Addressing cancer disparities in immigrants to Australia by integrating cancer literacy education into English as a Second Language programs

by

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Thesis Summary

Australia's changing immigration trends show more people are arriving from developing and non-English-speaking countries. Disparities exist in cancer prevalence and in cancer prevention and risk behaviours, with implications for future cancer burden. Traditional health education methods may not reach all immigrants. Abroad, partnership with immigrant English-as-a-Second-Language (ESL) providers to deliver health information shows evidence of efficacy for increased knowledge and feasibility, but interventions are limited in generalisability and reporting of implementation outcomes. A translational research approach could expand understanding of the utility of this novel education method by directing research focus to both intervention efficacy (internal validity) and aspects of implementation (external validity). This research followed four progressive stages, each underpinned by the translational research framework RE-AIM (*reach, efficacy, adoption, implementation, maintenance*), that promotes equal consideration to both internal and external validity.

Stage 1 was a qualitative scoping study with ESL teachers from the Adult Migrant English Program (AMEP), the provider of government-sponsored ESL education to new immigrants to Australia. Focus group questions addressed the development and acceptance of a cancer prevention ESL resource and were guided by RE-AIM, as were analyses. Results showed enthusiasm for the utility of this resource if designed to cater for multiple cultures, language levels, address national competencies, and incorporate varied communicative activities and media. In Stage 2, a draft curriculum was developed, and ESL teachers and students provided feedback about its potential reach to all immigrants who attend the AMEP. Results indicated high acceptability, although it may not be appropriate for older adults and those with very poor English.

In Stages 3 and 4, a randomised controlled trial was conducted to test the impact of the curriculum on two levels of outcome: individual (student) and organisation, thus addressing

both internal and external validity. Individual (student) level results revealed, compared to the control group, a significant improvement in knowledge of cancer primary prevention strategies and a trend towards significance in improvement in knowledge of cancer symptoms and intentions to have a cancer screening test. Results also showed significant improvements in self-efficacy to screen for cancer and to increase physical activity, and in attitudes towards sun protection as important for health. Improvements were maintained three months later. Almost all students shared information from the course with family and friends, especially information about increasing fruit and vegetable consumption, physical activity and sun protection. Sharing information about sun protection was significantly associated with students' increased engagement in sun protection behaviours.

Organisational level results showed that the curriculum was accepted by staff and students, and teachers reported intention to use it again. However competing curriculum demands showed that it was only taught for around four hours during the four-week trial by the, mostly part-time, teachers. Results further revealed that worksheets were not wholly taught as intended, impacting intervention fidelity.

Overall, results suggest that the utility of this approach as a viable method to address cancer disparities in immigrants to Australia is limited at present. Furthermore, results raise points to consider about using translational research to inform public health interventions.

Declaration

I certify that this thesis:

1. does not incorporate without acknowledgement any material previously submitted for a degree or diploma at any university; and
2. to the best of my knowledge and belief, does not contain any material previously published or written by another person except where due reference is made in the text.

Donna Lee-Ann Hughes-Barton

Signed: Date: 8th April 2020

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List of Abbreviations

CALD	Culturally and linguistically diverse
ESL	English as a Second Language
AMEP	Adult Migrant English Program
TAFE	Technical and Further Education
CBPR	Community-based participatory research
RE-AIM	Reach Efficacy Adoption Implementation Maintenance
LEP	limited English proficiency
ELL	English language learner
HBF	Health Behavior Framework
TCM	traditional Chinese medicine
HE4L	Healthy Eating 4 Life
CSWE	Certificates of Spoken and Written English
ACCESS	Australian Curriculum of Cancer prevention Education for Speakers of other languageS
HAPA	Health Action Process Approach
CLT	communicative language teaching
GP	general practitioner (family doctor)
BMI	body mass index (ratio of weight to height)
HPV	human papillomavirus
MANOVA	multivariate analysis of variance
MANCOVA	multivariate analysis of covariance
ABC	Awareness and Beliefs about Cancer scale
AAHLS	All Aspects of Health Literacy Scale

Chapter One: Cancer Risk among Immigrants to Australia

Migration to Australia

Australian immigration trends have changed significantly in the past 20 years. In contrast to the predominantly UK and European immigration immediately post World War II, recent immigrants largely originate from China, India, and other countries in Asia, the Middle East and Africa (Australian Government Department of Border Protection and Immigration), many of which are developing nations. There is also an increased number of immigrants who enter the country on humanitarian and temporary visas (Phillips & Simon-Davies, 2016). Australia now experiences unprecedented cultural diversity that is continuing to rise (Australian Bureau of Statistics, 2017a). At present, a third of the population was born abroad; of these, 18% arrived in Australia after 2012 (Australian Bureau of Statistics, 2017b). Over three hundred languages other than English are spoken at home by over a fifth (21%) of the Australian population (Australian Bureau of Statistics, 2017a). The number of non-English speaking immigrants has increased substantially in recent years. In the period 2001-2005, 9.5% of immigrants were non-English speaking, compared to 27.8% of immigrants arriving in the period 2011-2016 (City of Sydney, 2016).

Cancer Incidence and Prevalence among Immigrants to Australia

The current immigration pattern to Australia has implications for population health, particularly in relation to the incidence of, and mortality and morbidity from, chronic diseases including cancer. Many immigrants from developing countries arrive to “immigration nations” such as Australia with a lower risk of developing cancers that can be linked to lifestyle choices, such as colorectal and breast cancers, than the existing population. This is described as the “healthy immigrant effect” (Kennedy, Kidd, McDonald, & Biddle, 2015) and has been attributed to a number of factors including: higher engagement in healthy lifestyles pre-immigration, including healthier eating choices or physical activity (Hamilton, 2015);

high health eligibility requirements for immigrants (Singh & de Looper, 2002), and self-selection, whereby healthier individuals choose to emigrate (Biddle, Kennedy, & McDonald, 2007). Unfortunately, most pre-immigration health benefits typically dissipate over time as immigrants integrate into the prevailing culture, and the incidence of diseases that are related to lifestyle worsens for some of these culturally and linguistically diverse (CALD) communities (Salant & Lauderdale, 2003). For example, in the Australian state of New South Wales during 1991-2001, there was a higher prevalence of breast, colorectal and some other cancers in female immigrants from China, India and a number of other Asian and Middle Eastern countries compared with age-matched women still residing in these countries (Supramaniam, O'Connell, Tracey, & Sitas, 2006) suggesting a negative impact from health acculturation.

In addition to a change in the burden of lifestyle-linked cancer following arrival in Australia, there is also a higher prevalence of other cancers in some CALD communities compared to people born in Australia. For example, a higher number of stomach, liver and nasopharyngeal cancers, all of which are linked to traditional dietary practices, or viral factors, have been noted in immigrants from Middle Eastern, Asian and Southern European countries (Anikeeva et al., 2012). A higher occurrence of lung cancers have also been noted (Federation of Ethnic Communities' Council of Australia, 2010). This is likely due to differences in smoking prevalence; for example in 2016 in the general community in the Australian state of New South Wales smoking prevalence was 14.7% of the population whereas for men born in China it was 20.3%, Vietnam 32%, and Lebanon, 39.3% (NSW Government, n.d.).

Cancer Prevention Behaviours among Immigrants to Australia

The Australian government body Cancer Australia has developed national recommendations for primary and secondary prevention of lifestyle-related cancers such as

those linked to the bowel, breast, cervix, lung and liver. Primary prevention of cancer refers to behaviours that can reduce disease incidence (improve diet, physical activity, reduce obesity, alcohol use and stop smoking) (Cancer Australia, 2015). Secondary prevention refers to practices leading to early detection (e.g., screening for breast, bowel and cervical cancer) (Australian Government Department of Health, 2016). These recommendations were developed based on "convincing" evidence of links between behaviour and incidence (Cancer Australia, 2015). They are shown in Table 1.1.

