonymity)*

In the spirit of true academic sharing, Hull York allowed unrestricted modifications with just simple acknowledgement of their original authorship. Funded by MEPI money, the Hull York academic provided a further 3 months of his time to assist UBFoM's establishment efforts.

Without this collegial partnership, UBFoM may not have constructed its desired curriculum in a timely way. Commencing in January 2009, the small team of UBFoM staff worked to adapt the Hull York curriculum for Botswana in preparation for their August 2009 start date. They were usually only a few modules ahead of the students in their preparations, and it took three years to complete the entire adaptation that was more appropriate for the Botswana context with its relatively young median age:

*So, we had this curriculum, but obviously it was the right philosophy and ethos and everything, but it was for the UK population. ... it looked at a predominantly aging population and yet we have a very, very young population. ... And even the things that people were presenting with how they were presenting obviously, their context, their culture ... so we had to rewrite all the problems, all the cases. (UBFoM-01)*

UBFoM's curriculum for the MBBS program consisted of five years, split into Phase One (Years 1 and 2, over 18 months or 3 semesters) and Phase Two (Years 3, 4, and 5). Phase One consisted of a series of blocks based on body-systems and used PBL to learn the basic biomedical and clinical sciences. Students learned clinical and communication skills in laboratories using models. To provide early clinical exposure to patients, they were each also attached to one of the community primary care clinics in Gaborone which they attended once per week. In these clinics, they worked with the staff (usually nurses, but sometimes doctors as well) to see patients, dispense medications, and practice their clinical and communication skills. In Phase Two, students completed a series of 8-week rotations in all the core clinical specialties while continuing with PBL cases in each one. As part of their spiral curriculum, Medicine and Surgery rotations were in each of Year 3, 4, and 5; Paediatrics and Family Medicine rotations were in Year 3 and again in Year 5; and Psychiatry, Public Health, and electives were only in Year 4. Assessments included end-of-block examinations, objective structured clinical exams (OSCE), community improvement projects, clinical placement assessments, and logbook assessments.

#### **6.3.4.4 Clinical training sites:**

*As we provide the training, [we] also provide service ... If [the health facility] gets the benefit of having a medical school presence, then the service improves in that locality. (UBFoM-15)*

One of UBFoM's goals was to create a "teaching health system" in Botswana. This was about utilising all the different levels of health facilities as learning sites for the students and not just confining medical education to the larger tertiary teaching hospitals:

*And one thing ... which was revolutionary but never quite grasped by a lot of people, was this idea of a teaching health system ... Look, in the conventional pre-clinical/clinical system of undergraduate medical education, we normally see the teaching hospital as the be-all and end-all of everything. But they were saying, "No, we want the clinics, the health posts, the district hospitals to be, if you like, almost the core of your teaching set-up". And you have that as a teaching health system and then you can have your apex tertiary or quaternary level hospital. (UBFoM-03)*

This approach to clinical training was encouraged as early as the 1995 Feasibility Study report, since many of those international consultants had seen the success of distributed, community-based medical education in their own rural contexts (Sebina et al., 1995).

Clinical training sites were recruited from the tiered network of public hospitals and clinics (see list in section 6.3.1 'Context' above), with many of them being natural choices based on their capacities and capabilities. Clinical experience for Phase One students was at weekly attachments in primary care clinics in Gaborone. These clinics were noted to provide rich experiences of multi-disciplinary teamwork, since some of the clinics were led by nurses and not doctors:

*And so, they learn to work. Because a lot of the clinics are run by nurses, although there are doctors, but there's not always a doctor ... they learn to work with people who are not doctors which, I think, actually, is very, very important. They learn to work in places where nurses are in charge, and so they learn to take instruction and they learn to be humble and be part of a team. (UBFoM-01)*

The three tertiary referral hospitals (see section 6.3.1 'Context' above) are the primary sites for most of the Phase Two clinical rotations. From the private sector, two diamond company hospitals provide occupational medicine experiences. Family Medicine rotations are located at either the Maun or Mahalapye district hospitals. Maun and Mahalapye were chosen to host UBFoM's Family Medicine teaching (for both MBBS students and MMED residents) in a bid to be more distributed and community-oriented. Thus, all the Family Medicine staff are located in these two sites, with only a few head-quartered in Gaborone.

Engaging these varied health service sites as clinical training sites for UBFoM involved new and unique considerations that Botswana's health system had never before encountered. Most of Botswana's health facilities had never needed to consider teaching as one of their core activities. Questions regarding clinical education, accreditation, and student support had to be addressed:

*How does the medical school relate to the hospitals throughout the country? ... what kind of assistance are [students] going to need? What kind of ... experiences [do] they have to go through and what are they expected to do? ... And it meant also assessing, relooking at the hospitals, and seeing which ones can be able to link with the medical school and provide the necessary practice. ... we have to look beyond what we have in Gaborone, but understand that we're talking about medical education, not medical buildings. (UBFoM-07)*

UBFoM encountered several difficulties (detailed in 'Challenges' section 6.4.5 below) as they began to introduce these new paradigms to Botswana's health system.

#### **6.3.4.5 Facilities:**

*It became very much about operationalising what was enshrined in the curricula – this idea again of decentralised training, the idea of integrated public health, and ideas of having a modern technology component where we instil a culture of continuous learning. These are very nice things to write in a curriculum or strategic plan but when it comes to lining up the resources and infrastructures, it is much more complicated. (UBFoM-05)*

When UBFoM began its classes in August 2009, due to building construction delays, it had to house the new medical school at a rented warehouse in central Gaborone, some distance away from the UB campus. The warehouse contained temporary rooms for PBL tutorials, lecture rooms, and staff offices. It wasn't until 2013, that the purpose-built 'Block 246' on the UB campus was completed enough for use. Although the students initially complained about the suboptimal situation of an outlying warehouse, later they also complained about the changed staff-student dynamics in the new on-campus building:

*Students who say, “Actually it was easier when it was still a warehouse ... because everybody was there, there was a different atmosphere, faculty didn't hide, everything was together, we're in this together”. At the time [students] were complaining that this was not appropriate for a medical school. Once they moved into the medical school, they felt, now they didn't have access to teaching staff anymore, [staff] were hiding behind doors and offices. (UBFoM-05)*

This underscores that architectural choices can impact human dynamics and, thus, need to be accounted for when planning a new medical school.

Implementing a community-oriented curriculum utilising distributed clinical sites, involved many extra expenses. The MEPI grant funded the required infrastructure at UBFoM's distributed sites such as libraries; lecture and tutorial rooms; computers and internet access; and tablets for the students. As mentioned in section 6.3.4.1 'Funds' above, MEPI money was vital for this aspect of UBFoM's establishment. At sites outside of Gaborone, the Ministry of Education (MoE) also rented houses for the students and provided an additional transport allowance. This required careful negotiation between UB and the MoE, since this was an extra provision for medical students not available to other UB students. The amount of this allowance was one of several issues raised by disgruntled medical students in 2012 (see 'Challenges' section 6.4.6 below) and it was subsequently increased.

A short while after UBFoM was established, a decision was made to construct a new state-of-the-art teaching hospital on the UB campus – the Sir Ketumile Masire Teaching Hospital – as a joint initiative between the Ministry of Health and UB. It included purpose-built teaching spaces and staff offices for clinical academics. However, it was a 30-minute walk away from the other key medical school building on the UB campus (Block 246), with no public nor student transport between the two (at the time of data collection). There were several other controversies surrounding this new teaching hospital which are explored in 'Challenges' section 6.4.5.1 below.

#### **6.3.4.6 Students:**

Approximately 200 people applied to study medicine at UBFoM each year. They must either have completed one year of Bachelor of Science study or the equivalent of two years of A-level high school studies. Ranked by academic performance, the top 90 – 120 applicants were assessed by short answer essays and an interview exploring their motivations to study medicine. UBFoM admitted the top 36 applicants into their inaugural cohort in 2009 and the top 48 applicants the following year.

The admissions policy to select the top academic performers naturally led to a high calibre of medical student. Staff with teaching experience at universities in other countries noted the intelligence, capability, and work ethic of UBFoM medical students:

*I think they are extremely able; they are very able students. ... For me, I think that they are some of the best students I've ever taught. (UBFoM-09)*

*They were a good bunch of kids, and they were very bright students, and they would make good doctors. ... they were intelligent, they worked hard and had a good understanding of an academic approach to things. (UBFoM-20)*

It was acknowledged that this admissions process with an emphasis on academic performance privileges “urban kids” over rural ones:

*Students that we admit, they are admitted on merit, and most of those who do very well are those from towns. ... Urban kids. ... 'cause their parents will go the extra mile to get them tutoring and then they have very good grades and whatever, but a child from a very humble Motswana home out there in under-served areas who has potential, but they didn't have the support to similarly excel in academics don't get to come to med school because of their grades. (UBFoM-16)*

This tilt towards urban applicants may have contributed to the published findings that 91% of UBFoM students desired to work in an urban location after graduation (Arscott-Mills et al., 2016).

Another characteristic of the early UBFoM graduates was that they did not enjoy being “pioneers” and “guinea pigs”:

*It was quite challenging for them. They were pioneers. For everything they were first, they were very frustrated by that and ... it was said very often, “We're tired of being pioneers ... We want things to function. We want things to work. We don't want to be guinea pigs”. The pioneers are guinea pigs from a different perspective. (UBFoM-05)*

This is in stark contrast to the early NOSM students in Canada discussed in the previous case (see NOSM section 5.3.5.6 above). I re-visit this difference in the cross-case analysis and discuss whether certain admissions policies could influence the type of student entering medical school, and thereby the characteristics of their subsequent graduates (see cross-case section 7.7.6 ‘Students’).

### 6.3.5 Convincing:

Champions of new medical schools need to construct compelling rationales, arguments, and reasons to convince the various stakeholders and overcome socio-political resistance (see 'Utilising theory' section 3.4.2.3.5). In this section, I describe how the founding leaders of UBFoM went about Convincing their various stakeholders with macro-level, meso-level, and micro-level arguments.

For Botswana, the primary rationale for establishing a new medical school was to increase the number of Botswana doctors available to work in and subsequently improve Botswana's health system with their superior local knowledge and expertise:

*We were not going to have sufficient number of medical doctors by sending people to various countries across the world, because each country had priorities for their citizens. ... also establishing a medical school would actually advance the healthcare service. One of the lacking things was just knowledge about conditions, diseases that we have in the country, programs that we have in the country, and that a medical school would actually play a major role in terms of ongoing operationalisation, those we should feedback into the health system. (UBFoM-08)*

Within Botswana, apart from governmental stakeholders (discussed in 'Conducting' 6.3.3 above), there were four other stakeholder groups that needed specific convincing that a local medical school was desirable and feasible:

1. Clinicians
2. Students
3. Patients
4. Accreditors

Some of these stakeholders were not convinced at first and, thus, posed a problem or challenge for the new medical school. They needed different narratives to convince them to become part of the solution instead, as described below.



### **6.3.5.1 Convincing the clinicians:**

Some clinicians were hesitant about this new medical school particularly when they were not involved with the early discussions amongst government officials, university academics, and health service leaders. When the health service staff were eventually presented with the idea, they had many questions and were not immediately enthusiastic:

*But I think maybe in the early days [of the] political process for putting the school together ... there was never a chance to build relationships with all these front-line people. I think many of the discussions were UB discussions, or Ministry of Health discussions, or US government discussions, all in Gaborone but then suddenly now, it hit the ground in hospitals ... I would say there was no real resistance but there were lots of question marks and people maybe dragging their feet sometimes.*  
(UBFoM-05)

Clinicians who had never been involved with work-place integrated teaching may have felt the added burden and risk of being observed and being required to teach:

*Being given a junior doctor or student next to you who observes everything you do is not necessarily something that everybody is excited about. It, maybe, exposes you to risk. It, maybe, is something that you just feel unsure about, and so I think there were reservations. ... some people immediately would react and say, "Yes, of course. That's a good thing". But of course, others might say, "Is that more work for me?"*  
(UBFoM-05)

Non-Batswana clinicians on short contracts may have had less investment in the future of Botswana's health system and may have thought discussions of a new medical school irrelevant to them:

*I think a lot of our staff were expatriates ... and probably most of them weren't particularly interested in whether there's a medical school, because some of them were only there for one or two contracts, and so it was irrelevant to them ... If the government wants to do that, that was fine by them ... but they wouldn't be expected to be passionate about something which wouldn't happen while they were there.*  
(UBFoM-18)

Non-Batswana doctors from foreign health systems that had a strong ethos of teaching, however, were easier to convince:

*I would say people from countries where there is a strong tradition of medical education, they didn't need any convincing. For example, most Indian doctors that work in Botswana, they would say, "Well, of course, doctors are training doctors, that's the whole idea". (UBFoM-05)*

As UBFoM staff informed and involved the health service clinicians more through a consultative process (explained further in 'Challenges' section 6.4.4 below), the idea of active medical student involvement in clinical work became more acceptable and normalised:

*For example, department heads in the hospitals where students and doctors are trained. If they don't see the benefit of this for their service, because ... medicine is a balance of service and teaching ... you don't learn medicine in a classroom. You learn it at bedsides ... but this will require consultation and to involve people in a very meaningful way. (UBFoM-05)*

#### **6.3.5.2 Convincing the students:**

UBFoM experienced significant resistance from their first few cohorts of students over several different issues (see 'Challenges' section 6.4.6 below). One issue was not being given opportunities to study abroad as had been happening in the past. Being sent to other countries for further study was highly desirable for many Batswana and they worked hard to qualify for the opportunity:

*The reason why most of us scored very high was that we knew that the higher-scoring students will be offered a position to go and study elsewhere, preferably South Africa and Australia, so we were working very hard to get higher scores and to perform very well. (Participant number withheld for added anonymity)*

The early students were concerned that a new local medical school would not provide them with the quality of medical education they would get if they trained abroad (an attitude shared by many Batswana, as will be discussed in the next 'Convincing' section 6.3.5.3). In their final year of study some of the inaugural UBFoM class participated in a two-week student exchange with various medical schools in South Africa, Zambia, Tanzania, USA, and Australia. This experience enabled the students to recognise the good quality of their UBFoM education as they were able to favourably compare their own knowledge and abilities with those of the students studying there:

*When they got there, they started to interact with students from there and they realised the training that they got here was not bad. They came back and that actually addressed a lot of our issues, all those complaints stopped. Especially ones who went to Australia, to Pretoria, they said, "No, we got there and now, we are the ones answering all the questions". (UBFoM-04)*

Furthermore, the senior students and early graduates noticed that they performed better than their peers who had returned to Botswana after training abroad because the Botswana-trained people already knew the system, the local treatment protocols, the people, and the local health behaviours:

*When we were working with the interns who graduated from elsewhere, we performed almost the same as them, even [as] fifth year medical students, because we already knew how things were working ... we could get history from our patients in our own language and understood them better ... we knew that a Batswana person, that's how they give their history, this is how they deal with their problems at home, the health behaviour of each patient ... and we also had access to our own guidelines here, therefore, when you already know the guidelines for treatment of, for example HIV or TB [tuberculosis], you'll be more confident in managing such cases at an early level ... that's how we had our noses in the front compared to them. (Participant number withheld for added anonymity)*

Thus, convincing the students was about showing them that a medical education in Botswana would be equivalent if not better than international training.

### **6.3.5.3 Convincing the patients:**

The community were so used to their doctors being either foreigners from other countries or locals trained in other countries that they expressed scepticism when they first encountered Botswana medical students. The people had a general perception that things sourced from other countries were of higher quality than when locally produced, and questioned the legitimacy of medical training in Botswana:

*Botswana, in general ... respect someone who had trained outside especially South Africa, or any place overseas. ... They still have the sense of feeling that for you to get better form of education, better health, or better finances, is for you to leave the homeland and go study elsewhere or get healthcare from elsewhere or do business outside rather than here in Botswana. ... they will be asking us, "So why are you not going to South Africa to do medical school?" ... Some of them, even ... after four years of the inauguration of the medical school, they were not aware that we do have a medical school here. ... They expected ... that after the four years, we would go to South Africa to do the real thing, and then come back. (Participant number withheld for added anonymity)*

Over time, this poor reception by the general public improved, particularly as the senior UBFoM students displayed their clinical capabilities and were able to conduct consultations in the local language – unlike many of the expatriate doctors.

### **6.3.5.4 Convincing the accreditors:**

To accredit the country's inaugural medical school, the Botswana Health Professions Council (BHPC) utilised experienced international assessors and were guided by the World Federation for Medical Education (WFME) global standards for basic medical education. In the early days, the BHPC needed to develop a new understanding of their role as the regulator of a locally trained medical workforce, since they had never had to do so before:

*They hadn't done it before, really ... all they'd done before is just check people's qualifications ... But now they had to decide what a medical school was for, which they hadn't done before. So, not surprisingly, they had a bit of a learning curve. (UBFoM-13)*

The reciprocal benefit of a new medical school to its accrediting body is further discussed in 'Cross-case Analysis' section 7.5 later.

One concern for the accreditors was the controversial Sir Ketumile Masire Teaching Hospital built on the UB campus (detailed in 'Challenges' section 6.4.5.1 below) because it posed a potential risk to the core purpose of the MBBS program:

*[The accreditors] said, "No, for undergraduate studies, it's not appropriate because if the students spend all their time here, they are only going to be seeing those cardiothoracic surgeries, transplants, organ transplants, and those sorts of things, and they are going to miss out on the primary health care". (UBFoM-04)*

UBFoM staff attested to the usefulness of accreditation for the medical school to self-evaluate and improve processes:

*We recently had a big visit from [the accreditors]. They turned every table and every chair and looked at every documentation. ... And so, it really helps you to look at your processes, look at what you do, you know they talk to the students, they go and see our students at work. They talk to the graduates. They talk to the supervisors of our graduates. So, I think it's a good thing. (UBFoM-01)*

That accreditation processes can be an opportunity for self-evaluation and improvement for the new medical school is further discussed in 'Cross-case Analysis' section 7.5 later.

To summarise this section on Convincing different stakeholders through different means:

- For the government, the convincing rationale was financial feasibility and workforce retention.
- For the clinicians, it was not a specific rationale per se but the process of discussion and consultation and the relationship-building inherent in this process.
- For the students, it was the recognition that the quality of their medical education was still good even though they were not sent abroad.
- For the patients, the students did the convincing by their displays of growing knowledge and skills, and also the benefit of being able to speak the local language.
- For the accreditors, it was a simple yet vital matter of satisfactorily meeting the required standards of quality.

### 6.3.6 Connecting:

*We also had a lot of support from our partner medical schools ... and we had friends. People were interested in Botswana starting off. (UBFoM-16)*

As would be expected for a country's inaugural medical school, international connections were pivotal in UBFoM's story of establishment. Several collaborations were established, ranging from informal collegial linkages to formalised research and educational partnerships (specific partners were listed in section 6.3.2 'Catalysts' above. International connections were particularly important for staffing (e.g., Baylor provided the Interim Founding Dean); funding (e.g., the MEPI grant); the curriculum (e.g., Hull York donated their curriculum); medical education consultancy (e.g., the 1995 Feasibility Study team); and for training Botswana doctors before UBFoM was established.

Some further international relationships worth highlighting, were with the South African specialty colleges to establish post-graduate advanced training. For each of the MMED programs, UBFoM partnered with the relevant South African specialty college to provide some or all their training, assessments, accreditations, and certifications. Over time, UBFoM was able to completely localise some of these MMED programs based on what they had learned from South Africa (e.g., Family Medicine). Importantly, to address the potential for 'brain-drain', South Africa had taken a key decision to not employ doctors from the Southern African Development Corporation (SADC) group of countries, even if they had trained in South Africa. However, this could not always be enforced, since South Africa also needed more doctors and was losing some of their own investment, by not employing the SADC doctors they had trained:

*[South Africa] said they were not going to be taking doctors from [SADC countries] because those countries needed the doctor. So, if you want to train in South Africa ... they'll make it difficult for you to stay there ... It worked for a while, but later on, when they felt bad, they also needed doctors there, they relaxed that rule. (UBFoM-04)*

This is always a conundrum when providing supportive aid: How much can one medically under-served location afford to help another before it must seek to use its resources for itself?

Avoiding pitfalls such as brain-drain and neo-colonial attitudes are important in situations of aid, because they have the potential to weaken health systems rather than strengthening them:

*When HIV became a real epidemic in much of the developing world, the US government ... their strategy was to send American universities to go to this place to provide care, to do research ... But then they realised that that wasn't working, in fact it was destroying the health systems. ... people were leaving public service and going to join this new medical [project] ... and so therefore that was weakening the health system and strengthening only HIV/AIDS care. (UBFoM-01)*

Mutually beneficial partnerships that ensure the assistance goes both ways to help balance the relationship and improve sustainability, are further discussed in both the 'Cross-case Analysis' and 'Discussion' chapters (see sections 7.6 and 8.2.4.2 respectively). In the next section, I continue to unpack the UBFoM case study by examining their key challenges.

## **6.4 Challenges:**

All new ventures encounter problems and set-backs as they start up – both expected and unexpected (see 'Utilising theory' section 3.4.2.3.7). In this section, I explore six major challenges faced during UBFoM's establishment:

1. Non-return of Botswana trained abroad
2. Recruiting and retaining staff
3. Conflict within the University
4. Culture of extensive consultation
5. Implementing the teaching health system
6. Student strike

#### 6.4.1 Non-return of Botswana trained abroad:

Statistics collected in 2012 showed that more than 800 Botswana were sent abroad to study medicine from 2002 to 2012, yet only 1/5<sup>th</sup> of these returned to work as doctors in Botswana. In 2012, there were only around 300 Botswana doctors registered to practice in the country, including many who trained before 2002 and many who kept up their registration even if living and working elsewhere:

*So, nobody could really give you the exact figures, but what I do know is that, at the time, they were just over 300 doctors in the country who were from Botswana, but that included many of us who were trained long time ago, and also that were registered to practice, but registered to practice doesn't mean they are practicing here ... I know people who are working in Ireland, they want to keep up their registration so they will renew that. ... So, it was not that easy to really be sure ... 21% of all the doctors practicing in the country were actually from Botswana in 2012. And yet, if everyone had come back, [it] would probably be 90% plus. (UBFoM-01)*

Published numbers on Botswana's health workforce for 2012 show that the proportion of Botswana doctors were the lowest (21%) compared to the proportions of Botswana in other health professions, such as nursing (84%), dentistry (75%), and pharmacy (53%) (Nkomazana et al., 2014).

One factor was that Botswana did not have career development pathways to attract its medical citizens back, including advanced specialty training:

*Part of the reason was that there were no opportunities for graduate programs for a medical doctor. They came back, and if you're working for government, you could be here for 10 years, 11 years, 12 years without any opportunity to further your studies and become a specialist. So that became a problem for these young people. (UBFoM-02)*



When Batswana were sponsored by the Botswana government to study medicine abroad, they had to sign a return-of-service agreement equivalent to their number of years of study plus one. However, these agreements were never enforced – primarily due to a lack of coordination between the Ministries of Education and Health. There was no system to monitor who had been funded by the MoE to study abroad, and who had returned to complete the terms of service with the MoH:

*Nobody monitors it. Like, you might come and work for two years and leave and there's no [accountability]. I think the discrepancy might be, you have the Ministry of Education which provides the scholarship for education ... and then the next part is your employment by the Ministry of Health. ... So, once you are out of education, you are now with another Ministry which doesn't care whether you've paid up any fee. I think that's a matter of coordination. And I'm not aware if any of them got a demand letter to say, "You owe us", or something like that, 'cause I haven't heard of that. I think the system is just not there. (UBFoM-15)*

Many Batswana who did not return were willing to pay the government back but there were no avenues for them to do so. There was talk about setting up a repayment system, but at the time of data collection, this was not in place:

*They were talking about even getting those who do not want to come back to at least have a way of paying back; setting up an account with a private bank where they would continually just pay back as they went ... 'Cause I do have an idea of people who ... want to pay but they don't know how to do it because the system is not there. (UBFoM-15)*

Some Batswana who had broken their bond agreement were afraid to return to Botswana, even for short trips, due to a perceived fear of not being allowed to go back to their new lives abroad. Thus, policies that were designed to encourage Batswana doctors to return may, in some cases, have prevented them from even visiting their homeland. Compounded by this high rate of non-returning Batswana doctors, staffing the new medical school was another major challenge, discussed next.

## 6.4.2 Recruiting and retaining staff:

Recruiting and retaining staff was a significant challenge for UBFoM:

*Attracting people into medical school in Botswana was a problem, and then even more of a problem was retaining them. ... Just to give ... an example ... We had ten Paediatricians. Yeah, we lost eight out of that ... so it was a lesson to us that you should not only worry about attracting or recruiting; you must always worry about, also about retaining staff, which mean that we must have programs that are going to be attractive for people to want to stay. (UBFoM-02)*

They consistently fell short of their goals for numbers of employed academics by 30 – 40% (Mokone et al., 2014), and experienced a higher staff attrition rate of 40% compared to other African medical schools who reported staff losses of 6 – 18% (Kebaetse et al., 2016).

Contributing factors were noted to include (Kebaetse et al., 2016):

- unattractive and disproportionate salaries for university academics versus healthcare clinicians
- administrative delays
- staff discontentment particularly due to upheaval and conflict within the university (explored further in ‘Challenges’ section 6.4.3 below)

Academic appointments of clinicians were complicated by traditional university requirements of research and publications – not all clinicians had opportunity to conduct research and publish articles. By university standards, even very senior clinicians could only be appointed and remunerated as basic lecturers. One strategy that UBFoM used to work around this problem, was to create positions such as ‘Program Director’ and ‘Associate Program Director’, and to remunerate these at levels similar to ‘Professor’. This enabled them to attract some seasoned clinicians well-versed with Botswana’s health system into these roles.

Recruiting clinician teachers was further complicated by the fact that the system did not allow for part-time appointments with both the health system and the university. Most doctors were either full-time appointments at the university – and therefore without clear clinical responsibilities at any of the health service facilities – or full-time health service staff with no specific teaching expectations. UBFoM had already been alerted to the detrimental effects of this kind of workforce competition from Uganda’s example:

*In Uganda, what we learnt was the remuneration and the different conditions of service are very important because ... there seems to be a competition between the Ministry of Health on the one side and the University on the one hand, because what tended to happen is – the University would increase their salaries, because they couldn’t attract people and then all the Ministry of Health people would apply to become faculty. And then there will be no one to provide ... care ... but ... the Ministry of Health had just increased salaries, so they lost their teachers too. ... these are things that ... seem non-consequential but actually they have huge implications, so there needs to be good negotiations and understanding. (UBFoM-01)*

Botswana’s Ministries of Education and Health eventually began to formulate a ‘Joint Services Agreement’ to appropriately remunerate teaching clinicians and apportion their time and responsibilities between the health services and the university.

There were also several reports of long delays before university appointments were finally approved:

*Well, I had applied from a long time ago ... Botswana University was highly inefficient or with thousands of vacancies, so I never really heard much back ... I never heard anything for a year, so I gave up on that, and I was pursuing some other possibilities when I got a phone call. (Participant number withheld for added anonymity)*

*So, it came out of the blue when [name] contacted us if we were still interested. I think we applied well over a year before being contacted but then we heard nothing. (Participant number withheld for added anonymity)*

UBFoM may not have had a well-planned recruitment strategy for staff because of false expectations that there would be adequate numbers of clinicians interested in academic roles with their new medical school.

Reliance on ~75% imported international staff also contributed to their retention difficulties:

*But the nature of it is, when you do have staff who are international, this is not their home, so for whatever reason, they might be pulled back to their own places and that still leaves a hole that was filled for a short time. (UBFoM-06)*

UBFoM was particularly impacted by a high turn-over of expatriate staff in key leadership positions. For example, the top position of Dean was held by six different people between 2007 and 2018. The loss of expatriate staff, additionally, led to some early MMED programs being put on hold when those leaders left unexpectedly.

Moreover, conflicts within the University caused a mass exodus of staff in 2011 (explained in the next 'Challenges' section 6.4.3). These staffing difficulties impacted the early students and contributed significantly to their reasons for striking (explored in 'Challenges' section 6.4.6 below).

### **6.4.3 Conflict within the university:**

In 2011, after a change of university leadership to someone who did not recognise the unique nature of a medical school, UBFoM began to experience significant resistance to their functioning. Staff became concerned the new medical school would fail under these conditions and many resigned and left:

*The new leadership really did not understand the medical school, and so they really gave us a hard time ... I think that's the time when [many staff] left ... many really good people. Because I think at that point, they just thought this is gonna fail ... So that was a big challenge. (UBFoM-01)*

One important reason was that the new University leader did not support the medical school's system of increased remuneration for clinical academics, commensurate with their salaries as doctors. He felt that staff across the different faculties of the university should be paid at the same levels, without any special consideration for being a medical professional:

*He felt that this, being a public institution, everybody – if you are called a lecturer, you should be paid the same whether you are teaching law, social studies, or medicine. ... He just basically told [the staff] off in front of everybody, that they're wasting government money; they think that the medical school is special but it's not special. ... so, a lot of people felt that their jobs were being threatened. ... A lot of people that we had hired, very good professors they just kind of left because they felt it was a hostile environment that they were working in. (UBFoM-04)*

The University leader also undermined the work of important coordinating committees such as the High Ranking Committee to the point of its collapse:

*Yeah, he basically went around just pulling down everything that had been there, and he went to this High Ranking Committee and started fighting the people there and basically, it collapsed. (UBFoM-04)*

The disbanding of the High Ranking Committee was also noted to have several negative consequences for the medical school as well as the new teaching hospital (Matlhagela et al., 2018; Nkomazana et al., 2018). The negative impact of the new leadership on UBFoM was reported in the newspapers as “chaos” (Letsididi, 2014).

A second area of conflict within the university was with the other health science departments. Initially, UBFoM was still a ‘School’ within the Faculty of Health Sciences. The other departments were resentful that the medical school always got the lion's share of the faculty budget and argued for more budgetary restrictions. The medical school staff felt obstructed in their efforts to develop and grow the medical school, so they complained directly to the government. In 2014, the Office of the President intervened to mandate that the medical school should become its own Faculty within the university, separate from the Faculty of Health Sciences. In the next section, I describe how Botswana culture places strong emphasis on consensus-building, in order to avoid such conflicts.

#### **6.4.4 Culture of extensive consultation:**

Extensive consultation and consensus-building is culturally very important to Botswana, as it fosters ownership, support, pride and belonging. This is not always well-understood by expatriate workers who may try to impose their own pre-packaged ideas without sufficient consultation and then wonder why they are not accepted:

*As a people, Botswana, we are very consultative. ... And I think sometimes it doesn't make sense to the Western mind. ... sometimes they even come with pre-packaged plans, and they want to come in and out. It doesn't work like that in this culture. ... Botswana as people when they get consulted, they get an ownership. Whatever you're trying to do, if you've consulted and consulted well, they're bound to support you and feel the pride that they're part of this thing, but if you just dump it on them, even if you feel you are helping them, if you haven't consulted, they're not going to accept you. (UBFoM-16)*

Nonetheless, Botswana's culture of extensive discussion until consensus is reached, is a double-sided coin – on one side it promotes cooperation and collective ownership, while on the other, it can lead to delays and stalemates. The latter might explain the time-lapse from 1989 to 2009 from when a new medical school was first recommended, to when its doors actually opened:

*I think the consensus is good, but at times ... consensus can also take a long time to reach. (UBFoM-07)*

“Consultation” was reported as a key ingredient to UBFoM’s successful establishment by several participants of this case study. However, this was not a consultation of the general populace nor even the clinical workforce but rather primarily within government, university, and international circles. Many doctors and health service leaders were not included in these discussions till much later (as discussed in section 6.3.5.1 ‘Convincing the clinicians’ above). Given Botswana’s culture of extensive consultation, involving all stakeholders early in the discussions becomes even more vital:

*You really cannot take shortcuts on making people involved. ... They will only do it if they believe it’s the right thing to do, and often it matters a lot at what stage you start involving them. And if people have been involved early on some of these questions, it would’ve been much easier. And then going to them and doing a mea culpa and saying, “We apologise if we only come to you now. We should’ve come to you much earlier”. Most people are very forgiving, and they say, “No, thank you for saying that. I agree. Okay, no one’s fault”. (UBFoM-05)*

Despite the forgiving nature of people when apologies were made later, the delayed involvement of health service staff added to the logistical challenges of implementing the teaching health system, as discussed next.

#### **6.4.5 Implementing the teaching health system:**

Particularly in a health system previously naïve to medical education, implementing a fully integrated and seamless teaching health system utilising all the levels of health facilities, was a significant challenge. UBFoM attempted to decentralise their training by setting the Family Medicine department in the towns of Maun and Mahalapye, but these were still not as community-based as the ‘teaching health system’ notion originally envisaged:

*[Maun and Mahalapye] are essentially reflecting, I think, a genuine effort of the UB, the school leadership, to come to a more decentralised training, even though the critics would rightly say, “But these were still all district hospitals”. ... but even that step away from central referral-hospital-based training to district-level training, that was already a logistical challenge. (UBFoM-5)*

Other than the Gaborone-based primary care clinics encountered by the Year 1 and Year 2 students, all their Years 3 – 5 rotations were still at tertiary-level hospitals (district hospitals in Maun and Mahalapye; and referral hospitals Princess Marina in Gaborone, Sbrana Psychiatric in Lobatse, and Nyangabwe in Francistown). Furthermore, the new teaching hospital built on the UB campus detracted even more from the desired community-based ideology (see ‘Challenges’ section 6.4.5.1 below).

When asked whether UBFoM’s distributed sites had a sense of identity and belonging with the university and the medical school, one participant noted:

*I think Maun and Mahalapye, probably a little; Lobatse, probably, not so much. And I know ... colleagues in Maun always complain about something happening [in Gaborone] that could benefit for their training and their development ... they feel neglected in a sense. (Participant number withheld for added anonymity)*

To ensure all sites felt actively included and engaged with the parent university can be a common problem with distributed models of medical education. Once again, extensive and early “consultation” was the root of what was required in Botswana:

*So, I think everybody at UB learned the necessity to go step-by-step and to consult quite carefully around these steps and to make sure that people are involved, and I think probably it’s true in most countries, but in Botswana, people would probably say it’s even more important because of this long cultural practice ... consultation.*  
(UBFoM-05)

Given the logistical challenge of implementing the vision even at the district level facilities, equipping the smaller clinics to support and train medical students would have required an even greater level of community engagement by the new medical school. In the next section, I discuss how the new teaching hospital may have further detracted from community engagement.



#### **6.4.5.1 The new teaching hospital:**

*There's been an obsession in Botswana that a successful project means that you've got to have a big building with shiny glass walls. (UBFoM-03)*

For many political and academic leaders of Botswana, the opportunity to build a new teaching hospital (see Figure 6-4) was attractive because it made a public statement about investing in health systems:

*Every village wants to have its hospital because a hospital is seen as a proxy to how much is the country invested in our health. And so, I think it's just a fact that ordinary people sometimes, maybe, take the brick and mortar as a proxy, rather than the people, and there's an exaggeration of how much the building does to you, rather than the people. (UBFoM-05)*

**Figure 6-4: The new Sir Ketumile Masire Teaching Hospital on UB Campus**



(Used with permission from the University of Botswana)

A quaternary-level hospital, however, detracts from a distributed model of medical education where community-based primary and public health care are prioritised. People could not necessarily understand that good medical education might be best delivered across communities and health facilities, rather than only at apex teaching hospitals:

*[Some leaders] never understood why you have to build a “disease palace”, when this teaching health system recommendation, had it been adhered to, would have made quite a difference. ... people want to see a building and see the teaching hospital and say, “Yes, we’ve got a medical school”. Correct? And people couldn’t quite grasp this idea that, in essence, if you post people in the districts ... because that’s where the bulk of the population is, and if you go and focus on curative medicine and specialisation, as you find in your apex hospital, and you will be using that as your primary teaching site – that is wrong. (Participant number withheld for added anonymity)*

Several health service leaders within Botswana as well as international consultants repeatedly advised Botswana’s officials against investing in this new teaching hospital, but their objections were over-ruled. There was a sense that the decision to build the teaching hospital was influenced by American models, from the American leaders and associates of UBFoM:

*They had taken some ... US models, where teaching hospitals are run by medical schools. But [the US models] are well-established, they know what they’re doing, they’ve grown up – a hospital management structure has developed, and so on ... but ... University of Botswana has no idea how to run a hospital. ... It’s a highly specialised process. (Participant number withheld for added anonymity)*

The model was not smooth for Botswana, particularly in light of the dissembling of the High Ranking Committee overseeing it (mentioned in ‘Challenges’ section 6.4.3 above). The new hospital, costing BWP 2.2 billion (Mokwena, 2015), ran into many problems including construction delays, equipment procurement delays, and inadequate staffing. It was originally scheduled to open in 2013, but only began to function as a hospital in 2019.

One argument favouring the new hospital was to provide cutting-edge advanced healthcare that was previously not available in Botswana:

*Yes, it must exist because it costs Botswana money to have people treated for certain conditions in South Africa. ... it lessens our bill for having out of country referrals. (UBFoM-03)*

*This idea of a hyper-sophisticated teaching hospital, which has other roles – they are talking of it being partly research and medical tourism and so on. (UBFoM-17)*

In other words, the driving vision for the “hyper-sophisticated” hospital was more of a health system need than a medical education need. UBFoM lost points with its accreditors because of this new teaching hospital (mentioned in section 6.3.5.4 'Convincing the accreditors' above). In the next section, I explore how UBFoM also lost points with its early students.

#### **6.4.6 Student strike:**

In early 2012, the medical students at UBFoM staged a strike that lasted for about 10 days. It was led by a core group of 6 – 10 students from the inaugural 2009 cohort of students who were in their Year 3 by this time. Other students from Years 1 and 2 were also involved.

The issues the students were upset about included:

- insufficient number of staff, further impacted by a mass exodus of staff in 2011 and 2012
- lectures being given by academics outside their expertise – for example, a physiologist giving a lecture on anatomy
- some clinical skills being taught by nurses
- inexperienced staff and administrators of the medical school
- the medical school being initially housed in the warehouse far away from their student accommodation on the university campus
- lack of embryology teaching
- anatomy being taught with models rather than cadaver dissection
- standard bursaries for living allowances provided by the Botswana government to all university students were insufficient for medical students because their textbooks and

clinical equipment were more expensive and because they had to travel more between distributed sites for classes and clinics

The media made this a matter of public attention, with negative perceptions of the new medical school and their potential future graduates:

*So, when the demonstration started, the newspapers, the radio, and the television came through. ... they wrote ... about the lack of the proper human resources about the lecturers for anatomy, the lecturers for embryology, and then the way they depicted it to the general public was the University of Botswana School of Medicine is not yet complete or fit enough to groom a medical student from the first they walk into medical school to become a fully-fledged medical doctor. (Participant number withheld for added anonymity)*

There was a sense that the students and their parents had hoped this strike would shut the new medical school down and the students would be sent abroad to study instead:

*They were selecting the top-most able students and putting them into the University of Botswana. They were then allowing some students to go abroad and were paying for them, and this created resentment here. The students actually, in that second year, tried to close the course down, and they didn't succeed but they had a good go at it. ... They wanted to shut the course down because they thought they will then be sent abroad. ... They probably wouldn't have said that but that, I believe, is what they wanted to do. (Staff participant)*

*So, we drafted a letter that was addressing all the different deficiencies that we talked about. And there was supposed to be a meeting between the parents and the administrators of the school of medicine, "You know what, if this thing continues for the next month, then we plead with the government they should take all the students in this medical school to be transferred to another university in South Africa for us to continue our medical education...", but it never surfaced because after that that we realised that things were getting better. (Student participant)*

The strike was resolved by the Minister of Education and the staff of UBFoM listening to the students' concerns and actively trying to address each issue. The students felt satisfied that their concerns had been taken seriously, and that changes were being made despite on-going difficulties with sufficient staffing.

Nonetheless, the mental and emotional toll on the students at that time was significant:

*I think it's important for us to have access to maybe psychotherapist or psychologists ... counselling services, yeah, because the stress of – a chance of having a gap year, the stress of uncertainty of whether the university will go on and you'll definitely graduate at the right time, and the stress of just the media saying that you might be half-cooked when you finished. It was difficult for us to bear. Most of us did have subclinical psychological problems, depression to a certain extent, because we were unsure of a lot of things and uncertainty is not a good thing to have. (Student participant)*

Despite the lack of available counselling services through the university at the time, the students felt supported by their peers, families, and the UBFoM staff.

The impact of the strike was most marked for the 2011 cohort of students (3<sup>rd</sup> cohort) – 10 students dropped out of the course due to the strike and other reasons. Of the 36 students from the inaugural cohort, 32 graduated on time and the other 4 graduated the following year. Of the 48 students in the second cohort, 45 students completed (Kebaetse et al., 2016). Despite these challenges and negative outcomes, UBFoM also achieved many positive Consequences, which are explored next.

## **6.5 Consequences:**

*Now, as far as success goes ... there's no question it has succeeded. The students are coming out. And from what I have heard ... they're well received by the patients. They're doing their stuff. They've been trained. (UBFoM-03)*

The Consequences of establishing a new medical school in a medically under-served area will span macro-level, meso-level, and micro-level outcomes. Founding leaders will need to consider the intended and unintended consequences that might eventuate and could work to maximising positive ones while minimising negative ones (see 'Utilising theory' section 3.4.2.3.8). In this section, I explore several positive outcomes of establishing UBFoM.

Of historic importance is that Botswana now has its own medical school when once it did not. I identified five other positive consequences of UBFoM's establishment that warrant discussion:

1. Increased Botswana medical workforce
2. High quality graduates
3. Improved career pathways
4. Improved intellectual capital
5. Student-led community quality improvements

### **6.5.1 Increased Botswana medical workforce:**

*We've had our graduates since 2014. You now go around, almost every district, every hospital, you know, we have graduates from the University of Botswana. And they make so much difference. We have our specialists now, certainly in Paediatrics and Internal Medicine, Family Medicine, Public Health who are out today in the districts. They are home-grown and they definitely make a difference. ... They know the health system. They are implementing change on the system that they know.*  
(UBFoM-08)

True to its prime rationale for being established, UBFoM had increased the number of Botswana doctors practicing in Botswana. To date, more than 300 doctors had graduated from the MBBS program, most of whom remained in Botswana working in either the public or private health systems. A small study reported that 96% of UBFoM students intended to stay in Botswana (Arscott-Mills et al., 2016).