Table 1.1

Australian national recommendations for cancer prevention[a]

Behaviour	National recommendations
Primary prevention behaviour	
Food intake	Eat a balanced and nutritious diet: 2 serves fruit and 5 serves vegetables per day; limit intake of red meat and processed meat
Body weight	Maintain a healthy weight: body mass index (BMI) range of 18.5-25
Physical activity	Be active: at least 30 minutes of physical activity every day
Smoking behaviour	Don't smoke
Sun protection	Be sun smart: wear sunscreen and sun protective clothing sunscreen
Alcohol consumption	Limit alcohol consumption: drink no more than a maximum of 2 standard drinks for men, 1 for women per day
Secondary prevention behaviour	
Breast cancer screening	Free for women aged 50-74 years: screen every 2 years
Bowel cancer screening	Free for men and women aged 50-74 years: screen every 2 years
Cervical cancer screening	Free for women aged 25-74 years: screen every 5 years
Immunisation against HPV virus	Free for adolescents to age 19 years
Skin checks for skin cancer	All adults check skin regularly, report changes

Note. [a](Australian Government Department of Health, 2016; Cancer Australia, 2015).

Within CALD communities in Australia, data show variable uptake of the behaviours associated with lowered cancer risk (Federation of Ethnic Communities' Council of Australia, 2010). For example, Singh and de Looper (2002) reported that, according to the 1995 National Health Survey, immigrants from “Asian” countries (countries of Northeast, Southeast, and Southern Asia, and the Middle East and North Africa were combined in this report) were less likely to be obese and to drink alcohol at risk levels compared to immigrants from European countries and the UK, but were more physically inactive.

Lower rates of participation in cancer screening activities have also been noted in immigrants to Australia. In a study of screening practices among Australian women (Aminisani, Armstrong, & Canfell, 2012), female immigrants to Australia from North-East, South-East and South-Central Asian and Middle Eastern countries were less likely to screen for cervical cancer than Australian-born women. Furthermore, women from the South-Central countries including India, Sri Lanka, Bangladesh, Pakistan and Afghanistan were 20% less likely to screen for cervical cancer than the other Asian and Middle Eastern women. In another study by McCredie, Coates and Ford (1990), a higher level of hospitalisation for cervical cancer and mortality from the disease was noted in women from Vietnamese communities compared to the rest of the population living in New South Wales, Australia. Lower engagement in mammography and bowel cancer screening was found in a survey of women aged 45 years and older from countries of East-Asian, South-East Asian, Continental Western European, North African and Middle Eastern countries compared to Australian-born women. The same survey study found reduced bowel cancer screening rates in men of a similar age hailing from all regions of Asia and Continental Europe in comparison to the rest of the Australian population (Weber, Banks, Smith, O'Connell, & Sitas, 2009).

This pattern of lower participation may account for poorer outcomes following cancer diagnosis (NSW Government, n.d.). For example, Tracey et al. (2008) found that women of

non-English speaking backgrounds were more likely to present for medical help with more advanced breast cancer, and thus may miss out on early intervention practices.

Possible Underlying Reasons for Observed Disparities

Acculturation.

Acculturation, defined as the process of adoption of local behaviours, beliefs, values and attitudes (Allen et al., 2014) may help to explain the positive and negative changes in health status observed within CALD communities over time. Just as being new in a country might mean that immigrants have not yet adopted local healthy (and unhealthy) habits, recency of arrival might also be linked to a lower understanding of available local health services, and poorer knowledge about how to access and utilise them (Wang et al., 2008). As the length of time living in the country extends, immigrants may assimilate within the new cultural community and adopt local health habits. Consequently, immigrant health status gradually converges with that of the native-born (Biddle et al., 2007). Lam, Kwok and Lee (2018) conducted secondary analyses of data from a sample of 1,744 women immigrants to Australia with African, Arabic, Korean, Indian and Chinese ethnicities, pooled from five cross-sectional studies surveying their breast awareness and breast screening practices. They found that women who attend biennial mammograms (the Australian recommendation for women over the age of 50 years) had resided in Australia for more than 14 years, were older (aged 56 or more), in a relationship and proficient in English. These variables accounted for 80.5% of the variance in a multivariate logistic regression analysis of participants' demographic characteristics. Level of education and employment status were not related to screening participation. Longer length of residency in Australia was the strongest predictor of general breast awareness and participation in clinical breast examination.

However, time in Australia is only likely to partially explain changes in behaviour and there is certainly individual variation in the trajectory and extent of adaption. Moreover, the

degree of acculturation that an individual ultimately achieves may be linked to factors other than length of residency. These factors include cultural beliefs and extent of English language health literacy and numeracy (Lopez-Class, Castro, & Ramirez, 2011).

Cultural health beliefs.

Differences in cultural health beliefs about cancer and cancer prevention among CALD communities may impact engagement in cancer preventive behaviours, timely help-seeking for symptoms, and appropriate communication with healthcare providers (Murray & Skull, 2005). A recent systematic review of 15 qualitative studies exploring cancer health beliefs in African, African-American, Asian, Arabic, Hispanic and Latino ethnic minority groups living in the United Kingdom, United States, Australia and Canada found that fatalistic beliefs about the causation and prognosis of cancer were common to all ethnic groups interviewed (Licqurish et al., 2017). In another study conducted in the United States, fatalistic beliefs about cancer were found to be associated with a higher risk of late-stage diagnosis (Stage 4) of lung and colorectal cancers in a sample of 4,319 ethnically diverse patients (Lyratzopoulos, Liu, Abel, Wardle, & Keating, 2015). In an analysis of survey responses from 1,675 people who completed the US 2013 Health Information National Trends Survey, Fleary, Paasche-Orlow, Joseph and Freund (2018) found that fatalistic health beliefs about cancer were related to lower rates of both physical activity and fruit and vegetable consumption in their sample.

Literacy and its application to health outcomes.

Across the general population (non-CALD and CALD), links have been established between low literacy (reading and comprehension skills), numeracy and poorer physical and mental health outcomes (DeWalt & Pignone, 2005). Health literacy skills are defined as the application of literacy (and numeracy) skills to enable a person to acquire and understand health information and then use it to make informed health decisions (Nutbeam, 2000;

Nutbeam, McGill, & Premkumar, 2017). Extending this definition, cancer health literacy could be viewed as the application of literacy (and numeracy) skills to the acquisition and comprehension of health information about cancer. In a systematic review of 111 articles, Berkman, Sheridan, Donahue, Halpern and Crotty (2011) found that poor health literacy in the general population was associated with a range of poor health outcomes. These included lesser comprehension of health messages and compromised ability to follow medical instructions, a lower uptake of cancer screening services such as mammography, and increased hospitalisation rates. Low health literacy was also associated with avoidance of doctor appointments, a lack of understanding about the utility of cancer screening tests, avoidance of attending to information about diseases that a participant did not have, and fatalistic attitudes about cancer, in a large stratified random sample of 1013 adults aged 40-70 years in the US (Morris et al., 2013). In a more recent study, Fleary et al. (2018) also reported an association between more fatalistic cancer health beliefs and lower health literacy in their sample. Furthermore, in another study of 529 African-American, Hispanic and White women attending health clinics in the US (Lindau et al., 2002), literacy skills were found to be a better predictor of how a women would respond if she was given negative results to cervical cancer screening than ethnicity or education. The women classified as having below-adequate literacy were those more likely to report that they would worry, panic, do nothing or not know what to do.

Within the Australian context, it has been estimated that around 60% of the adult population do not have adequate health literacy skills, and that the figure may be higher in some CALD populations (Australian Commission on Safety and Quality in Health Care, n.d.). The Commission developed and released the National Statement on Health Literacy. This National Statement includes recommendations to address health literacy, specifically

efforts to address the integration of health literacy knowledge and skill development into education programs.

Cancer health literacy and CALD populations.

Lower cancer health literacy could be a factor in observed disparities in cancer diagnoses and outcomes within some CALD communities (Oldach & Katz, 2014). Indeed, in one study of 106 immigrant Chinese women to Canada, Todd and Hoffman-Goetz (2011) found that the ability to comprehend information about colon cancer prevention was related to general health literacy, regardless of the language of information presentation (Chinese or English), although presentation in the native language produced better outcomes. Another study by the same group, Todd, Harvey & Hoffman-Goetz, (2011) showed that greater engagement in breast and colon cancer screening services by Chinese immigrant women to Canada was significantly related to greater health literacy, self-efficacy to engage in the screening and longer length of stay in Canada (acculturation).