Even if some UBFoM graduates left Botswana for advanced training in other countries, this was viewed as a positive opportunity to bring back outside experiences and an endorsement of their competitive quality:

*I wouldn't say we should keep all of them. I think a few of them should branch out and bring outside experience ... Some of them have written part 1 of the South African College of Medicine exams ... and they will be proceeding to South Africa to specialise. Which is very exciting for us; it gives us the confidence that they are good enough to compete out there.* (UBFoM-02)

The notable quality of UBFoM graduates is discussed further in the next section.

### 6.5.2 High quality graduates:

UBFoM graduates had a favourable reputation in their workplaces and were noted for their high calibre as doctors:

*We called in stakeholders within the country to give us feedback on the project – on the medical school, about graduates and stuff like that – [and] anecdotally, people were very, very positive about our medical graduates and the changes they are making out there. (UBFoM-02)*

UBFoM graduates were particularly noted for their excellent clinical reasoning skills and intelligent articulation. In fact, the student of highest ranking in the entire University of Botswana in 2014, was a graduating doctor from the inaugural class of the medical school (Matlhagela et al., 2018).

Moreover, UBFoM graduates were noted to be better than returnees trained in other countries, because they already knew the local system and could work independently from the very beginning:

*So, I think there is this observation that is shared by many that medical graduates coming back from Australia, from South Africa, from Western Europe, they're very good but they don't know how to move around in Botswana ... But overall, they will adjust fairly quickly. And then there are those that come from areas from medical systems and medical education systems which are vastly different ... China, Ukraine, Georgia, ... Caribbean, ... and if you ask the heads of department of teaching hospitals, they will probably say the UB grads are always the best. From the first week, you can have them work independently. (UBFoM-05)*

Producing a high-quality, home-grown workforce validated the great effort and expense of establishing a local medical school. In the next section, I discuss the improved career pathways available to Botswana's medical workforce, both home-grown and trained abroad.

### 6.5.3 Improved career pathways:

The post-graduate MMED programs offered by UBFoM provided significantly improved career pathways for doctors in Botswana. Advanced specialty training in 10 fields could be undertaken in-country (see 6.2 'UBFoM overview' above). A study revealed that 28% of UBFoM students wanted to specialise in surgery, 19% in paediatrics, 13% in internal medicine, and 8% in obstetrics/gynaecology, but none wanted to specialise in family medicine (Rukewe et al., 2017).

Some MMED programs have had opportunity to close the loop, with some Botswana doctors trained abroad through the Pre-Med Program, returning to complete their advanced training through UBFoM, and then being appointed as teaching staff for the medical school:

*They went on that [Pre-Med] program, they came back as medical officers, we recruited them into our post-graduate program, they did their Paediatrics with us, they are back ... they are finished, and they are now working. Now, we are recruiting them to be faculty. (UBFoM-08)*

UB also employed junior doctors to develop them as academics ("Staff Development Fellows"). They were supported through their post-graduate advanced specialty training – particularly in areas not already available within Botswana – with intention for them to then develop that department within UBFoM:

*When you're a Staff Development Fellow, the university takes you to post-graduate training [abroad]. When you complete, you come back, and work as a lecturer in the same department. (UBFoM-12)*

These improved career pathways are an important national consequence of the new medical school – from educational, workforce, and infrastructure perspectives. As a result, there was also an improvement in the country's intellectual capital, as discussed next.



#### **6.5.4 Improved intellectual capital:**

The medical education literature already noted that a side effect of a medical school is an improved intellectual capital for the university, the health services, and even the general community (see 'Literature Review' section 2.3.3.1). UBFoM also encouraged a culture of academic improvement leading to improved intellectual capital for the whole country.

For example, the presence of the medical school with its associated activities and resources had improved the standing of the hospital and the standard of their staff:

*So [hospital staff] are reporting positive things in terms of, say, having the library, having internet services ... having academic discussions within the hospital because of the medical school presence. Things like that. ... even the nurses there and other staff, they feel that the university's presence has enhanced the standing of the hospital. ... The standard has improved 'cause now they are reading, they are having journal clubs, things like that, so you feel that you are learning something – they are not just doing routine, that you used to do before. (UBFoM-02)*

Another example was the Family Medicine Conference of Botswana, hosted annually by the medical school since 2013. The 6<sup>th</sup> conference in September 2018 attracted 208 attendees, which was an exponential increase in size from 50 attendees at the first conference just six years prior. I personally attended the 6<sup>th</sup> conference during my site visit to UBFoM and noted the presentations to be of excellent calibre. Further to enhancing the intellectual capital of the country, UBFoM had also contributed to the civic and social capital of its communities. Student-led improvements are discussed next.

### **6.5.5 Student-led community improvements:**

The Phase One students who were attached to primary care clinics around Gaborone were required to undertake a quality improvement project as part of their studies. The medical students worked with the clinic staff to develop solutions for local problems. Many useful projects had been completed, ranging from improved clinic signage for the public to professional development for midwives:

*[The students] have learned to agree with the nurses and work on it with them, provide the resources, find them and then implement ... some were not big, but others quite interesting. One ... the students couldn't find their way to the clinic, 'cause there's no signage anywhere, ... so they decided if we get lost, obviously the patient must get lost, so [the students] decided their project would be just to provide signage so people could find the clinic from the road. ... They did fundraising and ... now they have signage to the clinic. And another group ... went to a [maternity] clinic ... but nobody was using the ultrasound. ... [The midwives] said they didn't know how to use it. ... So that quality improvement project was how to find training for these midwives too, so that they could use the ultrasound. So, [the students] liaised with our [obstetrics] and gynae department and then found out when the nurses could be available ... so now [the midwives] use ultrasound. (UBFoM-01)*

Such community improvement projects by the students were examples of a socially accountable approach to medical education.

Having presented how UBFoM was successfully established through the lens of my Eight C's Framework, I conclude this chapter with a discussion of the strengths, limitations, and personal reflections of this case study.

## **6.6 Strengths and limitations of this case study:**

### **6.6.1 Strengths:**

The voices of all demographic and stakeholder groups were covered in the interview data – including men, women, government officials, and early students. Local ethnic representation was achieved by including Batswana participants, African expatriates, and non-African expatriates.

This case study represented the perspective of a country with a different culture and development status from the previous two case studies in Australia and Canada. Thus, it provided valuable additional insight into the phenomenon of new medical school establishment. In many ways, it confirmed the findings of the previous two cases, while also adding dimensions not previously encountered.

### **6.6.2 Limitations:**

Some data was difficult to obtain for this case study – for example, the precise financial costs to establish UBFoM. I was also unable to interview the Interim Founding Dean and Founding Dean – central roles in the establishment of a new medical school.

### **6.6.3 Researcher reflexivity:**

As described in section 3.4.1.3 'Choosing the cases', this case was identified through published articles. Data collection revealed that I had made presumptions about Botswana's economic and cultural contexts when I chose it as a case. For example, I had previously been unaware of Botswana's economic boom leading to its middle-income status; its history as a British protectorate rather than a conquered colony; and of the excellent command of the English language that most Botswana professionals have. Challenging these and other presumptions enabled my research to develop more 'critically'.

## **6.7 Summary of chapter:**

In this chapter, I used the experiences and interpretations of people involved with UBFoM's establishment and their descriptions of events, to construct my own understanding of the case. I combined these with the concepts of Institutional Entrepreneurship (IE) and my Eight C's Framework to develop a rich picture of the case, and to understand the generative mechanisms contributing to UBFoM's particular experiences of establishment. 8CF was again used as a structural device to present the details of the case.

UBFoM's 'Context' revealed that Botswana's small population, low numbers of Batswana doctors, and large expense of creating a new medical school were significant barriers to the venture. However, continuing to rely on an inconstant imported health workforce and on training Batswana doctors abroad, were costing the health system financially and contributing to poorer health outcomes for the people.

UBFoM's 'Catalysts' revealed that visionary leaders from the government, university, and health services provided the transformative impetus. International linkages were also vital to the success of the effort.

To obtain the ultimate green-light for establishment, UBFoM's Catalysts engaged in five specific 'Conducing' activities to influence the Context more favourably. A visionary doctor in a position of power within the government introduced the idea and kept the momentum going over time. Taskforces, commissions, and committees argued for the feasibility and desirability of a new medical school through official reports and documents. Influential political power was wielded by the public and by respected medical professionals. A government mandate from the highest level of the President himself, enabled a commitment to the vision, despite the initial setbacks. Finally, within the government, the Ministry of Finance required convincing that workforce outcomes would be worth the immense financial outlay.

'Collecting' resources for Botswana's inaugural medical school required various approaches. Funds were committed by the government, channelled through the university, and also accessed through special grants. Staff recruitment and retention proved to be a significant challenge leading to a smaller academic workforce than originally planned. The curriculum was designed around cutting-edge medical education pedagogies based on the advice of international experts and a fortuitously-obtained template from an international partner. Clinical training sites were recruited from the tiered network of public hospitals and clinics, with many of them being natural choices based on their capacities and capabilities. Facilities like buildings were newly built in Gaborone, whereas the distributed clinical sites received infrastructure upgrades including internet, libraries, and teaching/learning spaces. Students were chosen by academic merit, and admissions policies may have impacted graduate characteristics.

Four stakeholder groups required 'Convincing' for UBFoM to be established successfully. Health service clinicians and leaders who had not already been involved in discussions regarding the new medical school needed careful convincing of their vital role in the new venture. The early students needed convincing that UBFoM would provide them with good quality medical education despite the insufficiency of staff and other resources. The patients needed convincing that locally-trained medical students could play a legitimate and capable role in their healthcare without having to study abroad first. The accreditors required convincing that UBFoM satisfactorily met the standards recommended by the World Federation for Medical Education.

'Connecting' for UBFoM was essentially about international partnerships and foreign aid. International medical education consultants were involved from the earliest days. Organisations that were already conducting projects or providing aid in Botswana, particularly for HIV, were another resource for the new medical school. The university partnered with many medical schools in other countries to train Botswana before UBFoM was fully established. South African specialty training colleges were instrumental in assisting UBFoM establish their post-graduate training courses. Avoiding pitfalls such as brain-drain and neo-colonial attitudes were important in situations of aid like this. Ensuring mutual benefit could provide more long-term sustainability for all parties.

UBFoM faced six major 'Challenges' during establishment. The brain-drain and economic loss caused by the non-return of Botswana doctors sponsored for training abroad was significant. The new medical school was the fundamental solution to this problem. The difficulty recruiting and retaining staff also hobbled the new medical school more than expected. Improvements to university remuneration policies as well as joint staff agreements with the health services were implemented to address this problem. Additionally, as more doctors and specialists graduated from UBFoM, the pool of human resources to draw from enlarged. Conflict within university hierarchies were resolved with a change of leadership and with some government intervention mandating more autonomy for the new medical school. Botswana's cultural tradition of long 'consultations' – that is, lengthy discussions and relationship building – caused long delays by the need to gain consensus. The corollary benefit to this custom, however, was the strength of commitment and mutual ownership once consensus was achieved. UBFoM faced significant logistical challenges with developing distributed relationships and educational capacity as they pursued their community-oriented vision to transform Botswana's health services into an integrated teaching health system. Furthermore, the decision to build a new quaternary teaching hospital competed with an emphasis on primary care and community engagement. The student strike of 2012 was a challenge successfully faced by carefully listening to the students' grievances and actively pursuing solutions.

'Consequences' can be the macro-level, meso-level, and micro-level outcomes of establishment policies and processes. For Botswana, the most significant 'Consequence' was that the country now had its own medical school. Five other noteworthy positive Consequences were identified. (1) An increased Botswana medical workforce, as a pivotal rationale for establishing the new medical school, had borne fruit. (2) UBFOm medical students and graduates had a high calibre of clinical acumen. (3) The new medical school provided a range of post-graduate specialty training and academic employment opportunities, thereby improving the career pathways available to Botswana's doctors. (4) UBFOm's case study confirmed that the presence of a medical school led to an improved intellectual capital for the university, the health services, and the community. (5) Student-led community improvement projects were providing social benefits to the primary care clinics and communities.

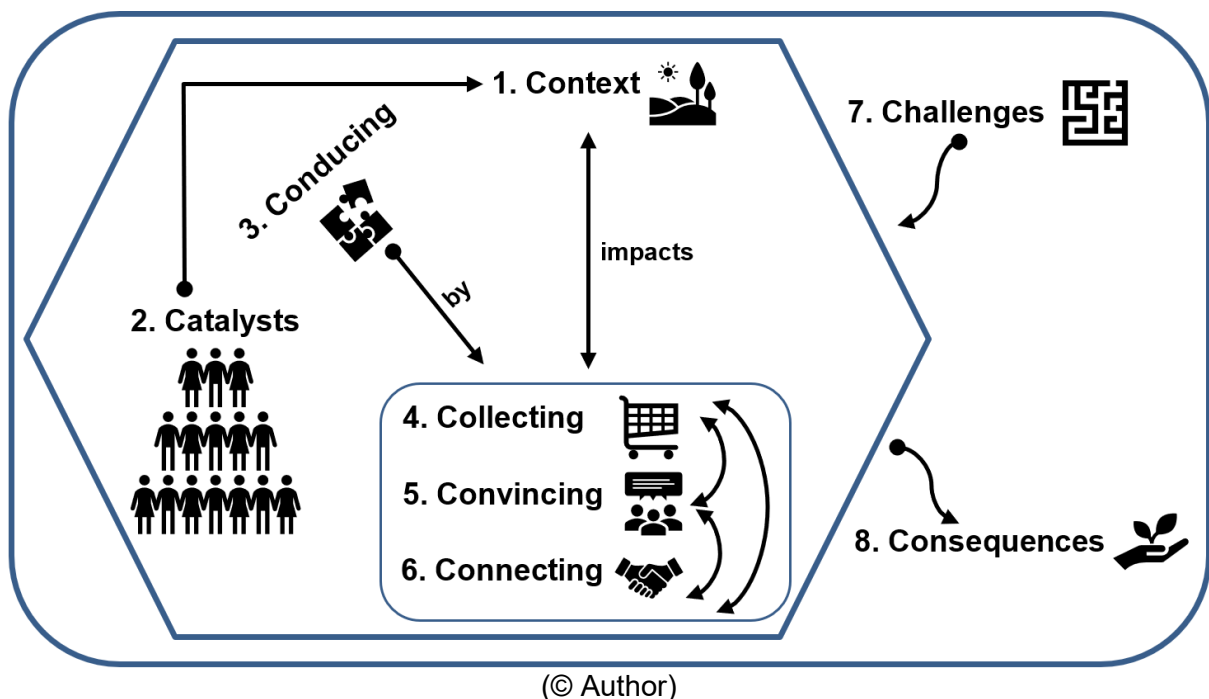
The UBFOm case study enabled an in-depth examination of how to establish a new medical school in a situation that was culturally and capitally quite different to my previous two case studies. In the next chapter, I present a cross-case analysis of the three cases to further understand the phenomenon of new medical school establishment in medically under-served areas.

## 7 CROSS-CASE ANALYSIS

### 7.1 Introduction to chapter:

In this chapter, I present a cross-case analysis exploring the similarities and differences between the three case-studies to examine the theoretical rigour of my Eight C's Framework (8CF). I compare and contrast their Contexts, Catalysts, Conducing, Collecting, Convincing, Connecting, Challenges, and Consequences (see Figure 7-1). I assess the findings of my research against the medical education literature and highlight several new empirical findings from my data. The broader implications of these, particularly in light of Critical Realism and Institutional Entrepreneurship, will be discussed in chapter 8.

Figure 7-1: Eight C's Framework (Figure 1-3 & Figure 3-2 reproduced)



### 7.2 Comparing Contexts:

In this section, I consider the contextual milieus of the three case-studies – specifically their geography, population, medical workforce, health, and educational situations – and compare with literature from other medical schools around the world.



### 7.2.1 Geographical factors:

Geographically, the Northern Territory of Australia spanned a large area of tropical and semi-arid land with two urban cities, a few small regional towns, and several remote Indigenous communities. Northern Ontario in Canada similarly spanned a vast sub-arctic geography with two urban cities, several smaller towns, and many Indigenous and non-Indigenous remote communities. Botswana is a country of semi-arid desert conditions with one capital city, a few smaller urban cities, several regional towns, and some remote cattle posts.

These geographic features adversely impacted all three case-studies. Distant geographical distributions made access and travel logistically complex and financially costly. The Northern Territory and Northern Ontario both reported that their geography contributed to a sense of relational isolation from the rest of their country/province, which translated into perceptions of socio-political disempowerment. Correspondingly, UBFoM's propensity to be located in Botswana's urbanised areas, may have been related to where their seats of socio-political power were located. Socio-political and personal disempowerment is commonly experienced as a result of geographic narcissism – where 'urban' is seen as more privileged, powerful, and advanced compared to 'rural' (Fors, 2018).

Discussions in the medical education literature regarding geographical locations for new medical schools were primarily about workforce demands, healthcare needs, and resource availability rather than geography per se (see section 2.3.3.2 'Location choices'). These considerations were true for the location choices of the three case-study medical schools as well, even though each chose a different approach. UBFoM followed the traditional trend to be primarily co-located with their parent university (Association of American Medical Colleges, 2012; Frenk et al., 2010; Karle, 2010; Lanphear & Strasser, 2008; Mokone et al., 2014; Olds & Barton, 2015; Salter et al., 2016; Whitcomb, 2009, 2013, 2018, 2020; Williams et al., 2008), while the NTMP followed a common contemporary trend to be geographically distant from its parent medical school (Lanphear & Strasser, 2008; Mokone et al., 2014; Smego et al., 2010; Snadden et al., 2011; Strasser & Lanphear, 2008; Strasser et al., 2009; Tesson et al., 2009; Whitcomb, 2009, 2013, 2018; Worley et al., 2019). NOSM combined both approaches with main campuses co-located with each of its two parent universities as well as significant community distribution throughout Northern Ontario.

My case studies underscore the socio-political, economic, and organisational complexities that geography adds to medically under-served areas. The case study medical schools approached these complexities in different ways to ensure their success. For example, NOSM committed large finances towards travel across their geography; UBFoM stayed close to their areas of existing infrastructure; and the NTMP leveraged their geographical isolation to make socio-political arguments for infrastructure investments.

### **7.2.2 Population characteristics:**

All three case-studies reported sparse populations relative to their land expanses, with a few urbanised concentrations and several scattered rural and remote groupings. The Northern Territory had a relatively younger adult population, but with a high turnover and a net outflow. It also had a high proportion of Australia's Indigenous peoples, mostly living in isolated remote communities. Northern Ontario's population included several different people groups including Anglophone, Francophone, and First Nations and Metis Indigenous people. Botswana also had a relatively young population with a large paediatric cohort. Their people were mainly Tswana with a few other Indigenous people groups, along with non-Indigenous white Africans and Indian Africans. Botswana had the largest urban concentration of the three case-studies.

Globally, there is a poor correlation between the size or density of region's population and the presence of a medical school (Boulet et al., 2007; Duvivier et al., 2014; Frenk et al., 2010; Karle, 2010). Some areas – like Africa – with relatively large populations do not have many medical schools, while others – like the Caribbean – with relatively small populations have several medical schools (Duvivier et al., 2014). My three case-studies did not use population size per se, as a motivating factor for their establishment. In fact, for UBFoM, the size of their population relative to the expense of building an inaugural medical school was a socio-political deterrent for several decades – a situation also discussed in other regions (Frenk et al., 2010; Karle, 2010; Muula, 2006; Pericleous, 2011).

All three cases had social missions related to inclusion, diversity, social accountability, minority disadvantage, and ethnic disparities. For example, the need for more Aboriginal doctors in Australia, First Nations doctors in rural Canada, and Botswana doctors in Botswana were key drivers for the case study medical schools. Other medical schools in the world reported similar emphases on social accountability and pro-social motivations (Association of American Medical Colleges, 2012; Drobac & Morse, 2016; Fogarty et al., 2012; Hays, 2018; Hays, Strasser, et al., 2019; Hurt & Harris, 2005; Lanphear & Strasser, 2008; Lawrenson et al., 2017; Mullan, 2003; Nausheen et al., 2018; Olds & Barton, 2015; Schuster et al., 2020; Simoyan et al., 2011; Strasser & Lanphear, 2008; Strasser et al., 2009; Tesson et al., 2009; University of California Riverside, 2008; Worley et al., 2019).

Central to conversations regarding the NTMP and NOSM, was the rurality of their populations and their student cohorts. The phrase “social accountability” came up often for these two case studies. Both NOSM and Flinders were founding members of the international consortium of socially accountable medical schools that formed the Training for Health Equity Network (THEnet) (Training for Health Equity Network, 2011). Furthermore, both NOSM and the Hull York Medical School (that shared its curriculum with UBFoM) won inaugural ‘Excellence in Social Accountability’ awards in 2013 from the Association for Medical Education in Europe (AMEE) (Association for Medical Education in Europe, 2015). However, social accountability and serving their rural populations was mentioned infrequently during the urban-weighted UBFoM case study. My research suggests that the size or density of a population is less important when establishing a new medical school, than needs for health and social equity. Social accountability targets local health system needs such as medical workforce supply and population health outcomes which are discussed in the next two sections.

### **7.2.3 Medical workforce needs:**

All three case-studies reported an inadequate supply of doctors in their regions, a situation extensively echoed in the literature as a key reason for establishment (Association of American Medical Colleges, 2012; Bin Abdulrahman & Saleh, 2015; Castelo-Branco et al., 2016; Cathcart-Rake et al., 2017; Condon et al., 2017; Drobac & Morse, 2016; Fogarty et al., 2012; Furukawa et al., 2017; Hays & Sen Gupta, 2003; Hays et al., 2003; Howe et al., 2004; Hurt & Harris, 2005; Lanphear & Strasser, 2008; Lawrenson et al., 2017; Lawson et al., 2004; Lockyer & Patterson, 2005; Mokone et al., 2014; Olds & Barton, 2015; Penner, 2018; Pinder et al., 2008; Reis et al., 2009; Rizwan et al., 2018; Salter et al., 2016; Smego et al., 2010; Smith, 2009; Strasser & Lanphear, 2008; Strasser et al., 2009; Tesson et al., 2009; University of California Riverside, 2008; University of Newcastle, 1972; Whitcomb, 2009; Worley et al., 2019). In my research, the inadequate supply of doctors was fundamental to my definition to “medically under-served” (see ‘Introduction’ section 1.4.1).

In all three cases, local people who trained to become doctors necessarily had to do so in a different region and they frequently did not return – after a period of living and working elsewhere their ‘roots’ or connections shifted. Unable to depend on the return of most locals who left to study medicine elsewhere, the case study regions instead had to depend on an imported workforce, which is commonly associated with a high turnover of personnel. Imported workforces can also face issues of inadequate healthcare due to the doctors’ unfamiliarity with the local language, culture, population characteristics, and health system norms. Both the NTMP and NOSM cases revealed that higher financial incentives offered to these imported personnel only ever worked as a short-term solution. In contrast, the UBFoM case noted that the relative political stability and economic prosperity of Botswana attracted medical personnel from other African nations – an unfortunate brain-drain for those other nations. However, even this attractiveness was not sufficient for the long-term stability of Botswana’s health system.

Having a medical school could address regional workforce needs by attracting more doctors, as well as better qualified doctors to the area (Pericleous, 2011; Whitcomb, 2013). Although global data cannot provide clear correlation between the presence of a medical school and subsequent physician density (Boulet et al., 2007; Duvivier et al., 2014), the hypothesis remains that a new medical school in a medically under-served location could improve the medical workforce supply (Boulet et al., 2007; Duvivier et al., 2014; PWC Consulting, 2002; Tesson et al., 2009). In my research, the NOSM case study provided the most encouraging data on their long-term local workforce outcomes, while the NTMP and UBFoM supported the literature on improved junior doctor supply in the short- to medium-terms (Farrer-Brown et al., 1958).

#### **7.2.4 Health situation:**

All three case-studies reported poorer health outcomes for their regions, consistent with other medically under-served areas globally (Buykx et al., 2010; Greenhill et al., 2015; Russell et al., 2017; World Health Organization, 2006, 2010). The geographic challenges and sparsely distributed population mentioned above contributed to this situation. The inadequate medical workforce also contributed – it is hard to improve the local health system with a high turnover of non-local staff. For the NTMP and NOSM, other socio-economic factors included poverty, racism, poorer education, and a history of colonisation. For Botswana, the HIV/AIDS epidemic was also focal.

Improved health outcomes for Indigenous sub-populations motivated both NOSM and NTMP, while UBFoM targeted the health of their entire populace. This is consistent with a key reason for establishing other medical schools around the world (Association of American Medical Colleges, 2012; Cristobal & Worley, 2012; Fogarty et al., 2012; Hamdy & Anderson, 2006; Härtl et al., 2017; Hays, 2001, 2018; Hays et al., 2003; Hays, Strasser, et al., 2019; Hurt & Harris, 2005; Karle, 2010; Lanphear & Strasser, 2008; Lawrenson et al., 2017; Lockyer & Patterson, 2005; Romano, 2001; Simoyan et al., 2011; Smego et al., 2010; Strasser & Lanphear, 2008; Strasser et al., 2009; Tesson et al., 2009; University of California Riverside, 2008; Whitcomb, 2009, 2010, 2013, 2018; Worley et al., 2019). My case studies did not provide specific health outcome data from their establishment, but both the NTMP and NOSM had clear social accountability emphases. Globally, there is a poor correlation between the presence of a medical school and the burden of disease for that region (Frenk et al., 2010). This potentially reflects that many of the world's medical schools do not prescribe to socially accountable mandates to address the priority health needs of their local regions (Boelen, 2016, 2018; Boelen & Heck, 1995; Boulet et al., 2007). Health equity is a significant consideration for medically under-served locations and my research reveals that it can become a driver for exciting social change, accountability, and innovation through medical education. New medical schools can develop strong social rationales which can usefully challenge the status quo and dominance of traditional medical schools that may not emphasise the same ethos.

### **7.2.5 Educational milieu:**

All three case-study medical schools were historic firsts for their regions. The NTMP was the first full medical school in the Northern Territory, the final state/territory of Australia to achieve this. NOSM was the first new medical school in Canada after 38 years. It was also the first for northern Ontario, contrasting against five older medical schools in southern Ontario. UBFoM was the inaugural medical school for the country of Botswana.

Prior to establishment, residents of the case study regions who wanted to study medicine had to necessarily leave the area to do so. The NTMP reported a strong rationale of wanting to “grow their own” by providing local educational opportunities for their residents. The Covid-19 global pandemic with restricted international and interstate travel has similarly emphasised the need to ensure local supply. NOSM’s rationale was more about providing for their region by recruiting local people, training them locally and providing future work opportunities that would keep them local. UBFoM needed to keep their medical students local because Botswana’s previous strategy to sponsor their residents to return after studying medicine elsewhere turned out to be an expensive, self-perpetuating brain-drain.

Sceptics in all three case-studies questioned the capacity for good medical training to be successfully undertaken in these untried regions. Both the NTMP and NOSM experienced resistance from existing medical schools in other regions, who argued for an expansion of their own rural activities as the better alternative to establishing an expensive new medical school whose novice quality was questioned. This power struggle against existing medical schools, is a common scenario for new medical schools (Condon et al., 2017; Lawrenson et al., 2017; McFee & Aust, 2005; Norris et al., 2006; Romano, 2001; Salter et al., 2016; Texas Higher Education Coordinating Board, 2008; Whitcomb, 2009, 2013, 2018). In the UBFoM case study, the country’s own government argued for out-sourcing their medical education to other countries based on expense. In all three cases, several decades of trialling the non-local alternatives for health workforce needs produced evidence that local solutions were desperately needed instead. New medical schools in medically under-served locations can draw on these examples to stand against their own opponents proposing non-local solutions.

In all three case-studies, the workforce and health benefits of establishing a new medical school were the driving rationales, even though local educational benefits were also recognised and acknowledged. My findings supported the medical education literature regarding the benefits of a local medical school for universities, health research, educational innovation, regional intellectual capital, and for individuals who would not otherwise be able to travel elsewhere to study medicine (Association of American Medical Colleges, 2012; Bin Abdulrahman & Saleh, 2015; Cookson, 2013; Drobac & Morse, 2016; Eichbaum, Nyarango, et al., 2014; Farrer-Brown et al., 1958; Frenk et al., 2010; Hamdy & Anderson, 2006; Härtl et al., 2017; Hays, 2001, 2018; Hays et al., 2003; Hays, Strasser, et al., 2019; Howe et al., 2004; Hurt & Harris, 2005; Karle, 2010; Lawson et al., 2004; Muula, 2006; Nausheen et al., 2018; Penner, 2018; Pericleous, 2011; Reis et al., 2009; Salter et al., 2016; Shepherd, 1925; Simoyan et al., 2011; Smego et al., 2010; Smith, 2009; Snadden et al., 2011; Strasser & Lanphear, 2008; Strasser et al., 2009; Tesson et al., 2009; University of California Riverside, 2008; Whitcomb, 2009, 2010, 2013, 2018; Willard, 1960; Williams et al., 2008; Worley et al., 2019). Furthermore, my research confirmed that these benefits were achievable even in regions that had never had a medical school before.

To summarise, the Contexts of the case study medical schools contained elements that could obstruct the successful establishment of their new medical schools – such as harsh geography and small, inconstant medical workforce – but also aspects that could precipitate and support successful establishment – such as socio-political impetus to address health and educational inequities. In ‘Discussion’ section 8.2.2, I examine generative mechanisms that can contribute to making the Context hostile and/or fertile for a new medical school. Understanding these mechanisms will assist the Catalysts, who are considered next.



### 7.3 Comparing Catalysts:

Various individuals, organisations, committees, and communities played catalytic roles to establish the case study medical schools. In each case, I mapped a vast network of people from a variety of stakeholder groups who worked together to accomplish this. In all cases, Catalysts were members of universities, health services, government offices, and/or local communities, and could be conceptually categorised as either Champions or Colleagues. Champions drove the charge with significant leadership and vision, while the Colleagues assisted in various subsidiary capacities that were no less vital.

In the medical education literature, the most clearly identified Champion was the Founding Dean (see section 2.3.3.3 'Leadership and governance'). Both the NMTP and NOSM case-studies highlight that a good choice of a strong, visionary leader in the Founding Dean role, with the right expertise and attitudes, could powerfully effect novel and non-traditional solutions for the region and the new medical school. The literature suggests the desirable characteristics in the Founding Dean should include "excellent medical education, leadership, management and communication skills" (Bin Abdulrahman & Saleh, 2015, p. 3) and that he/she should be "qualified by education and experience to provide leadership in medical education, scholarly activity and the care of patients" (Liaison Committee on Medical Education, 2008, p. 2).

Both my data and the literature also identified other crucial individuals – both Champions and Colleagues – from amongst associate deans, university governors, health service leaders, and government legislators (Association of American Medical Colleges, 2012; Cristobal & Worley, 2012; Hamdy & Anderson, 2006; Härtl et al., 2017; Hurt & Harris, 2005; Khalil & Kibble, 2014; Lanphear & Strasser, 2008; Penner, 2018; Schuster et al., 2020; Smego et al., 2010; Whitcomb, 2009, 2013, 2018; World Federation for Medical Education, 2015, 2020; Worley et al., 2019). Important characteristics of these catalytic leaders noted in my data included vision, creativity, tenacity, drive, focus, commitment, patience, understanding, ability to explain, willingness to listen, flexibility, willingness to take risks, a pioneering spirit, willingness to collaborate, and a willingness to compromise. This echoes the medical education literature regarding the ideal qualities of the founding team (see section 2.3.3.3 'Leadership and governance').

All three cases reveal that the creativity inherent in innovative, entrepreneurial leaders may sometimes lead to competing and conflicting visions. In the NTMP case study, the desire to innovate and contextualise the curriculum for the NT led to conflicts between the Catalysts in the Northern Territory and those in South Australia. In the NOSM case study, tensions between strong-willed Catalysts were reported, as were lingering East versus West regional tensions. In the UBFoM case study, the original curriculum devised by one Catalyst needed to be re-written to better align with the medical education philosophies that the new medical school wanted to espouse. Additionally, the NTMP and UBFoM experienced contrasting support from their Vice Chancellors: the NTMP could fast-track their processes because of their Vice Chancellor's support but UBFoM experienced significant disruption and discouragement because their new Vice Chancellor opposed their efforts. For all three cases, an abiding commitment to the over-arching vision to establish a new medical school, over-rode all other competing conflicts.

Both NTMP and UBFoM experienced a high turnover in some of their high leadership positions – the Associate Deans of the NTMP and the Founding Deans of UBFoM. Accreditors warn against “excessive turnover or long-standing vacancies in medical school leadership” (Liaison Committee on Medical Education, 2008, p. 2). Nonetheless, establishment processes were not entirely derailed for NTMP and UBFoM, and my data suggests this was because of the strong contributions and commitment of all the other supportive Champions and Colleagues. In other literature, Florida State University College of Medicine experienced a similar leadership change and also came to the same conclusion: “a core group of the college’s leaders who had been involved from the earliest stages of its development served to stabilize the college and keep its planning on track” (Hurt & Harris, 2005, p. 978). That a network of Catalysts can safeguard against instability is further illuminated in the next chapter (‘Discussion’ section 8.2.1), where I use entrepreneurial perspectives to further understand who can become a Catalyst and how they can become one.

To highlight one key catalytic stakeholder group before concluding this section, both my data and the literature identified that Catalysts can be drawn from government offices. However, the medical education literature does not discuss the role of government-related Catalysts with the importance and transparency required, especially given their power as individuals who can hinder or help the establishment of a new medical school. My research empirically adds significant emphasis to this stakeholder group. In the next section 7.4 and the next 'Discussion' chapter 8, I will further unpack how establishing a new medical school is an intensely political process, and governmental politics is a core element.

## **7.4 Comparison of Conducing:**

As noted earlier in this thesis, how Catalysts went about obtaining the all-important initial approval from their governing authorities (which could be university, healthcare, community, and/or government leaders) to establish a new medical school was not well-discussed in many reports. Most articles tended to focus on the process after the initial green-light to proceed had been given. My use of a conceptual framework derived from the business and entrepreneurship domains helped to uncover this large gap in the medical education literature and my research provides empirical data on this important aspect.

My case studies revealed that for new medical schools, important initiatives towards successful Conducing include harnessing pre-existing medical education initiatives; obtaining supportive expert advice and official reports; recognising and taking advantage of socio-political happenstances and exerting different kinds of political power. These are discussed in turn below.

Both the NTMP and NOSM, used previous smaller-scale clinical education initiatives in their regions to establish a track record and provide evidence to support the case for change. These initiatives provided evidence that medical education could be conducted successfully within their health services, and that workforce retention could be positively impacted. They primed and oriented the health services to educational involvement and demonstrated the regional capacity for teaching. Other medical schools reported similar success when adding or expanding into areas where some medical education was already taking place (Association of American Medical Colleges, 2012; Condon et al., 2017; Fogarty et al., 2012; Hays, 2001; Hays et al., 2003; Hurt & Harris, 2005; Lawson et al., 2004; Norris et al., 2006; Olds & Barton, 2015; Penner, 2018; Snadden et al., 2011; University of California Riverside, 2008; Whitcomb, 2009, 2013, 2018, 2020). UBFoM's case study did not do this – their presidentially-mandated Pre-Med Program involved non-clinical science teaching only at the local university, with all the clinical teaching outsourced abroad. Subsequently, when UBFoM attempted to implement local clinical teaching through a teaching health system model in distributed health service facilities, they encountered significant logistical challenges and resistance that required working through in a culturally-appropriate way. In this example, the bottom-up approaches of NTMP and NOSM were better received than the top-down approach of UBFoM, even though both were ultimately successful.

All three medical schools drew heavily on supportive expert advice and official reports to make their cases for establishment. For both NOSM and UBFoM, government-sanctioned taskforces, committees, and commissions produced reports on the feasibility and desirability of a new medical school in their regions. For the NTMP, a State-sanctioned health summit and university-commissioned historical account plus feasibility study, all produced useful reports. The literature mentions the useful role of expert committees and studies in eventual decisions to establish a new medical school (Cathcart-Rake et al., 2017; Clarke, 1979; Hays, 2001; Hays et al., 2003; Hurt & Harris, 2005; Norris et al., 2006; Olds & Barton, 2015; Penner, 2018; Salter et al., 2016; Smego et al., 2010; University of California Riverside, 2008; Whitcomb, 2009, 2013, 2018, 2020), however, only Whitcomb explicitly discussed this as a deliberate strategic approach (2009, p. 58; 2013, p. 11). My data underscores the strategic utility of such expert committees and supportive reports.

All three case-studies needed to understand and take advantage of the socio-political climates of their time. For the NTMP, this was about the upcoming Federal elections; the findings of a State-level health summit; the university's enthusiasm for social accountability; and a friendship between two university leaders – all of which were attributed to “serendipity”. For NOSM, it was about a growing discontentment in Northern Ontario for Southern-controlled solutions, and also the rise of a Northerner into ultimate authority as Ontario's Premier. For UBFoM, it was about showing that outsourcing medical education abroad was neither effective nor financially viable, since the beneficiaries were not returning. Other medical schools have previously outlined specific socio-political circumstances that assisted their approval processes (Bin Abdulrahman & Saleh, 2015; Chavez et al., 2012; Hays et al., 2003; Hurt & Harris, 2005; Norris et al., 2006; Olds & Barton, 2015; Penner, 2018; Romano, 2001; Smego et al., 2010; Whitcomb, 2009, 2010, 2013, 2018, 2020), however, their recognition of strategic usefulness was implicit only and not identified as an explicit theme during initial literature analysis (as presented in ‘Literature Review’ chapter 2).

Finally, all three cases engaged in intense political lobbying. The NTMP hired a lobbying organisation to help them prepare an influential strategy and navigate the complexity of Federal, State, and local politics. NOSM depended on coalitions of municipal leaders, health service leaders, and local people to promote their strategy to the Provincial and Federal Governments. Indigenous communities of Northern Ontario banding together with each other and with non-Indigenous groups in support of the new medical school were particularly politically powerful. For UBFoM, political lobbying was achieved through Champions rising in power within the government, building a critical mass of clinicians who supported the new school, and the local people applying community pressure. The need for protracted and persistent political lobbying was noted in the literature by a few medical schools (Condon et al., 2017; Hays et al., 2003; Romano, 2001; Smego et al., 2010; Whitcomb, 2009, 2010, 2013, 2018).

These empirical findings can be informative for visionary Catalysts still trying to get authoritative approval for their new medical school. To assist governing decision-makers to balance the cost and financial viability of a new medical school with the potential for beneficial outcomes, Catalysts of new medical schools need to address both the administrative and political considerations of the venture. Thus, my research encourages a more explicit understanding of various Conducting strategies that Catalysts can employ to gain the approvals they need. In the next chapter ('Discussion' section 8.2.3), I consider why Conducting is so imperative for successful establishment and examine concepts from Institutional Entrepreneurship that could be beneficial. Furthermore, in 'Discussion' section 8.2.4, I unpack useful socio-political devices that should be considered, given the intensely political nature of new medical school establishment.

Catalysts use techniques of Convincing, Connecting, and Collecting even during the Conducting phases, because the activities and the concepts are not mutually exclusive but intimately interwoven (as discussed in section 3.4.2.4 'Interactions of the Eight C's'). The following sections present more considerations for Catalysts to undertake these activities and not only gain initial approval but also successfully proceed with establishing their new medical school.

## **7.5 Comparison of Convincing:**

To establish a new medical school, a variety of stakeholders will need Convincing. Whitcomb summarised these as "university faculty, university trustees, community leaders and government officials" (2009, p. 11), but my research broadens these to include governmental authorities; funding sources; health service leaders and clinicians; educational and research collaborators; prospective staff; prospective students and their families; the general populace including patients and their families; and accrediting bodies. Furthermore, my case studies highlighted that sceptics could be encountered in any/all these stakeholder groups. Different arguments and narratives will be needed, depending on the situation and audience (Hardy & Maguire, 2017; Maguire et al., 2004; Whitcomb, 2009).

My research highlights some of the compelling rationales used by the case study medical schools to successfully convince their stakeholders and sceptics. Macro-level strategic arguments were about workforce provision, health improvement, educational innovation, infrastructure expansion, intellectual development, financial feasibility, and social accountability. For example, the NTMP emphasised an improved supply of Aboriginal and Territorian doctors; improved Aboriginal health care and health research; and improved medical education opportunities for Territorians and Aboriginal people. Improved local infrastructure through the partnership with Charles Darwin University was another selling point for the NTMP. NOSM emphasised improved health and workforce outcomes for Northern Ontario with their slogan “for the North, by the North, in the North” (Tesson et al., 2009, pp. 3-19). NOSM also drew on international research to provide convincing evidence that community-engaged, distributed clinical training was the best solution for their situation. Catalysts in Botswana argued that the large financial outlay for a new medical school would actually be the cheaper option for their government compared to the financial bleeding caused by large numbers of Botswana training abroad and not returning. UBFoM leaders also emphasised that a new medical school would help to improve the local health system by developing into a teaching health system and producing competent local doctors.

Whitcomb proposed four convincing arguments (2009, p. 56): 1) the university’s academic standing will be enhanced; 2) the local economy will be favourably impacted; 3) the supply of doctors for the region will be increased; and 4) access to healthcare services will be improved. In chapter 2, I detailed a wide range of ‘reasons for establishment’ from the literature (see section 2.3.3.1). Through synthesis of my case studies, I can recommend that Catalysts should prepare a comprehensive range of convincing narratives incorporating social, educational, relational, logical, political, economic, health, and moral rationales, encompassing macro-level (i.e., environmental), meso-level (i.e., institutional) and micro-level (i.e., individual) considerations (Preston et al., 2016; Tracey et al., 2011).

The three cases also required extensive meso- and micro-level documentation and proof to convince their accreditors of their educational quality and functional capability. The hard work and expense involved with accreditation was noted by NTMP and UBFoM participants, echoing what was noted in the medical education literature (Association of American Medical Colleges, 2012; Field, 2011; Hurt & Harris, 2005; Karle, 2008, 2010; Smego et al., 2010; Snadden et al., 2011; Whitcomb, 2009, 2013; World Federation for Medical Education, 2000). Furthermore, that accreditation processes can be an opportunity for self-evaluation and improvement for the new medical school, was also acknowledged by NTMP and UBFoM participants, again echoing what was expressed in the literature (Castelo-Branco et al., 2016; Hays, Strasser, et al., 2019; Liaison Committee on Medical Education, 2006, 2008, 2020; World Federation for Medical Education, 2000). Successfully obtaining accreditation is one of the most convincing events in support of a new medical school.

The literature identified common accreditation challenges to include limited availability of appropriate academic staff; inadequate access to clinical environments; unsatisfactory research provisions; insufficient financial and physical resources; poor post-graduate employment and training opportunities; lack of realistic forward planning; non-traditional models; short preparation times; and unsatisfactory documentation (Field, 2011; Hurt & Harris, 2005; Whitcomb, 2009, 2013, 2018). Both the NTMP and UBFoM struggled with adequate staffing. NOSM did not report the same level of difficulty, possibly because of the success of their “travelling roadshow”. UBFoM’s investment in a large, new quaternary teaching hospital met with disapproval from their accreditors, because it detracted from many of the medical school’s aims and objectives.



The NTMP and NOSM particularly reported the high stakes involved with their accreditation and the potential disaster of failing the process. For Flinders University, getting their Northern Territory program accredited put their well-established South Australian program at risk. They approached this risk by insisting on an identical curriculum for all their students, at great technological cost and at the expense of some regional contextualisation. By contrast, NOSM proposed many educational innovations, proven successful in other international models but quite novel for their region. For NOSM, failing accreditation would have meant no medical school at all. Innovating can be risky and the intense pressure for acceptance can favour conventionality and expedience over creativity (Association of American Medical Colleges, 2012; Hays, 2018). NOSM took the risk, and their outcomes proved their originality was worth the hazards. The need for visionary Catalysts to take risks will be further explored in 'Discussion' section 8.2.1.

Importantly, both NOSM and UBFoM precipitated a reciprocal improvement in the policies and procedures of their accrediting bodies. The North American authorities were out of practice and out of date, because so few new medical schools had been established in Canada and the USA during the previous four decades. Botswana's regulatory bodies needed to re-define their national role and standards, because accrediting the new medical school required them to function at an enhanced level compared to before. This reciprocal opportunity for improvement for the accrediting authorities is a new finding from my research. As a flow-on effect, it could lead to improvements at pre-existing medical schools assessed by the new accreditation processes. Whitcomb noted that the millennial spate of new medical schools in the USA has indeed led to medical education reform in existing institutions, although he did not relate this specifically to updated accreditation processes (2018, 2020).

Convincing individuals could transform them into Champions or Colleagues of the new medical school. My case studies revealed that a strong and effective network of Catalysts could be strategically built by cultivating and positioning Champions and Colleagues within each stakeholder group to convince and influence the rest of the group. In 'Discussion' section 8.2.4.1, I explore principles and techniques of persuasion that can be useful. Convincing different stakeholders is also intimately linked with Connecting, as discussed in the next section.

## 7.6 Comparison of Connecting:

Connecting with individuals, groups, organisations, and communities in various supportive relationships were vital to successful establishment in all three case-studies. For Flinders University and the NTMP, the most important alliance was with Charles Darwin University (CDU) – the first multi-university partnership of its kind in Australia. For NOSM, the equal partnership between Laurentian and Lakehead Universities was also trail-blazing in several respects, such as the unique model of a stand-alone incorporated legal entity co-administered by the two universities. In both these cases, the alternative to collaboration would have been competition for scarce resources and possible failure of the venture. In the UBFoM case study, Connecting with international medical schools was most important in their initial stages of establishment, while international aid became more important in the later stages. Collaborating with South African partners, particularly for post-graduate specialty training, was also vital. The importance of partnerships, alliances, and collaborations to successfully establish new medical schools is well-recognised in the medical education literature (see section 2.3.3.5 'Partnerships and relationships').

Nonetheless, all three cases also reported some areas where sub-optimal connections led to problems and challenges. For example, the NTMP case did not include much data on their connections with Aboriginal stakeholders and reported significant challenges implementing their Indigenous imperatives. NOSM participants discussed that their Francophone community did not feel as engaged and serviced by the new medical school as their Indigenous counterparts. UBFoM participants noted that despite Botswana's culture of "extensive consultation", there were insufficient discussions about the new medical school with health service staff leading to challenging dynamics when implementing clinical training placements.

Additionally, UBFoM experienced massive 'brain drain' in the early stages of their international partnerships when ~80% of their doctors never returned to work in Botswana. Botswana's case study also showed that aid-funded projects have the potential to draw workforce away from other areas of the health system within the country. For instance, internationally funded HIV/AIDs programs and research attracted resources, including doctors, away from other health and research services. New medical schools in medically under-served areas, have the potential for 'brain drain' to more attractive locations or projects and this needs to be mitigated. For example, South Africa resolved not to employ any doctors from member countries of the Southern African Development Community (SADC), after their post-graduate specialty training in South Africa. This pro-social attitude was not always easy to maintain since South Africa itself had many of its own medically under-served situations to consider and had, essentially, invested its resources to train specialists for other countries.

Thus, my research supports the notion that the highest quality of functionality and sustainability is achieved in partnerships when they are mutually beneficial and symbiotic (Prideaux et al., 2007; Worley, 2002; Worley et al., 2006), rather than imbalanced and aid-oriented. NOSM's exemplary community engagement with their Indigenous communities and 90+ clinical locations, is highlighted in the pride and ownership the communities feel for "their" medical school. On the other hand, NOMP and NOMECE – the regional postgraduate General Practice (GP) training bodies that ceased to function once NOSM was established – were deliberately self-sacrificing for the bigger vision of the new medical school. Thus, the NOSM case study particularly demonstrates how deeply synergistic ways of Connecting with various partners and stakeholders can gain better outcomes for all.

In 'Discussion' section 8.2.4.2, I further unpack the importance of symbiosis in partnerships. A key outcome of symbiotically Connecting with other stakeholders is the sharing of resources. In the next section, I discuss how Catalysts of new medical schools go about Collecting their required resources.

## **7.7 Comparison of Collecting:**

Each case study in this research invested in significant financial, human, material, and educational resources. From the medical education literature and the Thirteen Key Considerations of New Medical School Establishment (see 'Literature Review' section 2.3.3), I collated the resources that needed Collecting into six categories: Funds, Staff, Curriculum, Clinical training sites, Facilities, and Students (see 'Research Design' section 3.4.2.3.4 'Collecting'). In this section, I compare my case study findings for each category.

### **7.7.1 Funds:**

Establishing a new medical school is an expensive undertaking (see section 2.3.3.4 'Costs and funding') and my case studies were no exception. Being medically under-served may have predisposed them to incurring added expenses. For example, geographic vastness and isolation increased the travel and logistical costs for staff and students of all three cases. Providing resources and infrastructure in multiple locations for their distributed models of medical education also required greater financial outlay for all three cases.

The lion's share of funding for all three cases came from their central or regional governments, but several other sources were also accessed. Special project grants from governmental, business, health, and research bodies were important – for example, the Health and Hospitals Fund (HHF) for the NTMP, the Northern Ontario Heritage Fund Corporation (NOHFC) for NOSM and the Medical Education Partnerships Initiative (MEPI) for UBFoM. UBFoM additionally drew on international aid avenues, while the NTMP additionally benefitted from national technology initiatives such as the National Broadband Network (NBN) and the Australian Advanced Research and Education Network (AARENet). NOSM's history revealed that their local communities had previously undertaken substantial fund-raising for new hospitals, and they also came together to fund-raise for student bursaries. The literature points to funding sources such as federal and state government support; university funding; infrastructure development grants; research funding; philanthropic donations; endowments and bequests; international aid; student tuition fees; clinical revenue subsidies; and community fund-raising (Association of American Medical Colleges, 2012; Cristobal & Worley, 2012; Eichbaum, Bowa, et al., 2014; Eichbaum et al., 2015; Fogarty et al., 2012; Frenk et al., 2010; Hamdy & Anderson, 2006; Hays et al., 2003; Hays, Strasser, et al., 2019; Hurt & Harris, 2005; Lanphear & Strasser, 2008; Liaison Committee on Medical Education, 2008, 2020; Mokone et al., 2014; Norris et al., 2006; Pericleous, 2011; Simoyan et al., 2011; Smego et al., 2010; Snadden et al., 2011; Strasser & Lanphear, 2008; Strasser et al., 2009; Tesson et al., 2009; University of California Riverside, 2008; Whitcomb, 2009, 2013, 2018; Williams et al., 2008; Worley et al., 2019). Although my data did not add any new funding sources, my cases emphasised the wisdom in strategically identifying local, national, and international opportunities for each source.

My research highlights that even huge amounts of money could seem insufficient to implement a desired vision. This was particularly evident from the challenges discussed in the NTMP case (see section 4.4.8 'Insufficient funds for some aspects'), and the perspective of a NOSM participant, who highlighted that even "Bill Gates" might feel under-funded. Thus, Catalysts establishing new medical schools – particularly in medically under-served locations – will need to find the right balance between their ideals and the availability of funding. For example, the NTMP spent additional time and money to implement their desired anatomy curriculum even though simpler or cheaper options of comparable educational quality could have been considered instead. There are exemplar medical schools around the world who have successfully implemented high quality training, effective for their local contexts, with relatively small budgets (Cathcart-Rake et al., 2017; Cristobal & Worley, 2012; Frenk et al., 2010).

### **7.7.2 Staff:**

Staffing posed a difficulty for many new medical schools (see ‘Literature Review’ section 2.3.3.6) and also for the NTMP, NOSM, and UBFoM. Finding the right staff, employing enough staff, and retaining good staff were major challenges for all three cases and different solutions were tried by each. The NTMP used local networking to identify clinicians who might be able to get the job done regardless of their previous academic experience or clinical fields. They also hooked into the existing network of clinical teachers from the previous medical education initiatives in the NT. NOSM also appointed several Catalysts who had already been leaders in the pre-existing clinical education initiatives. NOSM recruited clinical teachers in 90+ clinical placement locations by an expensive and intensive but effective “travelling roadshow” of personal visitation to each community and clinician. UBFoM depended heavily on “expatriate” appointments of Africans and other nationals from both international and local sources. All three cases made academic appointments more attractive by providing additional financial, academic, and professional support and incentives.

To equip their clinical staff with teaching skills, all three cases conducted faculty development workshops. UBFoM further encouraged their faculty to undertake a formal Fellowship in Medical Education. NOSM and UBFoM also implemented a longer-term solution by including a medical education component to their post-graduate courses – to produce teaching-ready specialists who might later become staff at the new medical school. The medical education literature described many comprehensive faculty development strategies used around the world (see section 2.3.3.6 ‘Staffing’) and new medical schools in medically under-served areas could use a contextually appropriate combination of these.

My research reveals that intensive planning and investment is needed to recruit and retain good staff in new medical schools. Although the medical education literature does not specifically discuss ‘burnout’ as a cause for high rates of staff attrition, all three of my cases highlight this as a significant problem. The personal costs involved with being a trail-blazing visionary and needing to break new ground of this magnitude, was particularly reported by NTMP participants but also echoed in NOSM and UBFoM data. Castelo-Branco et al., caution that establishing a new medical school “is not for the faint hearted” (2016, p. 1204). However, a stronger understanding that Catalysts face the risk of significant stress, burnout, or other mental health difficulties deserves further articulation, which I have done in ‘Discussion’ sections 8.2.5 and 8.4.1.

### **7.7.3 Curriculum:**

All three case-study medical schools had an integrated systems-based modular curriculum with early clinical exposure, consistent with most modern medical school curricula (Bin Abdulrahman & Saleh, 2015; Castelo-Branco et al., 2016; Eichbaum et al., 2015; Frenk et al., 2010; Hamdy & Anderson, 2006; Howe et al., 2004; Khalil & Kibble, 2014; Lawrenson et al., 2017). For their small-group learning, the cases variously use problem-based learning (PBL) (UBFoM), case-based learning (CBL) (NOSM) and team-based learning (TBL) (NTMP). All are resource-intensive in different ways – for example, PBL and CBL often require large numbers of facilitating tutors, while TBL requires reliable, advanced technology for synchronous learning. My research did not identify any particular strength of one of these small-group approaches over another for new medical schools in medically underserved areas but supports the understanding that Catalysts will need to weigh up their own local considerations to make their contextualised choices. As noted in the literature, curriculum decisions need to align with the mission of the new medical school as well as the available educational and clinical resources (see section 2.3.3.9 ‘Curriculum design and implementation’).

Previous literature identifies that most new medical schools conceptually derive their curricula from discussions of the kind of graduate they want to produce and the competencies expected in a licensed doctor for their region (Bin Abdulrahman & Saleh, 2015; Castelo-Branco et al., 2016; Cristobal & Worley, 2012; Eichbaum et al., 2015; Eichbaum, Nyarango, et al., 2014; Frenk et al., 2010; Hamdy & Anderson, 2006; Härtl et al., 2017; Khalil & Kibble, 2014; Lockyer & Patterson, 2005; Smith, 2009). In my research, this was primarily seen with the NOSM case study. Of the three case-studies, NOSM had the strongest emphasis on rural health and community-engaged medical education. Their students had several rurally immersive placements beginning in their first year and including their entire third year undertaken as a longitudinal clinical clerkship in a rural town. Placements in urban tertiary hospitals were limited to their fourth and final year. NOSM also had a unique community-engaged attitude that “all of Northern Ontario is its classroom”. The literature identifies that extensive rural and remote clinical experience, produces graduates who feel eminently comfortable – that is, confident and competent – to accept employment in similar locations (Curran & Rourke, 2004; Jones et al., 2009; Ono et al., 2014; Rabinowitz et al., 2008; Roberts et al., 2012; Strasser, 2001). Thus, these curriculum design choices may well have impacted NOSM’s large rural retention statistics.



NOSM runs a graduate-entry course, UBFoM teaches undergraduates, and NTMP caters for both undergraduate and graduate entrants. The choice between an undergraduate-entry versus graduate-entry medical program will depend on several factors including the general educational structure of the country. For example, North American medical schools primarily run graduate-entry courses while medical schools in many other countries such as India primarily run undergraduate options (Mowery, 2015). Australia historically offered only undergraduate-entry courses, until 1996 when Flinders University pioneered the first graduate-only medical program. In Australia now, there are several undergraduate-entry and graduate-entry pathways, often within the same medical school – including Flinders and the NTMP. My research did not suggest one model over another for medically under-served areas, however, other factors – such as the total length of time to produce a medical workforce for the region; the applicant pool best suited to the needs of the region or the mission of the school; and the new medical school’s appetite for innovation and non-traditional solutions – should influence the choice. For example, if Botswana had chosen to send graduate Botswana to graduate-entry partner medical schools abroad during their Stage One initiative (see UBFoM ‘Conducing’ section 6.3.3.4), instead of high-school leavers, would the country have seen a better return rate? By completing their undergraduate degree in Botswana before being sent abroad to study medicine, graduate Botswana may have developed more social and philosophical connections to their country that may have encouraged them to return. Similarly, if Botswana had strategically partnered with highly socially accountable medical schools abroad that encouraged pro-social attitudes of serving local and under-served populations during their Stage One initiative, would more of their doctors have returned to serve their local needs?

Each case-study showcased a different way to obtain a curriculum for a new medical school. The NTMP implemented a curriculum dictated primarily by Flinders University in South Australia, but also created the opportunity for the entire curriculum to be updated and streamlined for distributed delivery across all of Flinders’ sites. NOSM began with a blank slate and created its highly contextualised curriculum from the ground up, supported by the medical education expertise of its Founding Dean and other key staff, and with significant input from their local clinicians and communities. UBFoM was gifted a complete curriculum from Hull York Medical School, which UBFoM adapted for their local needs. Thus, UBFoM could quickly implement their ‘dream’ curriculum, benefitting from a robust template that had been road-tested and proven, albeit in a different context. All three approaches are consistent with choices made by other new medical schools around the world as discussed in section 2.3.3.9 ‘Curriculum design and implementation’.

The three different curricula also highlighted differing accreditation concerns that new medical schools might face. For Flinders, the fear of losing accreditation by not being able to ensure an equivalent educational experience across all their different sites caused them to be particularly controlling of the NTMP's desire to contextualise their curriculum. NOSM's bespoke, new, and innovative curriculum risked being rejected by the out-dated accreditation standards for their region. In Botswana, it was neither the Hull York curriculum nor UBFoM's adaptation that posed an accreditation risk, but some later decisions by UBFoM, such as the building of a new quaternary teaching hospital. Once again, for new medical schools in medically under-served areas, contextual constraints might limit the practical choice of how best to construct their curriculum, but the potential philosophical and axiological outcomes of one choice over another should be considered. My research highlights that curriculum design can exert a powerful influence on subsequent workplace choices. In 'Discussion' section 8.2.5, I emphasise that having the right curricular elements in the new medical school are fundamental to producing the desired Consequences or outcomes.

Both NOSM and UBFoM recognised the need to also commence post-graduate specialty training opportunities within their regions. Post-graduate training was not previously in the NTMP's jurisdiction due to Australia's pre-existing model of post-graduate training managed entirely by separate 'Royal Australian Colleges' for each specialty. At the time of the NTMP's establishment the only post-graduate specialty that could be fully undertaken in the Northern Territory was General Practice. However, more recently the Australian Government has implemented Regional Training Hubs within the rural clinical schools of various Australian medical schools that aim to facilitate rural career pathways by various activities including facilitating more rural-based specialty training positions (Australian Government Department of Health, 2019). Post-graduate training opportunities are a vital piece of the 'pipeline' to produce the desired regional workforce (Curran & Rourke, 2004; Rourke, 2008, 2010; Strasser, 2001; Whitcomb, 2009, 2010; Wilson et al., 2009). In some locations such as the United States, it is clearly known that the supply of physicians for the workforce is not at all impacted by the number of medical school graduates, but rather the number of available specialty training positions (Whitcomb, 2009, 2010), and that "physicians are more likely to enter practice in communities near where they completed their residency training, as opposed to where they graduated from medical school" (Whitcomb, 2009, p. 59). Thus, new medical schools in medically under-served locations need to consider providing local post-graduate training opportunities – either through their own institution or by creating integrated pathways in partnership with health services, professional colleges, and other bodies.

#### **7.7.4 Clinical training sites:**

Collecting clinical teaching sites is a priority for a new medical school and my three case studies employed a variety of approaches. The NTMP utilised the clinical training sites already gathered by the previously established NT Clinical School (NTCS) including urban tertiary hospitals and smaller regional hospitals; community-based general practice clinics; and rural and remote Aboriginal health services. The NTMP also purpose-built a new general practice clinic as a concentrated location for clinical teaching, however this resulted in some loss of connection with the previously recruited clinics in the community. NOSM harnessed the community-based health facilities of 90+ communities as well as several urban tertiary hospitals and smaller regional hospitals. NOSM, thus, successfully distributed their clinical teaching across their entire region, investing significant financial and relational resources to foster extensive community engagement. Importantly, NOSM students did not undertake any clinical training in tertiary hospitals until their final year of study. UBFoM had a vision to create a “teaching health system” utilising every level of health facility in their country, and their clinical training sites included urban tertiary hospitals, smaller district hospitals and a few urban community-based clinics sometimes staffed only by nurses. Furthermore, UBFoM purpose-built a new urban quaternary-level teaching hospital, despite disapproval from their accreditors since it detracted from a community-based vision.

Purpose-built clinical teaching facilities – be they large hospitals or community-based clinics – can be very attractive to new medical schools because it gives them greater control over the educational environment of their students. The physical spaces as well as the employed staff can be streamlined to support a strong ethos of teaching and learning. Patients can be primed to expect student involvement in their health care. Furthermore, it obviates the intricate negotiations required to develop symbiotic relationships with pre-existing health facilities and their clients. On the flip side, however, it can silo the new medical school away from the resources already available in the community and introduce competition for already-scarce resources such as clinical staff, thereby potentially undermining the new medical school’s original vision.

The literature does not discuss these important decisions, but simply notes that students should experience a variety of clinical environments including inpatient hospital wards, outpatient clinics, primary care clinics, mobile clinics, allied health services, and other community services (Association of American Medical Colleges, 2012; Australian Medical Council, 2012; Colquhoun et al., 2009; Drobac & Morse, 2016; Field, 2011; Frenk et al., 2010; Hays, McKinley, et al., 2019; Hays, Strasser, et al., 2019; Howe et al., 2004; Karle, 2010; Lanphear & Strasser, 2008; Lawson et al., 2004; Liaison Committee on Medical Education, 2008, 2020; Mangan, 2009; Mokone et al., 2014; Norris et al., 2006; Salter et al., 2016; Smego et al., 2010; Snadden et al., 2011; Strasser & Lanphear, 2008; Strasser et al., 2009; Tesson et al., 2009; University of California Riverside, 2008; Whitcomb, 2009, 2013, 2018; World Federation for Medical Education, 2000, 2015, 2020). My research highlights that any health environment, no matter how small or simple, that enables a medical student to encounter patients and experience clinical learning, could become a vibrant clinical training site for the new medical school.

Collecting clinical training sites highlights the intricate interplay of Connecting and Convincing when establishing a new medical school. My research reveals that recruiting clinical training sites involved several important considerations such as alignment with their vision; arranging for health services to involve medical students in everyday patient care; upskilling the clinical staff to supervise and train students; and ensuring the location has the required educational facilities. In distributed models of medical education, providing clinical experiences in rural and remote facilities also requires additional logistical support for the students such as housing, transport, and technological connectivity, as outlined in the next section.

### **7.7.5 Facilities:**

The facilities that a new medical school has to collect such as buildings, teaching spaces and research facilities; laboratory equipment and specimens; educational equipment and models; libraries and information resources; and technological resources and connectivity were elaborated in sections 2.3.3.11 'Buildings and facilities' and 2.3.3.12 'Information and technology resources'. All three case-study medical schools built new buildings and upgraded existing library and technology infrastructure. In some distributed sites, pre-existing physical spaces were re-purposed for the medical school's use, usually with some reciprocal arrangement. For example, UBFoM arranged with their regional hospitals to take over some rooms for education while providing new library and internet resources for the students that could be used by the local staff as well.

Most facilities for a new medical school, will need to be purchased de novo and the amount of money spent on Collecting facilities could be substantial (see 'Literature Review' section 2.3.3.11 and earlier 'Cross-case Analysis' section 7.7.1). Procuring high-end physical spaces, educational equipment, and technology can be attractive to a new medical school, however, lower-cost alternatives could be just as effective and should be considered (Frenk et al., 2010). For example, the NTMP invested large amounts of money and effort into arranging their anatomy laboratory to allow their anatomy teachers in Adelaide to demonstrate on cadaver specimens remotely via videoconferencing, even though lower cost anatomy models and digital software could have achieved similar outcomes.

Symbiotic relationships with other educational institutions, regional research facilities, libraries, and technology providers can also be leveraged. For example, the NTMP partnered with CDU to provide library facilities; and NOSM partnered with technology providers in the rural communities to provide internet access. Catalysts in medically under-served areas should consider partnering to share locally available resources and saving their money for more difficult to procure resources such as staff.

Collecting facilities for a new medical school might proceed quite smoothly but could also be plagued with challenges. Building delays were experienced by UBFoM and the NTMP and were common for other new medical schools as well (Hurt & Harris, 2005; Smego et al., 2010; Snadden et al., 2011; Whitcomb, 2009, 2010; Williams et al., 2008). My research uncovered several other unusual challenges and unintended consequences that were not previously reported in the literature. For example, the NTMP had to change state legislation to use cadaver specimens for their anatomy teaching; UBFoM students noted the architectural layout of their new building resulted in a loss of relational connection with their teachers; and the NTMP's technological connectivity was disrupted by ants eating the wiring. When the technology works well, it can be an invaluable solution to other challenges such as staffing (Hays, 2018; Kebaetse et al., 2014; Snadden et al., 2011). My research, however, highlighted the "mission critical" nature of technology for the distributed sites and the educational inequities that could result when the technology failed for some students but not others.

### **7.7.6 Students:**

How does a new medical school decide on its optimal class size? NOSM was established earlier than the other two case study medical schools and had a larger class size of 56 for the first several years. Thus, NOSM has graduated the largest number of doctors and can provide the most data on workforce outcomes. The NTMP with the latest establishment date and a steady class size of 24 from the outset, has graduated the least number of doctors. NTMP participants in my research, expressed disappointment that their physical facilities were not designed with future class expansion in mind from the beginning. UBFoM had a plan to increase their class size in consecutive years, beginning with 36, but did not expand as much as planned after the few years, so that they could optimise their course first. NOSM and UBFoM data did not indicate why they chose those specific inaugural class sizes but the NTMP figure of 24 was set after careful negotiation with the NT government on the basis of how many interns they wanted (40) and how many other students from JCU and Flinders (16) they also wanted to accommodate. The medical education literature identifies issues to consider when deciding on optimal class size, such as population size; health system status; workforce needs; the pool of eligible applicants; numbers of local students going elsewhere to study medicine; cost-effectiveness; and the adequacy of available resources including funding, facilities, and staff (Australian Medical Council, 2012; Bin Abdulrahman & Saleh, 2015; Cathcart-Rake et al., 2017; Hays, McKinley, et al., 2019; Hays, Strasser, et al., 2019; Hurt & Harris, 2005; Karle, 2010; Liaison Committee on Medical Education, 2008; Olds & Barton, 2015; Pericleous, 2011; Reis et al., 2009; Snadden et al., 2011; Whitcomb, 2009; World Federation for Medical Education, 2015, 2020).



My research suggests that a more important consideration for future workforce needs than numeric class sizes, is the ethos and emphasis of the new medical school beginning with admissions policies and procedures (see section 2.3.3.8 'Student recruitment'). The NTMP, preferentially admitted Territorian and Indigenous students, using different criteria for different entry pathways including entrance examination scores, previous academic performance, interview assessments, and performance in special Indigenous preparatory courses. NOSM also preferentially admitted Northern Ontarians and other people with a rural, Indigenous, or minority background and emphasised performance in a Multiple Mini-Interview. NOSM acknowledged the disadvantage that academic merit criteria tends to pose for rural, Indigenous, and minority applicants and used only a modified Grade Point Average that discounted the first year of undergraduate studies. Admissions into UBFoM was based primarily on academic merit with no specific quotas for rural nor minority-group entrants. Whether different admissions policies might account for differences in student and graduate characteristics deserves consideration. NOSM's early students were noted for their pioneering, adventurous, and risk-taking personalities that show-cased them as valuable ambassadors for their new medical school. By contrast, early UBFoM students were wearied by the constant need to be pioneers and felt devalued as experimental "guinea pigs". The difference in the two medical schools' selection emphases on interview findings versus academic rankings respectively, may account for this marked difference in the personal characteristics of their inaugural medical students.

My research indicates that a social accountability ethos and emphasis is particularly important for a new medical school in a medically under-served area (explored more fully in the 'Discussion' section 8.3). Research has already revealed that applicants with rural backgrounds and affiliations are more likely to choose rural practice in the future (Curran & Rourke, 2004; Ono et al., 2014; Rabinowitz et al., 2008; Rourke, 2010; Strasser, 2001; Tesson et al., 2009). Furthermore, applicants from minority and/or disadvantaged groups are more likely to choose medically under-served work locations (Halili Jr. et al., 2017; Larkins et al., 2015; Tesson et al., 2009). Rural or minority applicants, however, might be educationally-disadvantaged due to socio-cultural factors, and this needs accommodating, when setting admissions policies for new medical schools (Cathcart-Rake et al., 2017; Condon et al., 2017; Eichbaum et al., 2015; Eichbaum, Nyarango, et al., 2014; Frenk et al., 2010; Karle, 2010; Olds & Barton, 2015; Strasser & Lanphear, 2008; Strasser et al., 2009; Tesson et al., 2009; World Federation for Medical Education, 2015, 2020). The literature highlights the need to make explicit entry provisions for equity, diversity, rurality, minorities, under-served populations, and local applicants (Association of American Medical Colleges, 2012; Australian Medical Council, 2012; Cristobal & Worley, 2012; Drobac & Morse, 2016; Eichbaum et al., 2015; Eichbaum, Nyarango, et al., 2014; Fogarty et al., 2012; Frenk et al., 2010; Hays et al., 2003; Howe et al., 2004; Hurt & Harris, 2005; Karle, 2010; Lanphear & Strasser, 2008; Lawson et al., 2004; Liaison Committee on Medical Education, 2006, 2008, 2020; Nausheen et al., 2018; Olds & Barton, 2015; Salter et al., 2016; Schuster et al., 2020; Simoyan et al., 2011; Snadden et al., 2011; Strasser & Lanphear, 2008; Strasser et al., 2009; Tesson et al., 2009; University of California Riverside, 2008; World Federation for Medical Education, 2000, 2015, 2020). Rourke tabulates a comprehensive list of strategies to increase enrolment of under-represented peoples including targeted educational measures in high schools and universities; targeted admissions processes; and extra financial support for applicants and students (2005, p. 64).

NOSM and the NTMP drew from this literature to introduce special entry quotas, de-emphasise academic rankings, and implement pre-selection preparatory courses. Applicants do, however, need to be of a sufficient academic standard to successfully complete medical school (Liaison Committee on Medical Education, 2020). Furthermore, the NTMP case study showed how admitting disadvantaged applicants without sufficient benchmarking for both the applicants and the staff, could lead to painful consequences of failure and drop-out. The NTMP staff learned from their experiences and later demonstrated that preparatory courses for disadvantaged groups can be effective in identifying and/or developing the required academic ability.

My research revealed that age, previous life experiences, and concurrent family responsibilities might adversely impact a student's ability to successfully complete medical school in a new program. NTMP data showed that when students were older, had a longer lag since their last university study, had come from a non-science background, and had significant competing family and community responsibilities, they did not perform as well in medical school. NOSM did not share this experience and neither did Flinders University's previous graduate-entry students. Whether age, previous life experiences, and concurrent responsibilities is a risk factor for poor medical school performance in other regions needs further study. In the next section, I compare and contrast other Challenges faced by my case study medical schools.

## **7.8 Comparing Challenges:**

Given the complexity of establishing a new medical school, many and significant Challenges should be expected. Whitcomb's large multiple case study of twenty-nine new medical schools in the United States, identified four major challenges: convincing the stakeholders; obtaining sufficient funds; acquiring the required physical space; and providing quality clinical training for the students (Whitcomb, 2009, 2013, 2018, 2020). Other medical schools concur with these four challenges (Association of American Medical Colleges, 2012; Colquhoun et al., 2009; Eichbaum, Bowa, et al., 2014; Field, 2011; Frenk et al., 2010; Hays, Strasser, et al., 2019; Hurt & Harris, 2005; Karle, 2010; Lanphear & Strasser, 2008; Nausheen et al., 2018; Norris et al., 2006; Penner, 2018; Smego et al., 2010; Snadden et al., 2011; Williams et al., 2008). Other commonly reported challenges include obtaining accreditation (Association of American Medical Colleges, 2012; Field, 2011; Hurt & Harris, 2005; Smego et al., 2010; Whitcomb, 2009, 2013, 2018); recruiting staff (Association of American Medical Colleges, 2012; Bonner et al., 2018; Eichbaum, Bowa, et al., 2014; Field, 2011; Frenk et al., 2010; Howe et al., 2004; Hurt & Harris, 2005; Karle, 2010; McDonald et al., 2014; Mokone et al., 2014; Nausheen et al., 2018; Norris et al., 2006; Reis et al., 2009; Smego et al., 2010; Smith, 2009; Snadden et al., 2011; Tesson et al., 2009; Whitcomb, 2009); adherence to out-dated and overloaded curricula (Frenk et al., 2010; Karle, 2010; World Federation for Medical Education, 2000, 2015, 2020); and technology failure (Frenk et al., 2010; Kebaetse et al., 2014; Lanphear & Strasser, 2008; Penner, 2018; Worley et al., 2019). My research confirms all these studies, as detailed in the preceding sections.

Catalysts of new medical schools should also expect to face unique and unpredictable Challenges, along with the expected and predictable ones (Whitcomb, 2009). The experiences of my case study medical schools can shed light on some of these. The early NTMP cohorts were challenged by poor student performance with several failures and dropouts leading to low graduating numbers. The NTMP undertook an internal evaluation to understand some of the factors contributing to this and adjusted their admissions processes accordingly. The NTMP also faced several unexpected financial, educational, and socio-cultural obstacles to implementing their socially accountable Indigenous imperative. This required an improvement of their own benchmarking of the issues and requirements. NOSM's vast geographic distribution is an understandable and therefore likely predictable challenge but had not previously been considered in the literature by any other medical schools. NOSM's solution was to accept the additional financial and logistical burden that came with this challenge. NOSM's staff strike over unionisation concerns was also not previously reported by other medical schools. Careful negotiations by NOSM's leaders, supported by loyal staff and staunch students, helped resolve this problem. UBFoM faced disgruntled, striking students who did not fully believe in their medical school and would have rather been studying elsewhere and were supported by their parents in their antipathy. Sympathetic staff support, clear action towards improvement, and reassurance of educational quality by exposure to other medical graduates helped pacify these students. Finally, even though staff recruitment is already identified as a major challenge for many new medical schools, my case studies revealed deeper staffing challenges like significant burnout, high rates of turnover, and interpersonal frictions.

One significant challenge that deserves closer scrutiny is that of “convincing the stakeholders” reported in the first of Whitcomb’s multi-part publications (2009), but not in other publications on new medical school establishment. My research provides strong evidence that this is, indeed, a major obstacle for most new medical schools including in the phase before official approval has been given to proceed with establishment. Similar to my findings, Whitcomb’s cases described that they used various consultant reports; pre-existing medical education infrastructure; organisational alliances; political processes; and different arguments to convince different stakeholders. My research sheds further light on this under-reported challenge and suggests a systematic approach to Convincing and Conducting, informed and impacted by several of the other C’s including Collecting, Connecting, and Context. In the next chapter ‘Discussion’ section 8.2.5, I discuss how my 8 C’s Framework could assist future Catalysts identify potential Challenges in a more thorough and systematic way.

## **7.9 Comparing Consequences:**

By examining the Consequences or outcomes of establishing new medical schools in medically under-served areas, my research adds to the understanding of how new medical schools can make important differences for their regions, beyond producing generic medical graduates. Consequences of a new medical school can be examined from an individual micro-level, an institutional meso-level, and a system-wide macro-level. At the individual micro-level, the new medical school might aim that their graduating doctors will have both the skills and desire to work in the local region or other similar medically under-served regions. At the institutional meso-level, the new medical school needs to be operational and sustainable enough to consistently graduate competent doctors. At the system-wide macro-level, the new medical school should contribute to the under-served region being better served and the health of the region being demonstrably improved. These levels are not necessarily discrete but could be interleaved and interdependent. My research primarily focused on understanding the mechanisms responsible for achieving the meso-level outcome of establishing the new medical school but also uncovered some important mechanisms underpinning the desirable micro-level and macro-level Consequences. In this section, I have mainly considered the positive outcomes or consequences of establishing a new medical school in a medically under-served area while negative outcomes were covered in the previous section on challenges.

Congruent with their reasons for establishment, my case studies concurred with other new medical schools that reported positive improvements to their communities' workforce, health, economy, intellectual capital, and cultural welfare (see section 2.3.3.1 'Reasons for establishment'). The NTMP case study revealed several positive consequences with technology, innovation, workforce, and Indigenous education. Technological infrastructure improved across the Northern Territory and South Australia impacting several organisations and institutions beyond Flinders University. Establishing the NTMP precipitated various opportunities for educational, technological, and legislative innovation and advancement for the university and the Territory. The bonding of NTMP students to work in the Territory after graduation provided an improved junior doctor supply both in terms of quantity and contextual competence and quality. The NTMP learned from their early struggles to now provide an excellent example of how to better support Indigenous students through their medical studies.

The NOSM case study revealed positive consequences in aspects of workforce; community involvement and impact; research; and innovation. NOSM produced very competent graduates who primarily chose to remain rurally-based in under-served locations while also being able to get accepted into different competitive residency training programs. Rural and remote towns of Northern Ontario found it vastly easier to recruit well-trained doctors who were enthusiastic to live and work there. Furthermore, NOSM developed an extensive network of teaching clinicians that the region had never had before. Northern Ontario communities considered NOSM "their medical school" revealing a depth of community engagement with the medical school, the students, and the graduates. NOSM also reported transformational impacts of communities on individual students and vice versa. Additionally, NOSM showcased the successful implementation of several structural, educational, and collaborative innovations.

UBFoM's consequences were seen with their workforce, career options, intellectual capital, and community improvements. UBFoM successfully increased and improved their Botswana medical workforce with high quality graduates who showed excellent clinical acumen. UBFoM provided improved post-graduate career pathways, which in turn impacted individual graduates, as well as the country's wider health and educational systems. The new medical school developed the intellectual capital of their country, laying the foundation for more health and educational system improvements. Additionally, student-led community improvement assignments benefited the local people, communities, and health facilities, one project at a time.

In order to promote the desirable consequences, Catalysts need to ensure that the emphasis and ethos of their new medical school is consistent with what they wish to see eventuate (Boelen & Heck, 1995; Curran & Rourke, 2004; *Global consensus for social accountability of medical schools*, 2010; Hixon et al., 2013; Rudolf et al., 2014). I will unpack this further in 'Discussion' section 8.2.5.

## **7.10 Summary of chapter:**

In this chapter, I presented a cross-case analysis exploring the similarities and differences between my three case-studies and assessing them against the medical education literature. Using my 8CF as an analytic framework helped identify several aspects of new medical school establishment that were not previously well discussed in the literature. I summarise these new findings below.

My research underscored the socio-political, economic, and organisational complexities that geography adds to medically under-served areas, such as increased costs, complex travel logistics and perceptions of socio-political disempowerment. The case study medical schools ensured their success despite these complexities by leveraging their geographical isolation to make strong socio-political arguments for equity, cultural diversity, community capacity building, and increased health workforce.

The outcomes of my case study medical schools confirmed that workforce, health, and educational benefits were achievable even in medically under-served regions that had never had a medical school before. My research showed that new medical schools with strong social imperatives can challenge the status quo and dominance of traditional medical schools who might resist their establishment.

My research identified that a wide network of supportive Catalysts – that is, Champions and Colleagues positioned in a variety of stakeholder groups – can provide protective stability in the face of high turnover in key leadership positions. Strong, visionary leaders in my case studies could powerfully effect novel and non-traditional solutions for their regions. Both my data and the literature identified that Catalysts can be drawn from universities, health services, government offices, and/or local communities, but the medical education literature did not discuss the role of government-related Catalysts with the importance and transparency uncovered by my case studies.

How Catalysts went about obtaining the all-important approval from their governing authorities to establish a new medical school was also not well-discussed in the literature. My research suggested using strategies such as harnessing pre-existing medical education initiatives; obtaining supportive expert advice and official reports; taking advantage of socio-political happenstances; and exerting different kinds of political power to successfully obtain the green-light for establishment.

My research significantly expanded the list of stakeholders that would need Convincing. Since sceptics might be encountered in every stakeholder group, my research recommends that Catalysts should prepare a comprehensive range of convincing narratives incorporating social, educational, relational, logical, political, economic, health, and moral rationales. Strategically, cultivating and positioning Champions and Colleagues within each stakeholder group who could themselves convincingly influence the rest of the group would be key to building a strong and effective network of Catalysts.



Another new finding from my research was the reciprocal opportunity for new medical schools to innovate and improve the processes and standards of the accreditation bodies. Despite a common accreditation challenge being the inability to procure adequate numbers and quality of staff, my Canadian case study did not experience this difficulty, possibly because they invested in a “travelling roadshow”, involving extensive personal visitation and engagement with each community and clinician across their region.

My research showed that such extensive and intensive community-engagement can lead to a dynamic sense of pride and ownership by communities for “their” medical school. My case studies supported the notion that the highest quality of functionality and sustainability is achieved in partnerships when they are mutually beneficial and symbiotic rather than imbalanced and aid-oriented. For new medical schools in medically under-served areas, the potential for ‘brain drain’ to more attractive locations or projects needs to be mitigated.

New medical schools need to collect financial, human, material, and educational resources that my research collated into the categories of funds, staff, curriculum, clinical training sites, facilities, and students. Finances need to be accessed from multiple sources and my research emphasises the wisdom in strategically considering local, national, and international opportunities for each source. My research highlighted that even huge amounts of money could seem insufficient to implement a desired vision, thus, simpler and cheaper options of comparable educational quality drawing from exemplar medical schools around the world who have successfully implemented high quality training, effective for their local contexts with relatively small budgets, should be considered.

Difficulties recruiting and retaining staff were noted in both the literature and my data, but the personal costs and burnout involved with being a trail-blazing visionary and innovator of this magnitude was not well-discussed in the literature. A stronger understanding that Catalysts face the risk of significant stress, burnout, or other mental health difficulties is a key finding from my research.

My research confirmed that extensive rural and remote clinical experience can produce graduates who feel confident and competent to accept employment in similar locations. Since curriculum design can exert a powerful influence on subsequent workplace choices, my research recommends that the philosophies and values underpinning curricular choices should be highlighted – such as social accountability.

Whilst purpose-built clinical teaching facilities can be very attractive to new medical schools, my research showed that it can silo the new medical school away from the resources already available in the community and can introduce competition for already-scarce resources such as clinical staff. Furthermore, it can undermine community-oriented and generalism-focused aspirations of the new medical school if incongruent facilities like a new quaternary teaching hospital are built. My research also uncovered several unusual challenges and unintended consequences when procuring facilities that were not previously reported in the literature such as changing cadaver legislation; losing relational connection between staff and students by moving to a new building; and repeated technology failure due to an ant problem. My research particularly highlighted the “mission critical” nature of technology for distributed sites and the educational inequities that could result when the technology failed for some students but not others.

Regarding student cohorts, my research suggests that a more important consideration for future workforce needs than numeric class sizes, is the ethos and emphasis of the new medical school. My research also noted that admissions policies might influence whether the early students at a new medical school have pioneering, adventurous, and risk-taking attitudes that lead them to becoming valuable ambassadors for the new medical school.

Some unexpected challenges noted in my research included poor student performance in early cohorts with high dropout rates; financial, educational and socio-cultural obstacles to implementing a socially accountable imperative for minority and underprivileged groups; students striking with the support of their parents in the hope of closing their new medical school and being sent abroad to study; staff striking over unionisation issues; and deeper staffing challenges like significant burnout, high rates of turnover, and interpersonal frictions. My research recommends using a systematic approach, aided by the 8CF, to identify and prepare for both expected and unexpected challenges.