Much of the research into health literacy has focussed on functional health literacy. Functional health literacy is described as the most basic of the health literacy skills, enabling a person to obtain simple health information and use it in the prescribed manner. Nutbeam's (2000) model expands on this to include three hierarchical dimensions of health literacy: functional, interactive (communicative) and critical. According to this model, communicative health literacy refers to the ability to extract and understand health information from a variety of sources, and to engage in health communications. Critical health literacy involves the more advanced literacy skills required to critically analyse health information from a variety of sources in order to make informed decisions for oneself (Nutbeam et al., 2017). This definition of health literacy as comprising three hierarchical dimensions is useful when considering health literacy in immigrants because it differentiates barriers to obtaining, understanding and interacting within a foreign, unfamiliar health system that immigrants may

face on arrival to a new country. The current research uses a cancer topic focussed version of Nutbeam's (2000, 2008) three hierarchical dimensions of health literacy (functional, communicative and critical), extending his definition to refer to the cancer health information context.

English language proficiency.

Regardless of cancer health literacy competency in their country of birth, new immigrants from a CALD background may not have the English language skills required to fully understand cancer-related public health messages, or sufficient language to optimise awareness of available health services and resources (Oldach & Katz, 2014; Viswanath et al., 2012). In a cross-sectional study of 29,868 people in the United States, Shi, Lebrun and Tsai (2009) found that people with lower levels of English language proficiency were less likely to access health care than those with higher levels. A review by Lam et al. (2018) found that greater English proficiency in female immigrants was associated with regular participation in breast screening activities. Similarly, Jacobs, Karavolos, Rathouz, Ferris and Powell (2005) examined longitudinal data from 1,247 women in the US "Study of Women across the Nation", and found that low breast and cervical cancer screening rates were significantly associated with not speaking English well or at all.

Current materials targeted at providing cancer information to immigrants, for example, translated information sheets and brochures about cancer causation and cancer prevention, might not be as accessible to immigrants who speak a dialect or who have low reading literacy in their native language. Moreover, if the fact sheets are translated directly without consideration of cultural sensitivities or where messages are inconsistent with attitudes to health in the home country, they may be rejected, regardless of literacy competence (Tsai & Lee, 2016). Lastly, it is important to recognise that information sheets and brochures do not necessarily prepare people to interact with health information providers with confidence.

Establishing new and valid approaches for improving cancer literacy, which can be used to complement existing services, is necessary to impact cancer risk in CALD immigrants.

A National Concern in Australia

The need for the development of new health messaging strategies, mechanisms or delivery routes, specific to the needs of CALD communities is identified in multiple national and state government and non-government health advisories in Australia. These include the key directions of the National Chronic Disease Strategy (National Health Priority Action Council, 2006), the Cancer Australia Strategic Plan 2014-2019 (Cancer Australia, 2014), the Victorian Consultation on Health Literacy (Hill & Sofra, 2018) and the Cancer Council SA Strategic Plan (Cancer Council of South Australia, 2013). Other "immigrant nations" have similar advisories, for example National Cancer Institute's Center to Reduce Cancer Health Disparities in the United States (National Cancer Institute) and the NHS National Cancer Transformation Programme in the United Kingdom (NHS, 2016-2017).

An example of a recent novel initiative in Australia is one arising from Cancer Council Victoria. A cartoon was developed with input from community leaders, and specifically tailored for Arabic-speaking communities and launched to encourage men and women to have screening for colorectal, breast and cervical cancers (Cancer Council Victoria, 2016). However, to date this initiative has not been evaluated either for its impact on bowel cancer awareness and screening activity among people with Arabic cultural background, or its potential for translation within the community. Without evaluation, it is difficult to determine the likely public health impact of this novel intervention (Dye et al., 2019).

To ensure that immigrants from smaller communities outside of major language groups also benefit from initiatives, it is important that strategies targeting all non-English speaking immigrants, regardless of cultural background, are developed. The challenge is determining

how to best reach as many immigrants as possible, soon after arrival, and how to ensure cultural sensitivity so that the health messages are accessible. An socio-ecological approach could help provide a basis for intervention. This perspective posits that behaviour (in this context, cancer prevention behaviours) has multiple levels of influence including intrapersonal, interpersonal and external influences from environment and community Targeting potential influences at different socio-ecological levels could be most effective at helping to change behaviour (Bastani, Glenn, Taylor, Chen, Nguyen, Stewart & Maxwell, 2010).

Embedding Cancer Literacy within English-as-a-Second-Language (ESL) Instruction - A Strategy to Reach Multiple Immigrant Groups

Viewing English language skills as mediating between immigrants being able to access available health information in their new country and then act on that information. A possible strategy for providing cancer literacy messaging to diverse, non-English speaking immigrants is to partner with current settlement services that work with immigrants from all cultural backgrounds in order to develop an initiative that complements their existing services. A range of government-sponsored specialist settlement services designed to help new immigrants quickly assimilate into Australian society are offered within the first five years of arrival. The aim is to reduce longer-term reliance on welfare services. Working with one of these services to disseminate cancer literacy information may provide both a timely route and a credible, accessible mechanism for delivery of health messages to new immigrants. These services generally include those dedicated to improving English language, education and employability (Australian Government, 2017).

New immigrants to Australia, who are assessed as having “less than functional English”, have access to a minimum of 510 hours of government-sponsored, free, English-as-

a-Second-Language (ESL) tuition. In class, they learn functional language to access a variety of services, including health services. These free ESL classes may be a timely entry-point for the introduction of health information specific to cancer prevention and an ideal opportunity to leverage instruction in English language as a mechanism for improving health literacy in this area.

In Australia, these courses are predominantly offered through the Adult Migrant English Program (AMEP) (Australian Government Department of Education and Training, n.d.) and are delivered through the Technical and Further Education (TAFE) sector and other providers throughout Australia. The teachers who work in these programs have cultural and educational awareness of the needs of the diverse population of newly arrived immigrants, specialise in adult education (Australian Government, 2017) and hold postgraduate qualifications in teaching ESL (Social Compass, 2018). Key characteristics of the AMEP are its flexibility, ability to cater for adult language learners from diverse cultural and linguistic backgrounds, and its competency-based, content-flexible curriculum, enabling teachers to customise content according to language learners' needs (Adult Migrant English Services, 2013).

Abroad, health message delivery via ESL courses has recently received some attention. Chen, Goodson and Acosta (2015) conducted a systematic review of seven available health ESL curricula that covered the health topics; diabetes, cardiovascular disease, Hepatitis B, healthy eating and being active. Among these seven curricula, only four North American curricula had undergone evaluation. Results from these evaluations, which are discussed in more detail in Chapter 2, suggest that blending health information and second language literacy may be a method that is both efficacious and feasible for improving cancer literacy in recently arrived immigrants.

A Translational Research Approach.

Testing the possibility of improving cancer literacy in non-English speaking immigrants through provision of content to ESL providers, and thereby influencing students' intentions to prevent cancer, and identify it early, is the focus of the current dissertation. Evaluation of an intervention that aims to improve cancer literacy via ESL instruction requires capture of data at the individual and program level. Capture of data at the individual level requires measurement of impact on the intentions and behaviour among the targeted immigrant groups; these are data that measure the intervention's efficacy, or internal validity. Capture of data at the program level requires information on intervention uptake by language providers and data on sustainability of the ESL programs. These elements describe aspects of the intervention's external validity. Therefore, the research requires a focus on both types of validity in order to be able to comment reliably on the likely public health impact of the intervention. The investigation of aspects of external validity is as important as internal validity in this situation because it provides an indication of the potential acceptance and sustainability of the intervention by stakeholders within real-world settings (Allen, Zoellner, Motley, & Estabrooks, 2011). Consequently, a "translational research" approach to evaluation would be ideal, because this approach aims to embed both implementation and maintenance as well as efficacy within research design and evaluation.

There is ongoing debate about what constitutes translational research. The National Institutes of Health (NIH) in the US suggest that translational research activities refer to two types of translation. The first type of translational research is the application of results that have been found to be efficacious in the laboratory to the development of trials to be conducted in the wider community, while the second type refers to research initiatives that aim to enhance implementation and adoption of recommended behaviours within the wider community (Rubio et al., 2010). Wallerstein and Duran (2010) highlighted challenges

associated with the first type of translational research. These include threats to external validity, lack of local knowledge, language mismatch between researchers and the community, a potential lack of trust from community, and unsustainability of interventions over time after the trial has ended. According to Wallerstein and Duran (2010), these challenges of external validity may be overcome in the second type of translational research by adopting a community-based participatory research (CBPR) approach.