Finally, by examining the Consequences of establishing new medical schools in medically under-served areas, my research emphasised important outcomes beyond producing generic medical graduates in areas such as technology infrastructure; educational innovation; workforce improvement; Indigenous education; community involvement and impact; health research; and intellectual capital. In the next chapter, I discuss the implications of my research using the concepts and theories of Institutional Entrepreneurship from a Critical Realist perspective, to highlight how 8CF can be used as a comprehensive strategic framework for new medical school establishment.

## 8 DISCUSSION

### 8.1 Introduction to chapter:

In this chapter, I synthesise the findings of my Multiple Case Study in answer to my research question, “**How are new medical schools successfully established in medically under-served areas?**” I begin with a broad answer to this question, summarised using the ‘C’ concepts of my 8 C’s Framework (8CF). I then unpack the deeper considerations and mechanisms of this framework by posing five questions:

1. Who can be a Catalyst and how do they become one?
2. What makes the Context fertile or hostile for a new medical school?
3. Why is Conducting so imperative?
4. What socio-political devices are helpful in Convincing, Connecting, and Collecting?
5. What mechanisms help to produce desirable Consequences and overcome Challenges?

To answer these questions, I draw insights from Critical Realism (CR), Institutional Entrepreneurship (IE), and Social Accountability to discuss key issues of structure, agency, power, and politics. I explain how my research empirically contributes to understanding how new medical schools can be successfully established in medically under-served areas. I highlight how my original 8CF can be systematically and strategically used to assist the founding leaders. Finally, I critique my research including my use of theory, the validity of my research, and its strengths and limitations.

### 8.2 How are new medical schools successfully established in medically under-served areas?

The constructs of the 8CF are useful to summarise an initial broad answer to this question as a single sentence: “**Catalysts act within their Contexts to undertake various tasks of Conducting, Convincing, Collecting, and Connecting in order to produce desired Consequences and overcome Challenges**”. In this section, I begin with an explanation of this statement in broad outline. I then unpack the layers of each element to reach a deeper understanding of my research phenomenon.

Firstly, the idea needs to begin in the minds and hearts of visionary leaders – the Catalysts. Problems, tensions and crises in the local health care Context may seed the notion that a new medical school in the region could contribute to the solution (Hardy & Maguire, 2017). Next, the Catalysts need to start garnering support for their idea amongst other stakeholders. They might target stakeholders who share the same vision, who could help them achieve their desired outcomes, or who have authority to sanction the new medical school. The process of gathering support from the various Catalysts will involve an intricate interplay of Conducting, Convincing, Connecting, and Collecting. In the initial stages, Catalysts will be focused on Conducting their environment to gain the required authoritative approvals and may use principles and activities of Convincing, Connecting, and Collecting to do so. Later, they will be focused on Convincing, Connecting, and Collecting to operationalise the new medical school. As they go about these tasks, Catalysts can expect to face many Challenges that they will need to overcome. Ultimately, establishing the new medical school will produce several Consequences that will bring about change within the Context of the region. Some Consequences will be intended while others might be unintended, and some changes will enhance the region while others might produce new problems. Catalysts should strategically plan for the desired Consequences, while also responding to Challenges.

From this broad picture, the following sections delve deeper into the underlying generative mechanisms of each 'C' for successful establishment. Who can be a Catalyst and how do they become one? What makes the Context fertile or hostile for a new medical school? Why is Conducting so imperative? What socio-political devices are helpful in Convincing, Connecting, and Collecting? What mechanisms help to produce desirable Consequences and overcome Challenges? Drawing from my empirical findings, Institutional Entrepreneurship theory, and Critical Realist perspectives, I identify key mechanisms at play, such as human agency, contextual structure, power dynamics, and political diplomacies. These theoretical concepts emerge as golden threads weaving throughout the generative mechanisms underpinning successful establishment and social accountability brings them together for medically under-served regions.

### 8.2.1 Who can be a Catalyst and how do they become one?

The idea of a new medical school needs to begin with a human agent (or several) who might be responding to various motivations including the problems of their milieu (Hardy & Maguire, 2017; Kao, 1989). In medically under-served areas, better healthcare access, an insufficient medical workforce, and improved regional health indices will be incentives for a socially accountable approach. Catalysts may also be motivated by a variety of other reasons such as increasing the research capacity of the region; enhancing educational opportunities for locals; improving the university's standing; gaining political favour; and addressing socio-cultural inequities. Regardless of underlying motivation, Catalysts need to be able to envision the possibilities (Beckert, 1999) despite the inherent problems and obstacles of their Contexts.

What underlying mechanisms might precipitate this crucial creative event in the mind of a human? Is it something inherent in the makeup of the human agents as entrepreneurs or is it something in the contextual structure of their milieu? This debate between structure and agency – that is, the role of environmental influences versus personal abilities – is not new and my research supports the Critical Realist position that it usually involves a unique interplay of both (Archer, 2010; Beckert, 1999; Bhaskar, 2011; Danermark et al., 2019; DiMaggio, 1988; Garud et al., 2007; Gorski, 2013; Hardy & Maguire, 2017; Kao, 1989; Leca & Naccache, 2006; Northouse, 2016; Ramoglou et al., 2020).

Human agents as Catalysts tend to be creative, visionary actors who can “*envision* alternative modes of getting things done” [emphasis in original] (Beckert, 1999, p. 786). Institutional Entrepreneurship theory suggests that they recognise the value of opportunities and resources that others do not and they act to leverage these when others will not (Alvarez & Busenitz, 2001). Their ability to be reflexive enables them to better identify opportunities for change and innovation (Garud et al., 2007; Hardy & Maguire, 2017; Mutch, 2007). Their capacity to think heuristically rather than algorithmically – that is, with intuitive mental agility and lateral thinking rather than rigid, protocol-driven steps – enables them to better make decisions even in complex situations of risk, uncertainty, and limited information (Alvarez & Busenitz, 2001; Young & Grinsfelder, 2011). Catalysts tend to exhibit an “entrepreneurial orientation” or “strategic posture” (Yin et al., 2020, p. 2), characterised by a sustained pattern of risk-taking, innovativeness, and proactiveness (Anwar et al., 2021; Yin et al., 2020).

To advance from creative ideas in the minds of visionaries to concerted actions of implementation, mechanisms of influence and leadership are required (Young & Grinsfelder, 2011). Leadership can be defined as “a process whereby an individual influences a group of individuals to achieve a common goal” (Northouse, 2016, p. 6). According to the ‘trait’ approach to leadership, leaders or entrepreneurs are born with inherent personal characteristics, while the ‘process’ approach suggests they become a leader or entrepreneur by the circumstances of their context (Northouse, 2016; Ramoglou et al., 2020). Leadership has also been conceptualised as either ‘assigned’ (by virtue of the leader’s formal position within their context) or ‘emergent’ (by virtue of how others respond to the leader) (Northouse, 2016). The Catalysts in my case studies variously exhibited exemplary entrepreneurial leadership qualities; were impacted by their milieu to fight for their cause; were assigned formal positions of influential power; and emerged as persuasive leaders in the course of their routine activities. Thus, in keeping with Critical Realism, my research provides empirical evidence that any permutation of these mechanisms of influence and leadership are possible and can be leveraged to contribute to success (Northouse, 2016; Ramoglou et al., 2020).

Importantly, innovation and change can also be wrought by ordinary, everyday people who may not necessarily see themselves as visionary leaders (Battilana et al., 2009; Maguire et al., 2004). These ‘ordinary’ people may not wield much power within their organisations but are able to precipitate innovation by pursuing opportunities within the course of their normal roles and responsibilities that are only later recognised as transformational (Battilana et al., 2009; Maguire et al., 2004). For example, Flinders University staff who brokered deals and relationships with technology providers for the NTMP, could not have predicted the widespread improvements to technology that would result for the whole region (see NTMP sections 4.3.5.1 ‘Funds’ and 4.5.4 ‘Improved technology access for the region’). This is an important finding for actors in medically under-served areas, who may have the potential for more wide-ranging impacts than they originally envision.

In Institutional Entrepreneurship theory, change agency is rarely limited to an 'individual', but rather, can be effected by groups of leaders, committees, organisations, and communities (Hardy & Maguire, 2017). In my research, I designate these change agents as a network of 'Catalysts' to reflect the catalytic and collective role they play in establishing a new medical school. I further categorise them as 'Champions' or 'Colleagues' to reflect important differences in their roles. Champions are the chief engineers of successful establishment while Colleagues are more ancillary but still important. Additionally, my research reveals that there are likely to be different groups of Catalysts active during different phases of establishment. For example, community leaders and politicians may precipitate the founding of the new medical school but the Founding Dean, the Planning Committee, and other academic and clinical staff may steer implementation of the vision. Thus, these stakeholders may be organisationally distributed throughout the region and the socio-political system, yet function as a collective to successfully establish the new medical school (Battilana et al., 2009; Bleakley et al., 2011; Garud et al., 2007; Hardy & Maguire, 2017; Wijen & Ansari, 2007). Individuals exerting "micro-power" in concert can exhibit "capillary power", a transformative power through horizontal cooperative networks rather than vertical authoritative hierarchies (Bleakley et al., 2011, pp. 123, 124).

The power that both individuals and groups can exert to bring about transformation, is an important consideration for successfully establishing a new medical school (Maguire et al., 2004). In fact, social critique of phenomena involving leadership, influence, and the distribution of resources will always involve discussions of power dynamics between people (Northouse, 2016). Different types of power have been identified by scholars and different generative mechanisms are at play with each to produce their effects. Catalysts of new medical schools can achieve their purposes by harnessing the types of power explored next.



### **8.2.1.1 Multiple types of power at play:**

'Power' arises in situations when some people have greater influence or control over certain resources than others (Maguire et al., 2004; Northouse, 2016; Peyton et al., 2019). Given how resource-intensive a new medical school is, power dynamics will play a role in many aspects of establishment. The following types of social power can be variously useful to Catalysts in medically under-served areas (Bleakley et al., 2011; French & Raven, 1959; Goncalves, 2013; HarperCollins, 2021b; Northouse, 2016; Peyton et al., 2019):

- Legitimate power is inherently wielded by holding a formal office or position.
- Expert power is wielded by possessing important skills and expertise.
- Reward power is a positive power wielded through the promise of benefits.
- Coercive power is a negative power wielded through fear of penalty.
- Referent power is wielded through relationship with someone else.
- Informational power is wielded by the possession of key information.
- Charismatic power is wielded by virtue of character and personality.
- Moral power can be thought of in terms of both the human actor and/or a motivating rationale.
- People power is collectively wielded by large numbers of the public.

Legitimate power was at play in my case studies when government officials, institutional leaders, and community leaders utilised their formal positions of authority to ensure establishment of the new medical school. It involves vertical authority and hierarchical structures similar to "sovereign power" (Bleakley et al., 2011, p. 124). Catalysts with legitimate power can use it to assist activities of Conducting, Convincing, Connecting, and Collecting; and to counteract Challenges. For example, in the UBFoM case study, the President of Botswana used legitimate power to mandate the establishment of the new medical school, and also to countermand the obstacles posed by conflict within university structures.

Both expert and informational power were at play in my case studies, when consultants, committees, and commissioners produced reports supporting the establishment of the new medical school for Conducting and Convincing activities. Expert power was also at play when experienced medical, educational, and economic professionals lent their expertise to activities of Collecting specific elements such as the curriculum and finances. For example, the medical education expertise of NOSM's Founding Dean led to a rurally immersive, community-engaged, socially accountable curriculum.

Reward power is at play when Catalysts portend desirable Consequences during their activities of Conducting, Convincing, Collecting, and Connecting. In my case studies, desirable consequences formed the basis of compelling rationales such as improved local workforce, improved health outcomes, improved intellectual capital, improved social accountability, shared resources, and improved research collaborations. For example, the NTMP used reward power when emphasising the opportunity to increase Australia's Indigenous medical workforce. This is also an example of moral power as a motivating factor discussed below.

Since coercive power is usually associated with bullying behaviours, it would not be recommended for use by Catalysts of new medical schools. Wielders of legitimate power would need to take care that their legitimate power is not perceived as coercive by their subordinates or less-powerful associates. For example, South Australian staff of Flinders University used legitimate power to insist on their version of the curriculum for reasons of accreditation and this could have been perceived as coercive by Northern Territory staff.

On deeper examination, however, coercive elements might also exhibit a desirable benefit. For example, accreditation bodies wield significant legitimate power and most new medical schools experience great fear of failing accreditation. Thus, accreditation could be perceived as a situation of coercive power. However, when accreditation processes are used by the new medical school for self-improvement, it could become a situation of expert power and/or reward power instead. Similarly, fear of loss of competitive edge to another university might underpin establishment of a new medical school – as experienced by Flinders University competing against James Cook University for the NTMP. In these examples, coercive power was not wielded by a human agent per se but rather by contextual circumstances or environmental structure. Thus, for Catalysts to use coercive power, bullying tactics will not be acceptable, but utilising human agency to recognise and harness structural aspects could be very advantageous. For example, fear of poorer health indices in medically under-served areas could be used to ‘coerce’ governing authorities to invest in infrastructure improvements even if they were not swayed by the inherent rewards. Maguire et al., point out that “diffuse power makes it difficult for individual actors to coerce others” (Maguire et al., 2004, p. 959)

Referent power is at play most visibly during activities of Connecting but will also be active during Conducting, Convincing, and Collecting. Referent power was at play for the NTMP in the friendship between the Vice Chancellors of Flinders and Charles Darwin Universities. Discussions of referent power consider not only the existence of a connection but also the quality of the relationship. Thus, to effectively wield this type of power, Catalysts of new medical schools must not only seek to forge strategic relationships but must also consider their quality. This is congruent with the symbiosis and synergy identified in my cross-case analysis and will be further discussed in section 8.2.4.2 below.

Charismatic power is at play in the personal characteristics of Catalysts. The influential charisma of the Founding Deans of both NOSM and the NTMP were noted by participants in these cases. The more charismatic the founding leaders are, the more they will be able to wield this power to influence others and successfully establish their new medical school.

Moral power is a further type of power that is not discussed by classical scholarly categorisations of power yet can be particularly useful for medically under-served areas and discussions of social accountability. When thought of in terms of the human actor, moral power could be a subset of charismatic power wielded by the ethical nature of a leader that inspires others to trust and follow (Hansen, 2021; Mehta & Winship, 2010). However, when thought of as a motivating rationale, it could instead wield both reward and/or coercive power for activities of Convincing. For example, the stakeholders in north-western Ontario exerted moral power when decrying the social injustice of relegating them to a satellite campus instead of equal partnership in the new NOSM. Thus, founding leaders seeking to establish a new medical school in a medically under-served area could wield moral power through the compelling imperatives of social accountability and health equity.

People power is particularly effective for bringing about change with socio-political issues such as establishing a new medical school. Both NOSM and UBFoM utilised people power with great success: the people of Northwestern Ontario ensured the medical campus at Thunder Bay would have equal status with the campus at Sudbury in the Northeast; the people of Botswana asked their governmental leaders about the previously discussed new medical school enough to influence future plans for the country. People power is a transformative power wielded through horizontal networks similar to “capillary power” (Bleakley et al., 2011, pp. 123, 124). Importantly, distributed power can successfully counter opposing dominant actors (Maguire et al., 2004).

Thus, in answer to the question of who can be a Catalyst and how they become one, my research suggests many and varied stakeholders can be individually and collectively empowered to exercise agency, influence, and power to effect social change. In the next section on Context, I discuss the impact of ‘structure’ on new medical school establishment.

### **8.2.2 What makes the Context fertile or hostile for a new medical school?**

The field conditions or Context of a new venture will contain both barriers and enablers to its success. Problems, crises, tensions, uncertainty, deficits, and/or instability are common precipitants for institutional entrepreneurship, but they can also be deterrents for innovation and change (Hardy & Maguire, 2017). Structural properties of a field will assist and/or obstruct the efforts of the entrepreneurs, so understanding the environmental properties of a milieu is vital (Bleakley et al., 2011; Hardy & Maguire, 2017; Kao, 1989). Critical Realism recognises that structural mechanisms could equally be social, psychological, or physical (Maxwell, 2012). My research reveals all these mechanisms at play in medically under-served areas, explored below.

Medically under-served areas are commonly plagued by a paucity and/or maldistribution of doctors, an associated need to import their medical staff from elsewhere, and a subsequent predisposition to high turnover (Buykx et al., 2010; Frenk et al., 2010; Greenhill et al., 2015; Ono et al., 2014; Rabinowitz et al., 2008; Russell et al., 2017; World Health Organization, 2006, 2010; Zhao et al., 2019). My research noted that geographic features of rurality, remoteness, isolation, and vastness can structurally influence these medical workforce patterns (see section 7.2.1 'Geographical factors'). Harsh climate, difficult travel access, challenging working conditions, and limited social/educational/employment opportunities for family members factor in (Buykx et al., 2010). Psycho-socially, not many doctors and their families cope with such conditions – even in the face of significant economic incentives (Buykx et al., 2010). My research noted that psycho-social mechanisms relating to decreased personal connectedness and increased professional requirements also contribute to the high turnover of imported medical staff who are often drawn back to places where they have more socio-cultural connections and familiar work responsibilities (see section 7.2.3 'Medical workforce needs'). Furthermore, psycho-social and socio-political impacts of geographical narcissism – an attitude that sees 'urban' as more privileged, powerful, and advanced compared to 'rural' – may also contribute to doctors and their families leaving under-served areas (Fors, 2018).

Medically under-served communities also commonly report inadequate access to health care and poorer population health (Buykx et al., 2010; Greenhill et al., 2015; Russell et al., 2017; World Health Organization, 2006, 2010). Medical workforce shortages and high turnover contribute to this. Furthermore, the same enviro-social mechanisms associated with rurality, remoteness, isolation, and vastness can be at play for patients as well. Other contributory socio-economic and geo-historic mechanisms included poverty, racism, colonisation, and poorer education (see section 7.2.4 'Health situation'). The subsequent psycho-social disempowerment often leads to health issues like substance abuse, poor diet, domestic violence, chronic disease, poor mental health, and increased suicide rates (Northern Ontario School of Medicine, 2012; Tesson et al., 2009), which adversely impact the health indices of the region even further. Inadequate access to health care is further compounded by limited infrastructure in terms of health facility sizes and breadth of services. The global Covid-19 pandemic has thrown these issues into sharp relief with its added pressure on limited human and other health resources.

When establishing a new medical school in a medically under-served area, the medical workforce issues, poorer health indices, and limited infrastructure might serve as deterrents. If there are not enough doctors to service the health system, how will there be enough to teach the students and run the medical school? If the imported workforce is not invested in the region beyond a short-term, why would they care to improve the health system by assisting with the long-term solution of a new medical school? Shouldn't the region's precious resources be funnelled towards more direct health initiatives, rather than an expensive, luxury item like a new medical school? Despite these deterrents, medical workforce, population health needs, local health infrastructure, and global pandemics could also serve as key drivers for a new medical school. Socio-politically, arguments of health equity can provide a strong impetus for social change and educational innovation (Boelen, 2016, 2018; Boelen & Heck, 1995). This was certainly the case for my case studies (see section 7.2.4 'Health situation') and many other new medical schools (Association of American Medical Colleges, 2012; Drobac & Morse, 2016; Fogarty et al., 2012; Hays, 2018; Hays, Strasser, et al., 2019; Hurt & Harris, 2005; Lanphear & Strasser, 2008; Lawrenson et al., 2017; Mullan, 2003; Nausheen et al., 2018; Olds & Barton, 2015; Schuster et al., 2020; Simoyan et al., 2011; Strasser & Lanphear, 2008; Strasser et al., 2009; Tesson et al., 2009; University of California Riverside, 2008; Worley et al., 2019).

Similarly, the geographic complexities can also serve as deterrents because of travel, expenses, logistics, technology, curriculum delivery, relational disconnectedness, political disengagement, and competition for scarce resources. Nonetheless, my case studies revealed that community-based medical education with distributed training sites can be successfully deployed in such contexts. Since social enterprises are not primarily measured by economic indices but rather by value-based measures, the economic and logistical complexities should be weighed against the socio-political value added by the new medical school (Bacq et al., 2015; Katre & Salipante, 2012; Spinelli & Adams, 2016; Young & Grinsfelder, 2011).

Ultimately, entrepreneurship perspectives suggest that whether the Context is deemed fertile or hostile to a new venture will be in the eye of the beholder. In other words, for a situation to be seen as obstructive or opportunistic, “requires that actors *interpret* it as such” [emphasis in original] (Hardy & Maguire, 2017, p. 268). A key characteristic of Catalysts is that they are able to recognise opportunities where others see only barriers (Alvarez & Busenitz, 2001; Spinelli & Adams, 2016). This is particularly vital to Conducing, discussed in the next section.

### **8.2.3 Why is Conducing so imperative?**

Conducing is an uncommon verb meaning “help[ing] to bring about (a particular situation or outcome)” (Lexico.com, 2021). In my research, I have used it to refer to the activities and events that can make the milieu more favourable for the founding leaders to get the all-important green-light to proceed with establishing the new medical school from the governing authorities (see ‘Utilising theory’ sections 3.4.2.3 and 3.4.2.3.3). This approval is a vital early step in the process of establishment yet is not well-covered in the medical education literature and, thus, is a key contribution of my research (see section 7.4 ‘Comparison of Conducing’).

Institutional Entrepreneurship theory provides deep insights into this aspect of starting a new venture that can be extrapolated to establishing a new medical school. Essentially, founding leaders/teams need to be able to harness conducive circumstances and negate detrimental ones in their contexts (Bleakley et al., 2011; Hardy & Maguire, 2017; Kao, 1989). Successful Catalysts will do this by heuristically combining their prior knowledge and experience, their social networks, and their environmental conditions (Alvarez & Busenitz, 2001; George et al., 2016; Phillips & Tracey, 2007; Smith & Lohrke, 2008; Spinelli & Adams, 2016).

Catalysts are able to see what others do not or cannot (Spinelli & Adams, 2016). Alvarez and Busenitz note that “an entrepreneurial opportunity invariably involves the development of a new idea that others have overlooked or chosen not to pursue” (2001, p. 759). New ventures are enabled by uncovering pre-existing opportunities (opportunity discovery) or creating new ones (opportunity creation) (George et al., 2016; Phillips & Tracey, 2007). NTMP participants identified this as harnessing “serendipity” or “happenstance” (see NTMP ‘Conducting’ section 4.3.3.2), but entrepreneurship literature identifies this as opportunity creation. The founding leaders of my case studies intuitively used elements of both opportunity discovery and opportunity creation. For example, when the NTCS commissioned a book outlining its first ten years of operation (Northern Territory Clinical School, 2008), they were unveiling their own potential for robust medical education (opportunity discovery) and providing a springboard to argue for more (opportunity creation) (see NTMP ‘Conducting’ section 4.3.3.2). Being able to gauge the social, political, economic, and environmental milieu or field conditions to harness favourable circumstances or to skilfully create such circumstances is fundamental to Catalysts’ activities of change and innovation. Mechanisms of structure and agency are once again at play in these two approaches to opportunities.

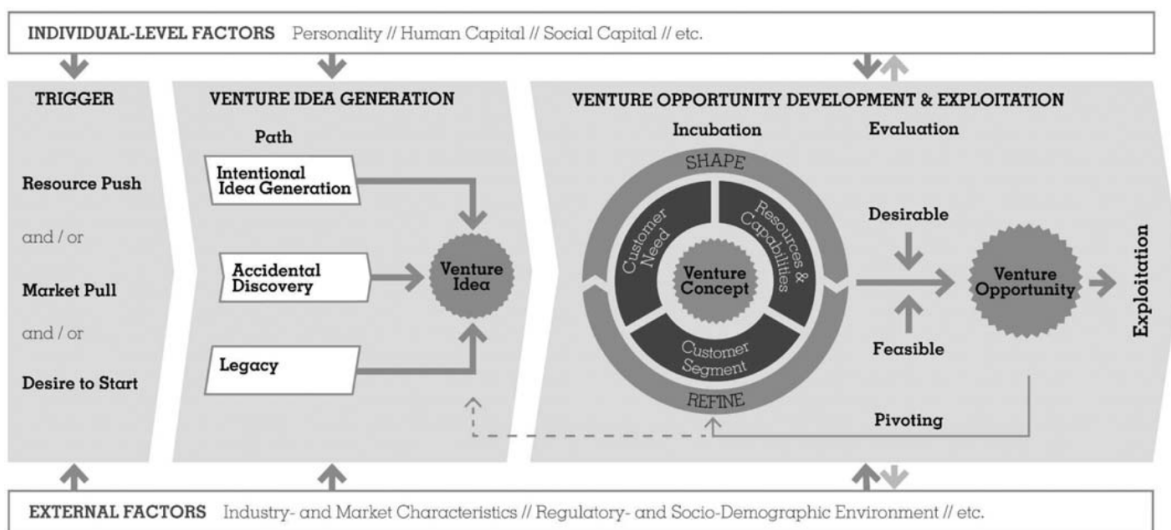


Successful entrepreneurs also need to overcome the ‘paradox of embedded agency’, which is the theoretical conundrum that actors embedded in an existing field often do not have the faculties to envision anything different to the norm (Garud et al., 2007; Hardy & Maguire, 2017; Leca & Naccache, 2006). Dominant actors in a field often have the power to accomplish change but lack the impetus, because maintaining the status quo also enables their current position of power and dominance (Garud et al., 2007; Hardy & Maguire, 2017; Maguire et al., 2004). Less dominant players who are less invested in the norm, may have more incentive and more ties to other fields allowing them envision and desire change, yet may not have sufficient power and influence to accomplish change (Garud et al., 2007; Hardy & Maguire, 2017; Maguire et al., 2004). The paradox is that despite these constraints, both dominant and less dominant actors frequently rise up as institutional entrepreneurs to effect change and innovation (Garud et al., 2007; Hardy & Maguire, 2017; Maguire et al., 2004). Thus, Catalysts of new medical schools need to develop an “entrepreneurial alertness” (Kirzner, 1979, as cited in Alvarez & Busenitz, 2001, p. 760) that enables them to recognise and/or create opportunity and overcome the paradox of embedded agency. An NTMP participant spoke of this same characteristic: *“So, you’d have to be somewhere to see the need, to know that it is possible and to know that you could be part of solving that problem for people” (NTMP-07).*

To progress from the creative idea to concrete implementation is a complex entrepreneurial process which once again combines mechanisms of structure and agency. Vogel (2017) comprehensively summarises this multifactorial process of moving from ‘venture idea’ to ‘opportunity exploitation’(i.e., the beginning point of concrete implementation) in his framework (see Figure 8-1), which integrates the following elements:

- Individual factors: Personality, Human capital, Social capital
- External factors: Characteristics of the field
- Triggers: Resource push, Market pull, Internal desire
- Idea generation: Intentional generation, Accidental discovery, Historical legacy
- Idea incubation: Shaped and refined by Need, Resources, Capabilities
- Idea evaluation: Desirability, Feasibility
- Exploiting the opportunity: Implementation

**Figure 8-1: Vogel’s Conceptual Framework of Venture Idea to Opportunity Exploitation**



(Used with permission from Vogel, 2017)

My research confirms that successfully establishing a new medical school requires all the same elements and follows a similar trajectory. There is congruence between Vogel's framework and the 8CF, specifically, with elements relating to Catalysts, the Context, and the process of Conducing. The human and social capital held by the founding leaders as well as their entrepreneurial personalities, contribute to their position as Catalysts (individual factors). Characteristics of the field as well as socio-political triggers like the supply (push) and demand (pull) for medical workforce; and the communal or institutional desire to have a local medical school together describe the Context (external factors and triggers). The idea for a new medical school might be birthed through a combination of intentional creativity, accidental opportunism, and historical legacy (idea generation). It then gets shaped and refined through contextual need; resource availability; and the capabilities of the environment (structure) and the human actors (agency) (idea incubation). When the idea is evaluated as both desirable and feasible, the green-light can be given (idea evaluation). Thus, idea generation, idea incubation, and idea evaluation all contribute to Conducing. Once the green-light has been obtained, concrete implementation of the idea can proceed, and the new medical school can be established (opportunity exploitation). Being aware of these elements and processes can empower Catalysts to exercise more efficient agency and recognise or create more opportunity for their new medical schools. Vogel's framework elucidates the entrepreneurial process of establishment to the point of opportunity exploitation, which corresponds to Conducing in 8CF. My 8CF expands this to also describe elements necessary for concrete implementation such as, Convincing, Connecting, Collecting, overcoming Challenges, and producing desired Consequences.

Apart from the entrepreneurial process, my research highlights that establishing a new medical school is an intensely political process. Garud et al. concur that "the emergence of novelty is not an easy or predictable process as it is ripe with politics and ongoing negotiation" (2007, p. 960). My case studies showed that 'politics' will be experienced at all levels from micro-level inter-personal interactions, through meso-level institutional dynamics, to macro-level systemic mechanisms. Furthermore, 'politics' will be experienced at different stages and time-points of establishment. Catalysts should prepare to face political opposition from many quarters and in many situations. They will need to employ socio-political savvy and skills in change implementation (Battilana et al., 2009; Garud et al., 2007; Maguire et al., 2004) to successfully negotiate these processes and oppositions.

Thus, Conducing the Context and making it more favourable for the new medical school, through entrepreneurial and political processes, is essential to success. My research has begun to illuminate this imperative area that is not well discussed in the published literature. Future founders of new medical schools could benefit and be better equipped by theory and research on this crucial aspect of establishment. Furthermore, my research underscores how Catalysts can utilise socio-political devices, not only for Conducing, but also for Convincing, Connecting, and Collecting, as discussed next.

#### **8.2.4 What socio-political devices are helpful in Convincing, Connecting, and Collecting?**

As noted earlier, Conducing, Convincing, Collecting, and Connecting are deeply interconnected processes and activities. Concepts and skills useful for one are also useful for the others, and the role of 'power' is important in all. I will now discuss how each theme is theoretically underpinned by Institutional Entrepreneurship, and will highlight specific elements for each, such as 'persuasion' for Convincing, 'symbiosis' for Connecting, and 'bricolage' for Collecting.

##### ***8.2.4.1 Principles of persuasion are helpful for Convincing:***

Convincing stakeholders involves "persuasive argumentation and political negotiation" (Maguire et al., 2004, p. 669). Both content knowledge and relational expertise are vital aspects of skilled persuasion (Charbonneau, 2004; Simons et al., 2001). Specific techniques of persuasion can include inspirational appeals to ideals; rational appeals to the intellect; expressing individualised care and concern; and being a role model (Charbonneau, 2004). In other words, the ancient Aristotelian devices of rhetoric – ethos (authoritative credibility), logos (logical rationality), and pathos (emotive entreaty) are applicable (Hardy & Maguire, 2017; Varpio, 2018). "Transformational leaders change their followers' attitudes, values, and beliefs to align them with those of the organization and steer their followers towards self-development and greater-than-expected accomplishments" (Charbonneau, 2004, p. 565). People will pledge their commitment to a dynamic and passionate vision, even in the face of significant resource-constraints (Rawhouser et al., 2017). The Catalysts in my case studies used these principles of persuasion to successfully convince their stakeholders and sceptics (see section 7.5 'Comparison of Convincing').

In addition to techniques of persuasion, dynamics of power also underpin successful Convincing. All the types of power discussed above – charismatic, moral, informational, referent, reward, expert, legitimate and even coercive – can be leveraged to persuade and influence people. As discussed in section 8.2.1.1 above, the Catalysts in my case studies used the dynamics of power with good effect. However, discussions of power were not explicit in my case study participants' accounts, but rather emerged as a generative mechanism through the lens of Critical Realism.

The persuasive narratives that Catalysts will need to construct for their political negotiations will include a clear framing of the problem; its importance; who or what is responsible for the problem; what must be done to correct it; and why the stakeholders would want to participate in the solution (Hardy & Maguire, 2017). Convincing different stakeholders is intimately linked with Connecting, as discussed in the next section.

#### **8.2.4.2 Principles of trust and symbiosis are important for Connecting:**

Gathering support and forging alliances can be particularly difficult for new ventures because of their “liability of newness” (Katre & Salipante, 2012, p. 971; Smith & Lohrke, 2008, p. 315). New ventures carry a high level of risk for all parties because they have not yet proven their legitimacy and track record (Clough et al., 2018; Rawhouser et al., 2017; Smith & Lohrke, 2008). Forging strong “exchange relationships” (Katre & Salipante, 2012, p. 987; Smith & Lohrke, 2008, p. 315) in this situation is contingent on both the structural extent of the entrepreneur's social networks and the relational quality of them (Clough et al., 2018; Katre & Salipante, 2012; Rawhouser et al., 2017; Smith & Lohrke, 2008). “High-quality relationships can often convey the viability and/or legitimacy of the new venture, which may in turn incite other actors to invest their resources” (Rawhouser et al., 2017, p. 476). As illustrated in the NTMP case, the high-quality, long-term, collegial friendship between the two Vice Chancellors of Flinders and CDU helped cement their institutional partnership.

Relational trust mitigates the constraints of risk and uncertainty between the new partners (Clough et al., 2018; Katre & Salipante, 2012; Rawhouser et al., 2017; Smith & Lohrke, 2008). The NTMP hired a political lobbyist and noticed a difference in how they were “accepted” by government officials because of this (see NTMP ‘Conducing’ section 4.3.3.3). Trust literature identifies that both affective trust (i.e., interpersonal goodwill) and cognitive trust (i.e., rational belief of competence) are required (Clough et al., 2018; Rawhouser et al., 2017; Smith & Lohrke, 2008; Zane & DeCarolis, 2016). This echoes the persuasive importance of ‘content knowledge’ and ‘relational expertise’ (discussed in the previous section 8.2.4.1) and highlights that similar structural and agentic aspects of power and persuasion are at play with Connecting as well.

Power dynamics need to be considered when forging partnerships for the new medical school. Referent power is at play when Connecting (as discussed in section 8.2.1.1 above). Furthermore, relational inequities and power imbalances between collaborators should be acknowledged and addressed (Clough et al., 2018). Medical education research indicates that the highest quality of functionality and sustainability is achieved in stakeholder relationships when they are mutually beneficial and symbiotic (Prideaux et al., 2007; Worley, 2002; Worley et al., 2006). My research highlights that some partnerships, particularly ones of an aid nature, can have undesirable side-effects like brain-drain and neo-colonial attitudes (Bleakley et al., 2011; Hamilton, 2000; Laurance, 2014; Preston et al., 2016), but deeply synergistic ways of Connecting with various partners and stakeholders can gain better outcomes for all (see section 7.6 ‘Comparison of Connecting’). Furthermore, networks of Champions and Colleagues can wield effective ‘capillary power’ as discussed in section 8.2.1 above.

Social networks can play a vital role in resource-acquisition (Alvarez & Busenitz, 2001; Clough et al., 2018; Lanphear & Strasser, 2008; Rawhouser et al., 2017; Zane & DeCarolis, 2016) and symbiotic mutuality often involves the collegial sharing of resources (Eichbaum, Bowa, et al., 2014; Eichbaum, Nyarango, et al., 2014; Frenk et al., 2010). For example, in the UBFoM case, the friendship between the Hull York academic and a senior clinician in Botswana led to Hull York Medical School sharing a vital resource – their curriculum – for free. The next section illuminates this concept further.

### **8.2.4.3 Principles of sharing and bricolage are useful for Collecting:**

Acquiring the required material, financial, human, intellectual, and relational resources can be a major hurdle for new ventures (Clough et al., 2018; Rawhouser et al., 2017; Zane & DeCarolis, 2016) including for new medical schools (see section 7.8 'Comparing Challenges'). Failure to attract and acquire adequate resources is usually fatal for the new venture as it confirms their liability of newness (Yin et al., 2020). In this section, I discuss the conceptual stages of resource mobilisation, and two specific resource acquisition strategies, namely 'sharing' and 'bricolage'.

Strategically, resources can be mobilised to procure others and Catalysts will need to heuristically decide how to do this and in what order (Alvarez & Busenitz, 2001; Clough et al., 2018; Katre & Salipante, 2012; Rawhouser et al., 2017; Zane & DeCarolis, 2016). Clough et al. discuss three stages of the resource mobilisation process – search, access, and transfer – where searching is the process of identifying potential resource holders; accessing is the process of coming to agreement with the resource holder to deploy the resource for this venture; and transferring is the process of allocating the resource and agreeing on future governance over the resource (2018). Each stage emphasises different entrepreneurial actions and skills, and ways of navigating these stages can have major implications for the venture's chances of success and its long-term survival (Clough et al., 2018; Katre & Salipante, 2012). For example, UBFoM's search for their Founding Dean did not initially yield results so they turned to their relationship with Baylor College in Texas to access a retired academic who could step in as Interim Founding Dean (see UBFoM section 6.3.4.2 'Staff'). This appointment enabled UBFoM to proceed with establishment, but also led to a course of events that necessitated a major curriculum overhaul early in their process (see UBFoM section 6.3.4.3 'Curriculum'). Moreover, some of their staffing policies, such as unattractive and disproportionate salaries for university academics versus healthcare clinicians, made it harder to progress from the search stage to the access and transfer stages of staff procurement (see UBFoM 'Challenges' section 6.4.2).

While business ventures usually procure their resources within business contexts, social ventures can draw from a combination of public, non-profit, and business sectors (Katre & Salipante, 2012; Young & Grinsfelder, 2011). In fact, social enterprises often rely on philanthropic sources more than others (Katre & Salipante, 2012; Young & Grinsfelder, 2011). Since my case studies were all public institutions, they relied primarily on public funding with other funding sources as ancillary only (see section 7.7.1 'Funds'). Private institutions will usually depend on business and/or charitable sources more than government support (Association of American Medical Colleges, 2012; Whitcomb, 2009, 2013, 2018). Nonetheless, my research encourages strategic acquisition from multiple stakeholders and sectors at the local, national, and international levels (see section 7.7.1 'Funds').

Stakeholders contributing to social enterprises may be more willing to share both resources and power out of altruism, social accountability, and symbiosis – that is, for non-economic benefits – compared to stakeholders in profit-making ventures seeking eventual economic gain (Bacq et al., 2015; Clough et al., 2018; Young & Grinsfelder, 2011). In medically underserved areas, the sharing of health care resources is vital for both the health services and the new medical school. My research shows this is particularly important for resource-constrained areas where competition for resources can threaten all stakeholders. In the NOSM case study, the sharing of educational status as equal campuses was important for the successful partnership between the two involved universities and regions. They were challenged by dissenting politics yet successfully utilised political lobbying and communal solidarity to restore symbiosis and stability (see NOSM 'Challenges' section 5.4.1). Thus, socio-political devices and power dynamics can be deployed for the mutual benefit of various stakeholders of a new medical school, rather than being used to compete and dominate over resource allocations.



In social entrepreneurship and resource-constrained situations, another strategy employed with good effect is 'bricolage' (Bacq et al., 2015; Baker & Nelson, 2005; Clough et al., 2018; Phillips & Tracey, 2007; Senyard et al., 2009). Bricolage is defined as "making do with what is at hand" (Baker & Nelson, 2005, p. 329) and involves re-purposing and combining existing and possibly cheaper or easier to access resources in innovative, new ways (Bacq et al., 2015; Baker & Nelson, 2005; Clough et al., 2018; Phillips & Tracey, 2007; Yin et al., 2020). My case studies used this strategy most commonly in their staff appointments and their clinical training sites. Bricolage theory acknowledges that resources can have inherent structural value but they can also have perceived value conferred by human agents (Alvarez & Busenitz, 2001; Baker & Nelson, 2005; Clough et al., 2018), thereby also inculcating principles of opportunity recognition and creation (Clough et al., 2018; Phillips & Tracey, 2007; Yin et al., 2020). A variety of resources can be used – or even experimented with – in the "bricoleur's trove" (Bacq et al., 2015, p. 284) of diverse tools, materials, and "odds and ends" (Baker & Nelson, 2005, p. 344). Social entrepreneurs and bricoleurs will often be satisfied by innovative solutions that are "good-enough", especially when traditional methods or solutions proved inadequate (Bacq et al., 2015). However, bricolage needs to be used judiciously as it can have constraining or harmful impacts on the new venture if used too much (Baker & Nelson, 2005; Senyard et al., 2009). For new medical schools, accreditation standards and requirements will set limits on how bricolage can be used and how much.

To summarise this section, entrepreneurial and socio-political skills are imperative for Catalysts of successful new medical school establishment. The interleaved activities of Convincing, Connecting, and Collecting rely on a range of interpersonal techniques, power dynamics, social activism, and creativity. Collectively, these can be employed to produce desired Consequences and overcome Challenges, as discussed in the next section.

### **8.2.5 What mechanisms help to produce desirable Consequences and overcome Challenges?**

Supported by CR and IE understandings, my research finds that that an interplay between field structure and human agency contribute to the causal mechanisms that lead to empirical outcomes (Battilana et al., 2009; DiMaggio, 1988; Garud et al., 2007; Hardy & Maguire, 2017; Lacouture et al., 2015; Leca & Naccache, 2006). In my case studies, both active actions and passive structural elements enabled the Catalysts to successfully engage with their Context to produce their desired Consequences and overcome Challenges. Thus, neither structure nor agency should be given privilege over the other because they are not dual opposites but rather “mutually constitutive” (Garud et al., 2007, p. 961), and they are “two separate ontologically different but related levels of reality” (Leca & Naccache, 2006, p. 629). Field structures (including social, material, symbolic, organisational, and discursive structures) provide the milieu within which human agents act and the resources enabling them to act (Hardy & Maguire, 2017; Lacouture et al., 2015). In turn, the actions of human agents can transform their structural milieus (Lacouture et al., 2015). Thus, my thesis argues that human agents can strategically and systematically act within their fields to produce desired outcomes and mitigate difficulties.

As outlined in the previous chapter (section 7.9 ‘Comparing Consequences’), the desired outcomes or Consequences of a new medical school can be considered from an individual micro-level, an institutional meso-level, and a system-wide or environmental macro-level perspective. At the individual micro-level, the new medical school might aim that their graduating doctors will have both the skills and desire to work in the local region or other similar medically under-served regions. At the institutional meso-level, the new medical school needs to be operational and sustainable enough to consistently graduate competent doctors. At the system-wide macro-level, the new medical school should contribute to the under-served region being better served and the health of the region being demonstrably improved. These levels are not necessarily discrete but are interleaved and interdependent. My research primarily focused on understanding the mechanisms responsible for achieving the meso-level outcome of establishing the new medical school but also uncovered some important mechanisms underpinning the desirable micro-level and macro-level Consequences.

At the micro-level, in order to graduate individual doctors who have both the skills and the desire to work in medically under-served areas, prior research on rural contexts had already uncovered three important factors – rural background, positive rural clinical training experiences, and the availability of post-graduate rural pathways (Curran & Rourke, 2004; Jones et al., 2009; Ono et al., 2014; Rabinowitz et al., 2008; Roberts et al., 2012; Rourke, 2008, 2010; Strasser, 2001; Tesson et al., 2009; Whitcomb, 2009, 2010; Wilson et al., 2009). My research supports this literature and posits that Catalysts can deploy the following strategic mechanisms to help produce this Consequence:

- Choosing the right Students (see section 7.7.6 ‘Students’):
  - Through appropriate admissions policies and procedures to identify those with:
    - Rural or minority backgrounds and rural affinities or affiliations
    - Adventurous, pioneering, risk-taking spirits, and service-oriented, social justice motivations
  - Considering the impact of graduate-entry or under-graduate entry on student and graduate characteristics
- Having the right Curriculum and Staff (see sections 7.7.3 ‘Curriculum’ and 7.7.2 ‘Staff’):
  - Providing the students with extensive and high quality rural clinical experiences will assist their subsequent competence and confidence in similar situations
  - Service-minded, socially accountable attitudes can be taught through appropriate curricular elements
  - Inspiring teachers can role-model the personal and professional benefits of practice in medically under-served locations

- Providing the right Context (see sections 7.2 ‘Comparing Contexts’, 7.6 ‘Comparing Connecting’, and 7.7.3 ‘Curriculum’):
  - Engaging communities who are committed to the medically under-served region and the medical school vision
  - Ensuring opportunities for post-graduate specialty training in the same area
  - Implementing infrastructure to support long-term residence and employment for the doctors and their families including:
    - Professional arrangements such as financial incentives, professional development, and teamwork
    - Personal measures such as children’s education, community involvements, and extra-curricular hobbies

At the institutional meso-level, to successfully establish a new medical school, my research posits that the strategic mechanisms can be understood through my theoretically and empirically derived 8 C’s Framework. This chapter opened with a summarising sentence: *“Catalysts act within their Contexts to undertake various tasks of Conducting, Convincing, Collecting, and Connecting in order to produce desired Consequences and overcome Challenges”*. The deeper theoretical and empirical considerations of each were then unpacked in the preceding sections of this chapter. I recap them here:

- Catalysts need to have the:
  - Vision and desire for a new medical school in the area
  - Personal and collective skills to pursue and implement the vision
    - By conducting the contextual milieu and making it more favourable
      - ◆ Using entrepreneurial and heuristic thinking skills to recognise and/or create opportunity
      - ◆ Understanding socio-political dynamics and power relationships, and harnessing them
    - By convincing the stakeholders, sceptics, and accreditors
      - ◆ With tailored rationales, resource-sharing, and partnership opportunities
      - ◆ Using techniques of persuasion and rhetoric
    - By collecting the required resources
      - ◆ that is, funds, staff, curriculum, clinical training sites, facilities, and students
      - ◆ Re-purposing existing resources, procuring new ones, and partnering with others who can share/provide resources
    - By connecting with strategic partners
      - ◆ For compelling reasons of mutual benefit, such as shared visions, shared resources, and beneficial outcomes
    - Producing the desired consequences
    - Overcoming challenges as they arise

Similarly, my research posits that by using the 8CF, Catalysts might be able to construct a comprehensive list of potential Challenges, to prepare for the predictable ones and reduce the risk of being surprised by unpredictable ones. The findings of my research might assist them to pre-prepare for both. To illustrate:

- Contextual challenges in medically under-served areas could be posed by:
  - Geographic features of the area such as vastness, remoteness, harsh climate, and rough terrain
  - Health, medical, and educational workforce insufficiencies to support and sustain a new medical school
  - Paucity of economic resources and funding sources
  - Political disinterest and dissensions at governmental, institutional, and community levels
    - Including competition and resistance from existing medical schools or other health/educational institutions
  - Reduced infrastructure such as access to health care; preparatory educational pathways; highways, airports, and transport options; adequate and functional technological connectivity; even enough access to clean water, sanitation, and electricity
  - Disempowering social dynamics of poverty, racism, colonisation, isolation, poor education, violence, and war
  - Disempowering health inequities such as poorer morbidity and mortality statistics; higher rates of depression; substance abuse; communicable diseases; and non-communicable chronic diseases
- Challenges with Catalysts could be posed by:
  - People being too embedded within the current health system and educational Contexts to be able to envision the possibility of a new medical school in their region, and/or resisting the idea when it is proposed
  - People not recognising the power and influence they have to effect change, particularly collectively
  - People using and/or misusing their power and influence to oppose the new medical school

- Challenges with Conducting could be faced if:
  - Catalysts are not able to employ sufficient entrepreneurial and heuristic thinking to recognise or create socio-political opportunities within their Context
  - Catalysts do not have sufficient understanding of the elements involved with moving from ideas and opportunities to concrete implementation
  - Catalysts not having sufficient socio-political savvy to successfully navigate the intense politics involved with establishing a new medical school, particularly in a medically under-served area
- Challenges with Convincing could be posed by:
  - Poorly constructed rationales that do not adequately consider all the issues
  - Poorly constructed arguments that do not use the compelling elements of rhetoric
  - Catalysts who are unskilled in the techniques of persuasion, or use them disingenuously, or in culturally inappropriate ways
  - Using the wrong argument or technique for a particular stakeholder
- Challenges with Connecting could be faced by:
  - Not identifying all the individual, group, institutional, and societal stakeholders who should be brought on-side
  - Unintentionally antagonising subsets of stakeholders or creating competition amongst them
  - Not investing in both relational trust and proof of competence to build strong social networks
  - Not ensuring enough symbiosis to ensure synergy and sustainability for all involved parties
  - Brokering partnerships without fully considering the potential liabilities such as brain-drain, take-overs, dysfunction, or disengagement
  - Brokering partnerships without fully protecting against legal, financial, and intellectual misuse or abuse
  - Not asking for help from external authorities when warranted

- Challenges with Collecting could be encountered for every required resource, for example:
  - Being unable to gather enough money and not accessing all the available funding sources
  - Being unable to recruit, retain, and support the right staff at the right time
    - Including avoiding burnout in pioneer staff and visionary leaders
  - Not being able to procure, adapt, or design a high-quality curriculum
    - Or allowing an inappropriate/unskilled implementation of one
  - Not being able to recruit and support the required clinical training sites and their clinicians
  - Not being able to obtain the required educational resources and equipment; information resources; technological infrastructure; and physical spaces of appropriate designs
  - Not emphasising the need to admit capable and motivated students with appropriately constructed admissions policies and procedures
- Challenges with Consequences could be faced by:
  - Not defining clear macro-level, meso-level, and micro-level outcomes that are desired by the new medical school
  - Not knowing how to achieve the desired outcomes
  - Making decisions that will impede the outcomes or produce unintended consequences
  - Having only finite and scarce inputs to produce a large range of outputs



To focus in on one challenge from the above list, avoiding burnout in the pioneer staff and visionary leaders is important for a new medical school. This challenge is not previously explored in the literature on new medical school establishment, but is examined in medical workforce literature (Mayzell, 2020; Shanafelt & Noseworthy, 2017; West et al., 2018). Business literature is nascent in its discussions of entrepreneurial burnout and acknowledges a scarcity of studies on the topic (Omrane et al., 2018; Palmer et al., 2021). Burnout in entrepreneurs was noted to stem from the entrepreneur (due to the lack of skills and/or resources, and a tendency towards workaholism); the entrepreneurial project (due to a stressful organisational climate involving ambiguity, uncertainty, and risk); and the entrepreneurial environment (due to an uncertain future and the complexity of connections with different collaborators including conflicts) (Omrane et al., 2018; Palmer et al., 2021). These are similar to the factors identified for burnout in doctors and healthcare leaders which include personal factors (efficiency and resources; control and flexibility; work-life integration; and meaning in work); and work factors (workload and job demands; social support and community at work; and organisational culture and values) (Mayzell, 2020; Shanafelt & Noseworthy, 2017; West et al., 2018). Strategies to mitigate burnout include improving self-awareness, self-efficacy and resilience; increasing social and emotional intelligence; regaining control, meaning and job satisfaction; improving physical health; improving workflow; cultivating community and social supports at work; strengthening organisational values and culture; and promoting flexibility and work-life integration (Mayzell, 2020; Omrane et al., 2018; Palmer et al., 2021; Shanafelt & Noseworthy, 2017; West et al., 2018). In section 8.4.1 'Critiquing my use of theory', I note that the systematic use of 8CF was useful to uncover the gap in the medical education literature on this topic.

In summary, I argue that my 8 C's Framework provides a theory-based, empirically-supported, system-wide approach to the successful establishment of new medical schools. Founding leaders may benefit from the strategic use of my 8CF to produce desirable Consequences and overcome Challenges during their establishment efforts. Furthermore, Critical Realist perspectives note that dynamics of structure, agency, power, and politics are key underpinning mechanisms to successful establishment weaving through the entire process like golden threads. For new medical schools in medically under-served areas, socially accountable attitudes and approaches can unite these golden threads into a stronger generative force, as discussed next.

### **8.3 Uniting structure, agency, power, and politics with social accountability:**

Social accountability motivated and underpinned my research from the very beginning. It influenced my choice of cases (see 'Research Design' section 3.4.1.3) and provided an additional lens with which to interpret my data. My research found that while an allegiance to social accountability need not be restricted to medical schools in medically under-served areas, it is particularly germane to them. Key features of a socially accountable medical school were described in 'Research Design' section 3.3.2. My case studies utilised social accountability to differing degrees, to effect their desired Consequences. In this section, I explore how the generative mechanisms of structure, agency, power, and politics, that weave throughout the process of successful establishment, can be drawn together with social accountability to generate a greater impact.

I have already noted that the medically under-served nature of a particular Context can contain structural elements that will both contribute to and constrain successful establishment of a new medical school. Features such as local medical workforce shortage; compounded health needs; sparse populations in vast distributions; and insufficient resources provided both an impetus and an impediment for my case study medical schools. Having a socially accountable mindset might energise Catalysts to persist against obstacles with willingness to innovate; take risks; forge new partnerships; share and bricolage resources; tackle problems; and survive personal sacrifices. In other words, social accountability could galvanise human agency even in the face of insurmountable odds.

My case studies revealed that human agents in medically under-served areas may have inherent characteristics that could either promote or prevent the entrepreneurship of a new medical school. Their choice to live and work in such environments may stem from pioneering, adventurous, and altruistic natures, all of which can contribute to the success of a new venture. However, being structurally embedded in their medically under-served region may make it harder for them to envision creative new solutions to problems. Furthermore, they may be so clinically overworked that they may not have the time, energy, nor inclination to implement a bold new solution. Additionally, power dynamics to maintain the status quo may be at play regardless of social accountability.

Power dynamics in medically underserved areas may be intensified due to resource-constraints. Power imbalances may be amplified if some stakeholders control greater shares of economic, material, human, and intellectual resources than others. Social accountability can inspire the use of power for widespread benefit rather than private gain. In medically under-served areas, some useful types of power such as expert power (possessing important skills and expertise) may also be a limited resource and, thus, harder to wield for the benefit of a new medical school in the region. In my research, the Deans of both NTMP and NOSM, were both committed to social accountability and used their legitimate (formal office and position), charismatic (character and personality), referent (relationship), and expert (knowledge and skills) powers to drive the visions of their new medical schools. My case studies also revealed that medically under-served areas can feel a sense of socio-political disempowerment, especially when the wielders of legitimate power are perceived as geographically distant and relationally disinterested. In such situations, social accountability as a moral power (motivating rationale) was helpful to wield reward power (the promise of benefits) and coercive power (fear of loss), to restore the balance of socio-political power in favour of the new medical schools. In fact, leveraging power dynamics as is fundamentally a political undertaking.

My research showed that successfully establishing a new medical school is inherently a political process. Socio-political devices such as persuasion, rhetoric, trust networks, exchange relationships, social networks, sharing, and bricolage can be employed to bring about symbiotic synergies to facilitate establishment. Furthermore, social accountability can be useful as a political device in its own right for medically under-served areas, as discussed above.

The World Health Organization acknowledges the “emerging evidence about the importance of promoting a social accountability framework for medical education in underserved areas to better respond to the needs of these communities” (2010, p. 20). A systematic review of the social accountability literature found that “students of socially accountable schools were more likely to stay in rural areas and serve disadvantaged communities and were often more skilled than students from more traditional schools to meet the needs of underserved communities” and “collaborative partnerships with communities, equitable selection criteria, and community-engaged placements in underserved areas positively impact the learning and attitudes of students” (Reeve et al., 2017, p. 67).

My research concurs that the ethos of the medical school and its underpinning values can have a powerful influence on its graduate and workforce outcomes. New medical schools have a unique opportunity to craft the culture of their organisations with strong pro-social attitudes. Folberg, Noiva, and Gillum write, “it is easier to create a new culture than to change an existing culture”, and they note the wide-ranging impact that the culture of compassion and kindness, in their new medical school, could have on many generations of their students, faculty, and patients (as cited in Association of American Medical Colleges, 2012, p. 68).

To summarise, socially accountable motivations and methods can unite the generative mechanisms of structure, agency, power, and politics into an even stronger force for successful establishment of a new medical school, particularly in medically under-served areas. Understanding and utilising these generative forces could assist founding leaders proceed with greater efficiency and efficacy (Boelen, 1995). Social Accountability, Institutional Entrepreneurship, and Critical Realism together provided the lenses for these assertions and conclusions. In the next section, I critique my use of these concepts and theories in my research.

## **8.4 Critiquing my research:**

### **8.4.1 Critiquing my use of theory:**

Both Critical Realism and Case Study Research encourage the use of existing theories to find the best explanation of reality (see section 3.4.2 ‘Utilising theory’). An initial theory can be confirmed, explained, or refuted during research, to help construct a fresh or more accurate understanding of reality (Fletcher, 2017; Yin, 2014). Applying existing theory has advantages and limitations since it can help structure thoughts and findings, but could also miss or lose information that does not conform, so care must be taken to also acknowledge and critique the theory’s limitations (Fletcher, 2017; Maxwell, 2013; Yin, 2014).

Medical education literature does not discuss the use of any guiding theories for the process of new medical school establishment (see 'Literature Review' sections 2.3.2 and 2.5). To address this gap, I identified Institutional Entrepreneurship theory as potentially suitable for my research. I tested IE concepts against my preliminary case study findings and found that some extension and clarification of the principles were needed.

IE theory shed light on the importance of concepts such as field conditions, institutional entrepreneurs, resources, relationships, and rationales to the success of a new medical school. I re-conceptualised these five ideas using corresponding 'C' words to create an initial 5C basis to a novel analytical framework – Context (field conditions), Catalysts (institutional entrepreneurs), Collecting (resources), Connecting (relationships), and Convincing (rationales). Through a deepening understanding of my research phenomenon, my philosophical stance, my case study data, the medical education literature, and the business literature, I identified a further three concepts important for establishing new medical schools: making or identifying favourable conditions in the field (Conducting), detailed understanding of the potential obstacles and difficulties (Challenges), and detailed understanding of the macro-level, meso-level, and micro-level outcomes (Consequences). What eventuated was my original 8 C's Framework (8CF).

Extending the initial conceptual model derived purely from IE theory to a fuller framework based on the real experiences, events, and mechanisms of real medical schools enabled a more comprehensive examination of all the considerations involved with successfully establishing new medical schools. Each 'C' of my 8CF proved to be a useful magnifying lens to deeply examine different facets of the process. Important aspects of establishment that would not have emerged through a purely inductive or a-theoretical study, emerged. For example, my case study data accorded 'serendipity' a role in successful 'Conducting' (see NTMP section 4.3.3.2). Examining this inductive finding against entrepreneurship literature revealed this could be understood as 'opportunity recognition' (see section 8.2.3 above), and that a large amount of scholarship on the topic was already available. Thus, using IE as a theoretical base opened a vista of academic scholarship from the business domain useful for my research, including theories of entrepreneurship, institutions, resources, leadership, management, power, politics, and social accountability.

In turn, my case study data was useful to examine and test both 8CF and business concepts. For example, one possible extension to the 8CF was the division of Catalysts into 'Champions' and 'Colleagues'. Both my data and the IE literature appreciated the value in distinguishing between these two types of Catalysts when gathering stakeholder support for a new medical school. Nonetheless, there was also value in considering both Champions and Colleagues as a single conceptual unit since both types of Catalysts are equally important and influential. Depicting the Catalysts as a network of people in the visual representation of 8CF emphasises how imperative the collective and concerted change-agency of many stakeholders is to successful establishment. For this reason, I chose not to further extend the 8CF with these two additional C's, but to keep them as subsets of 'Catalysts'.

Another important concept illuminated by my data was that of 'burnout'. It was experienced by many members of the case study founding teams and inductively emerged an important facet of 'Catalysts', 'Staff resources' and 'Challenges'. However, it was not previously evident from my review of the medical education literature. In light of this empirical finding, I re-inspected 8CF to consider whether the model required additional extension. However, given the conceptual connections of 'burnout' to the above three elements of 8CF already, this seemed unnecessary. Supported by my research, the systematic use of 8CF should reveal 'burnout' as an important consideration for future founding teams. Furthermore, these multiple conceptual connections highlight the importance of burnout, not only to establishing new medical schools, but also to the entrepreneurship of other business ventures.

To summarise, even though IE has never before been applied to new medical school establishment, my research found it to be a highly suitable theoretical basis, facilitating in-depth examination and understanding of the phenomenon. However, the concepts also required some extension and clarification to appreciate the generative mechanisms underpinning successful establishment more fully. I put forward my novel 8CF, derived from theory and empiric findings, as an analytic and strategic framework for future founding teams of new medical schools. Furthermore, I suggest that 8CF could potentially be useful for other cross-domain, trans-disciplinary ventures of establishment, innovation, and entrepreneurship. In the next section, I critique the validity of my research.

### **8.4.2 Critiquing validity:**

Assessing validity in Critical Realist research involves evaluating the rigour of research methods used; the appropriateness of the data generated by these methods; and the credibility of the conclusions drawn; rather than proxy procedural checklists (see section 3.4.7 'Research validity'). Thus, to critically evaluate the validity of my research exploring *How new medical schools are successfully established in medically under-served areas*, I answer the following framing questions in this section (Maxwell, 2012):

1. Are the methods appropriate to the question being asked?
2. Is the selection of cases and participants theoretically justified?
3. Are the variables, events, and meanings being studied in their social context?
4. Do the conclusions follow from the data?
5. Is there adequate discussion both for and against the researcher's arguments?

#### **8.4.2.1 Are the methods appropriate to the question being asked?**

Case Study Research and Multiple Case Study (see section 3.4 'Research methodology') were appropriate to the research question since they are ideally suited to understanding complex phenomena, through in-depth inquiry within real-world contexts, in order to retain holistic and real-world perspectives. Furthermore, they are ideally suited to answering 'how' questions that require extensive exploration of multifaceted phenomena. The data collected included multi-source, multi-modal data that allowed intricate study of the research phenomenon from several different angles (see section 3.4.3 'Data collection').

#### **8.4.2.2 Is the selection of cases and participants theoretically justified?**

The case criteria were defined in alignment with the research question (see 'Case Study methods' sections 3.4.1.1 and 3.4.1.2). The chosen cases were key or exemplary cases of new medical schools successfully established in medically under-served areas, in three different international contexts, representing both literal and theoretical replication (see section 3.4.1.3 'Choosing the cases'). Interview participants were identified using targeted, purposive recruitment of key university staff, health service personnel, community members, and government officials who had been involved with establishing the case study medical schools (see section 3.4.3 'Data collection'). Thus, the selection of cases and participants were theoretically justified.

#### **8.4.2.3 Are the variables, events, and meanings being studied in their social context?**

Study of the chosen medical schools not only involved examination within their contexts, but also in-depth scrutiny of the contexts themselves. That the variables, events, and meanings contributing to successful establishment could only be understood within these contexts is a fundamental principle of Critical Realism, Case Study Research, and Institutional Entrepreneurship theory (see 'Research Design' sections 3.3.1, 3.4, and 3.4.2.3.1).

#### **8.4.2.4 Do the conclusions follow from the data?**

Even though analysis in CR research is less data-driven and more theory- and researcher-driven (see section 3.4.4.1 'Analytical approaches'), the iterative use of induction in intimate combination with deduction, abduction, retrodiction, and retrodiction still embeds the conclusions of this research within the multi-source, multi-modal case study data (see section 3.4.3 'Data collection'). In fact, since all data can be treated as evidence from which inferences about the real-world can be made (see section 3.4.3.1.1 'Critical Realist approaches to the data collected'), I suggest that even the ideas, concepts, and theories gleaned from the business and medical education literature can be treated as 'data' contributing to the inductive, deductive, abductive, retroductive, and retrodictive conclusions of this research.

#### **8.4.2.5 Is there adequate discussion both for and against the researcher's arguments?**

Yin describes several possible rival explanations that can be considered in Case Study Research, including three "craft rivals" (the Null hypothesis, threats to validity, and investigator bias) and six "real-world rivals" (direct rival, commingled rival, implementation rival, rival theory, super rival, and societal rival) (2014, p. 141). I consider each one in this section.

The Null hypothesis that my results were by chance only can be refuted by my use of Multiple Case Study methodology, involving in-depth analysis within context, thick description of the cases, cross-case analysis, and the finding of congruence with business theories. I have approached threats to validity using Critical Realist research rigour rather than just methodological techniques. Critical Realist research acknowledges the investigator's perspective as real, and I have used reflexivity to make my perspectives transparent.



In a complex, multi-faceted phenomenon such as new medical school establishment, direct rivals (when an intervention other than the intervention under study accounts for the results) and commingled rivals (when both the target intervention and another intervention together contribute to the results), are harder to identify since all facets are considered germane. For my research question, implementation rivals (the implementation process not the intervention account for the results) do not apply, since the implementation process itself was the phenomenon under study.

Whether there is a rival theory (a theory different to the original theory that explains the results better) is a very valid consideration for my research. In section 3.4.2 'Utilising theory', I described several other theories of organisational and educational change that I considered, yet ultimately discarded in favour of Institutional Entrepreneurship. As a Critical Realist, I acknowledge that multiple theories and viewpoints can explain reality, each providing a different and deeper understanding of our world. From my perspective and for my purposes, Institutional Entrepreneurship seemed to be the theory of best-fit to answer my research question, and my use of it in this thesis stands as its own argument. However, as a Critical Realist researcher, I acknowledge that other perspectives and theories can add helpful layers of understanding to my research phenomenon.

Whether there are super rivals (forces larger than but including the intervention to account for the results) and/or societal rivals (social trends rather than any particular force or intervention accounting for the results), are precisely what Critical Realist research considers in attempting to identify the multiple layers of reality including the underlying causal mechanisms. My research identified structure, agency, power, politics, and social accountability as key causal mechanisms contributing to the successful establishment of new medical schools in medically under-served areas. As a Critical Realist researcher, I acknowledge that other causal mechanisms may also be at play and identifying them through other research techniques will also be of benefit to future founding leaders of new medical schools.

### **8.4.3 Strengths and limitations of this research:**

#### **8.4.3.1 Strengths:**

This research addresses several gaps in the literature and makes several theoretical, methodological, empirical, and practical original contributions (see ‘Significance of this research’ in section 1.6 and reiterated in section 9.5). This is the first empirical and theoretical study on new medical school establishment. It has generated a novel conceptual framework, which draws attention to multiple interrelating dimensions of successful establishment. Furthermore, it is the first study to span international contexts and to address medically under-served areas.

#### **8.4.3.2 Limitations:**

This research utilised Multiple Case Study methodology, which has been used before to study new medical school establishment (i.e., the large multiple case study undertaken by Whitcomb for the Josiah Macy, Jr. Foundation). A different methodology may have provided a different understanding and I have recommended this as a consideration for future research (see section 9.6 ‘Areas for future research’). Additionally, this research focused on ‘successful’ establishment, which may have detracted from the identification of negative findings. Future research focusing on failed establishment attempts are also recommended in section 9.6.

### **8.5 Summary of chapter:**

In this chapter, I detailed the answer to my research question from a Critical Realist perspective, using theoretical concepts from the business domain, and the empirical findings of my Multiple Case Study. I summarised the answer to my research question utilising the eight elements of my 8CF: **“New medical schools are successfully established in medically under-served areas when Catalysts act within their Contexts to undertake various tasks of Conducting, Convincing, Collecting, and Connecting in order to produce desired Consequences and overcome Challenges”**. I posed several questions to unpack the considerations and mechanisms underpinning each element of this statement.

My findings identified that Catalysts are creative, visionary leaders who use mechanisms of agency and power to collectively and individually effect change. They identify the elements of their Context that are either beneficial or detrimental to their venture, and utilise all of them to their advantage. They use entrepreneurial skills and processes when Conducting their Context to make it more favourable for their venture. They use socio-political devices like power, persuasion, trust, symbiosis, sharing, and bricolage when Convincing, Connecting, and Collecting. They harness the utility of both field structure and human agency to produce desired Consequences and overcome Challenges. Thus, human agency, contextual structure, power dynamics, and political diplomacies emerged as golden threads weaving throughout the causal mechanisms underpinning successful establishment, and social accountability tied them together into a stronger generative force for medically under-served regions.

Then, I critiqued my research beginning with a critique of my use of theory borrowed from the business domain and applied to my research phenomenon of new medical school establishment. I described how my original 8CF was theoretically derived and empirically supported, with intention to be strategically useful to future founding teams of new medical schools. I noted the potential for my research and the 8CF to have application in other cross-domain, trans-disciplinary ventures of establishment, innovation, and entrepreneurship. I also critiqued the validity of my research using a Critical Realist framework of questions to evaluate the rigour of my research and its strengths and limitations. In the next closing chapter, I summarise my thesis argument, the findings and contributions of my research, areas for further study, and conclude with a personal reflection, closing the loop from the personal beginnings of this research journey.

## 9 CONCLUSION

### 9.1 Introduction to chapter:

In this concluding chapter, I summarise my thesis argument, my research process, and the findings of my research. I outline, again, the theoretical, methodological, empirical, and practical original contributions of my research. I discuss areas for future research and close with a personal reflection of my research journey.

### 9.2 My thesis argument:

Medically under-served areas might seek to establish a new medical school in their region to improve the quantity and quality of their local medical workforce, as well as their population's health outcomes and educational opportunities. Establishing a new medical school is a significant venture involving many complex political, social, economic, educational, and organisational considerations. Most founders go about the process intuitively, drawing from their prior knowledge and experiences; guided by accreditation standards; and utilising project management strategies. There is substantial value in this experience-based, intuitive approach, but a stronger evidence-base could increase the efficiency and efficacy of academics, clinicians, administrators, politicians, universities, health facilities, health systems, and communities seeking to establish a new medical school.

The published literature on the process of establishing a new medical school is, however, empirically and theoretically under-developed. There are several clear gaps including no prior published reviews; no explicit reference to applicable theory; minimal research on the establishment process; poor reporting of strategies to obtain initial approval from governing authorities; and minimal discussion regarding the personal costs and burnout experienced by founders of new medical schools. My thesis addressed each of these gaps through Critical Realist Multiple Case Study research. I presented a scoping review of the published literature; I developed a strong theoretical basis by adapting and extending concepts from Institutional Entrepreneurship theory and my empirical findings into a novel conceptual framework; and I provided a suite of strategies for use by stakeholders at all levels of the process, particularly in medically under-served regions.

### 9.3 My research process:

This research began with a desire to understand the complex phenomenon of new medical school establishment from a holistic and real-world perspective. An emphasis on medically under-served areas stemmed from my personal interests in issues of social justice, as well as a medical education trend towards social accountability. The research question I sought to answer was, “***How are new medical schools successfully established in medically under-served areas?***”

To answer my research question, I undertook Multiple Case Study research spanning three continents, in medically under-served contexts of Australia, Canada, and Botswana. I approached the research from a Critical Realist perspective and with a Social Accountability ethos. I applied Institutional Entrepreneurship theory to my research phenomenon and derived a novel conceptual framework based on theory and my empirical findings. My Eight C’s Framework (8CF) consists of eight alliterative words that help describe the various aspects to successfully establishing a new medical school: Context, Catalysts, Conducing, Convincing, Collecting, Connecting, Challenges, and Consequences. I summarise the findings of my research in the next section.

### 9.4 Findings of my research:

My thesis statement is that stakeholders (such as academics, clinicians, administrators, politicians, universities, health facilities, health systems, and communities) could benefit from the strategic use of a theory-based, empirically-supported framework as they approach their local medically under-served contexts with a system-wide view to establishing a new medical school. 8CF was developed with this in mind and my research question can be answered using its elements:

***New medical schools are successfully established in medically under-served areas when Catalysts act within their Contexts to undertake various tasks of Conducing, Convincing, Collecting, and Connecting, in order to produce desired Consequences and overcome Challenges.***

Catalysts (the human agents of change and innovation) are creative, visionary leaders who use mechanisms of agency and power to collectively and individually effect change. They identify the elements of their environmental Context that are either beneficial or detrimental to their venture and utilise all of them to their advantage. They use entrepreneurial skills and processes when Conducting (making more favourable) their Context for their venture. They use socio-political devices like power, persuasion, trust, symbiosis, sharing, and bricolage when Convincing (all the stakeholders with various arguments and rationales), Connecting (with various partners and collaborators), and Collecting (all the required resources). Catalysts harness the utility of both field structure and human agency to produce desired Consequences (macro-level, meso-level, and micro-level outcomes) and overcome Challenges (foreseen and unforeseen problems and obstacles).

My research uncovered that human agency, contextual structure, power dynamics, and political diplomacies contribute to the causal mechanisms underpinning successful establishment. Moreover, my research found that socially accountable motivations and methods can unite these generative mechanisms into an even stronger force for successful establishment of a new medical school, particularly in medically under-served areas. In the next section, I outline the significance of my research and its various original contributions.

## **9.5 Significance of this research:**

Several original contributions are identifiable from my research and are summarised as theoretical, methodological, empirical, and practical contributions.

### **9.5.1 Theoretical original contributions:**

- I reviewed the literature on a topic that had never been reviewed before.
- I identified and applied a theoretical framework for the process of establishing a new medical school, by borrowing theory from the business domain.
- I adapted and extended Institutional Entrepreneurship theory – that had never before been applied to new medical schools – into a novel conceptual framework for their creation.
- My novel framework and empirical findings could have application in other cross-domain, trans-disciplinary ventures of establishment, innovation, and entrepreneurship.

### **9.5.2 Methodological original contributions:**

There is a dearth of research conducted on the process of new medical school establishment, particularly in medically under-served regions. Only a single large Multiple Case Study was identified in the literature, with an unknown philosophical stance and covering two countries (USA and Canada) within a single continent (as detailed in 'Literature Review' section 2.3.2).

- I conducted Multiple Case Study research in medically under-served contexts spanning three countries and continents.
- I conducted my research with a Critical Realist philosophy.

### 9.5.3 Empirical original contributions:

- My empirical findings contribute to the body of knowledge on establishing new medical schools, particularly in medically under-served areas.
- My empirical findings addressed a significant gap in the medical education literature by illuminating how to go about obtaining the initial approval to proceed with establishing a new medical school from governing authorities.
- My empirical findings identified a further gap in the medical education literature regarding the personal costs and burnout frequently experienced by founders of new medical schools.
- Several other aspects not previously discussed in the literature that my research elucidated include:
  - the socio-political, economic, and organisational complexities caused by geographical isolation
  - the reciprocal opportunity for a new medical school to improve the processes and standards of accreditation bodies
  - the 'mission critical' nature of technology for distributed sites and the educational inequities that could result when the technology failed for some students but not others
- My empirical findings uncovered other unique challenges for consideration when establishing new medical schools such as:
  - environmental disruptions of technology (e.g., “the ants ate the wiring”)
  - social disruptions of the medical school (e.g., “the parents of the students wanted to close the new medical school so that their children would be sent abroad to train instead”)
  - implementing a social vision can work against untested stakeholders (e.g., “Indigenous students were admitted without sufficient benchmarking and preparation resulting in unforeseen difficulties for students and staff”)
  - inappropriate infrastructure can work against the social ethos and educational aims of the new medical school (e.g., “building a new, high-end teaching hospital can become a proxy for good medical education and could entice people away from a focus on rural, community-based practice”)



#### **9.5.4 Practical original contributions:**

- I devised a theory-based, empirically-supported conceptual framework with a system-wide view of new medical school establishment that could be used by all levels of stakeholders including policy makers, government officials, institutional administrators, university academics, health service clinicians, and communities to structure their own strategic approaches.
- I collated a suite of practical strategies pertaining to new medical school establishment in medically under-served areas.

Having outlined the various original contributions of my research, I reflect on potential areas for further study.

#### **9.6 Areas for future research:**

Given the dearth of research on the topic of new medical school establishment, there is vast scope for further study. Furthermore, given the complexity of the phenomenon and the economic and logistical investment required, more research to improve cost-effectiveness and implementation-efficacy is warranted. Additionally, my research's finding that personal costs and burnout can be high for founding team members suggests that further research could be imperative for the health and well-being of future Catalysts.

As a Critical Realist, I acknowledge the usefulness of multiple perspectives and methodologies to understand the real world. As such, I suggest a range of potential areas for future research:

- More studies using both quantitative and qualitative methodologies to further study the holistic process of establishment as well as individual aspects
- Studies applying other theories of institutional or educational change and innovation to develop an even deeper and multi-faceted understanding of successful establishment
- Prospective studies examining whether 8CF is truly beneficial as a strategic tool for founders of new medical schools
- Outcomes studies examining whether 8CF is particularly useful to:
  - Improve health and workforce outcomes in medically under-served regions
  - Decrease burnout and personal impact experienced by founding leaders
- Studies examining whether 8CF can be used as an analytic tool for failed attempts at new medical school establishment to identify underlying causes for failure
- Studies in other domains and disciplines testing whether 8CF can be used as a framework for other new educational and/or business ventures

In the next section, I conclude this thesis with a personal reflection, closing the loop from the personal beginnings of my research journey.

## **9.7 Final thoughts:**

The demand for new medical schools in medically under-served areas will probably continue into the future. Predictions of major health workforce shortages persist globally, and history has shown that predictions of doctor surpluses are likely to be short-lived. Furthermore, the problem of maldistribution of the medical workforce in urban locations and non-generalist specialities also persists. In our aspirations for a future health workforce with better healthcare access and equity, my research may provide inspiration, information, and instruction for the development of new medical schools with a strong commitment to social accountability.

For instance, the South Pacific country of Vanuatu still does not have its own medical school (personal communications from several in-country contacts). It continues to outsource its medical education to other countries and to bring in doctors from elsewhere (same personal communications). Thus, the burning question I began with, “*If Vanuatu wanted to build its first medical school, what would it need to do?*”, remains relevant (see ‘Introduction’ section 1.3). My research may well provide a response to this or similar questions, burning in the hearts of health leaders in Vanuatu or elsewhere.

On a final note, I can now identify Dr. Ida Sophia Scudder (see ‘Introduction’ section 1.3) as an institutional entrepreneur and Catalyst. She was a pioneering, risk-taking visionary who successfully founded a medical school for women in a medically under-served Indian Context more than a century ago. She faced many Challenges, including that she was a female doctor at the turn of the 20<sup>th</sup> century, living and working cross-culturally. Yet, her activities of Conducting, Convincing, Connecting, and Collecting yielded an enduring legacy of Consequences, that have impacted several generations of staff, students, patients, their families, and their diaspora (such as myself). Dr. Scudder’s story will continue to inspire my personal, professional, and research journey beyond this doctoral thesis.

## 10 REFERENCES

- ABC Capricornia. (2020, 13 Nov). Central Queensland medical program to retain regional doctors touted as Australian first. *ABC*. <https://www.abc.net.au/news/2020-11-13/medical-program-set-to-retain-doctors-from-regions-in-regions/12880086>
- Addae, S. K. (1967). Planning a new medical school. *Lancet*, 2(7513), 470. [https://doi.org/10.1016/S0140-6736\(67\)90895-1](https://doi.org/10.1016/S0140-6736(67)90895-1)
- Agnew, L. R. (1954). The Florida Medical School: A new design. *Lancet*, 267(6835), 422-424. [https://doi.org/10.1016/S0140-6736\(54\)90296-2](https://doi.org/10.1016/S0140-6736(54)90296-2)
- Alexander, B. (2013, 1-5 July). *Design of a socio-technical change management process: A critical realist perspective* Proceedings of the International Conference on Engineering and Research, Marrakesh, Morocco. [https://www.researchgate.net/publication/264046432\\_Design\\_of\\_a\\_Socio-technical\\_Change\\_Management\\_Process\\_A\\_Critical\\_Realist\\_Perspective](https://www.researchgate.net/publication/264046432_Design_of_a_Socio-technical_Change_Management_Process_A_Critical_Realist_Perspective)
- Alice Springs Town Council. (2021). *Living in Alice*. Retrieved 30 September, 2021, from <https://alicesprings.nt.gov.au/about-alice-springs/living-in-alice-springs/local-community-culture>
- Allen, M. (2017). *The SAGE encyclopedia of communication research methods*. SAGE Publications. <https://doi.org/10.4135/9781483381411.n569>
- Alvarez, S., & Busenitz, L. (2001). The entrepreneurship of resource-based theory. *Journal of Management*, 27, 755-775. <https://doi.org/10.1177/014920630102700609>
- Andrew, R. R. (1965). The plan of the new medical school, Monash University. *Medical Journal of Australia*, 1(25), 940-942. <https://doi.org/10.5694/j.1326-5377.1965.tb18387.x>
- Anwar, M., Clauss, T., & Issah, W. B. (2021). Entrepreneurial orientation and new venture performance in emerging markets: The mediating role of opportunity recognition. *Review of Managerial Science*. <https://doi.org/10.1007/s11846-021-00457-w>
- Arango, A. J. (1966). The planning of new medical schools in Latin America. *Journal of Medical Education*, 41(2), 172-175. <https://doi.org/10.1097/00001888-196602000-00009>

- Archer, M. (2010). Critical realism and relational sociology: Complementarity and synergy. *Journal of Critical Realism*, 9(2), 199-207. <https://doi.org/10.1558/jcr.v9i2.199>
- Archer, M., Bhaskar, R., Collier, A., Lawson, T., & Norrie, A. (1998). *Critical realism: Essential readings*. Routledge. <https://doi.org/10.4324/9781315008592>
- Arksey, H., & O'Malley, L. (2005). Scoping studies: Towards a methodological framework. *International Journal of Social Research Methodology*, 8(1), 19-32. <https://doi.org/10.1080/1364557032000119616>
- Arcsott-Mills, T., Kebaabetswe, P., Tawana, G., Mbuka, D. O., Makgabana-Dintwa, O., Sebina, K., Kebaetse, M., Mokgathe, L., & Nkomazana, O. (2016). Rural exposure during medical education and student preference for future practice location: A case of Botswana. *African Journal of Primary Health Care & Family Medicine*, 8(1), Article a1039. <https://doi.org/10.4102/phcfm.v8i1.1039>
- Asano, N., Kobayashi, Y., & Kano, K. (2001). Issues of intervention aimed at preventing prospective surplus of physicians in Japan. *Medical Education*, 35(5), 488-494. <https://doi.org/10.1046/j.1365-2923.2001.00937.x>
- Association for Medical Education in Europe. (2015). *ASPIRE recognition of excellence in social accountability of a medical school: An introduction*. [https://www.aspire-to-excellence.org/downloads/1303/ASPIRE%20Social%20Accountability%20-%20An%20Introduction\\_Sept%202017.pdf](https://www.aspire-to-excellence.org/downloads/1303/ASPIRE%20Social%20Accountability%20-%20An%20Introduction_Sept%202017.pdf)
- Association for Medical Education in Europe. (2018). *ASPIRE recognition of excellence in social accountability of a medical school criteria: Version 2.0*. [https://www.aspire-to-excellence.org/downloads/1553/ASPIRE\\_REVISED\\_SA\\_CRITERIA\\_2020.pdf](https://www.aspire-to-excellence.org/downloads/1553/ASPIRE_REVISED_SA_CRITERIA_2020.pdf)
- Association of American Medical Colleges. (2012). *A snapshot of the new and developing medical schools in the U.S. and Canada*. [https://store.aamc.org/downloadable/download/sample/sample\\_id/45/](https://store.aamc.org/downloadable/download/sample/sample_id/45/)
- Australian Government. (n.d.). *Our country*. Retrieved 6 November, 2021, from <https://info.australia.gov.au/about-australia/our-country>
- Australian Government Department of Health. (2018, 7 December). *Stronger rural health strategy: The Murray-Darling Medical Schools Network*. <http://www.health.gov.au/internet/main/publishing.nsf/Content/stronger-rural-health-strategy-the-murray-darling-medical-schools-network>

- Australian Government Department of Health. (2019, 13 January). *Regional training hubs*. <https://www1.health.gov.au/internet/main/publishing.nsf/Content/regional-training-hubs>
- Australian Institute of Aboriginal and Torres Strait Islander Studies. (n.d.). *Map of Indigenous Australia*. Retrieved 30 September, 2021, from <https://aiatsis.gov.au/explore/map-indigenous-australia>
- Australian Institute of Health and Welfare. (2018, 1 March). *Overview of Aboriginal health status in the Northern Territory: Summary*. <https://www.aihw.gov.au/reports/indigenous-health-welfare/overview-of-aboriginal-health-status-in-nt/contents/summary>
- Australian Medical Council. (2012). *Standards for assessment and accreditation of primary medical programs*. [http://www.amc.org.au/files/d0ffcecd9608cf49c66c93a79a4ad549638bea0\\_original.pdf](http://www.amc.org.au/files/d0ffcecd9608cf49c66c93a79a4ad549638bea0_original.pdf)
- Bacq, S., Ofstein, L. F., Kikul, J. R., & Gundry, L. K. (2015). Bricolage in social entrepreneurship. *Entrepreneurship and Innovation*, 16(4), 283-289. <https://doi.org/10.5367/ije.2015.0198>
- Badlangana, L., Matlhagela, K., & Tlale, N. (2016). Remembering old partnerships: Networking as new medical schools within BoLeSwa countries. *African Journal of Health Professional Education*, 8(2), 2. <https://doi.org/10.7196/AJHPE.2016.v8i2.525>
- Baker, T., & Nelson, R. E. (2005). Creating something from nothing: Resource construction through entrepreneurial bricolage. *Administrative Science Quarterly*, 50, 329-366. <https://doi.org/10.2189/asqu.2005.50.3.329>
- Battilana, J., Leca, B., & Boxenbaum, E. (2009). 2 How actors change institutions: Towards a theory of institutional entrepreneurship. *The Academy of Management Annals*, 3(1), 65-107. <https://doi.org/10.1080/19416520903053598>
- BBC. (2012, July 19). *Peninsula medical school split plans going ahead for 2013*. <https://www.bbc.com/news/uk-england-devon-18911829>
- Beckert, J. (1999). Agency, entrepreneurs, and institutional change: The role of strategic choice and institutionalized practices in organizations. *Organization Studies*, 20(5), 777-799. <https://doi.org/10.1177/0170840699205004>