A CBPR approach involves working directly with key community stakeholders and preparing for diverse settings; incorporating non-academic and culturally-supported knowledge within the intervention; creating a language for the intervention and a program that has wide community understanding and acceptability; broadening two-way communication between academic and community-based collaborators; planning for sustainability; and institutionalising trust by integrating the intervention with existing programs and promoting ownership by stakeholders. Figure 1.1 reproduces Wallerstein and Duran's (2010) model of CBPR, depicting the utility of this approach to public health research endeavours and outcomes.

This second type of translational research approach, incorporating CBPR, is a useful framework to guide the investigation of health message delivery to immigrants via existent ESL classes. The very nature of the research trial requires close participation with ESL providers in order to develop appropriate and culturally acceptable methods that fit with existing teaching conventions. Thus, Wallerstein and Duran's (2010) model informs the set-up of the studies in this dissertation.

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Figure 1.1. Model of Community-Based Participatory Research (Wallerstein & Duran, 2010), p. S43.

CBPR is inherently "messy" because it requires collaboration with non-research personnel, who may have differing agendas, and it can require significant amounts of time and flexibility to undertake (Lazarus, Duran, Caldwell, & Bulbulia, 2012). For example, an intervention implemented across several community sites requires flexibility in order to incorporate the requirements of the different sites and staff. This flexibility may impact intervention fidelity; the ability to identify the key elements of the intervention that are most or least effective (Shaw, Sweet, McBride, Adair, & Ginis, 2019).

A translational research framework.

Adopting a translational research framework that focuses on maximising both the internal and external validity of the project has been suggested as a means to guide a CBPR endeavour while retaining scientific rigour (Glasgow et al., 2019). There are several translational research frameworks available to guide intervention planning and evaluation. One is the RE-AIM framework developed by Glasgow, Vogt and Boles (1999). RE-AIM

adopts an ecological approach to the evaluation of an intervention, considering organisational as well as individual variables (Martinez et al., 2017) and weighting external validity and internal validity equally. It is considered to be the most easily operational of the frameworks (Tabak, Khoong, Chambers, & Brownson, 2012).

The RE-AIM framework consists of five elements for evaluation at both individual and setting levels. These are: (1) the intervention's *reach* to representative community populations; (2) the demonstration of *efficacy* (i.e., internal validity) of the intervention; (3) its *adoption* in settings and by program deliverers; (4) factors that impact its *implementation* as intended in settings; and (5) strategies for longer-term *maintenance* in individuals as well as program settings (Glasgow, Klesges, Dzewaltowski, Bull, & Estabrooks, 2004). By giving each element equal attention, researchers are encouraged to consider threats to both external and internal validity and to include a breadth of evaluation indicators to establish internal and external validity (Shaw et al., 2019). Tools to guide researchers in their evaluations of each element have been developed. These include those available on the RE-AIM website ("RE-AIM.org", n.d.).

Unfortunately, threats to external validity are often overlooked in trial evaluations, providing future researchers with no guide regarding potential generalisation of intervention outcomes to new situations (Glasgow et al., 1999). Allen et al. (2011) conducted a systematic review of 31 health literacy trials published between 2000 and 2010. Against the RE-AIM dimensions they found that while 58% reported on the trial's efficacy, only a third or less reported against the dimensions representing aspects of external validity (*adoption*, *implementation*, *maintenance*). In another systematic review of 71 articles published within the same time period, Gaglio, Shoup and Glasgow (2013) noted that 44 reported across all five RE-AIM elements but the extent of reporting varied widely, and data on the dimensions measuring external validity were varied. For example, although 54% commented on the

degree to which an intervention was implemented as intended (fidelity), only 9% provided additional information to indicate what happened (e.g., adaptations, modifications) when not implemented as intended. A more recent systematic review was compiled by Harden and colleagues (2015) reported similar inconsistencies in reporting. The implication of reduced reporting of aspects of RE-AIM lessens the quality of information available to future researchers to aid intervention replication in different settings.

RE-AIM is also recommended throughout the literature as a resource to aid intervention planning within the community (Allen et al., 2011; Klesges, Estabrooks, Dzewaltowski, Bull, & Glasgow, 2005). Doing so should facilitate intervention key stakeholders' adoption, generalizability and applicability. This is because use of the RE-AIM framework at the planning stage should enable researchers to identify potential barriers before they arise, as well as factors that may facilitate uptake of the intervention. To date, this approach has been reported for one intervention program to improve physical activity engagement in older adults in the United States (Belza, Toobert, & Glasgow, 2007). This was not an ESL intervention. Using a CBPR approach, the researchers involved key stakeholders in the intervention's development and identified potential barriers to address whilst planning. Twelve months later, the researchers reported that the program had been successfully implemented and was still running as intended.

Summary and Rationale for this Project.

This background section highlights several key points. First, there is evidence of disparities in cancer incidence, mortality and morbidity, as well as in uptake of cancer primary and secondary prevention strategies among CALD populations within Australia. These disparities may arise from differences in cultural health beliefs and poor health literacy and be compounded by low or non-existent English language skills.

Second, the need to address this disparity is reflected in state and national health guidelines, which recommend the development of culturally appropriate interventions to reach the various CALD communities, particularly those with poor English language skills. Targeting settlement services available to all immigrants in the development and delivery of novel strategies to improve cancer literacy should help reach a large number of groups, regardless of specific CALD background. Government-sponsored ESL classes could be targeted in Australia because they are offered to all new adult immigrants with less than adequate English language skills. Abroad, this blend of ESL and health literacy has shown promise although it has not been trialled in Australia, nor with cancer prevention topics.

The third point raised in this Chapter is that adopting a translational research perspective in tackling this problem will help to establish both the internal and external validity of a health intervention focused on ESL. Moreover, appropriate use of a CBPR research design should ensure that any resource developed will have broad applicability to many, diverse, ESL providers, teachers and language students. Using a translational research framework to guide development and evaluation should also enable identification of barriers that may impact on the efficacy and feasibility of an intervention, as well as factors that may facilitate its utility.

Chapter 2 explores the proposal to blend health literacy education with existing ESL provision for new immigrants to Australia in more depth. The current literature is reviewed, and gaps identified. Using RE-AIM as a guide, the research plan of this dissertation is described; this research extends current work and develops, and then evaluates, an ESL curriculum designed to improve health literacy regarding cancer risks and prevention strategies for new immigrants to Australia.

Chapter Two: Can we Address Cancer Disparities in Immigrants by Improving Cancer Literacy through English as a Second Language Instruction? The Concept, Research Aims and Plan

Preamble

Chapter 2 expands on Chapter 1 by exploring in greater depth the concept and potential for combining health literacy education, designed to improve knowledge of cancer prevention and early detection strategies, with programs designed to teach practical literacy and numeracy to recently arrived, non-English speaking immigrants. These aspects were incorporated in a concept paper manuscript submitted, peer reviewed and subsequently published (Hughes, Flight, Chapman, & Wilson, 2019). The paper, reproduced within this chapter in APA format, reviews relevant literature relating to existing health-based ESL curricula, identifies gaps in the current literature and outlines a possible strategy for furthering this novel health messaging approach within the Australian context. Following reproduction of the published paper, the research aims and structure of this dissertation are outlined.

Statement of Authorship

The paper that follows was published online on 26th March, 2018 and in print in April 2019 in the journal Translational Behavioral Medicine (Hughes et al., 2019). The authors were PhD Candidate, Donna Hughes-Barton (née Hughes) and the supervisory team Dr Ingrid Flight, Dr Janine Chapman, and Principal Supervisor Professor Carlene Wilson. Full citation: Hughes, D.L., Flight, I., Chapman, J. & Wilson, C. (2019). Can we address cancer disparities in immigrants by improving cancer literacy through English as a Second Language

instruction? Translational Behavioral Medicine (2019) 9 (2), 357-367. © 2019 by Society of Behavioral Medicine. The article is available at: https://doi.org/10.1093/tbm/iby030[1][2]

Candidate statement.