- Beckett, M. K., & Morrison, P. A. (2010). Assessing the need for a new medical school: A case study in applied demography. *Population Research and Policy Review*, 29(1), 19-32. <https://doi.org/10.1007/s11113-009-9145-6>
- Bhaskar, R. (2011). *Reclaiming reality: A critical introduction to contemporary philosophy*. Taylor & Francis Group. <https://doi.org/10.4324/9780203843314>
- Bhaskar, R. (2018). *Empiricism and the metatheory of the social sciences*. Taylor & Francis Group.
- Bin Abdulrahman, K. A., & Saleh, F. (2015). Steps towards establishing a new medical college in the Kingdom of Saudi Arabia: An insight into medical education in the Kingdom. *BMC Medical Education*. <https://doi.org/10.1186/s12909-015-0366-6>
- Bleakley, A., Bligh, J., & Browne, J. (2011). *Medical education for the future: Identity, power and location*. Springer. <https://doi.org/10.1007/978-90-481-9692-0>
- Bligh, J., & Anderson, M. B. (2000). Medical teachers and evidence. *Medical Education*, 34(3), 162-163. <https://doi.org/10.1046/j.1365-2923.2000.00648.x>
- Boelen, C. (1995). Prospects for change in medical education in the twenty-first century. *Academic Medicine*, 70(7, Suppl.), S21-28. <https://doi.org/10.1097/00001888-199507000-00017>
- Boelen, C. (2016). Why should social accountability be a benchmark for excellence in medical education? *Educacion Medica*, 17(3), 101-105. <https://doi.org/10.1016/j.edumed.2016.06.004>
- Boelen, C. (2018). Coordinating medical education and health care systems: The power of the social accountability approach. *Medical Education*, 52(1), 96-102. <https://doi.org/10.1111/medu.13394>
- Boelen, C., & Heck, J. E. (1995). *Defining and measuring the social accountability of medical schools*. World Health Organisation. [http://whqlibdoc.who.int/hq/1995/WHO\\_HRH\\_95.7.pdf](http://whqlibdoc.who.int/hq/1995/WHO_HRH_95.7.pdf)
- Boelen, C., Pearson, D., Kaufman, A., Rourke, J., Woollard, R., Marsh, D. C., & Gibbs, T. (2016). Producing a socially accountable medical school: AMEE guide no. 109. *Medical Teacher*, 38(11), 1078-1091. <https://doi.org/10.1080/0142159X.2016.1219029>

- Boelen, C., & Woollard, R. (2011). Social accountability: The extra leap to excellence for educational institutions. *Medical Teacher*, 33(8), 614-619.  
<https://doi.org/10.3109/0142159X.2011.590248>
- Bonner, D., Maguire, P., Cartledge, B., Keightley, P., Reay, R., Parige, R., Cubis, J., Tedeschi, M., Craigie, P., & Looi, J. C. L. (2018). A new graduate medical school curriculum in psychiatry and addiction medicine: Reflections on a decade of development. *Australasian Psychiatry*, 26(4), 422-428. <https://doi.org/10.1177/1039856218758561>
- Boulet, J., Bede, C., McKinley, D., & Norcini, J. (2007). An overview of the world's medical schools. *Medical Teacher*, 29(1), 20-26. <https://doi.org/10.1080/01421590601131823>
- BSI Group India. (n.d.). *Social accountability (SA8000): An international standard for improving working conditions*. [https://www.bsigroup.com/LocalFiles/en-IN/Certification/Social/IN\\_SocialAccountability\\_Flyer-Ver1-Nov-2016.pdf](https://www.bsigroup.com/LocalFiles/en-IN/Certification/Social/IN_SocialAccountability_Flyer-Ver1-Nov-2016.pdf)
- Buykx, P., Humphreys, J., Wakerman, J., & Pashen, D. (2010). Systematic review of effective retention incentives for health workers in rural and remote areas: Towards evidence-based policy. *Australian Journal of Rural Health*, 18(3), 102-109.  
<https://doi.org/10.1111/j.1440-1584.2010.01139.x>
- Campbell, N., Kennedy, E., Rissel, C., Gill, E., Bergin, S., Noutsos, T., & O'Donoghue, O. (2021). Workplace locations of 2011-2017 Northern Territory Medical Program graduates. *Rural and Remote Health*, 21(4), 6662-6662. <https://doi.org/10.22605/RRH6662>
- Case histories of ten new medical schools*. (1972). (V. W. Lippard & E. Purcell, Eds.). Josiah Macy Jr Foundation.
- Castelo-Branco, L., Finucane, P., Marvao, P., McCrorie, P., Ponte, J., & Worley, P. (2016). Global sharing, local innovation: Four schools, four countries, one curriculum. *Medical Teacher*, 38(12), 1204-1208. <https://doi.org/10.1080/0142159X.2016.1181731>
- Cathcart-Rake, W., Robinson, M., & Paolo, A. (2017). From infancy to adolescence: The Kansas University School of Medicine-Salina: A rural medical campus story. *Academic Medicine*, 92(5), 622-627. <https://doi.org/10.1097/ACM.0000000000001455>



- Centre for Rural and Northern Health Research. (2009). *Exploring the socio-economic impact of the Northern Ontario School of Medicine*. Lakehead and Laurentian Universities. [https://www.nosm.ca/wp-content/uploads/2018/06/FINAL\\_Report\\_NOSM\\_Socioeconomic\\_Impact\\_Study-2009-11.pdf](https://www.nosm.ca/wp-content/uploads/2018/06/FINAL_Report_NOSM_Socioeconomic_Impact_Study-2009-11.pdf)
- Centre for Rural and Northern Health Research. (2017). *The economic impact of the Northern Ontario School of Medicine on Northern Ontario in 2017*. Laurentian University. [https://0e0b2f7b-56a2-4e39-8d1b-c7f646cd111a.filesusr.com/ugd/bca2bf\\_61d9dc9e28e24fa09ab0a195056c7dc2.pdf](https://0e0b2f7b-56a2-4e39-8d1b-c7f646cd111a.filesusr.com/ugd/bca2bf_61d9dc9e28e24fa09ab0a195056c7dc2.pdf)
- Charbonneau, D. (2004). Influence tactics and perceptions of transformational leadership. *Leadership & Organisation Development Journal*, 25(7), 565-576. <https://doi.org/10.1108/01437730410561459>
- Chavez, J. A., Suarez, L. V., del Rosario, O., Hechavarria, S., & Quinones, J. (2012). Organization and startup of The Gambia's new community-based medical programme. *MEDICC review*, 14(1), 49-52. <https://doi.org/10.37757/MR2012V14.N1.9>
- Christian Medical College & Hospital. (2016). *The CMC story*. Retrieved 6 November, 2021, from <https://www.cmch-vellore.edu/content.aspx?Pid=P171127016>
- Clarke, R. M. (1979). Design and implementation of the curriculum in a new medical school. *Programmed Learning & Educational Technology*, 16(4), 288-295. <https://doi.org/10.1080/0033039790160405>
- Clough, D., Pan Fang, T., Vissa, B., & Wu, A. (2018). Turning lead into gold: How do entrepreneurs mobilize resources to exploit opportunities? *Academy of Management Proceedings*, 2018(1), Article 13039. <https://doi.org/10.5465/AMBPP.2018.13039abstract>
- Colquhoun, C., Hafeez, M. R., Heath, K., & Hays, R. (2009). Aligning clinical resources to curriculum needs: The utility of a group of teaching hospitals. *Medical Teacher*, 31(12), 1081-1085. <https://doi.org/10.3109/01421590903199692>
- Condon, B. P., Worley, P. S., Condon, J. R., & Prideaux, D. J. (2017). Student academic performance in rural clinical schools: The impact of cohort size and competition. *Medical Teacher*, 39(3), 262-268. <https://doi.org/10.1080/0142159X.2017.1270430>
- Cookson, J. (2013). Twelve tips on setting up a new medical school. *Medical Teacher*, 35(9), 715-719. <https://doi.org/10.3109/0142159x.2013.799638>

- CQUniversity Australia. (n.d.). *Bachelor of medical science (Pathway to medicine) - CM17*. Retrieved 6 November, 2021, from <https://www.cqu.edu.au/courses/bachelor-of-medical-science-pathway-to-medicine>
- Cristobal, F., & Worley, P. (2012). Can medical education in poor rural areas be cost-effective and sustainable: The case of Ateneo de Zamboanga University School of Medicine. *Rural and Remote Health*, 12(1835). <https://doi.org/10.22605/RRH1835>
- Curran, V., & Rourke, J. (2004). The role of medical education in the recruitment and retention of rural physicians. *Medical Teacher*, 26(3), 265-272. <https://doi.org/10.1080/0142159042000192055>
- Danermark, B., Ekstrom, M., & Karlsson, J. C. (2019). *Explaining society: Critical realism in the social sciences* (2nd ed.). Routledge. <https://doi.org/10.4324/9781351017831>
- Davidson, L. (1965). The setting up of a new medical school: Problems and progress. *Postgraduate Medical Journal*, 41(472), 61-66. <https://doi.org/10.1136/pgmj.41.472.61>
- Davidson, L. (1971). Birmingham's baby: The beginnings of medical education in Rhodesia. *British Journal of Medical Education*, 5, 61-74. <https://doi.org/10.1111/j.1365-2923.1971.tb02153.x>
- Deephouse, D. (1996). Does isomorphism legitimate? *Academy of Management Journal*, 39(4), 1024-1039. <https://doi.org/10.2307/256722>
- Delgado, A. P., Martins, A. S., & Ferrinho, P. (2017). Medical training experience and expectations regarding future medical practice of medical students at the University of Cape Verde. *Acta Medica Portuguesa*, 30(10), 699-703. <https://doi.org/10.20344/amp.8179>
- DiMaggio, P. (1988). Interest and agency in institutional theory. In L. G. Zucker (Ed.), *Institutional patterns and organizations: Culture and environment* (pp. 3-22). Ballinger.
- DiMaggio, P., & Powell, W. (1983). The iron cage revisited: Institutional isomorphism and collective rationality in organizational fields. *American Sociological Review*, 48(2), 147-160. <https://doi.org/10.2307/2095101>
- Dithato, D. (2004, May 28). *Botswana: No date yet for establishment of medical school*. AllAfrica. Retrieved 6 November, 2021, from <https://allafrica.com/stories/200405280591.html>

- Dogramaci, I. (1968). Planning new programs in medical education. *Journal of Medical Education*, 43(2), 280-288. <https://doi.org/10.1097/00001888-196802000-00017>
- Drobac, P., & Morse, M. (2016). Medical education and global health equity. *AMA Journal of Ethics*, 18(7), 702-709. <https://doi.org/10.1001/journalofethics.2016.18.7.medu1-1607>
- Duncan, J. T. K. (1967). Planning a new medical school. *Lancet*, 2(7515), 562. [https://doi.org/10.1016/S0140-6736\(67\)90535-1](https://doi.org/10.1016/S0140-6736(67)90535-1)
- Dupper, M., Millard, H., & Lyons, P. (2016). Shifting concepts, changing contexts: The new schools' drive for change. *Advances in Health Sciences Education*, 21(1), 131-139. <https://doi.org/10.1007/s10459-015-9619-8>
- Duvivier, R. J., Boulet, J. R., Opalek, A., van Zanten, M., & Norcini, J. (2014). Overview of the world's medical schools: An update. *Medical Education*, 48(9), 860-869. <https://doi.org/10.1111/medu.12499>
- Education Group for Guidelines on Evaluation. (1999). Guidelines for evaluating papers on educational interventions. *British Medical Journal*, 318(7193), 1265-1267. <https://doi.org/10.1136/bmj.318.7193.1265>
- Eichbaum, Q., Bowa, K., Pires, P., Vanio, O., & Nyarango, P. (2014). Challenges and opportunities for new medical schools in Africa: The Consortium of New Southern African Medical Schools (CONSAMS). *Academic Medicine*, 89(8, Suppl.), S108-S109. <https://doi.org/10.1097/ACM.0000000000000340>
- Eichbaum, Q., Hedimbi, M., Bowa, K., Belo, C., Vainio, O., Kumwenda, J., & Nyarango, P. (2015). New medical schools in Africa: Challenges and opportunities: CONSAMS and value of working in consortia. *Annals of Global Health*, 81(2), 265-269. <https://doi.org/10.1016/j.aogh.2015.03.005>
- Eichbaum, Q., Nyarango, P., Ferrao, J., Tlale, N., Hedimbi, M., Belo, C., Bowa, K., Vainio, O., & Kumwenda, J. (2014). Challenges and opportunities for new medical schools in Africa. *Lancet Global Health*, 2(12), e689-e690. [https://doi.org/10.1016/s2214-109x\(14\)70334-1](https://doi.org/10.1016/s2214-109x(14)70334-1)
- el-Borolossy, A. W. (1972). The establishment of new medical schools. In World Health Organization (Ed.), *Aspects of medical education in developing countries* (47th ed., pp. 104-107).

- Ellaway, R. H., Kehoe, A., & Illing, J. (2020). Critical realism and realist inquiry in medical education. *Academic Medicine*, 95(7), 984-988.  
<https://doi.org/10.1097/ACM.0000000000003232>
- Embassy of the Republic of Botswana. (2021). *History of Botswana*. Retrieved 6 November, 2021, from <http://www.botswanaembassy.org/page/history-of-botswana>
- Emigh, S. (2005). Michael G. DeGroot School of Medicine, McMaster University. *Academic Medicine*, 80(9), 855. <https://doi.org/10.1097/00001888-200509000-00013>
- Encyclopædia Britannica. (2021a). *Botswana*. Retrieved 6 November, 2021, from <https://www.britannica.com/place/Botswana>
- Encyclopædia Britannica. (2021b). *Botswana since independence*. Retrieved 6 November, 2021, from <https://www.britannica.com/place/Botswana/Botswana-since-independence>
- Encyclopædia Britannica. (2021c). *Northern Territory*. Retrieved 6 November, 2021, from <https://www.britannica.com/place/Northern-Territory>
- Eva, K. W. (2008). On the limits of systematicity. *Medical Education*, 42(9), 852-853.  
<https://doi.org/10.1111/j.1365-2923.2008.03140.x>
- Eva, K. W. (2009). Broadening the debate about quality in medical education research. *Medical Education*, 43(4), 294-296. <https://doi.org/10.1111/j.1365-2923.2009.03342.x>
- Evans, D. J. R., & Watt, D. J. (2005). Provision of anatomical teaching in a new British medical school: Getting the right mix. *Anatomical Record. Part B, New Anatomist*, 284B(1), 22-27. <https://doi.org/10.1002/ar.b.20065>
- Expansion of medical education: The Karmel committee's report on medical schools. (1973). *Medical Journal of Australia*, 2(16), 753-754. <https://doi.org/10.5694/j.1326-5377.1973.tb76543.x>
- Expert Panel on Health Professional Human Resources. (2001). *Shaping Ontario's physician workforce: Building Ontario's capacity to plan, educate, recruit and retain physicians to meet health needs*. <https://collections.ola.org/mon/1000/10294173.pdf>

- Farrer-Brown, L., Arnott, W. M., Davey, T. H., Greenfield, A. D. M., Medawar, P. B., Smith, H., Walker, R. M., & McDonald, G. (1958). First report of the medical school planning committee appointed by the University College of Rhodesia and Nyasaland to advise it on the desirability and practicability of establishing a medical school. *Central African Journal of Medicine*, 4(6), 269-280.
- Farrer-Brown, L., Arnott, W. M., Davey, T. H., Greenfield, A. D. M., Medawar, P. B., Smith, H., Walker, R. M., & McDonald, G. (1959). Second report of the medical school planning committee appointed by the University College of Rhodesia and Nyasaland to advise it on the desirability and practicability of establishing a medical school. *Central African Journal of Medicine*, 5(3), 145-172.
- Field, M. J. (2011). Medical school accreditation in Australia: Issues involved in assessing major changes and new programs. *Journal of Educational Evaluation for Health Professions*, 8(6). <https://doi.org/10.3352/jeehp.2011.8.6>
- Fleming, P., & Sinnot, M. (2018). Rural physician supply and retention: Factors in the Canadian context. *Canadian Journal of Rural Medicine*, 23(1), 15-20.
- Fletcher, A. J. (2017). Applying critical realism in qualitative research: Methodology meets method. *International Journal of Social Research Methodology*, 20(2), 181-194. <https://doi.org/10.1080/13645579.2016.1144401>
- Flinders University. (2017, 22 February). *Flinders University timeline*. Retrieved 6 November, 2021, from <https://www.flinders.edu.au/about/history/flinders-timeline>
- Flinders University. (2020, 23 June). *Placement locations*. Retrieved 6 November, 2021, from <https://www.flinders.edu.au/flinders-nt/student-placements/placement-locations>
- Fogarty, J. P., Littles, A. B., Romrell, L. J., Watson, R. T., & Hurt, M. M. (2012). Florida State University College of Medicine: From ideas to outcomes. *Academic Medicine*, 87(12), 1699-1704. <https://doi.org/10.1097/ACM.0b013e318271b8b4>
- Fors, M. (2018). Geographical narcissism in psychotherapy: Countermapping urban assumptions about power, space, and time. *Psychoanalytic Psychology*, 35(4), 446-453. <https://doi.org/10.1037/pap0000179>
- French, J. R. P. J., & Raven, B. (1959). The bases of social power. In D. Cartwright (Ed.), *Studies in social power* (pp. 150-167). University of Michigan.

- Frenk, J., Chen, L., Bhutta, Z. A., Cohen, J., Crisp, N., Evans, T., Fineberg, H., Garcia, P., Ke, Y., Kelley, P., Kistnasamy, B., Meleis, A., Naylor, D., Pablos-Mendez, A., Reddy, S., Scrimshaw, S., Sepulveda, J., Serwadda, D., & Zurayk, H. (2010). Health professionals for a new century: Transforming education to strengthen health systems in an interdependent world. *Lancet*, 376(9756), 1923-1958. [https://doi.org/10.1016/S0140-6736\(10\)61854-5](https://doi.org/10.1016/S0140-6736(10)61854-5)
- Furukawa, K., Ohara, T., Miyazawa, I., Sumitomo, K., & Hitomi, H. (2017). Establishment of a new medical school in the Tohoku region after the great East Japan earthquake. *Geriatrics and Gerontology International*, 17(4), 663-664. <https://doi.org/10.1111/ggi.12905>
- Garb, S. (1962). Planning a new medical college. *Journal of Medical Education*, 37(5), 1133-1135.
- Garud, R., Hardy, C., & Maguire, S. (2007). Institutional entrepreneurship as embedded agency: An introduction to the special issue. *Organization Studies*, 28(07), 957-969. <https://doi.org/10.1177/0170840607078958>
- George, N. M., Parida, V., Lahti, T., & Wincent, J. (2016). A systematic literature review of entrepreneurial opportunity recognition: Insights on influencing factors. *International Entrepreneurship and Management Journal*, 12, 309-350. <https://doi.org/10.1007/s11365-014-0347-y>
- George, R. M. (2014). Calling, conflict and consecration: the testament of Ida Scudder of Vellore. *Christian Journal for Global Health*, 1(1), 26-33. <https://doi.org/10.15566/cjgh.v1i1.10>
- Gibbs, T., & McLean, M. (2011). Creating equal opportunities: The social accountability of medical education. *Medical Teacher*, 33(8), 620-625. <https://doi.org/10.3109/0142159X.2011.558537>
- Gifford, S. (2007, September). Cross-cultural partnership creates a new medical school: Success for a new medical school in Singapore hinges on clear strategy. *R&D Magazine*, 49(9), 16-17.
- Ginsburg, J. A. (1998). The physician workforce and financing of graduate medical education. *Annals of Internal Medicine*, 128(2), 142-148. <https://doi.org/10.7326/0003-4819-128-2-199801150-00012>

- Global consensus for social accountability of medical schools*. (2010).  
<https://healthsocialaccountability.sites.olt.ubc.ca/files/2011/06/11-06-07-GCSA-English-pdf-style.pdf>
- Goncalves, M. (2013). Leadership styles: The power to influence others. *International Journal of Business and Social Science*, 4(4), 1-3.  
[https://ijbssnet.com/journals/Vol\\_4\\_No\\_4\\_April\\_2013/1.pdf](https://ijbssnet.com/journals/Vol_4_No_4_April_2013/1.pdf)
- Gordon, M. (2016). Are we talking the same paradigm? Considering methodological choices in health education systematic review. *Medical Teacher*, 38(7), 746-750.  
<https://doi.org/10.3109/0142159X.2016.1147536>
- Gorski, P. S. (2013). What is critical realism? And why should you care? *Contemporary Sociology*, 42(5), 658-670. <https://doi.org/10.1177/0094306113499533>
- Greenhill, J., Walker, J., & Playford, D. (2015). Outcomes of Australian rural clinical schools: A decade of success building the rural medical workforce through the education and training continuum. *Rural and Remote Health*, 15, Article 2991.  
<https://doi.org/10.22605/RRH2991>
- Grobler, L., Marais, B. J., Mabunda, S., & Grobler, L. (2015). Interventions for increasing the proportion of health professionals practising in rural and other underserved areas. *Cochrane Database of Systematic Reviews*, 2019(10), Article CD005314.  
<https://doi.org/10.1002/14651858.CD005314.pub3>
- Halili Jr., S., Cristobal, F., Woolley, T., Ross, S. J., Reeve, C., & Neusy, A. J. (2017). Addressing health workforce inequities in the Mindanao regions of the Philippines: Tracer study of graduates from a socially-accountable, community-engaged medical school and graduates from a conventional medical school. *Medical Teacher*, 39(8), 859-865.  
<https://doi.org/10.1080/0142159X.2017.1331035>
- Hamdy, H., & Anderson, M. B. (2006). The Arabian Gulf University College of Medicine and Medical Sciences: A successful model of a multinational medical school. *Academic Medicine*, 81(12), 1085-1090. <https://doi.org/10.1097/01.acm.0000246680.82786.76>
- Hamilton, J. D. (2000). International standards of medical education: A global responsibility. *Medical Teacher*, 22(6), 547-548. <https://doi.org/10.1080/01421590050175497>
- Hansen, M. (2021, August 19). *Eight types of leadership power*. Retrieved 6 November, 2021, from <https://yscouts.com/executive/types-of-leadership-power/>

- Hard Rock Medical. (n.d.). Retrieved 6 November, 2021, from <https://www.hardrockmedical.com/>
- Harden, R. M., Grant, J., Buckley, G., & Hart, I. R. (1999). BEME guide no. 1: Best evidence medical education. *Medical Teacher*, 21(6), 553-562. <https://doi.org/10.1080/01421599978960>
- Hardy, C., & Maguire, S. (2017). Institutional entrepreneurship and change in fields. In R. Greenwood, C. Oliver, T. B. Lawrence, & R. E. Meyer (Eds.), *The SAGE handbook of organizational institutionalism* (2nd ed., pp. 261-280). SAGE Publications.
- HarperCollins. (2021a). Definition of 'medical school'. In *Collins English Dictionary*. Retrieved 6 November, 2021, from <http://www.collinsdictionary.com/dictionary/english/medical-school>
- HarperCollins. (2021b). Definition of 'people power'. In *Collins English Dictionary*. Retrieved 6 November, 2021, from <https://www.collinsdictionary.com/dictionary/english/people-power>
- Harrell, G. T. (1962). Planning and construction of a new medical school. *Journal of Medical Education*, 37(1), 1-9.
- Härtl, A., Berberat, P., Fischer, M. R., Forst, H., Grützner, S., Händl, T., Joachimski, F., Linné, R., Märkl, B., Naumann, M., Putz, R., Schneider, W., Schöler, C., Wehler, M., & Hoffmann, R. (2017). Development of the competency-based medical curriculum for the new Augsburg University Medical School. *GMS Journal for Medical Education*, 34(2), Article Doc21. <https://doi.org/10.3205/zma001098>
- Hays, R. (2001). Rural initiatives at the James Cook University School of Medicine: A vertically integrated regional/rural/remote medical education provider. *Australian Journal of Rural Health*, 9(Suppl.), S2-S5. <https://doi.org/10.1046/j.1440-1584.9.s1.10.x>
- Hays, R. (2018). Establishing a new medical school: A contemporary approach to personalizing medical education. *Medical Teacher*, 40(10), 990-995. <https://doi.org/10.1080/0142159X.2018.1487048>
- Hays, R., & Sen Gupta, T. (2003). Ruralising medical curricula: The importance of context in problem design. *Australian Journal of Rural Health*, 11(1), 15-17. <https://doi.org/10.1046/j.1440-1584.2003.00483.x>



- Hays, R., Stokes, J., & Veitch, J. (2003). A new socially responsible medical school for regional Australia. *Education for Health, 16*(1), 14-21.  
<https://doi.org/10.1080/1357628031000066613>
- Hays, R. B., McKinley, R. K., & Sen Gupta, T. K. (2019). Twelve tips for expanding undergraduate clinical teaching capacity. *Medical Teacher, 41*(3), 271-274.  
<https://doi.org/10.1080/0142159X.2018.1429587>
- Hays, R. B., Strasser, R. P., & Sen Gupta, T. K. (2019). Twelve tips for establishing a new medical school. *Medical Teacher, 42*(4), 398-402.  
<https://doi.org/10.1080/0142159X.2019.1571570>
- Health Direct. (2021, March). *Northern Territory rural and remote health services*. Retrieved 6 November, 2021, from <https://www.healthdirect.gov.au/northern-territory-rural-and-remote-health-services>
- Henfridsson, O., & Yoo, Y. (2014). The liminality of trajectory shifts in institutional entrepreneurship. *Organization Science, 25*(3), 932-950.  
<https://doi.org/10.1287/orsc.2013.0883>
- Hixon, A., Yamada, S., Farmer, P. E., & Maskarinec, G. G. (2013). Social justice: The heart of medical education. *Social Medicine, 7*(3), 161-168.  
[https://www.researchgate.net/publication/258353708\\_Social\\_Justice\\_The\\_Heart\\_of\\_Medical\\_Education](https://www.researchgate.net/publication/258353708_Social_Justice_The_Heart_of_Medical_Education)
- Hogenbirk, J. C., French, M. G., Timony, P. E., Strasser, R., Hunt, D., & Pong, R. W. (2015). Outcomes of the Northern Ontario School of Medicine's distributed medical education programmes: Protocol for a longitudinal comparative multicohort study. *BMJ Open, 5*, Article e008246. <https://doi.org/10.1136/bmjopen-2015-008246>
- Hogenbirk, J. C., Robinson, D. R., Hill, M. E., Pong, R. W., Minore, B., Adams, K., Strasser, R., & Lipinski, J. (2015). The economic contribution of the Northern Ontario School of Medicine to communities participating in distributed medical education. *Canadian Journal of Rural Medicine, 20*(1), 25-32.
- Hogenbirk, J. C., Robinson, D. R., & Strasser, R. P. (2021). Distributed education enables distributed economic impact: The economic contribution of the Northern Ontario School of Medicine to communities in Canada. *Health Economics Review, 11*, Article 20.  
<https://doi.org/10.1186/s13561-021-00317-z>

- Hogenbirk, J. C., Timony, P. E., French, M. G., Strasser, R., Pong, R. W., Cervin, C., & Graves, L. (2016). Milestones on the social accountability journey: Family medicine practice locations of Northern Ontario School of Medicine graduates. *Canadian Family Physician*, 62(3), e138-e145.  
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4984600/pdf/062e138.pdf>
- Howe, A., Campion, P., Searls, J., & Smith, H. (2004). New perspectives: Approaches to medical education at four new UK medical schools. *British Medical Journal*, 329(7461), 327-331. <https://doi.org/10.1136/bmj.329.7461.327>
- Hull York Medical School. (n.d.). *About us*. Retrieved 6 November, 2021, from <https://www.hyms.ac.uk/about>
- Hurt, M. M., & Harris, J. O. (2005). Founding a new College of Medicine at Florida State University. *Academic Medicine*, 80(11), 973-979. <https://doi.org/10.1097/00001888-200511000-00002>
- Hutchinson, T. A., Hutchinson, N., & Arnaert, A. (2009). Whole person care: Encompassing the two faces of medicine. *Canadian Medical Association Journal*, 180(8), 845-846. <https://doi.org/10.1503/cmaj.081081>
- IMDb.com. (2021). *Hard Rock Medical*. Retrieved 6 November, 2021, from <https://www.imdb.com/title/tt2495154/>
- Jeffrey, M. P. (2014). *Ida S. Scudder of Vellore*. Word of Christ Ministries.
- Jones, M., Humphreys, J., & Prideaux, D. (2009). Predicting medical students' intentions to take up rural practice after graduation. *Medical Education*, 43(10), 1001-1009. <https://doi.org/10.1111/j.1365-2923.2009.03506.x>
- Kao, J. (1989). *Entrepreneurship, creativity & organization : Text, cases & readings*. Prentice Hall.
- Karle, H. (2006). Global standards and accreditation in medical education: A view from the WFME. *Academic Medicine*, 81(12, Suppl.), S43-S48. <https://doi.org/10.1097/01.ACM.0000243383.71047.c4>
- Karle, H. (2008). International recognition of basic medical education programmes. *Medical Education*, 42(1), 12-17. <https://doi.org/10.1111/j.1365-2923.2007.02907.x>

- Karle, H. (2010). How do we define a medical school?: Reflections on the occasion of the centennial of the Flexner report. *Sultan Qaboos University Medical Journal*, 10(2), 160-168. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3074706/pdf/squmj-10-2-160.pdf>
- Kaslow, N. J., Bollini, A. M., Druss, B., Glueckauf, R. L., Goldfrank, L. R., Kelleher, K. J., La Greca, A. M., Varela, R. E., Wang, S. S. H., Weinreb, L., & Zeltzer, L. (2007). Health care for the whole person: Research update. *Professional Psychology: Research and Practice*, 38(3), 278-289. <https://doi.org/10.1037/0735-7028.38.3.278>
- Katre, A., & Salipante, P. (2012). Start-up social ventures: Blending fine-grained behaviors from two institutions for entrepreneurial success. *Entrepreneurship Theory and Practice*, 967-994. <https://doi.org/10.1111/j.1540-6520.2012.00536.x>
- Kebaetse, M., Mokone, G. G., Badlangana, L., & Mazhani, L. (2016). Academic staff recruitment and retention challenges at the University of Botswana medical school. *South African Medical Journal*, 106(7), 730-734. <https://doi.org/10.7196/SAMJ.2016.v106i7.10482>
- Kebaetse, M. B., Nkomazana, O., & Haverkamp, C. (2014). Integrating elearning to support medical education at the new University of Botswana School of Medicine. *Electronic Journal of e-Learning*, 12(1), 43-51. [https://www.researchgate.net/publication/270161786\\_Integrating\\_eLearning\\_to\\_Support\\_Medical\\_Education\\_at\\_the\\_New\\_University\\_of\\_Botswana\\_School\\_of\\_Medicine](https://www.researchgate.net/publication/270161786_Integrating_eLearning_to_Support_Medical_Education_at_the_New_University_of_Botswana_School_of_Medicine)
- Khalil, M. K., & Kibble, J. D. (2014). Faculty reflections on the process of building an integrated preclerkship curriculum: A new school perspective. *Advances in Physiology Education*, 38(3), 199-209. <https://doi.org/10.1152/advan.00055.2014>
- Krotz, L. (2021). *Nothing ordinary: The story of the Northern Ontario School of Medicine*. Cormorant Books.
- Kwizera, E. N., Igumbor, E. U., & Mazwai, L. E. (2005). Twenty years of medical education in rural South Africa: Experiences of the University of Transkei medical school and lessons for the future. *South African Medical Journal*, 95(12), 920-924.
- Lacouture, A., Breton, E., Guichard, A., & Riddle, V. (2015). The concept of mechanism from a realist approach: A scoping review to facilitate its operationalization in public health program evaluation. *Implementation Science*, 10, Article 153. <https://doi.org/10.1186/s13012-015-0345-7>

- Lanphear, J. H., & Strasser, R. P. (2008). Developing partnerships for distributed community-engaged medical education in Northern Ontario, Canada. *MEDICC review*, 10(4), 15-19. <https://doi.org/10.37757/MR2008.V10.N4.5>
- Larkins, S., Michielsen, K., Iputo, J., Elsanousi, S., Mammen, M., Graves, L., Willems, S., Cristobal, F. L., Samson, R., Ellaway, R., Ross, S., Johnston, K., Derese, A., & Neusy, A. J. (2015). Impact of selection strategies on representation of underserved populations and intention to practise: International findings. *Medical Education*, 49(1), 60-72. <https://doi.org/10.1111/medu.12518>
- Larrakia Nation. (n.d.). *The Larrakia people*. Retrieved 6 November, 2021, from <http://larrakia.com/about/the-larrakia-people/#:~:text=What%20area%20is%20Larrakia%20Land,the%20Manton%20Dam%20area%20southwards>.
- Laurance, J. (2014). Philip Cotton: Building a medical college in Rwanda. *Lancet*, 383(9923), 1119. [https://doi.org/10.1016/S0140-6736\(14\)60553-5](https://doi.org/10.1016/S0140-6736(14)60553-5)
- Law Dictionary. (n.d.). What is social accountability? In *Black's Law Dictionary*, (2nd ed.). Retrieved 6 November, 2021, from <http://thelawdictionary.org/social-accountability/>
- Lawrenson, R., Town, I., Strasser, R., Strasser, S., McKimm, J., Tapsell, R., & Murray, N. (2017). The proposal for a third medical school in New Zealand: A community-engaged graduate entry medical program. *New Zealand Medical Journal*, 130(1453), 63-70.
- Lawson, K. A., Chew, M., & Van Der Weyden, M. B. (2004). The new Australian medical schools: Daring to be different. *Medical Journal of Australia*, 181(11/12), 662-666. <https://doi.org/10.5694/j.1326-5377.2004.tb06514.x>
- Leake, C. D. (1962). Planning our new medical schools. *Journal of Medical Education*, 37(8), 777-778.
- Leake, C. D. (1964). Physical features for new medical schools. *Journal of Medical Education*, 39(6), 647-649.
- Leca, B., & Naccache, P. (2006). A critical realist approach to institutional entrepreneurship. *Organization*, 13(5), 627-651. <https://doi.org/10.1177/1350508406067007>
- Lee, Y. K. (2005). The founding of the medical school in Singapore in 1905. *Annals of the Academy of Medicine, Singapore*, 34(6), 4C-13C.

- Leevy, C. M., & Schwartz, R. A. (1994). The founding and development of New Jersey Medical School. *New Jersey Medicine: The Journal of the Medical Society of New Jersey*, 91(11), 771-775.
- Letsididi, B. (2014, 11 Aug). Fako wants to take UB back to the 1980s. *Sunday Standard*. <https://www.sundaystandard.info/ocyfako-wants-to-take-ub-back-to-the-1980soco/>
- Levac, D., Colquhoun, H., & O'Brien, K. K. (2010). Scoping studies: Advancing the methodology. *Implementation Science*, 5(1), 69-69. <https://doi.org/10.1186/1748-5908-5-69>
- Lexico.com. (2021). Conduce. In *Oxford English Dictionary*. Retrieved 6 November, 2021, from <https://en.oxforddictionaries.com/definition/conduce>
- Liaison Committee on Medical Education. (2006). *LCME accreditation guidelines for new and developing medical schools*. [http://www.flbog.edu/documents\\_meetings/0017\\_0088\\_0736\\_11.pdf](http://www.flbog.edu/documents_meetings/0017_0088_0736_11.pdf)
- Liaison Committee on Medical Education. (2008). *Functions and structure of a medical school: Standards for accreditation of medical education programs leading to the MD degree*. [http://umsc.org.uic.edu/documents/LCME\\_standards.pdf](http://umsc.org.uic.edu/documents/LCME_standards.pdf)
- Liaison Committee on Medical Education. (2020). *Functions and structure of a medical school: Standards for accreditation of medical education programs leading to the MD degree*. [https://lcme.org/wp-content/uploads/filebase/standards/2021-22\\_Functions-and-Structure\\_2021-04-16.docx](https://lcme.org/wp-content/uploads/filebase/standards/2021-22_Functions-and-Structure_2021-04-16.docx)
- List of medical schools in Canada*. (2021, 12 September). Wikipedia. Retrieved 6 November, 2021, from [https://en.wikipedia.org/wiki/List\\_of\\_medical\\_schools\\_in\\_Canada](https://en.wikipedia.org/wiki/List_of_medical_schools_in_Canada)
- Lockyer, L., & Patterson, J. (2005). Scaffolding clinical problem based learning within an online collaborative environment. *Proceedings of the IASTED International Conference on Education and Technology, 2005*, 236-241. <https://ro.uow.edu.au/cgi/viewcontent.cgi?referer=&httpsredir=1&article=1696&context=edupapers>
- Macmillan Education. (2021). Definition of 'medical school'. In *Macmillan Dictionary*. Retrieved 6 November, 2021, from <http://www.macmillandictionary.com/dictionary/american/medical-school>

- Maddison, D. (1980). The University of Newcastle, New South Wales, Australia: Developing a new medical school. In F. M. Katz & T. Fulop (Eds.), *Personnel for health care: Case studies of educational programmes* (pp. 17-34). World Health Organization.
- Maguire, S., Hardy, C., & Lawrence, T. B. (2004). Institutional entrepreneurship in emerging fields: HIV/AIDS treatment advocacy in Canada. *Academy of Management Journal*, 47(5), 657-679. <https://doi.org/10.2307/20159610>
- Mangan, K. (2002, May 3). Florida state's new medical school battles with its accreditor. *Chronicle of Higher Education*. <https://www.chronicle.com/article/florida-states-new-medical-school-battles-with-its-accreditor/>
- Mangan, K. (2009, May 22). New medical schools pair students with patients from the start. *Chronicle of Higher Education*.
- Matlhagela, K., Badlangana, L., Johnson, K., Masunge, J., & Mokoena, T. (2018). The journey thus far: Chronicling events of the only medical school in Botswana. *Botswana Notes and Records*, 50, 244-258. <https://journals.ub.bw/index.php/bnr/article/view/1394/893>
- Maxwell, J. A. (2012). *A realist approach for qualitative research*. SAGE Publications.
- Maxwell, J. A. (2013). *Qualitative research design: An interactive approach* (3rd ed.). SAGE Publications.
- Maxwell, J. A., & Mittapalli, K. (2010). Realism as a stance for mixed methods research. In A. Tashakkori & C. Teddlie (Eds.), *Handbook of mixed methods in social and behavioural research* (2nd ed., pp. 145-167). SAGE Publications.
- Mayzell, M. B. A. G. (2020). *The resilient healthcare organization : How to reduce physician and healthcare worker burnout*. Productivity Press.
- McAvoy, J., & Butler, T. (2018). A critical realist method for applied business research. *Journal of Critical Realism*, 17(2), 160-175. <https://doi.org/10.1080/14767430.2018.1455477>
- McDonald, M., Kanter, S. L., Pignatelli, M., Khamzina, N., Mahoney, J. F., & Woodward, J. (2014). Developing a new medical school at a new university in Kazakhstan. *Annals of Global Health*, 80(3), 189-189. <https://doi.org/10.1016/j.aogh.2014.08.100>

- McDonnel Smedts, A., & Lowe, M. P. (2007). Clinical training in the top end: Impact of the Northern Territory Clinical School, Australia, on the Territory's health workforce. *Rural and Remote Health*, 7(2), Article 723. <https://doi.org/10.22605/RRH723>
- McDonnel Smedts, A., & Lowe, M. P. (2008). Efficiency of clinical training at the Northern Territory Clinical School: Placement length and rate of return for internship. *Medical Journal of Australia*, 189(3), 166-168. <https://doi.org/10.5694/j.1326-5377.2008.tb01953.x>
- McFee, A. S., & Aust, J. B. (2005). University of Texas Health Science Center at San Antonio. *Archives of Surgery*, 140(6), 526-528.
- McKendry, R. (1999). *Physicians for Ontario: Too many? Too few? For 2000 and beyond*.
- MedicineNet. (2021). Medical definition of medical school. In *MedTerms Medical Dictionary*. Retrieved 6 November, 2021, from <http://www.medicinenet.com/script/main/art.asp?articlekey=30954>
- Mehta, J., & Winship, C. (2010). Moral power. In S. Hitlin & S. Vaisey (Eds.), *Handbook of the sociology of morality* (pp. 425-438). Springer. [https://doi.org/10.1007/978-1-4419-6896-8\\_22](https://doi.org/10.1007/978-1-4419-6896-8_22)
- Merriam-Webster. (2021). Retrodict. In Retrieved 6 December, 2021, from <https://www.merriam-webster.com/dictionary/retrodict>
- Meyer, S. B., & Lunnay, B. (2013). The application of abductive and retroductive inference for the design and analysis of theory-driven sociological research. *Sociological Research Online*, 18(1), 86-96. <https://doi.org/10.5153/sro.2819>
- Mian, O., & Hogenbirk, J. C. (2016). *How well does the Northern Ontario School of Medicine meet its social accountability mandate?* Centre for Rural and Northern Health Research.
- Mian, O., Hogenbirk, J. C., French, M. G., Warry, W., & Strasser, R. (2015). *"It's nice to be out of crisis mode": Exploring impact of the Northern Ontario School of Medicine on recruitment and retention of physicians in Northern Ontario underserved communities*. Centre for Rural and Northern Health Research.
- Mokone, G. G., Kebaetse, M., Wright, J., Kebaetse, M. B., Makgabana-Dintwa, O., Kebaabetswe, P., Badlangana, L., Mogodi, M., Bryant, K., & Nkomazana, O. (2014). Establishing a new medical school: Botswana's experience. *Academic Medicine*, 89(8, Suppl.), S83-S87. <https://doi.org/10.1097/acm.0000000000000329>

- Mokwena, N. (2015, 16 December). P2.2 bn teaching hospital ready in 2017. *Botswana Guardian*. <http://www.botswanaguardian.co.bw/news/item/1659-p2-2-bn-teaching-hospital-ready-in-2017.html>
- Motlhatlhedhi, K., & Nkomazana, O. (2018). Home is home: Botswana's return migrant health workers. *PLoS ONE*, 13(11), 16, Article e0206969. <https://doi.org/10.1371/journal.pone.0206969>
- Motswana. (2021, 19 June). Wikipedia. Retrieved 6 November, 2021, from <https://en.wikipedia.org/wiki/Motswana>
- Mowery, Y. M. (2015). A primer on medical education in the United States through the lens of a current resident physician. *Annals of Translational Medicine*, 3(18), Article 270. <https://doi.org/10.3978/j.issn.2305-5839.2015.10.19>
- Mullan, F. (2003). The future of medical education: A call for action. *Health Affairs*, 22(4), 88-90. <https://doi.org/10.1377/hlthaff.22.4.88>
- Mullowney, J. J. (1930). The New Meharry Medical College plant. *Journal of the National Medical Association*, 22(3), 146-147. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2625240/pdf/jnma00782-0040.pdf>
- Munn, Z., Peters, M. D. J., Stern, C., Tufanaru, C., McArthur, A., & Aromataris, E. (2018). Systematic review or scoping review? Guidance for authors when choosing between a systematic or scoping review approach. *BMC Medical Research Methodology*, 18(1), Article 143. <https://doi.org/10.1186/s12874-018-0611-x>
- Musgrove, J. P. (1990). Family and community health in a new medical school. *Medical Education*, 24(2), 124-128. <https://doi.org/10.1111/j.1365-2923.1990.tb02510.x>
- Mutch, A. (2007). Reflexivity and the institutional entrepreneur: A historical exploration. *Organization Studies*, 28(7), 18. <https://doi.org/10.1177/0170840607078118>
- Muula, A. S. (2006). Every country or state needs two medical schools. *Croatian Medical Journal*, 47, 669-672.
- National Health and Medical Research Council, Australian Research Council, & Universities Australia. (2018). *National statement on ethical conduct in human research 2007 (Updated 2018)*. A. Government. <https://www.nhmrc.gov.au/about-us/publications/national-statement-ethical-conduct-human-research-2007-updated-2018>



- Nausheen, F., Agarwal, M. M., Estrada, J. J., & Atapattu, D. N. (2018). A survey of retaining faculty at a new medical school: Opportunities, challenges and solutions. *BMC Medical Education*, 18(1), Article 223. <https://doi.org/10.1186/s12909-018-1330-z>
- Neufeld, V. R., Maudsley, R. F., Pickering, R. J., Turnbull, J. M., Weston, W. W., Brown, M. G., & Simpson, J. C. (1998). Educating future physicians for Ontario. *Academic Medicine*, 73(11), 1133-1148. <https://doi.org/10.1097/00001888-199811000-00010>
- Nkomazana, O., Mokoena, T., Maganu, E., & Mazhani, L. (2018). Training doctors for Botswana, 1966 to 2017. *Botswana Notes and Records*, 50. <https://journals.ub.bw/index.php/bnr/article/view/1393>
- Nkomazana, O., Peersman, W., Willcox, M., Mash, R., & Phaladze, N. (2014). Human resources for health in Botswana: The results of in-country database and reports analysis. *African Journal of Primary Health Care & Family Medicine*, 6(1). <https://doi.org/10.4102/phcfm.v6i1.716>
- Nonailada, J. (2020). One hospital's call to action: Preparing faculty for a new medical school. *Journal of continuing education in the health professions*, 40(3), 199-202. <https://doi.org/10.1097/CEH.0000000000000294>
- NORMS Liaison Council, Laurentian University, & Lakehead University. (2000). *A Northern rural medical school: Increasing rural medical graduates in Ontario: A preliminary proposal*.
- Norris, T. E., Coombs, J. B., House, P., Moore, S., Wenrich, M. D., & Ramsey, P. G. (2006). Regional solutions to the physician workforce shortage: The WWAMI experience. *Academic Medicine*, 81(10), 857-862. <https://doi.org/10.1097/01.ACM.0000238105.96684.2f>
- Northern Ontario. (2021, 24 October). Wikipedia. Retrieved 6 November, 2021, from [https://en.wikipedia.org/wiki/Northern\\_Ontario](https://en.wikipedia.org/wiki/Northern_Ontario)
- Northern Ontario School of Medicine. (2012). *The NOSM prospectus: An entrepreneurial success story*.
- Northern Ontario School of Medicine. (2016). *Northern Ontario School of Medicine achievement report 2016*. <https://www.nosm.ca/wp-content/uploads/2018/06/NOSM-Achievement-Report-2016.pdf>

- Northern Ontario School of Medicine. (2020). *Report to Northern Ontario: 2020 rooted in the North*. <https://www.nosm.ca/about/administrative-offices/communications/news-and-publications/>
- Northern Ontario School of Medicine. (n.d.-a). *About NOSM*. Retrieved 6 November, 2021, from <https://www.nosm.ca/about/about-nosm/>
- Northern Ontario School of Medicine. (n.d.-b). *Community profiles*. Retrieved 6 November, 2021, from <https://www.nosm.ca/our-community/wider-campus-of-the-northern-ontario-school-of-medicine/community-profiles/>
- Northern Ontario School of Medicine. (n.d.-c). *MD program*. Retrieved 6 November, 2021, from <https://www.nosm.ca/education/md-program/>
- Northern Ontario School of Medicine. (n.d.-d). *NOSM facts*. Retrieved 6 November, 2021, from <https://www.nosm.ca/about/about-nosm/nosm-facts/>
- Northern Territory Clinical School. (2008). *Northern Territory Clinical School: The first ten years*. Flinders University.
- Northern Territory General Practice Education. (2012). *Annual report 2011*. [https://www.ntgpe.org/sites/default/files/media-library/documents/2011-2012\\_Annual\\_Report\\_web.pdf](https://www.ntgpe.org/sites/default/files/media-library/documents/2011-2012_Annual_Report_web.pdf)
- Northern Territory Government. (2008). Undergraduate medical training in the NT: Briefing paper for summit participants. *Medical Education and Training Summit*.
- Northern Territory Government. (2021a). *Northern Territory economy*. Retrieved 6 November, 2021, from <https://nteconomy.nt.gov.au/population>
- Northern Territory Government. (2021b, 7 October). *Population*. Retrieved 6 November, 2021, from <https://business.nt.gov.au/business-and-economic-data/business/nt-key-business-statistics/population>
- Northouse, P. G. (2016). *Leadership: Theory and Practice* (7th ed.). SAGE Publications.
- Olds, G. R., & Barton, K. A. (2015). Building medical schools around social missions: The case of the University of California, Riverside. *Health Systems and Reform*, 1(3), 200-206. <https://doi.org/10.1080/23288604.2015.1054548>

- Omrane, A., Kammoun, A., & Seaman, C. (2018). Entrepreneurial burnout: Causes, consequences and way out. *FIIA Business Review*, 7(1), 28-42.  
<https://doi.org/10.1177/2319714518767805>
- Ono, T., Schoenstein, M., & Buchan, J. (2014). Geographic imbalances in doctor supply and policy responses. *OECD Health Working Papers*. <https://doi.org/10.1787/5jz5sq5ls1wl-en>
- Ontario Educational Communications Authority. (2018, January 16). *The agenda with Steve Paikin: Saying goodbye to Hard Rock Medical*. <https://www.tvo.org/video/saying-goodbye-to-hard-rock-medical>
- Palmer, C., Kraus, S., Kailer, N., Huber, L., & Öner, Z. H. (2021). Entrepreneurial burnout: A systematic review and research map. *International Journal of Entrepreneurship and Small Business*, 43(3), 438-461. <https://doi.org/10.1504/IJESB.2021.115883>
- Pattern for a new medical school. (1962). *British Medical Journal*, 2(5304), 592-593.  
<https://doi.org/10.1136/bmj.2.5304.592>
- Pawson, R., Greenhalgh, T., Harvey, G., & Walshe, K. (2004). Realist synthesis: An introduction. *ESRC Research Methods Programme*.  
<https://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.432.7999&rep=rep1&type=pdf>
- Pawson, R., Greenhalgh, T., Harvey, G., & Walshe, K. (2005). Realist review: A new method of systematic review designed for complex policy interventions. *Journal of Health Services Research & Policy*, 10(Suppl. 1). <https://doi.org/10.1258/1355819054308530>
- Pawson, R., & Tilley, N. (2004). *Realist evaluation*.  
[http://www.communitymatters.com.au/RE\\_chapter.pdf](http://www.communitymatters.com.au/RE_chapter.pdf)
- Penner, C. (2018). A tale of two campuses: Lessons learned in establishing a satellite campus. *Medical Teacher*, 40(5), 527-528.  
<https://doi.org/10.1080/0142159X.2018.1439577>
- Penrod, K. E. (1971). New medical schools: Can they be established quickly at less expense? *Journal of the American Medical Association*, 218(4), 571-573.  
<https://doi.org/10.1001/jama.1971.03190170049011>
- Pericleous, S. (2011). Undergraduate medical education in Cyprus: The introduction of two medical schools. *Medical Teacher*, 33(7), 530-534.  
<https://doi.org/10.3109/0142159x.2011.588740>

- Peters, M., Godfrey, C., Khalil, H., McInerney, P., Parker, D., & Soares, C. (2015). Guidance for conducting systematic scoping reviews. *International Journal of Evidence-Based Healthcare*, 13(3), 141-146. <https://doi.org/10.1097/XEB.0000000000000050>
- Peters, M., Godfrey, C., McInerney, P., Munn, Z., Tricco, A., & Khalil, H. (2020). Chapter 11: Scoping reviews. In E. Aromataris & Z. Munn (Eds.), *JBI Manual for Evidence Synthesis*. Joanna Briggs Institute. <https://doi.org/10.46658/JBIMES-20-12>
- Peyton, T., Zigarmi, D., & Fowler, S. N. (2019). Examining the relationship between leaders' power use, followers' motivational outlooks, and followers' work intentions. *Frontiers in Psychology*, 9, Article 2620. <https://doi.org/10.3389/fpsyg.2018.02620>
- Phillips, N., & Tracey, P. (2007). Opportunity recognition, entrepreneurial capabilities and bricolage: Connecting institutional theory and entrepreneurship in strategic organization. *Strategic Organization*, 5(3), 313-320. <https://doi.org/10.1177/1476127007079956>
- Pickering, G. (1965). The Henry Simpson Newland oration: Planning a new medical school. *Medical Journal of Australia*, 2(13), 515-519. <https://doi.org/10.5694/j.1326-5377.1965.tb19001.x>
- Pinder, K. E., Ford, J. C., & Ovalle, W. K. (2008). A new paradigm for teaching histology laboratories in Canada's first distributed medical school. *Anatomical Sciences Education*, 1(3), 95-101. <https://doi.org/10.1002/ase.22>
- Pong, R. W. (2008). Strategies to overcome physician shortages in Northern Ontario: A study of policy implementation over 35 years. *Human Resources for Health*, 6, Article 24. <https://doi.org/10.1186/1478-4491-6-24>
- Population Australia. (2021). *Population of Northern Territory 2021*. Retrieved 6 November, 2021, from <http://www.population.net.au/population-of-northern-territory/>
- Preston, R., Larkins, S., Taylor, J., & Judd, J. (2016). Building blocks for social accountability: A conceptual framework to guide medical schools. *BMC Medical Education*, 16(1), Article 227. <https://doi.org/10.1186/s12909-016-0741-y>
- Prideaux, D. (2002). Medical education research: Is there virtue in eclecticism? *Medical Education*, 36(6), 502-503. <https://doi.org/10.1046/j.1365-2923.2002.01247.x>
- Prideaux, D., Worley, P., & Bligh, J. (2007). Symbiosis: A new model for clinical education. *Clinical Teacher*, 4, 209-212. <https://doi.org/10.1111/j.1743-498X.2007.00188.x>

- Prospectus for a new medical school. (1962). *British Medical Journal*, 2(5304), 588.  
<https://doi.org/10.1136/bmj.2.5304.588>
- Putnam, C. E. (2006). Reform and innovation: A repeating pattern during a half century of medical education in the USA. *Medical Education*, 40(3), 227-234.  
<https://doi.org/10.1111/j.1365.2929.2006.02402.x>
- PWC Consulting. (2002). *Northern Medical School Implementation Management Committee draft NMS business plan*.
- Quilter, M. (2020, 14 September). A skilled health workforce more important than ever. *Partyline*, (72). <https://www.ruralhealth.org.au/partyline/article/skilled-health-workforce-more-important-ever>
- Rabinowitz, H. K., Diamond, J. J., Markham, F. W., & Wortman, J. R. (2008). Medical school programs to increase the rural physician supply: A systematic review and projected impact of widespread replication. *Academic Medicine*, 83(3), 235-243.  
<https://doi.org/10.1097/ACM.0b013e318163789b>
- Radulescu, C., & Vessey, I. (2009). Methodology in critical realist research: The mediating role of domain specific theory. *Proceedings of the 15th Americas Conference on Information Systems (AMCIS)*, Article 433. <https://aisel.aisnet.org/amcis2009/433/>
- Ramoglou, S., Gartner, W. B., & Tsang, E. W. K. (2020). "Who is an entrepreneur?" is (still) the wrong question. *Journal of Business Venturing Insights*, 13, Article e00168.  
<https://doi.org/10.1016/j.jbvi.2020.e00168>
- Rawhouser, H., Villanueva, J., & Newbert, S. L. (2017). Strategies and tools for entrepreneurial resource access: A cross-disciplinary review and typology. *International Journal of Management Reviews*, 19, 473-491. <https://doi.org/10.1111/ijmr.12105>
- Reeve, C., Woolley, T., Ross, S. J., Mohammadi, L., Halili Jr, S. B., Cristobal, F., Siega-Sur, J. L. J., & Neusy, A. J. (2017). The impact of socially-accountable health professional education: A systematic review of the literature. *Medical Teacher*, 39(1), 67-73.  
<https://doi.org/10.1080/0142159X.2016.1231914>
- Reis, S., Borkan, J. M., & Weingarten, M. (2009). The current state of basic medical education in Israel: Implications for a new medical school. *Medical Teacher*, 31(11), 984-989. <https://doi.org/10.3109/01421590903092426>

- Richardson, L., & St. Pierre, E. A. (2005). Writing: A method of inquiry. In N. K. Denzin & Y. S. Lincoln (Eds.), *The SAGE handbook of qualitative research* (3rd ed., pp. 1410-1444). SAGE Publications.
- Rizwan, M., Rosson, N. J., Tackett, S., & Hassoun, H. T. (2018). Opportunities and challenges in the current era of global medical education. *International Journal of Medical Education*, 9, 111-112. <https://doi.org/10.5116/ijme.5ad1.ce9a>
- Roberts, C., Daly, M., Kumar, K., Perkins, D., Richards, D., & Garne, D. (2012). A longitudinal integrated placement and medical students' intentions to practice rurally. *Medical Education*, 46(2), 179-191. <https://doi.org/10.1111/j.1365-2923.2011.04102.x>
- Roff, S. (1993). New medical school. *Lancet*, 342(8884), 1416. [https://doi.org/10.1016/0140-6736\(93\)92769-P](https://doi.org/10.1016/0140-6736(93)92769-P)
- Romano, M. (2001, April 2). Opening soon. *Modern Healthcare*, 58-62.
- Rourke, J. (2002). Building the new Northern Ontario Rural Medical School. *Australian Journal of Rural Health*, 10, 112-116. <https://doi.org/10.1111/j.1440-1584.2002.tb00019.x>
- Rourke, J. (2005). Strategies to increase the enrolment of students of rural origin in medical school: Recommendations from the Society of Rural Physicians of Canada. *Canadian Medical Association Journal*, 172(1). <https://doi.org/10.1503/cmaj.1040879>
- Rourke, J. (2008). Increasing the number of rural physicians. *Canadian Medical Association Journal*, 178(3). <https://doi.org/10.1503/cmaj.070293>
- Rourke, J. (2010). How can medical schools contribute to the education, recruitment and retention of rural physicians in their region? *Bulletin of the World Health Organization*, 88. <https://doi.org/10.2471/BLT.09.073072>
- Royal College of Physicians and Surgeons of Canada. (2021). *About CanMEDS*. Retrieved 6 November, 2021, from <https://www.royalcollege.ca/rcsite/canmeds/about-canmeds-e>
- Rudolf, M. C. J., Reis, S., Gibbs, T. J., Eaton, D. M., Stone, D., Grady, M., Berlin, A., Blair, M., Essa-Hadad, J., Spitzer-Shohat, S., & Weingarten, M. (2014). How can medical schools contribute to bringing about health equity? *Israel Journal of Health Policy Research*, 3, Article 17. <https://doi.org/10.1186/2045-4015-3-17>

- Rukewe, A., Abebe, W. A., Fatiregun, A. A., & Kgantshang, M. (2017). Specialty preferences among medical students in Botswana. *BMC Research Notes*, *10*, Article 195.  
<https://doi.org/10.1186/s13104-017-2523-y>
- Russell, D. J., Zhao, Y., Guthridge, S., Ramjan, M., Jones, M. P., Humphreys, J. S., & Wakerman, J. (2017). Patterns of resident health workforce turnover and retention in remote communities of the Northern Territory of Australia, 2013–2015. *Human Resources for Health*, *15*(1), Article 52. <https://doi.org/10.1186/s12960-017-0229-9>
- Sabde, Y., Diwan, V., Mahadik, V. K., Parashar, V., Negandhi, H., Trushna, T., & Zodpey, S. (2020). Medical schools in India: Pattern of establishment and impact on public health: A Geographic Information System (GIS) based exploratory study. *BMC Public Health*, *20*, Article 755. <https://doi.org/10.1186/s12889-020-08797-0>
- Saldaña, J. (2009). *The coding manual for qualitative researchers*. SAGE Publications.
- Salter, B., Filippakou, O., & Tapper, T. (2016). Expanding the English medical schools: The politics of knowledge control. *London Review of Education*, *14*(1), 23-32.  
<https://doi.org/10.18546/LRE.14.1.04>
- Samuel, A., Konopasky, A., Schuwirth, L. W. T., King, S. M., & Durning, S. J. (2020). Five principles for using educational theory: Strategies for advancing health professions education research. *Academic Medicine*, *95*(4), 518-522.  
<https://doi.org/10.1097/ACM.0000000000003066>
- Scambler, G. (2018). *Sociology, health and the fractured society: A critical realist account*. Routledge.
- Schuster, M. A., Conwell, W. D., Connelly, M. T., & Humphrey, H. J. (2020). Building equity, inclusion, and diversity into the fabric of a new medical school: Early experiences of the Kaiser Permanente Bernard J. Tyson School of Medicine. *Academic Medicine*, *95*(12, Suppl.), S66-S70. <https://doi.org/10.1097/ACM.0000000000003695>
- Schwandt, T. A. (2007). *The SAGE dictionary of qualitative inquiry* (3rd ed.).  
<https://doi.org/10.4135/9781412986281>
- Sebina, D., Anabwani, G., Bryant, J., Hasvold, T., Hoare, G., Lee, K., & Straume, B. (1995). *Feasibility study on the establishment of a medical school*. Republic of Botswana.

- Senyard, J., Baker, T., & Davidsson, P. (2009). Entrepreneurial bricolage: Towards systematic empirical testing. *Frontiers of Entrepreneurship Research*, 29(5), Article 5. [https://www.researchgate.net/publication/27473552\\_Entrepreneurial\\_bricolage\\_Towards\\_systematic\\_empirical\\_testing](https://www.researchgate.net/publication/27473552_Entrepreneurial_bricolage_Towards_systematic_empirical_testing)
- Seyfried, M., Ansmann, M., & Pohlenz, P. (2019). Institutional isomorphism, entrepreneurship and effectiveness: The adoption and implementation of quality management in teaching and learning in Germany. *Tertiary Education and Management*, 25(2), 115-129. <https://doi.org/10.1007/s11233-019-09022-3>
- Shanafelt, T. D., & Noseworthy, J. H. (2017). Executive leadership and physician well-being: Nine organizational strategies to promote engagement and reduce burnout. *Mayo Clinic Proceedings*, 92(1), 129-146. <https://doi.org/10.1016/j.mayocp.2016.10.004>
- Shepherd, F. J. (1925). The first medical school in Canada : Its history and founders, with some personal reminiscences. *Canadian Medical Association Journal*, 15(4), 418-425.
- Simons, H. W., Morreale, J., & Gronbeck, B. (2001). *Persuasion in society*. SAGE Publications.
- Simoyan, O. M., Townsend, J. M., Tarafder, M. R., DeJoseph, D., Stark, R. J., & White, M. V. (2011). Public health and medical education: A natural alliance for a new regional medical school. *American Journal of Preventive Medicine*, 41(4S3), S220-S227. <https://doi.org/10.1016/j.amepre.2011.05.027>
- Sladek, R., & Frost, L. (2014). *The Solomon project: First report of an evaluation of students admitted into Flinders University's medical course (1996-1998; 2006-2014)*. Flinders University.
- Smego, R. A., D'Alessandri, R. M., Linger, B., Hunt, V. A., Ryan, J., Monnier, J., Litwack, G., Katz, P., & Thompson, W. (2010). Anatomy of a new US medical school: The Commonwealth Medical College. *Academic Medicine*, 85(5), 881-888. <https://doi.org/10.1097/ACM.0b013e3181d74bc6>
- Smith, D. A., & Lohrke, F. T. (2008). Entrepreneurial network development: Trusting in the process. *Journal of Business Research*, 61, 315-322. <https://doi.org/10.1016/j.jbusres.2007.06.018>



- Smith, L. (2009). New medical schools in the United States: Forces of change past and present. *Transactions of the American Clinical and Climatological Association*, 120, 227-238.
- Smith, R. (1982). The Hunter School of Medicine: Plans for a new independent medical school. *British Medical Journal*, 285(6343), 710-711.
- Smythe, C. M. C. (1972). New resources for medical education: Start-up expenditures in 22 new U.S. medical schools. *Journal of Medical Education*, 47(9), 690-701.
- Snadden, D., Bates, J., Burns, P., Casiro, O., Hays, R., Hunt, D., & Towle, A. (2011). Developing a medical school: Expansion of medical student capacity in new locations: AMEE guide no. 55. *Medical Teacher*, 33(7), 518-529.  
<https://doi.org/10.3109/0142159x.2011.564681>
- Spinelli, S., & Adams, R. (2016). *New venture creation: Entrepreneurship for the 21st century* (10th ed.). McGraw-Hill Education.
- Stake, R. (2006). *Multiple case study analysis*. Guilford Press.
- Strasser, R. (2001). Training for rural practice: Lessons from Australia. *Canadian Family Physician*, 47, 2196-2198.
- Strasser, R. (2016). Delivering on social accountability: Canada's Northern Ontario School of Medicine. *Asia Pacific Scholar*, 1(1), 3-9. <https://doi.org/10.29060/TAPS.2016-1-1/OA1014>
- Strasser, R., Hogenbirk, J. C., Minore, B., Marsh, D. C., Berry, S., McCready, W. G., & Graves, L. (2013). Transforming health professional education through social accountability: Canada's Northern Ontario School of Medicine. *Medical Teacher*, 35(6), 490-496. <https://doi.org/10.3109/0142159X.2013.774334>
- Strasser, R., & Strasser, S. (2020). *Reimagining primary health care workforce in rural and underserved settings*. World Bank.  
<https://openknowledge.worldbank.org/handle/10986/34906>
- Strasser, R. P., & Lanphear, J. H. (2008). The Northern Ontario School of Medicine: Responding to the needs of the people and communities of Northern Ontario. *Education for Health*, 21(3), Article 212.

- Strasser, R. P., Lanphear, J. H., McCready, W. G., Topps, M. H., Hunt, D. D., & Matte, M. C. (2009). Canada's new medical school: The Northern Ontario School of Medicine: Social accountability through distributed community engaged learning. *Academic Medicine*, 84(10), 1459-1464. <https://doi.org/10.1097/ACM.0b013e3181b6c5d7>
- Sucharew, H., & Macaluso, M. (2019). Methods for research evidence synthesis: The scoping review approach. *Journal of Hospital Medicine*, 7, 416-418. <https://doi.org/10.12788/jhm.3248>
- Tesson, G., Hudson, G., Strasser, R., & Hunt, D. (2009). *Making of the Northern Ontario School of Medicine: A case study in the history of medical education*. McGill-Queen's University Press.
- Texas Higher Education Coordinating Board. (2008). *Basic steps to establish a new medical school*. <https://www.thecb.state.tx.us/DocID/PDF/1515.PDF>
- Thistlethwaite, J., & Hammick, M. (2010). The Best Evidence Medical Education (BEME) collaboration: Into the next decade. *Medical Teacher*, 32(11), 880-882. <https://doi.org/10.3109/0142159X.2010.519068>
- Thomas, G. (2011). *How to do your case study: A guide for students and researchers*. SAGE Publications.
- Thomas, H. O. (1967). Planning a new medical school. *Lancet*, 2(7505), 35-38.
- Thomas, H. O. (1968). Planning new programs in medical education: Planning the new medical school. *Journal of Medical Education*, 43(2), 232-243.
- Thomson, A. P. D. (1963). A workable formula that will guarantee a pre-eminent university medical school and teaching hospital. *Central African Journal of Medicine*, 9(4), 134-139.
- Tracey, P., Phillips, N., & Jarvis, O. (2011). Bridging institutional entrepreneurship and the creation of new organizational forms: A multilevel model. *Organization Science*, 22(1), 60-80. <https://doi.org/10.1287/orsc.1090.0522>
- Training for Health Equity Network. (2011). *THEnet's evaluation framework for socially accountable health professional education*. <https://gcsanetwork.files.wordpress.com/2012/02/monograph-print-quality-feb-1.pdf>

Tricco, A. C., Lillie, E., Zarin, W., O'Brien, K. K., Colquhoun, H., Levac, D., Moher, D., Peters, M. D. J., Horsley, T., Weeks, L., Hempel, S., Akl, E. A., Chang, C., McGowan, J., Stewart, L., Hartling, L., Aldcroft, A., Wilson, M. G., Garritty, C., Lewin, S., Godfrey, C. M., Macdonald, M. T., Langlois, E. V., Soares-Weiser, K., Moriarty, J., Clifford, T., Tunçalp, Ö., & Straus, S. E. (2018). PRISMA extension for scoping reviews (PRISMA-ScR): Checklist and explanation. *Annals of Internal Medicine*, 169(7), 467-473.  
<https://doi.org/10.7326/M18-0850>

Tschirgi, R. D. (1971). The location of new medical schools: National design or local initiative? *Journal of the American Medical Association*, 218(4), 574-577.  
<https://doi.org/10.1001/jama.1971.03190170052012>

Turner, E. L. (1949). Organizing a new medical school. *Journal of the Association of American Medical Colleges*, 24(5), 273-279. <https://doi.org/10.1097/00001888-194909000-00001>

U.S. National Library of Medicine. (2015, 3 June). *Changing the face of medicine: Dr. Ida Sophia Scudder*. Retrieved 6 November, 2021, from  
[https://cfmedicine.nlm.nih.gov/physicians/biography\\_290.html](https://cfmedicine.nlm.nih.gov/physicians/biography_290.html)

University of Botswana Working Group on the Establishment of a Medical School. (1999). *Proposal to establish a premedical programme in the Faculty of Science*.

University of California Riverside. (2008). *Proposal to establish a school of medicine at the University of California, Riverside*. <https://pdc.ucr.edu/sites/g/files/rcwecm2356/files/2019-05/School%20of%20Medicine%20Proposal.pdf>

University of Capetown: New medical school buildings. (1927). *British Medical Journal*, 2(3480), 500-501.

University of Newcastle. (1972). *The establishment of a medical school in Newcastle: Politics, problems and prophecies*. University of Newcastle Research Associates.

University of Queensland. (2020, 13 November). *Uni partnership to train 'homegrown' doctors in regional Queensland*. Retrieved 6 November, 2021, from  
<https://www.uq.edu.au/news/article/2020/11/uni-partnership-train-homegrown-doctors-regional-queensland>

- Varpio, L. (2018). Using rhetorical appeals to credibility, logic, and emotions to increase your persuasiveness. *Perspectives on Medical Education*, 7(3), 207-210.  
<https://doi.org/10.1007/s40037-018-0420-2>
- Varpio, L., O'Brien, B., Durning, S. J., van Der Vleuten, C., Gruppen, L., ten Cate, O., Humphrey-Murto, S., Irby, D. M., Hamstra, S. J., & Hu, W. (2017). Health professions education scholarship unit leaders as institutional entrepreneurs. *Academic Medicine*, 92(8), 1189-1195. <https://doi.org/10.1097/ACM.0000000000001576>
- Varpio, L., Paradis, E., Uijtdehaage, S., & Young, M. (2020). The distinctions between theory, theoretical framework, and conceptual framework. *Academic Medicine*, 95(7), 989-994. <https://doi.org/10.1097/ACM.0000000000003075>
- Vogel, P. (2017). From venture idea to venture opportunity. *Entrepreneurship Theory and Practice*, 41(6), 943-971. <https://doi.org/10.1111/etap.12234>
- Walters, R. F., West, T. C., Carlson, L. D., & Davis, H. S. (1970). Curriculum effects on new medical school planning. *Journal of Medical Education*, 45(11), 866-879.  
<https://doi.org/10.1097/00001888-197011000-00020>
- Weiskotten, H. G. (1949). The establishment of new medical schools. *Journal of the American Medical Association*, 140(1), 8-10.  
<https://doi.org/10.1001/jama.1949.02900360010003>
- Wenghofer, E. F., Hogenbirk, J. C., & Timony, P. E. (2017). Impact of the rural pipeline in medical education: Practice locations of recently graduated family physicians in Ontario. *Human Resources for Health*, 15, Article 16. <https://doi.org/10.1186/s12960-017-0191-6>
- West, C. P., Dyrbye, L. N., & Shanafelt, T. D. (2018). Physician burnout: Contributors, consequences and solutions. *Journal of Internal Medicine*, 283(6), 516-529.  
<https://doi.org/10.1111/joim.12752>
- Whitcomb, M. E. (2009). *New and developing medical schools: Motivating factors, major challenges, planning strategies*. Josiah Macy Jr Foundation.  
[http://macyfoundation.org/docs/macy\\_pubs/jmf\\_whitcomb\\_medschools\\_web.pdf](http://macyfoundation.org/docs/macy_pubs/jmf_whitcomb_medschools_web.pdf)
- Whitcomb, M. E. (2010). New medical schools in the United States. *New England Journal of Medicine*, 362(14), 1255-1258. <https://doi.org/10.1056/NEJMp0912179>

- Whitcomb, M. E. (2013). *New and developing medical schools: Motivating factors, major challenges, planning strategies: Part 2*. Josiah Macy Jr Foundation.  
[https://macyfoundation.org/assets/reports/publications/new\\_and\\_developing\\_schools\\_part2.pdf](https://macyfoundation.org/assets/reports/publications/new_and_developing_schools_part2.pdf)
- Whitcomb, M. E. (2018). *New and developing medical schools: Motivating factors, major challenges, planning strategies: Part 3*. Josiah Macy Jr Foundation.  
[https://macyfoundation.org/assets/reports/publications/jmf\\_2018\\_newanddevelopingmedschools\\_part3\\_webpdf.pdf](https://macyfoundation.org/assets/reports/publications/jmf_2018_newanddevelopingmedschools_part3_webpdf.pdf)
- Whitcomb, M. E. (2020). The development of new MD-granting medical schools in the United States in the 21st century. *Academic Medicine*, 95(3), 340-343.  
<https://doi.org/10.1097/ACM.0000000000003048>
- White, A. (1965). Development of a new medical school: Past experiences and considerations for the future. *Annals of the New York Academy of Sciences*, 128(2), 489-500. <https://doi.org/10.1111/j.1749-6632.1965.tb11661.x>
- Wijen, F., & Ansari, S. (2007). Overcoming inaction through collective institutional entrepreneurship: Insights from regime theory. *Organization Studies*, 28(7), 1079-1100.  
<https://doi.org/10.1177/0170840607078115>
- Willard, W. R. (1960). New medical schools: Some preliminary considerations. *Journal of Medical Education*, 35(2), 93-107.
- Williams, M. (2018). Making up mechanisms in realist research. In N. Emmel, J. Greenhalgh, A. Manzano, M. Monaghan, & S. Dalkin (Eds.), *Doing realist research* (pp. 25-40). SAGE Publications. <https://doi.org/10.4135/9781526451729>
- Williams, R. S., Casey, P. J., Kamei, R. K., Buckley, E. G., Soo, K. C., Merson, M. H., Krishnan, R. K., & Dzau, V. J. (2008). A global partnership in medical education between Duke University and the National University of Singapore. *Academic Medicine*, 83(2), 122-127. <https://doi.org/10.1097/ACM.0b013e318160b8bc>
- Wilson, D. C. (1959). *Dr. Ida: Passing on the torch of life*. Evangelical Literature Service.
- Wilson, D. C. (1987). The legacy of Ida S. Scudder. *International Bulletin of Missionary Research*, 11(1), 26-30. <https://doi.org/10.1177/239693938701100108>

- Wilson, N. W., Couper, I. D., De Vries, E., Reid, S., Fish, T., & Marais, B. J. (2009). A critical review of interventions to redress the inequitable distribution of healthcare professionals to rural and remote areas. *Rural and Remote Health*, 9, Article 1060.
- Woollard, R. F. (2006). Caring for a common future: Medical schools' social accountability. *Medical Education*, 40(4), 301-313. <https://doi.org/10.1111/j.1365-2929.2006.02416.x>
- World Federation for Medical Education. (1998). International standards in medical education: Assessment and accreditation of medical schools. *Medical Education*, 32(5), 549-558. <https://doi.org/10.1046/j.1365-2923.1998.00302.x>
- World Federation for Medical Education. (2000). WFME task force on defining international standards in basic medical education: Report of the working party, Copenhagen 14-16 October 1999. *Medical Education*, 34(8), 665-675. <https://doi.org/10.1046/j.1365-2923.2000.00722.x>
- World Federation for Medical Education. (2015). *Basic medical education: WFME global standards for quality improvement: The 2015 revision*. <https://wfme.org/download/wfme-global-standards-for-quality-improvement-bme/>
- World Federation for Medical Education. (2020). *Basic medical education: WFME global standards for quality improvement: The 2020 revision*. <https://wfme.org/wp-content/uploads/2020/12/WFME-BME-Standards-2020-1.pdf>
- World Health Organization. (2006). *World health report: Working together for health*. [https://www.who.int/workforcealliance/knowledge/resources/whreport\\_2006/en/](https://www.who.int/workforcealliance/knowledge/resources/whreport_2006/en/)
- World Health Organization. (2010). *Increasing access to health workers in remote and rural areas through improved retention: Global policy recommendations*. <https://apps.who.int/iris/handle/10665/44369>
- World Population Review. (2021a). *Botswana population 2021*. Retrieved 6 November, 2021, from <http://worldpopulationreview.com/countries/botswana-population/>
- World Population Review. (2021b). *Ontario population 2021*. Retrieved 6 November, 2021, from <http://worldpopulationreview.com/canadian-provinces/ontario-population/>
- Worldometer. (2021a). *Australia population*. Retrieved 6 November, 2021, from <https://www.worldometers.info/world-population/australia-population/>

- Worldometer. (2021b). *Botswana population*. Retrieved 6 November, 2021, from <https://www.worldometers.info/world-population/botswana-population/>
- Worley, P. (2002). Relationships: A new way to analyse community-based medical education? (Part one). *Education for Health*, 15(2), 117-128. <https://doi.org/10.1080/13576280210133062>
- Worley, P. (2020). Why we need better rural and remote health, now more than ever. *Rural and Remote Health*, 20(1), Article 5976. <https://doi.org/10.22605/RRH5976>
- Worley, P., Lowe, M., Notaras, L., Strasser, S., Kidd, M., Slee, M., Williams, R., Noutsos, T., & Wakerman, J. (2019). The Northern Territory Medical Program: Growing our own in the NT. *Rural and Remote Health*, 19(2), Article 4671. <https://doi.org/10.22605/RRH4671>
- Worley, P., & Murray, R. (2011). Social accountability in medical education: An Australian rural and remote perspective. *Medical Teacher*, 33(8), 654-658. <https://doi.org/10.3109/0142159X.2011.590254>
- Worley, P., Prideaux, D., Strasser, R., Magarey, A., & March, R. (2006). Empirical evidence for symbiotic medical education: A comparative analysis of community and tertiary-based programmes. *Medical Education*, 40(2), 109-116. <https://doi.org/10.1111/j.1365-2929.2005.02366.x>
- Yardley, S., & Dornan, T. (2012). Kirkpatrick's levels of education 'evidence'. *Medical Education*, 46(1), 97-106. <https://doi.org/10.1111/j.1365-2923.2011.04076.x>
- Yin, M., Hughes, M., & Hu, Q. (2020). Entrepreneurial orientation and new venture resource acquisition: Why context matters. *Asia Pacific Journal of Management*, 38(4), 1369-1398. <https://doi.org/10.1007/s10490-020-09718-w>
- Yin, R. (2014). *Case study research: Design and methods* (5th ed.). SAGE Publications.
- Young, D. R., & Grinsfelder, M. C. (2011). Social entrepreneurship and the financing of third sector organizations. *Journal of Public Affairs Education*, 17(4), 543-567. <https://doi.org/10.1080/15236803.2011.12001661>
- Zachariadis, M., Scott, S., & Barrett, M. (2013). Methodological implications of critical realism for mixed-methods research. *MIS Quarterly*, 37(3), 855-879. <https://www.jstor.org/stable/43826004>

- Zane, L. J., & DeCarolus, D. M. (2016). Social networks and the acquisition of resources by technology-based new ventures. *Journal of Small Business & Entrepreneurship*, 28(3), 203-221. <https://doi.org/10.1080/08276331.2016.1162048>
- Zhao, Y., Russell, D. J., Guthridge, S., Ramjan, M., Jones, M. P., Humphreys, J. S., & Wakerman, J. (2019). Cost impact of high staff turnover on primary care in remote Australia. *Australian Health Review*, 43(6), 689-695. <https://doi.org/10.1071/AH17262>
- Zhao, Y., You, J., Wright, J., Guthridge, S. L., & Lee, A. H. (2013). Health inequity in the Northern Territory, Australia. *International Journal for Equity in Health*, 12(1), 79-79. <https://doi.org/10.1186/1475-9276-12-79>
- Zhou, X., & Hall, J. N. (2016). Mixed methods papers in first-person and third-person: Writing voices in dialogue. *Journal of Mixed Methods Research*, 12(3), 344-357. <https://doi.org/10.1177/1558689816652755>



# 11 APPENDICES

## 11.1 Scoping literature review: Charting the data

Num	Authors	Year	Aim	Type	Research Methodology	Theoretical Framework	Context
1	AAMC	2012	to enhance our collective understanding of the challenges, opportunities, and experiences of the new medical schools being created at the beginning of the 21st century	Report by rep from authoritative orgs	Multiple case study w qual and quant questions	Opportunities, challenges, unanticipated outcomes	USA & Canada
2	Addae	1967	Response to another article	Advice/Opinion or Letter to Editor (i.e. Other)	None reported	Nil	N/A
3	Agnew	1954	To describe Florida's new prog	Report from specific new progs	None reported	Nil	USA
4	AMC	2012	To provide standards for the assessment and accreditation of primary medical programs	Standard	None reported	Four domains	Australia
5	Andrew	1965	To describe Monash's new prog	Report from specific new progs	None reported	Nil	Australia
6	Anonymous	1927	To describe Capetown's new prog	Report from specific new progs	None reported	Nil	South Africa
7	Anonymous (Pattern)	1962	Some general principles for a new British school being considered by the Malleson committee	Advice/Opinion	None reported	Nil	UK
8	Anonymous (Prospectus)	1962	Short prospectus of the Malleson committee	Prospectus	None reported	Nil	UK
9	Arango	1966	To reflect on regional trends	Regional discussion	None reported	Nil	Latin America
10	Bin Abdulrahman & Saleh	2015	To describe one Saudi new prog	Report from specific new progs	Planning methods not research	Nil	Saudi Arabia
11	Bonner et al	2018	To describe one curriculum stream but lots of helpful gen principles on curriculum and clinical training sites	Report from specific new progs	"Critical Reflections"	Nil	Australia
12	Castelo-Branco et al	2016	To describe how one curriculum was used in several other international places	Report from specific new progs	None reported	Nil	Australia, Ireland, Portugal, & UK
13	Cathcart-Rake, Robinson & Paolo	2017	To describe Kansas-Salinas new prog	Report from specific new progs	None reported	Nil	USA
14	Chavez et al	2012	to describe Gambia's new comm-based med prog	Report from specific new progs	None reported	Nil	Gambia
15	Clarke	1979	To describe Newcastle's new prog	Report from specific new progs	None reported	Nil	Australia
16	Colquhoun et al	2009	To assist a specific new med school plan clinical learning resources	Research article	Mixed methods?	Nil	UK
17	Condon et al	2017	To describe one curriculum aspect of a new program	Report from specific new progs	Quantitative of an aspect of students satisfaction	Nil	Australia
18	Cookson	2013	To give those setting up a new school some broad issues to think about as they set about their task	Advice/Opinion	Personal experience	Nil	N/A
19	Cristobal & Worley	2012	To examine a hypothesis about specific outcomes of a new med school		Retrospective single case study	Nil	Phillippines
20	Davidson	1965	To describe Rhodesia's new prog	Report from specific new progs	None reported	Nil	Zimbabwe
21	Davidson	1971	To describe Rhodesia's new prog	Report from specific new progs	None reported	Nil	Zimbabwe
22	Delgado	2017	To describe one Cape Verde new prog	Research article on student experiences	Research on student experiences	Nil	Cape Verde
23	Dogramaci	1968	Some general principles for a new school in Turkey	Advice/Opinion	None reported	Nil	Turkey
24	Drobac & Morse	2016	To describe few aspects of new Rwanda prog	Report from specific new progs	None reported	Nil	Rwanda
25	Duncan	1967	Response to another article	Advice/Opinion or Letter to Editor (i.e. Other)	None reported	Nil	N/A
26	Eichbaum, Bowa, et al	2014	To describe outcomes of a specific consortium of new med schools	Report from specific new progs	None reported	Nil	Africa
27	Eichbaum, Hedimbi et al	2015	To describe outcomes of a specific consortium of new med schools	Report from specific new progs	None reported	Nil	Africa
28	Eichbaum, Nyarango, et al	2014	To describe outcomes of a specific consortium of new med schools	Report from specific new progs	None reported	Nil	Africa