I confirm that I was the primary author of the concept paper, and that guidance and supervision were provided by the co-authors throughout the manuscript preparation, revision and submission process. I was responsible for the concept paper design and writing. I was the corresponding author on the manuscript and was also responsible for the implementation of revisions and correspondence with the refereed journal. Co-authors provided suggestions regarding manuscript presentation and provided advice on drafts and on responding to reviewer comments.

[1] This is a pre-copyedited, author-produced version of the article accepted for publication in Translational Behavioral Medicine following peer review. The version of record Hughes, D.L., Flight, I., Chapman, J. & Wilson, C. (2019). Can we address cancer disparities in immigrants by improving cancer literacy through English as a Second Language instruction? Translational Behavioral Medicine (2019) 9 (2), 357-367 is available online at: https://doi.org/10.1093/tbm/iby03 on the OUP website.

[2] The present concept paper was originally referenced in Vancouver reference style, in which references were numbered consecutively. The paper has been reformatted in APA (American Psychological Association) Style (6th Edition) in accordance with the remainder of the thesis and tables have been placed within the body of the text and re-labelled as Table 2.1 and Table 2.2.

Reproduction of Publication: Can we Address Cancer Disparities in Immigrants by Improving Cancer Literacy through English as a Second Language Instruction?

Abstract.

Background.

In many Western countries, immigrants exhibit disparities in cancer incidence and mortality, and variable uptake of cancer prevention services. New immigrants may not be aware of cancer risks pertinent to their new country, or prevention resources. Traditional cancer prevention health messaging may not be accessible for cultural, language or literacy reasons. New methods are needed. In North America, health message delivery via English classes for immigrants are showing potential as an efficacious and feasible way to reach immigrants at the same time as improving language skills. Interventions published to date are promising but limited in their ability to generalise or be adapted to a variety of populations and settings.

Purpose.

This concept paper aims to synthesise previous findings and identify ways to improve and advance the translation potential of this approach. We propose that this could be achieved by: (1) using a translation framework to guide intervention planning, development, implementation and evaluation; (2) encouraging and evaluating health message spread throughout language learners' social networks; and (3) incorporating cultural sensitivity into the curriculum. A pilot project following these recommendations is planned for Australia, and will be discussed.

Conclusion.

These recommendations could serve as a framework to fit the requirements of immigrant language programs in other countries, and other health topics.

Background.

Immigration trends are changing globally (Czaika & Haas, 2014). For example, Australia now hosts a cultural diversity not seen before; recent immigrants (people who come to a foreign country to live permanently) largely hail from China and India, but also from Middle Eastern, African and Asian countries (Australian Government Department of Immigration and Border Protection, n.d.), many of which are developing nations. Currently, a third of Australia's population were born abroad; a fifth of whom arrived since 2012. Twenty one per cent of the population speak one of over 300 languages other than English at home (Australian Bureau of Statistics, 2017d).

There are health implications associated with this current immigration pattern, particularly in relation to cancer incidence and mortality. Whilst the mortality rate is falling, cancer is still a major cause of illness in Australia and in 2011 was the leading cause of disease burden (Australian Institute for Health and Welfare, 2017). Although many immigrants from countries arrive to Australia and other 'immigrant nations' with a lower risk of some cancers linked to lifestyle behaviours (known as the 'healthy immigrant effect' (Anikeeva et al., 2012)), this lower risk typically dissipates over time, and lifestyle-related cancer incidence tends to worsen as people adopt local lifestyle behaviours (Salant & Lauderdale, 2003). In addition, although some immigrants arrive with the knowledge and skills required to manage their health needs within a new society, many do not participate as readily as others in cancer prevention behaviours such as healthy eating and physical activity, or accessing health services that assist in reducing cancer prevalence such as screening (Singh & de Looper, 2002). For example, an Australian survey of adults aged over 45 found reduced mammography and bowel screening rates in women from North African, Middle Eastern and some Asian countries, and bowel screening in men from all parts of Asia compared to the rest of the population (Weber et al., 2009).

One reason underlying this observation is the likelihood of poorer health literacy within these communities (Oldach & Katz, 2014). Health literacy can be understood to be both task and skills-based – the possession of adequate literacy (reading and writing) skills and the ability to utilise these literacy skills to be able to acquire, process and apply health information in order to make informed health decisions and actions (Nutbeam et al., 2017). At a functional level, the skills enable individuals to obtain and apply basic health information (e.g., getting a prescription filled). More advanced interactive health literacy skills enable people to interact with and understand health professionals and communicative sources. Critical health literacy skills are still more advanced, enabling individuals to seek and critically analyse available health information in order to make greater health decisions for themselves and others (Nutbeam, 2000). Immigrants who have suffered reduced or disrupted education may not only have reduced literacy skills but also be challenged in the application of these skills at even the most basic functional level (Oldach & Katz, 2014).

Low engagement in cancer preventive behaviours and services may also be influenced by other factors such as cultural differences in beliefs around cancer, illness and illness prevention (Shaw, Huebner, Armin, Orzech, & Vivian, 2009) and/or resistance to use local health services due to mistrust, or a perception that they are culturally inappropriate (Federation of Ethnic Communities' Council of Australia, 2010). Furthermore, low functional English proficiency may limit awareness of available health services and materials, and the ability to comprehend and access public health information and services (Oldach & Katz, 2014; Viswanath et al., 2012).

Health information provided to new immigrants must therefore be understandable, culturally sensitive, and, for those with limited English proficiency (LEP), merge English literacy and health service literacy needs. Ideally, the information should also be made available soon after arrival. Current resources for immigrants, such as translated cancer

prevention fact sheets or professional interpreter use, may not achieve these aims for several reasons. For example, they may not be accessible to immigrants with reduced health literacy, reduced or disrupted education, reduced literacy in their native language or those who speak a dialect, and they may not be culturally sensitive, especially if materials have been translated literally without cultural modification (Tsai & Lee, 2016). In addition, they do not equip individuals with the language to use health information to interact confidently within a potentially alien healthcare system. With the changing immigration environment, we need to consider different ways to deliver health messages so that all adults can feel confident to access available health resources, and feel empowered to make their own, informed, health decisions.

Immigrant English as a Second Language (ESL) instruction has been suggested as a possible vehicle to tackle health vulnerabilities of adult immigrants to English-speaking countries (Santos, Handley, Omark, & Schillinger, 2014). This may be particularly useful mode of education in multicultural countries such as Australia, where new immigrants with LEP are offered around 510 hours of free government-sponsored language classes through the Adult Migrant English Program (AMEP) soon after arrival in the country. The aim of the language education, which can be accessed on a full- or part-time basis, is to facilitate settlement by equipping English Language Learner (ELL) immigrants with information about local services as well as English language skills to access these services. Settlement information provided to immigrants covers a wide range of topics including the Australian healthcare system and services. While many immigrants arrive with more pressing immediate needs such as securing employment, the classes address basic health service acquisition, and providing additional information and language regarding cancer prevention and available services could be a natural addition to the curriculum and a means to help improve timely uptake of available resources such as population-based cancer screening programs.

Although no studies have been completed in Australia, a recent systematic review conducted by Chen and colleagues (2015) of 18 reports of curricula designed to blend health literacy with ESL highlighted four curricula that were subject to evaluation trials in North America. Results from these trials provide initial promising evidence of the efficacy and feasibility of this approach (Chen et al., 2015). Three of these four curricula concentrated on physical outcomes and knowledge acquisition. Briefly, a significant increase in Hepatitis B knowledge was found in a pre-posttest trial (of a 3-hour lesson) of 56 Chinese immigrants aged over 50 (Coronado, Acorda, Do, & Taylor, 2008), in a group-randomised trial assessed after 6-months among 298 adult Chinese immigrants (Taylor et al., 2009), and among 218 Asian immigrants, also assessed 6-months after intervention (Taylor et al., 2011). Evaluations of an ESL cardiovascular health curriculum (designed to be taught over 6-weeks) reported significant improvements in functional health literacy in a pre-posttest trial of 49 (Soto Mas, Cordova, et al., 2015) and a randomised controlled trial of 155 adult ELLs (Soto Mas, Ji, Fuentes, & Tinajero, 2015). A third curriculum, concentrating on nutrition for cardiovascular health, was evaluated in a multicentre cluster randomised parallel groups trial with 408 (Elder et al., 1998) and in a two-group repeated measures trial with 732 adult Latino ELLs (Elder et al., 2000). Results indicated short-term (3-months) improvements in blood pressure and cholesterol readings and 6-month improvements in fat avoidance and nutrition knowledge (Elder et al., 2000).