29	el-Borolossy	1972	Some general principles for a new schools in developing countries	Advice/Opinion (Book chapter)	None reported	Nil	"Developing countries"
30	Farrer-Brown et al	1958	Planning committee report for a specific new prog	Report from specific new progs	None reported	Nil	Zimbabwe
31	Farrer-Brown et al	1959	Planning committee report for a specific new prog	Report from specific new progs	None reported	Nil	Zimbabwe
32	Field	2011	To describe major challentes of new & existing programs	Report by rep from authoritative orgs	None reported	Nil	Australia
33	Fogarty et al	2012	To describe FSU COM's new prog	Report from specific new progs	None reported but stats of outcomes provided	Nil	USA
34	Frenk et al	2010	To reflect on global trends	Global discussion	None reported	Nil	Global
35	Furukawa et al	2017	To announce Japan's new prog	Report from specific new progs	None reported	Nil	Japan
36	Garb	1962	General principles for new progs	Advice/Opinion	None reported	Nil	N/A
37	Gifford	2007	To describe one partnership aspect of a new program	News article	None reported	Nil	Singapore & USA
38	Hamdy	2006	To describe one multinational new program	Report from specific new progs	None reported	Nil	6 Persion Gulf countries
39	Harrell	1962	General principles for new progs	Advice/Opinion	None reported	Nil	N/A
40	Hartl et al	2017	To describe Germany's new prog	Report from specific new progs	None reported	Nil	Germany
41	Hays	2001	To describe JCU's new prog	Report from specific new progs	None reported	Nil	Australia
42	Hays	2018	To give those setting up a new school some broad issues to think about as they set about their task	Advice/Opinion	Personal experience	Nil	N/A
43	Hays & Sen Gupta	2003	To describe one curriculum aspect of a new program	Report from specific new progs	None reported	Nil	Australia
44	Hays, McKinley & Sen Gupta	2019	To give those expanding clinical sites some broad issues to think about as they set about their task	Advice/Opinion	Personal experience	Nil	N/A
45	Hays, Stokes & Veitch	2003	To describe JCU's new prog	Report from specific new progs	None reported	Nil	Australia
46	Hays, Strasser & Sen Gupta	2020	To give those setting up a new school some broad issues to think about as they set about their task	Advice/Opinion	Personal experience	Nil	N/A
47	Howe et al	2004	To describe 4 new med schools in UK	Report from specific new progs	Personal experience & literature evidence	Nil	UK
48	Hurt & Harris	2005	To describe challenges during estd of a specific new prog	Report from specific new progs	None reported	Nil	USA
49	Karle	2010	To reflect on global trends	Global discussion	None reported	Nil	Global
50	Kebaetse, Nkomazana & Haverkamp	2014	To describe one curriculum aspect of a new program	Report from specific new progs	None reported	Nil	Botswana
51	Khalil & Kibble	2014	To describe one curriculum aspect of a new program	Report from specific new progs	None reported	Nil	USA
52	Lanphear & Strasser	2008	To describe NOSM's new prog	Report from specific new progs	None reported	Nil	Canada
53	Lawrenson et al	2017	To announce Waikato's new prog	Report from specific new progs	None reported	Nil	New Zealand
54	Lawson, Chew & Van Der Weyden	2004	To outline 5 new Aus med schools	Report from specific new progs	None reported but leaders interviewed	Nil	Australia
55	LCME	2006	To provide standards for the assessment and accreditation of primary medical programs	Standard	None reported	5 areas	USA
56	LCME	2020	To provide standards for the assessment and accreditation of primary medical programs	Standard	None reported	12 standards	USA
57	LCME	2008	To provide standards for the assessment and accreditation of primary medical programs	Standard	None reported	5 areas	USA
58	Leake	1962	General principles for new progs	Advice/Opinion	None reported	Nil	USA
59	Leake	1964	General principles for new progs	Advice/Opinion or Editorial	None reported	Nil	USA
60	Leevy & Schwartz	1994	Historical account of a prog	Historical account	None reported	Nil	USA
61	Lippard & Purcell	1972	To provide helpful experience and to document for history	Report from 10 new progs - requested by Macy Foundation	Multiple case study??? Not really	Nil	USA
62	Lockyer & Patterson	2005	To describe one curriculum aspect & propose a framework for online learning	Research article re one or few aspects	None reported	Proposes a learning design framework	Australia

63	Maddison	1980	To describe Newcastle's new prog	Report from specific new progs	None reported	Nil	Australia
64	Mangan	2002	News report	News article	None	Nil	USA
65	Mangan	2009	News report	News article	None	Nil	USA
66	McDonald et al	2014	To report on a specific partnership	Report from specific new progs	None reported	Nil	Kazakhstan & USA
67	Mokone et al	2014	To describe Botswana's new prog	Report from specific new progs	None reported	Nil	Botswana
68	Mullan	2003	To reflect on national trends (US)	National discussion	None reported	Nil	USA
69	Mulloy	1930	To describe Meharry's new prog	Report from specific new progs	None reported	Nil	USA
70	Musgrove	1990	To describe one curriculum aspect of a new program	Report from specific new progs	None reported	Nil	Oman
71	Muula	2006	General reflections about things to consider	Advice/Opinion	None reported	Nil	N/A
72	Nausheen et al	2018	To describe one specific challenge staff retention in new med schools	Research article on staff retention	Anonymous survey	Nil	USA
73	Nonaillada	2020	To describe one curriculum aspect of a new program	Report from specific new progs	None reported	Nil	USA
74	Norris et al	2006	To describe WWAMI's expansion	Report from specific new progs	None reported but stats of outcomes provided	Nil	USA
75	Olds & Barton	2015	To announce UCR new prog	Report from specific new progs	None reported	Nil	USA
76	Penner	2018	To describe the experiences of one satellite estd	Advice/Opinion	Personal experience	Nil	Canada
77	Penrod	1971	Personal reflections on cost of estd and he decides expansion is better	Advice/Opinion	None reported	Nil	USA
78	Pericleous	2011	To reflect on national trends (Cyprus)	National discussion	None reported	Nil	Cyprus
79	Pickering	1965	To describe Nottingham's new prog	Speech notes from seminar or Advice/Opinion	None reported	Nil	UK
80	Reis, Borkan & Weingarten	2009	To reflect on national trends (Israel)	National discussion	None reported	Nil	Israel
81	Rizwan et al	2018	To reflect on global trends	Global discussion	None reported	Nil	Global
82	Roff	1973	To describe Malaysian new prog	Report from specific new progs	None reported	Nil	Malaysia
83	Romano	2001	To announce Florida's new prog	Report from specific new progs	None reported	Nil	USA
84	Sabde et al	2020	To reflect on national trends	National discussion	Mapping methodology	Nil	India
85	Salter, Flippakou & Tapper	2016	To reflect on national trends	National discussion	None reported	Nil	UK
86	Schuster et al	2020	To describe Kaiser Permanente's new prog	Report from specific new progs	None reported	Nil	USA
87	Simoyan et al	2011	To describe one curriculum aspect of a new program	Report from specific new progs	None reported	Nil	USA
88	Smego et al	2010	To describe TCMC's new private prog	Report from specific new progs	None reported	Nil	USA
89	Smith, L	2009	To reflect on national trends & history (US)	National discussion	None reported	Nil	USA
90	Smith, R.	1982	To describe London new prog	Report from specific new progs	None reported	Nil	UK
91	Smythe	1972	To compare start-up expenditures 22 new schools	Research article	Questionnaires; Quantitative	Nil	USA
92	Snadden	2011	To provides ideas to all who are contemplating or engaged in expanding medical school training places	Advice/Opinion	Personal experience	Planning, getting going, pitfalls, sustaining	N/A
93	Strasser & Lanphear	2008	To describe NOSM's new prog	Report from specific new progs	None reported	Nil	Canada
94	Strasser et al	2009	To describe NOSM's new prog	Report from specific new progs	None reported	Nil	Canada
95	Tesson et al	2009	To describe NOSM's new prog	Report from specific new progs	Single case study	Nil	Canada
96	Texas HECB	2008	To describe the steps required by a specific Coordinating Board	Report by rep from authoritative orgs	None reported	Nil	USA
97	Thomas	1967	General principles for new progs	Advice/Opinion	None reported	Nil	N/A
98	Thomas	1968	General principles for new progs	Advice/Opinion	None reported	Nil	N/A
99	Thomson	1963	General principles for new progs	Advice/Opinion	None reported	Nil	N/A
100	Tschirgi	1971	General principles for new progs	Advice/Opinion	None reported	Nil	USA
101	Turner	1949	To describe UWashington's new prog	Report from specific new progs	None reported	Nil	USA

102	UCR	2008	Proposal for a new med school	Proposal document	None reported	Nil	USA
103	Uni Newcastle	1972	To describe Newcastle's new prog	Speech notes from seminar or Advice/Opinion	None reported	Nil	Australia
104	Walters et al	1970	To describe UCal Davis' new prog	Report from specific new progs	None reported	Nil	USA
105	Weiskotten	1949	General principles for new progs	Advice/Opinion	None reported	Nil	USA
106	WFME	1998	To define a set of international standards in basic medical education	Report by rep from authoritative orgs	Systematic evaluation methodology	Nil	Global
107	WFME	2000	To define a set of international standards in basic medical education	Report by rep from authoritative orgs	None reported	9 areas of stds	Global
108	WFME	2015	To define a set of international standards in basic medical education	Report by rep from authoritative orgs	None reported	9 areas of stds	Global
109	WFME	2020	To revise and update the 2015 stds	Report by rep from authoritative orgs	None reported	8 areas of stds	Global
110	Whitcomb	2013	To describe 8 new meds schools	Report by rep from authoritative orgs	Multiple case study	Motivations, challenges, strategies	USA
111	Whitcomb	2009	To describe 10 new meds schools	Report by rep from authoritative orgs	Multiple case study	Motivations, challenges, strategies	USA
112	Whitcomb	2010	To describe 10 new meds schools	Research article	Multiple case study	Motivations, challenges, strategies	USA
113	Whitcomb	2018	To describe 8 new meds schools	Report by rep from authoritative orgs	Multiple case study	Motivations, challenges, strategies	USA
114	Whitcomb	2020	The purpose of this Invited Commentary is primarily to provide an overview of certain key factors that contributed to the development of a number of the new medical schools established in the country since the turn of the century	Commentary based on research	None	Nil	USA
115	White	1965	General principles for new progs	Advice/Opinion	None reported	Nil	USA
116	Willard	1960	General principles for new progs	Advice/Opinion	None reported	Nil	USA
117	Williams et al	2008	To describe one partnership aspect of a new program	Report from specific new progs	None reported	Nil	Singapore & USA
118	Worley, et al	2019	To describe NTMP's new prog	Report from specific new progs	None reported	Nil	Australia

## 11.2 Comparing 20<sup>th</sup> century and 21<sup>st</sup> century literature:

Broadly comparing the literature published in the 20<sup>th</sup> and 21<sup>st</sup> centuries revealed consistency in the issues being discussed. For example, the cries of doctor shortages and workforce maldistribution in the 1960s are still being heard now (see 'Literature Review' section 2.3.1 above). Additionally, the thirteen key considerations identified through the thematic analysis were also identifiable in the older literature:

1. The reasons for establishment similarly discussed workforce shortages (*Case histories of ten new medical schools*, 1972; Davidson, 1965; Farrer-Brown et al., 1958; Harrell, 1962; Musgrove, 1990; "Pattern for a new medical school," 1962; Pickering, 1965; "Prospectus for a new medical school," 1962; University of Newcastle, 1972); improving health care (*Case histories of ten new medical schools*, 1972; Harrell, 1962; Maddison, 1980; University of Newcastle, 1972; Weiskotten, 1949; White, 1965; Willard, 1960); advancing university agendas (Arango, 1966; *Case histories of ten new medical schools*, 1972; Farrer-Brown et al., 1958; Shepherd, 1925); economic, educational, intellectual, and cultural benefits to the community (Farrer-Brown et al., 1958; Willard, 1960); opportunities for innovation (Agnew, 1954; Andrew, 1965; Dogramaci, 1968; el-Borolossy, 1972; Leake, 1962; Maddison, 1980; "Prospectus for a new medical school," 1962; Roff, 1993; Smith, 1982); and research benefits (*Case histories of ten new medical schools*, 1972; Farrer-Brown et al., 1958; Maddison, 1980; Smith, 1982; Thomas, 1968; University of Newcastle, 1972).
2. Location choices similarly recommended areas of workforce shortage (*Case histories of ten new medical schools*, 1972; Davidson, 1965; el-Borolossy, 1972; Farrer-Brown et al., 1958; Harrell, 1962; "Pattern for a new medical school," 1962; "Prospectus for a new medical school," 1962); with the parent university (Farrer-Brown et al., 1958; Smythe, 1972; Weiskotten, 1949; White, 1965; Willard, 1960); near a teaching hospital (Farrer-Brown et al., 1958; Harrell, 1962; University of Newcastle, 1972; White, 1965); and by a contextual combination of local initiative and national design (Tschirgi, 1971).
3. Leadership and governance advice similarly recommended early engagements of the founding dean and planning committee (Clarke, 1979; Davidson, 1965; Dogramaci, 1968; Duncan, 1967; el-Borolossy, 1972; Farrer-Brown et al., 1958; Harrell, 1962; Willard, 1960). Desirable characteristics for the founding team included "enthusiasm, cooperation, faith and hope" (Turner, 1949, p. 274), while those in the founding dean

included the capacity to be pioneering, hardworking, relentless, resilient, humble, showing initiative, following through, and having a good understanding of people (Thomas, 1967).

4. Similar funding sources were noted, as were similar challenges with high costs (*Case histories of ten new medical schools*, 1972; Davidson, 1965, 1971; Duncan, 1967; el-Borolossy, 1972; Leevy & Schwartz, 1994; Maddison, 1980; Mallowney, 1930; Penrod, 1971; Smith, 1982; Smythe, 1972; Thomas, 1967; University of Newcastle, 1972; Weiskotten, 1949; Willard, 1960).
5. The value of partnerships was similarly recognised (*Case histories of ten new medical schools*, 1972; Dogramaci, 1968; Leevy & Schwartz, 1994; Smith, 1982; Thomas, 1967; Thomson, 1963) particularly with the parent university (Andrew, 1965; el-Borolossy, 1972; Harrell, 1962; Leevy & Schwartz, 1994; Maddison, 1980; Pickering, 1965; Thomson, 1963; White, 1965) including acknowledging the unique "special obligations, e.g., patient care, which are not shared at all by other faculties" (Thomson, 1963, p. 137); with the health services (Agnew, 1954; Andrew, 1965; Arango, 1966; *Case histories of ten new medical schools*, 1972; Davidson, 1971; el-Borolossy, 1972; Leevy & Schwartz, 1994; Maddison, 1980; Thomson, 1963; "University of Capetown: New medical school buildings," 1927); and with other institutions (Andrew, 1965; *Case histories of ten new medical schools*, 1972; Davidson, 1965, 1971; Dogramaci, 1968; el-Borolossy, 1972; Leevy & Schwartz, 1994; Roff, 1993; Thomas, 1967).
6. Staffing discussions were similar including the importance of high quality staff (Addae, 1967; Davidson, 1965; Farrer-Brown et al., 1959; Thomas, 1967; Thomson, 1963; Turner, 1949; White, 1965); suggested pools (Addae, 1967; Davidson, 1965; Dogramaci, 1968; Garb, 1962; Smith, 1982); recruitment difficulties (Addae, 1967; Davidson, 1965, 1971; Dogramaci, 1968; el-Borolossy, 1972; Thomas, 1967; Weiskotten, 1949); retention difficulties (Davidson, 1971); and challenges with faculty development (el-Borolossy, 1972; Thomas, 1968).
7. Student numbers similarly discussed quantity versus quality (Davidson, 1965; Dogramaci, 1968); underpinning contextual factors (Davidson, 1965; Dogramaci, 1968; el-Borolossy, 1972; Thomas, 1967); and comparable inaugural numbers (Agnew, 1954; *Case histories of ten new medical schools*, 1972; Clarke, 1979; Davidson, 1965, 1971; Farrer-Brown et al., 1958; Mallowney, 1930; Roff, 1993; Smythe, 1972; Walters et al., 1970; Willard, 1960).
8. Student recruitment similarly discussed the need for clear admissions processes (*Case histories of ten new medical schools*, 1972; Davidson, 1965; Farrer-Brown et al., 1959; Maddison, 1980; Pickering, 1965; Thomson, 1963).

9. Curriculum discussions similarly described the kind of doctor to produce (Arango, 1966; Davidson, 1965, 1971; Farrer-Brown et al., 1959; University of Newcastle, 1972); and usually described a traditional curriculum (Andrew, 1965; *Case histories of ten new medical schools*, 1972; Davidson, 1971; Farrer-Brown et al., 1959; Garb, 1962; Harrell, 1962; Pickering, 1965; "Prospectus for a new medical school," 1962; White, 1965). However, two encouraged early clinical exposure (Davidson, 1965; Walters et al., 1970); two from the same institution discussed the horizontal and vertical integration possible through problem-based learning (Clarke, 1979; Maddison, 1980); and few warned against an overstuffed curriculum (Andrew, 1965; Pickering, 1965).
10. Clinical training sites were primarily described as tertiary teaching hospitals (Agnew, 1954; Andrew, 1965; *Case histories of ten new medical schools*, 1972; Davidson, 1965, 1971; Dogramaci, 1968; el-Borolossy, 1972; Farrer-Brown et al., 1958; Harrell, 1962; Leevy & Schwartz, 1994; Mallowney, 1930; Pickering, 1965; Thomas, 1967, 1968; Thomson, 1963; Turner, 1949; "University of Capetown: New medical school buildings," 1927; University of Newcastle, 1972; Weiskotten, 1949; White, 1965; Willard, 1960), however, a few discussed using community-based health facilities (Maddison, 1980; "Pattern for a new medical school," 1962; Penrod, 1971; White, 1965).
11. Required buildings and facilities were described in great descriptive detail (Agnew, 1954; Dogramaci, 1968; Farrer-Brown et al., 1959; Harrell, 1962; Leake, 1964; Mallowney, 1930; "University of Capetown: New medical school buildings," 1927; Walters et al., 1970); and similar challenges with delayed building completion necessitating temporary accommodation were noted (Davidson, 1965, 1971; Smythe, 1972; Turner, 1949; Walters et al., 1970).
12. Information resources described the kind of library facilities required (Davidson, 1971; Harrell, 1962; Leake, 1964; Willard, 1960), while cutting-edge technology consisted of a "refrigerating plant, which provides the cold storage necessary to preserve cadavers" ("University of Capetown: New medical school buildings," 1927, p. 501); "sound-colour moving films ... [and] tape-recordings of heart and breath sounds" (Agnew, 1954, pp. 423, 424); "earphone TV viewing ... [and] closed-circuit TV" (Leake, 1964, p. 648); computer facilities (Andrew, 1965; Davidson, 1971); and "videotape simulations" (Clarke, 1979, p. 290).
13. Accreditation was hardly mentioned in earlier articles and only appeared in articles published towards the end of the century (*Case histories of ten new medical schools*, 1972; Smith, 1982; World Federation for Medical Education, 1998)

## 11.3 Sample invitation to head of case study medical schools:



**Dr. Sneha Kirubakaran**  
 Prideaux Centre for Research in Health  
 Professions Education  
 College of Medicine & Public Health,  
 Flinders University  
 5E221, Level 5, Flinders Medical Centre  
 Flinders Drive, Bedford Park SA 5042  
 GPO Box 2100, Adelaide SA 5001  
 Tel: +61 8 7221 8891  
 Fax: +61 8 8204 5800  
[sneha.kirubakaran@flinders.edu.au](mailto:sneha.kirubakaran@flinders.edu.au)  
 CRICOS Provider No. 00114A

---

### INFORMATION SHEET FOR DEAN OR INSTITUTIONAL HEAD

---

#### *Establishing New Medical Schools in Medically Under-served Areas*

**Chief Investigator:**

Dr. Sneha Kirubakaran  
 Prideaux Centre for Research in Health Professions Education  
 College of Medicine & Public Health, Flinders University  
 Ph: +61 8 7221 8891  
[sneha.kirubakaran@flinders.edu.au](mailto:sneha.kirubakaran@flinders.edu.au)

**Supervisor(s):**

Dr. Jennene Greenhill Flinders Rural Health SA Flinders University Ph: +61 8 8586 1023 <a href="mailto:jennene.greenhill@flinders.edu.au">jennene.greenhill@flinders.edu.au</a>	Dr. Paul Worley Prideaux Centre for Research in Health Professions Education Flinders University Ph: +61 8 8204 4160 <a href="mailto:paul.worley@flinders.edu.au">paul.worley@flinders.edu.au</a>	Dr. Koshila Kumar Prideaux Centre for Research in Health Professions Education Flinders University Ph: +61 8 7221 8891 <a href="mailto:koshila.kumar@flinders.edu.au">koshila.kumar@flinders.edu.au</a>	Dr. Joanne Pimlott School of Management University of South Australia Ph: +61 8 8302 0524 <a href="mailto:joanne@bofi.com.au">joanne@bofi.com.au</a>
---	---	---	---

**Description of the study:**

The chief investigator, Dr. Sneha, is researching the topic of *Establishing New Medical Schools in Medically Under-served Areas* for her PhD studies. She will research the factors, processes and challenges involved with the establishment of 2-5 case study medical schools around the world. This project is supported by the Flinders University School of Medicine.

**Purpose of the study:**

This study aims to find out:

- How and why this medical school was established in this location
- What factors and processes required consideration
- What challenges were faced by the founding team
- How these challenges were approached
- What factors contributed to the successful establishment of the new medical school

**How will the data be collected?**

Data collection will primarily be by confidential interviews with key staff members and community partners who were involved with the initial establishment of your medical school. Interviews will be recorded using a digital voice recorder.

Documentary data of working documents and audio-visual material relevant to the establishment of your medical school will also be gathered.

The chief investigator, Dr. Sneha Kirubakaran will also gather observational data of facilities and routine activities of your medical school. These may be photographed or videoed as part of her field notes. Wherever possible, she will avoid recording the faces of people in these field notes. If necessary, she will seek written permission to photograph or video-record them first.

inspiring  
achievement



**What will I be asked to do?**

As the Dean or Institutional Head of your medical school, you will be asked to give permission (by return e-mail) for your institution to be included in this study. Inclusion will involve Dr. Sneha Kirubakaran visiting your institution at a mutually convenient time in order to collect the data.

Dr. Sneha Kirubakaran, will ask you to identify key staff and community members involved in the establishment of your medical school that she could approach for their voluntary participation in this study.

If you are the Founding Dean of your medical school you will also be asked to participate in a confidential interview which will ask about your experiences of establishing a new medical school in a medically under-served area. The interview will be conducted by Dr. Sneha Kirubakaran and will take approximately 60 minutes. Your written consent will be sought prior to interview. It will be recorded using a digital voice recorder. You will be offered the opportunity to check the transcript of this recording.

Dr. Sneha Kirubakaran will also ask you for confidential copies of any relevant working documents or audio-visual material that you are willing for her to use as an additional source of data.

Finally, Dr. Sneha Kirubakaran will ask you to provide permission for her to gather observational data of the facilities and routine activities of your medical school. These may be photographed or videoed as part of her field notes. Wherever possible, she will avoid recording the faces of people in these field notes. If necessary, she will seek written permission to photograph or video-record them first.

**What benefit will my institution and I gain from being involved in this study?**

Although no direct benefit to you nor your institution is anticipated, the sharing of your experiences will improve the planning and establishment of future medical schools – particularly in medically under-served areas. The results of this study will be published in peer-reviewed journals to help extend existing understandings within the health professions education community.

It is hoped that opportunities for future collaboration and publications will be an indirect benefit to you and your institution from participation in this study.

**Will my institution or I be identifiable by being involved in this study?**

Although individuals will not be identifiable, the name of your medical school will still be known. In order to maintain the confidentiality of the individual participants, prior to analysis and reporting, all data will be de-identified by removing any personally identifying information (such as name, job description, names of other people, statements that could identify someone personally etc.).

Audio recordings will not be made available to other researchers. It may be necessary to make the recordings available to a professional transcription service who will sign a confidentiality agreement including the requirement that all names and identities not be revealed and that the confidentiality of the material is respected and maintained.

Any copies of relevant working documents or audio-visual material that have been provided will also be treated with the utmost respect and confidentiality. Any identifying details in these materials will be disregarded and removed prior to analysis and reporting.

Dr. Sneha Kirubakaran will hold high standards of respect, confidentiality and de-identification when recording her observational field notes as well.

All data collected for this study will be stored on a password-protected computer and a Flinders University password-protected server that only the chief investigator, Dr. Sneha Kirubakaran, will have access to. While the data/information will be held securely and in strict confidence, the raw data will not be de-identified. The data will be securely stored for at least 7 years once the results have been finalised. The de-identified material may be subjected to secondary data analysis.

**Are there any risks or discomforts if my institution and I are involved?**

We anticipate no risks to you, your staff, your community partners nor your institution from being involved in this study. If any distress is experienced during the data collection, it can be discontinued. If you have any concerns regarding anticipated or actual risks and discomforts because of this study, please raise them with Dr. Sneha Kirubakaran or the Executive Officer of the Flinders University Social and Behavioural Research Ethics Committee directly or the Research Ethics Boards of Lakehead or Laurentian Universities (details provided below).

**How do I agree to participate?**

Participation is voluntary. Your decision to allow your institution to participate or not will have no impact on your relationship with the researchers nor with Flinders University.

A simple reply e-mail to the chief investigator ([sneha.kirubakaran@flinders.edu.au](mailto:sneha.kirubakaran@flinders.edu.au)) or one of her supervisors (listed above) is all that is required for you to indicate your willingness for your institution to be included in this study.

Even if you agree for your institution to participate, you may refuse to allow certain data to be collected and are free to withdraw your institution from the study at any time without effect or consequences.

If you were the Founding Dean or a key staff member involved in the establishment of your medical school your personal participation in an interview is greatly encouraged but is still entirely voluntary. Your decision to personally participate or not will have no impact on your relationship with the researchers, Flinders University nor with your own institution.

Even if you agree to participate, you may answer "no comment" or refuse to answer any questions and are free to withdraw from the interview at any time without effect or consequences. A separate information sheet and consent form will be provided to you for your personal participation.

**How will I receive feedback?**

Outcomes from the project will be summarised in a report. If you would like to see this report please inform Dr. Sneha Kirubakaran (contact details as above).

**Thank you for taking the time to read this information sheet and we hope that you will accept our invitation to participate.**

If you feel this project requires Ethics Approval from your institution as well as that obtained already from Flinders University, please inform Dr. Sneha Kirubakaran.

*This research project has been approved by the Flinders University Social and Behavioural Research Ethics Committee (Project number: 7306). For more information regarding ethical approval of the project the Executive Officer of the Committee can be contacted by telephone on 8201 3116, by fax on 8201 2035 or by email [human.researchethics@flinders.edu.au](mailto:human.researchethics@flinders.edu.au)*

*This study has also been approved by the [Name of Local Ethics Board]. If you have any questions related to the ethics of the research and would like to speak to someone outside of the research team please contact [Contact details of Local Ethics Board].*

## 11.4 Sample letter of introduction from primary supervisor:



College of Medicine & Public Health  
Flinders Rural Health South Australia  
Flinders University  
GPO Box 2100  
Adelaide SA 5001  
Tel: +61 8 8586 1023  
Fax: +61 8 8204 5800  
jennene.greenhill@flinders.edu.au  
CRICOS Provider No. 00114A

Aug 2018

### LETTER OF INTRODUCTION OF PHD STUDENT

(For staff, stakeholders and community partners of the University of Botswana Faculty of Medicine)

Dear Sir/Madam,

This letter is to introduce **Dr. Sneha Kirubakaran** who is a PhD student with the Prideaux Centre for Research in Health Professions Education in the College of Medicine & Public Health at Flinders University. She will produce her student card, which carries a photograph, as proof of identity.

She is undertaking research leading to the production of a thesis or other publications on the subject of ***“Establishing new medical schools in medically under-served areas”***.

She would like to invite you to assist with this project by agreeing to be involved in an interview regarding the establishment of the University of Botswana Faculty of Medicine. No more than 1 hour on one or two occasion(s) would be required.

Be assured that any information provided will be treated in the strictest confidence and none of the participants will be individually identifiable in the resulting thesis, report or other publications. You are, of course, entirely free to discontinue your participation at any time or to decline to answer particular questions.

Since she intends to make a tape recording of the interview, she will seek your consent, on the attached form, to record the interview, to use the recording or a transcription in preparing the thesis, report or other publications, on condition that your name or identity is not revealed. The recording will not be made available to any other person. It may be necessary to make the recording available to secretarial assistants (or a transcription service) for transcription, in which case you may be assured that such persons will be asked to sign a confidentiality agreement which outlines the requirement that your name or identity not be revealed and that the confidentiality of the material is respected and maintained.

Any enquiries you may have concerning this project should be directed to me at the address given above or by telephone (+61 8 8586 1023), fax (+61 8 8204 5800) or e-mail ([jennene.greenhill@flinders.edu.au](mailto:jennene.greenhill@flinders.edu.au))

Thank you for your attention and assistance.

Yours sincerely,

Professor Jennene Greenhill  
Director, Flinders Rural Health South Australia, Flinders University

*This research project has been approved by the Flinders University Social and Behavioural Research Ethics Committee (Project number: 7306). For more information regarding ethical approval of the project the Executive Officer of the Committee can be contacted by telephone on +61-8-8201 3116, by fax on +61-8-8201 2035 or by e-mail [human\\_researchethics@flinders.edu.au](mailto:human_researchethics@flinders.edu.au).*

*This study has also been approved by the University of Botswana Office of Research & Development (Ref. UBR/RES/ARB/BIO/097). If you have any questions related to the ethics of the research and would like to speak to someone outside of the research team please contact, Assistant Director Research Ethics, Dr. M. Kasule, by telephone on +267-3552900, by fax on +267-3957573 or by e-mail [research@monji.ub.bw](mailto:research@monji.ub.bw).*

## 11.5 Sample information sheet for participants:



**Dr. Sneha Kirubakaran**  
 Prideaux Centre for Research in Health Professions Education  
 College of Medicine & Public Health, Flinders University  
 5E221, Level 5, Flinders Medical Centre  
 Flinders Drive, Bedford Park SA 5042  
 GPO Box 2100, Adelaide SA 5001  
 Tel: +61 8 7221 8891  
 Fax: +61 8 8204 5800  
[sneha.kirubakaran@flinders.edu.au](mailto:sneha.kirubakaran@flinders.edu.au)  
 CRICOS Provider No. 00114A

---

### INFORMATION SHEET FOR PARTICIPANTS OF PhD STUDY

---

#### *Establishing New Medical Schools in Medically Under-served Areas*

**Chief Investigator:**

Dr. Sneha Kirubakaran  
 Prideaux Centre for Research in Health Professions Education  
 College of Medicine & Public Health, Flinders University  
 Ph: +61 8 7221 8891  
[sneha.kirubakaran@flinders.edu.au](mailto:sneha.kirubakaran@flinders.edu.au)

**Supervisor(s):**

Dr. Jennene Greenhill Flinders Rural Health SA Flinders University Ph: +61 8 8586 1023 <a href="mailto:jennene.greenhill@flinders.edu.au">jennene.greenhill@flinders.edu.au</a>	Dr. Paul Worley Prideaux Centre for Research in Health Professions Education Flinders University Ph: +61 8 8204 4160 <a href="mailto:paul.worley@flinders.edu.au">paul.worley@flinders.edu.au</a>	Dr. Koshila Kumar Prideaux Centre for Research in Health Professions Education Flinders University Ph: +61 8 7221 8891 <a href="mailto:koshila.kumar@flinders.edu.au">koshila.kumar@flinders.edu.au</a>	Dr. Joanne Pimlott School of Management University of South Australia Ph: +61 8 8302 0524 <a href="mailto:joanne@bofi.com.au">joanne@bofi.com.au</a>
---	---	---	--

**Description of the study:**

The chief investigator, Dr. Sneha, is researching the topic of *Establishing New Medical Schools in Medically Under-served Areas* for her PhD studies. She is researching the factors, processes and challenges involved with the establishment of 2-5 case study medical schools around the world. The University of Botswana Faculty of Medicine is one of the case study medical schools in her research. This project is supported by the Flinders University School of Medicine.

**Purpose of the study:**

This study aims to find out:

- How and why this medical school was established in this location
- What factors and processes required consideration
- What challenges were faced by the founding team
- How these challenges were approached
- What factors contributed to the successful establishment of the new medical school

**How will the data be collected?**

Data collection will primarily be by confidential interviews with key staff members and community partners who were involved with the initial establishment of this medical school. Interviews will be recorded using a digital voice recorder.

Documentary data of working documents and audio-visual material relevant to the establishment of this medical school will also be gathered.

Dr. Sneha will also gather observational data of facilities and routine activities of this medical school. These may be photographed or videoed as part of her field notes. Wherever possible, she will avoid recording the faces of people in these field notes. If necessary, she will seek written permission to photograph or video-record them first.

inspiring  
achievement

**What will I be asked to do?**

You are invited to attend a confidential interview at a mutually convenient time which will ask about your experiences of being involved with establishing the University of Botswana Faculty of Medicine. The interview will be conducted by Dr. Sneha and will take approximately 60 minutes. If required, she may request to conduct a second interview at another mutually convenient time.

Your written consent will be sought prior to the interview. It will be recorded using a digital voice recorder. At any time, you can request for the recording to be stopped. You will be offered the opportunity to check the transcript of this recording.

Dr. Sneha, may also ask you to identify other staff or community members involved in the establishment of this medical school that could be approached for their voluntary participation in this study.

She may also ask for confidential copies of any relevant working documents or audio-visual material that you are willing for her to use as an additional source of data.

Finally, she may also ask you if she can visit the facilities and observe the routine activities of your medical school. These may be photographed or videoed as part of her field notes. Wherever possible, she will avoid recording the faces of people in these field notes. If necessary, she will seek written permission to photograph or video-record them first.

**What benefit will I gain from being involved in this study?**

Although no direct benefit to you nor your institution is anticipated, the sharing of your experiences will improve the planning and establishment of future medical schools – particularly in medically under-served areas. The results of this study will be published in peer-reviewed journals to help extend existing understandings within the health professions education community.

It is hoped that opportunities for future collaboration and publications will be an indirect benefit to you and your institution from participation in this study.

**Will I be identifiable by being involved in this study?**

Your anonymity is assured for the interview and your contributions will not be directly attributed to you in any subsequent reports.

In order to maintain the confidentiality of your information, prior to analysis and reporting, all data will be de-identified by removing any identifying information (such as your name, job description, names of other people and any other statements that could identify you personally). Although you will not be identifiable as an individual, the name of this medical school with which you are affiliated will still be known.

The audio recording of your interview will not be made available to other researchers. It will be necessary to make the recording available to a professional transcription service who will be required to adhere to confidentiality agreements including the requirement that your name and identity not be revealed and that the confidentiality of the material is respected and maintained.

Any copies of relevant working documents or audio-visual material that you have provided will also be treated with the utmost respect and confidentiality. Any personally identifying details in these materials will be disregarded and removed prior to analysis and reporting.

Dr. Sneha will hold high standards of respect, confidentiality and de-identification when recording her observational field notes as well.

All data collected for this study will be stored on a password-protected computer and a Flinders University password-protected server that only Dr. Sneha will have access to. While the data/information will be held securely and in strict confidence, the raw data will not be de-identified. The data will be securely stored for at least 7 years once the results have been finalised. The de-identified material may be subjected to secondary data analysis.

**Are there any risks or discomforts if I am involved?**

We anticipate no risks from your involvement in this study. If any distress is experienced during data collection, it can be discontinued. If you have any concerns regarding anticipated or actual risks and discomforts because of this study, please raise them with Dr. Sneha Kirubakaran or the Executive Officer of the Flinders University Social and Behavioural Research Ethics Committee directly or the University of Botswana Office of Research & Development (details provided below).

**How do I agree to participate?**

Participation is voluntary. Your decision to participate or not will have no impact on your relationship with the researchers, Flinders University nor with your own institution. Even if you agree to participate, you may answer "no comment" or refuse to answer any questions and are free to withdraw from the interview at any time without effect or consequences.

A consent form accompanies this information sheet. If you agree to participate please sign and return this form to Dr. Sneha Kirubakaran (contact details as above but preferably by e-mail to [sneha.kirubakaran@flinders.edu.au](mailto:sneha.kirubakaran@flinders.edu.au)).

**How will I receive feedback?**

Outcomes from the project will be summarised in a report. If you would like to see this report please inform Dr. Sneha Kirubakaran (contact details as above).

**Thank you for taking the time to read this information sheet and we hope that you will accept our invitation to participate.**

*This research project has been approved by the Flinders University Social and Behavioural Research Ethics Committee (Project number: 7306). For more information regarding ethical approval of the project the Executive Officer of the Committee can be contacted by telephone on +61-8-8201 3116, by fax on +61-8-8201 2035 or by e-mail [human.researchethics@flinders.edu.au](mailto:human.researchethics@flinders.edu.au).*

*This study has also been approved by the University of Botswana Office of Research & Development (Ref: UBR/RES/IRB/BIO/097) . If you have any questions related to the ethics of the research and would like to speak to someone outside of the research team please contact, Assistant Director Research Ethics, Dr. M. Kasule, by telephone on +267-3552900, by fax on +267-3957573 or by e-mail [research@mopipi.ub.bw](mailto:research@mopipi.ub.bw).*

## 11.6 Sample consent form:



### CONSENT FORM FOR PARTICIPATION IN PhD RESEARCH BY INTERVIEW

#### *Establishing New Medical Schools in Medically Under-served Areas*

I .....  
being over the age of 18 years hereby consent to participate in a study on the establishment of new medical schools in medically under-served areas as described in the *Information Sheet for Participants*.

1. I have read the information provided.
2. The research procedures and data collection methods have been explained to my satisfaction.
3. Any risks have been explained to my satisfaction.
4. I agree to the audio and/or video recording of my information and participation.
5. I am aware that I should retain a copy of the *Information Sheet for Participants* and this Consent Form for future reference.
6. I understand that:
  - Neither I nor my institution may directly benefit from taking part in this research.
  - While the information gained in this study may be published as explained, I will not be identified and individual information will remain confidential.
  - I may ask that the data collection be stopped at any time and I may withdraw my participation from the research at any time without disadvantage.
  - The data will be securely stored for 7 years at Flinders University after the research is completed
  - Whether I participate or not, or withdraw after participating, will have no effect on any service or employment that is being provided to me.
7. I agree / do not agree\* to the de-identified transcript being made available to other researchers who are not members of this research team, but who are judged by the research team to be doing related research, on condition that my identity is not revealed.

\* delete as appropriate

**Participant's signature:** ..... **Date:** .....

I certify that I have explained the study to the volunteer and consider that she/he understands what is involved and freely consents to participation.

**Researcher's signature:** ..... **Date:** .....  
**Researcher's name:** **Dr. Sneha Kirubakaran**

C:\Users\61421\Documents\Documents\Non-DropBox 22Jun2k20\AnnuaireDocu\gels 22Jun2k20\2k18 Files\PhD 2k18\UBFoM\Final Docs\Consent Form Interview UBFoM Updated Aug2018.docx  
Updated 28 June 2006

## 11.7 Guiding questions for semi-structured interviews:

<i>Interview Notes: Establishing New Medical Schools in Medically Under-served Areas</i>	
Date: ..... Location: ..... Participant Num: ..... Medical School: UBFoM	
1. Please tell me the story of how this medical school was established.	<ul style="list-style-type: none"> <li>• Why?</li> <li>• Timeline of events</li> <li>• Key people, orgs/committees</li> <li>• Relationships/partnerships               <ul style="list-style-type: none"> <li>○ University, Health Service, Local Clinicians</li> <li>○ Government, Local Communities, Global institis</li> </ul> </li> <li>• Access to Resources               <ul style="list-style-type: none"> <li>○ Finances</li> <li>○ Staff</li> <li>○ Students</li> <li>○ Patients</li> <li>○ Buildings, facilities, equipment, technology</li> </ul> </li> <li>• Geographical location choices</li> <li>• Curriculum design choices</li> <li>• Accreditation</li> </ul>
2. What were the main challenges?	
3. How were these challenges approached?	<ul style="list-style-type: none"> <li>• Successfully overcome?</li> <li>• Why?</li> </ul>
4. What would you do differently?	<ul style="list-style-type: none"> <li>• Why?</li> </ul>

5. What do you think were the key ingredients to success?	•
6. Can I confidentially access any relevant documents, reports, photographs, videos ?	• Confidential
7. Who else to interview?	• How we will contact 'em
8. Anything else?	• Next steps, transcript check ...

Property of researcher, Dr. Sneha Kirubakaran, PhD Student, Flinders University, [sneha.kirubakaran@flinders.edu.au](mailto:sneha.kirubakaran@flinders.edu.au)



## 11.8 Summary of data collected for each case study:

<b>NTMP</b>	
Site visit dates	November - December 2016
Site visit locations	Darwin, Palmerston, Adelaide
Observational data	Free-form field notes, electronic memos, photographs, emails
Semi-structured interviews	13 (in-person), 3 (virtual) = 16
Documents gathered	31 documents incl. journal articles, websites, internal documents, printed materials
Audio-visual materials gathered	1 video
<b>NOSM</b>	
Site visit dates	June 2017
Site visit locations	Sudbury, Thunder Bay, Dryden, North Bay, Little Current, Nipissing, Espanola
Observational data	Free-form field notes, electronic memos, photographs, emails
Semi-structured interviews	13 (in-person), 4 (virtual) = 17
Documents gathered	134 documents incl. journal articles, websites, internal documents, printed materials
Audio-visual materials gathered	16 videos + 39 episodes Hard Rock Medical
<b>UBFoM</b>	
Site visit dates	September 2018
Site visit locations	Gabarone, Lobatse, Mahalapye
Observational data	Free-form field notes, electronic memos, photographs, emails
Semi-structured interviews	16 (in-person), 4 (virtual) = 20
Documents gathered	77 documents incl. journal articles, websites, internal documents, printed materials
Audio-visual materials gathered	Nil