The evaluation of a fourth curriculum extended beyond health knowledge and also assessed health behaviour outcomes. This curriculum was evaluated via a 12-week pre-posttest trial of 227 adult immigrants. Outcomes included English language fruit and vegetable vocabulary (scores on a US state-wide standardized reading and listening test); health knowledge; fruit and vegetable consumption, and action and coping planning skills in their evaluation of a cancer-prevention healthy eating ESL curriculum ‘Healthy Eating 4 Life

(HE4L)' (Duncan et al., 2012). The researchers found improvements in ELLs' fruit and vegetable English vocabulary (reading scores as well as knowledge), self-reported intake of fruit and vegetables and health-related planning skills following the intervention. This result is important because it highlights the potential of this blend of education to leverage health outcomes from achievement of the language aspirations of recently arrived immigrants with LEP. This additive success is likely to support sustainability, particularly where cancer literacy curricula are delivered in the context of English language instruction.

In the conclusion of their systematic review, Chen et al. (2015) recommended that future work consider both English and health outcomes, target more demographic groups, and include a greater variety of health topics (Chen et al., 2015). With the exception of a Hepatitis B intervention curriculum (Coronado, Taylor, Acorda, Hoai Do, & Thompson, 2005; Taylor et al., 2008), the cancer prevention topics covered to date tend to be general in nature, mainly targeting healthy eating and physical activity. In addition, the North American context and culture-specific nature of existing interventions could make translating them to another country difficult.

In addition to Chen et al.'s recommendations (2015), the following section identifies four further potential limitations that should be addressed to improve effectiveness and the translational potential of this approach. We outline these additional gaps and then sketch the components of a cancer prevention ESL curriculum being developed in Australia.

Limitations in current ESL health literacy interventions.

Limitation 1: Theory has not been fully utilised to explain observed behaviour change.

Interventions to change behaviour will be more effectively understood if grounded in an appropriate theory and applied to program development and evaluation. Otherwise, it is

difficult to identify the underlying psychological constructs that might explain observed behavioural changes, which has implications for successful replication in future interventions (Michie & Abraham, 2004).

A systematic review of the use of theory to guide development and evaluation of dissemination and implementation interventions was conducted in 2010 by Davies and colleagues (Davies, Walker, & Grimshaw, 2010). In this review, a study was classified to have 'used theory' if the researchers cited a theory with references, and explained how the theory was used to design a study or explain the change(s) observed in the study. In total, 235 health implementation intervention studies were reviewed. Davies and colleagues reported that less than a quarter (53/235: 22.5%) had openly used a theory of behaviour or behaviour change to guide the research process, and only 14 of these (14/53: 26.4%) used theory 'explicitly', meaning that a theory was explicitly described and one or more of the intervention's research hypotheses tested constructs relating to that theory. The remaining 39 studies had some conceptual basis in theory, where theory was used to guide aspects of the research process but not tested (Davies et al., 2010).

Applying Davies et al.'s (2010) criteria to the four curricula subject to review by Chen et al. (2015), only one used theory explicitly. Both the curriculum development and a subsequent evaluation trial were based on the Health Action Process Approach (HAPA:(Schwarzer, 2008)), a stage model that attempts to bridge the gap between intentions and behaviour by utilising strategies targeting both motivational (e.g. self-efficacy) and volitional (e.g. planning) factors. In this study, ELLs were encouraged to plan their intended fruit and vegetable consumption, as well as plan what to do when faced with challenges. At 12 weeks, the researchers found improvements in self-reported fruit and vegetable intake as well as planning skills. Although longer-term outcomes were not reported, the theoretical basis of this study provides curriculum developers with an evidence-based rationale for

including planning skills in future health curricula. These results support findings from other research in health behaviour change which suggests that planning can lead to dietary and other health behaviour changes (Schwarzer, 2008) and provide evidence to encourage ESL curriculum writers to include planning activities in health topics.

The other three curricula reviewed by Chen and colleagues (2015) also reported using theory, but in a conceptual way, with a theory used to inform aspects of the curriculum development, intervention or trial, but not tested explicitly. The theories used to inform aspects of these curricula and interventions varied. For example, Elder et al.'s nutrition curriculum (Elder et al., 1998; Elder et al., 2000) was informed by social cognitive theory (Bandura, 1977) which describes learning occurring in a social context (such as the ESL classroom) and health literacy and health behaviour theory (Berkman, Davis, & McCormack, 2010). A health literacy curricula development trial conducted by Soto Mas and colleagues (Soto Mas, Cordova, et al., 2015; Soto Mas, Ji, et al., 2015) was reported as being informed by sociocultural approaches to literacy and communication, (Street, 1995) describing the communicative nature of the ESL classroom, health literacy (Rudd, 2000), health behaviour theory (Bandura, 1977) and adult learning theory (Knowles, 1973; Soto Mas, Mein, Fuentes, Thatcher, & Balcázar, 2013). Finally, the cancer prevention Hepatitis B ESL course developed by Coronado, Taylor and colleagues (2005) was based on the Health Behavior Framework (HBF: (Bastani et al., 2010)) While the elements of the HBF were explicitly described by the researchers clearly in the design of the curriculum, only knowledge was assessed in the curriculum's evaluation (Coronado et al., 2008; Taylor et al., 2009) or knowledge and self-reported screening behaviour (Taylor et al., 2011).

Aside from the one study by Duncan and colleagues (2012), it is unclear whether the results reported in the other three ESL-health literacy interventions discussed here (Coronado et al., 2008; Elder et al., 1998; Soto Mas, Cordova, et al., 2015; Soto Mas, Ji, et al., 2015;

Taylor et al., 2011; Taylor et al., 2009) were related to the psychological constructs underpinning the chosen theory(ies) because components of the theory were not fully evaluated. It is also worth noting that none of the ESL-health evaluations to date included details of effect sizes, power analyses or cost-benefit analyses, limiting conclusions about effectiveness and translation potential. Without attention to each of these areas, the possibility for replication in different settings or estimating likely public health impact is reduced (Michie & Abraham, 2004). In addition, as recommended by several authors (e.g., (Bastani et al., 2010; Glasgow, Marcus, Bull, & Wilson, 2004)), behaviour change interventions are more likely to have a greater public health impact if they simultaneously target and evaluate factors at the wider community and system levels as well as at the individual level. Furthermore, in order to evaluate the initial and long-term impact of these interventions and their likely translation capacity, it is important that an assessment of ELLs' English language proficiency be included alongside health literacy as program outcomes. Explicit reference to theories of curriculum development or second language acquisition has not been made in the aforementioned health literacy ESL evaluations to date and could warrant attention. However, all of them were designed to exploit the content-based communicative methodological approach currently used in ESL teaching and curriculum design. This approach emphasises the importance of creating realistic communicative opportunities in the classroom, and arose from Krashen's theory of second language acquisition (Krashen & Terrell, 1983). It could be helpful to investigate this further and tease out the most useful aspects of this approach by evaluating the impact of different classroom activity types.

Limitation 2: Impacts on and from language learners' wider social networks have not been evaluated.

We believe that the translation potential of this work to date can be further advanced by investigating and evaluating the nature and impact of learners' social networks on the

adoption and maintenance of health intentions and behaviours. The extent to which health messages learned in the classroom are shared with the ELLs' family, friends and community may also be important. In a recent study (Edwards, Wood, Davies, & Edwards, 2015), that investigated the spread of health information within family groups, participants reported a strong dependence on their family and social networks for seeking, understanding and using health information. Results from other studies have also demonstrated the interconnection between an individual's health, health communication and health-related behaviours and that of their familial and wider social networks (Christakis & Fowler, 2007; De La Haye, Robins, Mohr, & Wilson, 2011; Koehly et al., 2003). For example, social network influences were found to be associated with the uptake (or not) of health prevention services among immigrants from a number of cultural backgrounds in the US (Deri, 2005). The mechanisms underlying the influence that social networks can have on health are suggested to be "social support, social influence, access to resources, social involvement, and person-to-person contagion" (Smith & Christakis, 2008) (p.417).

Exploiting this influence, Campbell and colleagues (2008) used social network methods to identify influential peer leaders at high schools and used the leaders' networks to successfully spread new non-smoking behavioural norms amongst classmates. In addition, results from a recent study among 40 long-term health volunteers from Latino and African communities in the US, suggested that one individual can act as a key agent to feasibly disseminate health information to their wider community (Molina et al., 2016). Within the ESL classroom, Santos and colleagues gave ELLs a post-lesson survey and found that about two-thirds of the class (n=105/63.6%) anecdotally reported sharing some information from the diabetes lesson with their social networks (Santos et al., 2014). Overall, these results highlight a potentially feasible opportunity to utilise existing immigrant English programs to

activate the spread of cancer prevention health messages to new immigrant communities via a language learner in the position of agent of change.

Limitation 3: Cultural health beliefs and attitudes have not been adequately addressed.

There is evidence in the literature that cultural beliefs about health and illness impact on engagement in chronic disease prevention behaviours (Shaw et al., 2009). For example, one recent study (Wei, Wilson, & Knott, 2013) found an association between traditional Chinese or Western cultural health beliefs and the degree to which university students engaged in physical activity, and another reported a link between cultural health beliefs and engagement in mammography (Wang et al., 2009). Cultural differences in health beliefs and attitudes may contribute to difficulties with, and misunderstandings during, communication between healthcare provider and patient, and in the capacity of the immigrant to follow healthcare recommendations (Shaw et al., 2009).

In the published ESL interventions, the potential of addressing cultural health beliefs and attributions in the curriculum has not yet been fully realised, although curricula have often been tailored for a particular cultural group. To date, in these programs, cultural tailoring could be considered to be 'surface' level only (Huang & Shen, 2016), addressing language of delivery (Soto Mas, Ji, et al., 2015), or certain culturally-linked health behaviours such as food choices (Elder et al., 2000). In a recent meta-analysis of 36 studies investigating the persuasive impact of culturally tailored cancer messages (Huang & Shen, 2016), it was reported that incorporating 'deeper tailoring', such as embedding cultural norms, values and religious beliefs into messaging, had a significantly stronger impact on persuasiveness. This suggests that efficacy may be best achieved when cultural influences, including barriers to uptake, are considered in content development.

Some community health literacy interventions, not developed for the ESL classroom, have incorporated cultural norms, health beliefs and values as an integral part of their curricula, and have been well accepted within their intended immigrant audience. For example, Wang and colleagues (Wang et al., 2014), in conjunction with Traditional Chinese Medicine (TCM) practitioners, developed an educational resource flipchart to show, side-by-side, the relationship between TCM and biomedical views of colorectal cancer, its causes, risks and prevention strategies. In another study (Burke et al., 2004), a video Vietnamese-language resource, entitled "Honoring Tradition, Accepting New Ways", was developed to deliver health messages about Hepatitis B for immigrants from Vietnam to the United States via a 'soap-opera'. It depicted the lives of a three-generation family balancing maintaining their cultural values, beliefs and traditions while learning how to access the local healthcare system.

Considering the predominantly multicultural enrolment character of many immigrant language programs in Western countries, the challenge now becomes how to best embed cultural sensitivity into an ESL cancer prevention literacy curriculum, so that its health messages will be accessible to ELLs from many different countries. The development of strategies to achieve this requires comprehensive engagement at the development and planning stages of stakeholders of ESL education including teachers, students, and immigrant health providers, as well as the immigrant communities themselves.

Limitation 4: Current curricula are not easily generalisable.

The ESL health literacy interventions to date have been developed for specific groups and may not be readily applicable to other immigrant populations with LEP or other ESL settings (Chen et al., 2015). In a multicultural country such as Australia, and in ESL classes that are multicultural, these interventions may therefore have limited uptake, not only by student groups, but by teachers as well. Developing a curriculum that can be generalisable to

different language learners, as well as to different teachers and language schools, would improve the likelihood that it will be used and re-used widely in the classroom, or used across different sites, and thus improving the public health impact. Its potential will be further enhanced by allowing flexibility within the curriculum for local customisations and adaptions to meet the requirements of ELLs or language providers or without losing the main tenets of the curriculum and its goals (Aarons et al., 2012).

Addressing the limitations: A translational research framework.

An implementation science framework (Glasgow et al., 1999) used to guide aspects of health intervention could help address these limitations. One such framework is the RE-AIM evaluation framework, widely used and considered to be more operational than others (Tabak et al., 2012). This framework was developed by Glasgow and colleagues in 1999 (Glasgow et al., 1999) with the aim of improving reporting of aspects of implementation and external validity of health research trials, and is considered useful in this context due to its potential to be applied at all stages of the research process, from planning to evaluation.

Briefly, RE-AIM is designed to encourage equal consideration of threats to external and internal validity; the latter of which is the benchmark by which most research is generally judged. The model requires that research testing intervention effectiveness (and ecological validity) report data on five dimensions: (1) reach to representative community populations; (2) demonstrated efficacy (i.e., internal validity); (3) adoption by settings and intervention agents; (4) demonstrated effect on implementation in settings; and (5) demonstration of longer-term maintenance of individual and setting outcomes (Glasgow, Klesges, et al., 2004). These five dimensions are spread across individual, organisational and community levels to provide researchers with an estimation of the overall public health or policy impact of a health intervention (Glasgow et al., 1999; National Institutes for Health).

As an example of the utility of the RE-AIM framework, the HE4L ESL curriculum evaluation trial (Duncan et al., 2012) was assessed using RE-AIM (Martinez et al., 2017). Through a combination of qualitative and quantitative methods, the researchers concluded that their curriculum had reached into their target population and provided a representative sample, had been efficacious at improving vocabulary, reading skills, fruit and vegetable intake, planning and coping skills at 3 months and in planning skills and knowledge at 6 months, adopted by representative numbers of sites and locations for the US state of Connecticut and, by tracking use of each curriculum component, were able to assess which components were implemented as intended and which had been adapted. As it was a pilot study, there were no data for maintenance of the curriculum in settings and by staff over time.

The RE-AIM framework has been used to evaluate translatability of other health literacy interventions focused on a wide variety of topics including weight loss (Akers, Estabrooks, & Davy, 2010), eHealth impact (Glasgow, 2007), and smoking (Dzewaltowski, Estabrooks, Klesges, Bull, & Glasgow, 2004). It has also been used to guide investigation of health interventions via systematic reviews (e.g.,(Allen et al., 2011; Glasgow, Marcus, et al., 2004)). The systematic reviews have highlighted that the RE-AIM factors of adoption, implementation and maintenance, issues pertaining to external validity, have tended to be overlooked or poorly reported (Allen et al., 2011; Klesges et al., 2005).

To address this limitation, it has been recommended that RE-AIM be included at the planning stage of an intervention (Allen et al., 2011; Klesges et al., 2005). An example of this approach is the study conducted by Belza and colleagues (Belza et al., 2007) who utilised RE-AIM from the planning stage to guide dissemination of an evidence-based physical activity program for older adults. They worked closely with key stakeholders to identify potential implementation challenges before they occurred and reported 12-months later that the stakeholders were still running the program with new groups of participants. Applying

RE-AIM carefully from the outset to the planning of immigrant ESL health interventions could be instrumental in helping to develop an accessible education program relevant to the needs and requirements of learners, teachers and education settings, and more likely to last.

Maximising translation of a curriculum using RE-AIM.

The aforementioned limitations within the health literacy ESL field could be addressed by looking through the lens of the RE-AIM framework. From a RE-AIM perspective, expanding current ESL health curricula to consider cultural health beliefs and barriers, and language learners' social networks, could help to improve the reach of the intervention by opening up accessibility to multiple immigrant groups and impacting immigrant community members not attending the courses. Structured communicative exercises that practise language in the classroom and homework activities promoting discussion with learners' social networks outside of the classroom could also improve adoption by ESL teachers because it fits with the content-based communicative approach currently widespread in ESL education (Freeman & Freeman, 1998). In addition, a flexible curriculum that is accessible to the multicultural population of ESL classes and aligns with existing curricula frameworks and framework-based evaluations (i.e. evaluations against the competencies outlined in the Certificates of Spoken and Written English (CSWE)) could improve efficacy (of language skill acquisition), adoption and implementation by ESL teachers and schools, as well as reach and maintenance by increasing the opportunity for the curriculum to be used over time with different ethnic mixes of language learners. Furthermore, developing and evaluating the curriculum within a theoretical base, and evaluating the spread of the health messages taught in the ESL classes through social network analysis methods, could provide evidence supporting the efficacy of this approach as a valid means to deliver health messages to a population at risk of missing out on mainstream public health initiatives.

Outline for the development of pilot curriculum.

The following section describes the development and evaluation of a pilot curriculum focussing on health literacy relating to cancer prevention behaviours. The intervention is utilising a health communication approach, aiming to increase functional and critical health literacy and so to improve health behaviours. We are incorporating a social network approach into this, with the aim to increase dissemination. To maximise the potential for translation, development is being informed by the RE-AIM framework.

In Australia, new immigrants who are assessed as having 'less than a basic social proficiency' of English can access the AMEP. The focus of the language instruction is on functional literacy designed to help them access a variety of services and employment. Immigrant English classes are generally well attended by adult ELLs who are motivated to learn (Duncan et al., 2012) and in Australia, classes are multicultural. The courses typically run in terms of up to 10 weeks and the ethnic mix can be completely different in each course. The AMEP is nation-wide and, although many teachers have autonomy regarding topics to teach and types of activity, they follow CSWE (Navitas English, n.d.), a national graded competency framework of functional skills and grammar to be addressed at three different levels of language proficiency. Developing a program within this framework lends support to its potential for its scalability throughout the nation. We will now outline a curriculum that is currently being planned in accordance with these recommendations. The curriculum will focus on cancer prevention, and if found to be efficacious, can be used as a model to address education for immigrants with LEP regarding other chronic health conditions, and be applied to other languages and immigrant language programs internationally

ACCESS: Australian Curriculum of Cancer prevention Education for Speakers of other languageS.

Development and efficacy testing of the ACCESS curriculum resource will expand on previous research in five key ways. It will: (1) be theory-driven in its development and evaluation, incorporating measures of knowledge acquisition and intentions to act in each lesson; (2) encourage ELLs to share new knowledge with their wider social networks; (3) be adaptable for use with ELLS from different countries of origin and different language course providers; (4) address key cancer prevention factors and health service utilisation for cancer prevention pertinent to Australia; and (5) focus on achievement of both functional and interactive English language and cancer prevention literacy as twin goals of the class.

Translation framework and theoretical base.

Each stage of the development, trial and evaluation of the curriculum will be guided by the RE-AIM framework in order to facilitate the development of a curriculum that optimises translatability (by addressing both internal and external validity) and considers impacts at the individual, organisational and community levels; hence enabling an estimation of the potential public health impact of the curriculum at the same time as it addresses English language skills. Recommendations from the literature for incorporating RE-AIM into the planning stages of health interventions are summarised in the second column of Table 2.1. The third column describes how these recommendations could be applied to ESL health interventions.

Table 2.1

Planning for implementation: RE-AIM dimensions and recommendations for designing and evaluating ESL programs for migrants

RE-AIM dimension + description	Recommendations to optimise translation of health interventions, arising from the literature ("RE-AIM.org", n.d.; Allen et al., 2011; Belza et al., 2007; Klesges et al., 2005), consistent with RE-AIM dimension	Equivalent ESL health interventions, consistent with RE-AIM dimension Recommendations to optimise translation of ESL health interventions[a]
Reach Participant characteristics, and representativeness to wider population	• Design to reach, and recruit, representative portions of the community (e.g., ethnicity, age, gender, socio-economic etc.) and settings • Involve stakeholders in all research stages • Identify barriers and facilitators of participation	• Involve stakeholders (ESL teachers and schools, community personnel, students) to identify potential barriers and facilitators to implementation[123] • Design curriculum for multicultural classrooms[12] • Prepare education materials to fit current national & local health, language guidelines[2] • Prepare materials at different language proficiency levels[2] • Address cultural health beliefs, taboos[123] • Address language learners' social networks[123]
Efficacy Evaluation of outcomes of interventions on participants	• Use multiple outcome measures to examine intervention effect and replicate across homogeneous settings and populations • Use theory to explain behaviour change, design intervention,underpin evaluation of outcome variables • Measure positive and negative intervention outcomes	• Use appropriate theory/theories to inform and guide each aspect of curriculum design, trial and evaluation[23] • Use multiple outcome measures, including change in knowledge, beliefs, attitudes[3] • Evaluate health-related outcomes, language skills[3] • Conduct social network analyses[3]

Table 2.1 (continued).

RE-AIM dimension + description	Recommendations to optimise translation of health interventions, arising from the literature	Equivalent ESL health interventions, consistent with RE-AIM dimension Recommendations to optimise translation of ESL health interventions[a]
Adoption Representativeness of staff and settings; barriers and facilitating factors impacting on intervention delivery	• Involve stakeholders in all research stages • Identify barriers and facilitators of participation by the settings and intervention agents • Identify requirements of staff and settings • Identify factors that could enhance feasibility and easy replication	• Obtain feedback from all stakeholders, including ESL teachers and students when designing, implementing and evaluating the curriculum[1234] • Examine barriers and facilitators to uptake of the curriculum in different schools[1234] • Align curriculum and materials with local and national language guidelines[2]
Implementation Estimation of how well the intervention is delivered as intended by staff and settings	• Involve stakeholders in all research stages • Conduct formative evaluations to learn how the intervention will fit stakeholders' responsibilities and environment, ask for suggestions • Measure extent of how the staff use/change resource	• Conduct initial study investigating language schools' implementation barriers and facilitators[1] • Obtain feedback on the curriculum from teachers prior to, and after, trialling[234] • Measure how curriculum was used in different settings, & extent of modifications[34]
Maintenance Long-term maintenance of behaviour change in participants, and usage of the intervention in a setting	• Incorporate maintenance measurement phases in trials • Evaluate outcomes longer-term (at least 6 months to 1 year) with participants and stakeholders	• Ask teachers about their use/adaptation/modification of other health resources used[1] • Measure outcomes among language learners and extent of information sharing among their social networks over time[34] • Measure use/adaptation/modification of the curriculum over time by teachers/schools[34]

Note. [a]Superscript numbers: Stage that the item will be incorporated into ACCESS curriculum development; [1]Stage 1; [2]Stage 2; [3]Stage 3; [4]Stage 4.

The Health Behaviour Framework (HBF: (Bastani et al., 2010)) will provide the theoretical base for curriculum development and evaluation. This framework incorporates elements of several health behaviour theories to account for the multi-faceted nature of predictors of health behaviour. These include; domain knowledge, communication skills, cultural health beliefs, confidence in communication with healthcare providers, social normative influences and social support (Bastani et al., 2010). For the development of ACCESS, the HBF will be expanded to include: (1) attention to aspects of perceived self-efficacy for change, and strategic planning for change (from the HAPA (Schwarzer, 2008)), to help language learners identify and overcome potential barriers that may impact on turning behavioural intentions into action; and (2) an investigation of health information sharing practices within learners' social networks and the impact of their networks on behavioural choices, to examine the potential of this approach to reach a wider number of immigrants than those actually taking the class. See Table 2.2 for examples of language activities to address different theoretical constructs.

Table 2.2

Examples of health behaviour theoretical constructs to be included in communicative activities in the curriculum

HBF: Individual variables	Example activity in curriculum
knowledge	1. Pairwork jigsaw reading/listening activity. Two forms (with blanked parts) of a reading about how to prevent skin cancer are given to pairs sitting back to back. ELLs must ask questions to be able to complete the information. 2. Using the internet to find answers to questions about symptoms
communication with provider	Role-play activity in small groups to practise going to a doctor to talk about symptoms
cultural factors & health beliefs	Examples of different cultural health beliefs shown to ELLs (on video, readings) for ELLs to compare and contrast, followed by small group discussion of beliefs (either current or traditional) from their own cultural backgrounds
social norms	Small group / whole class discussion of traditional cultural health practices compared to practices in Australia
social support	Pairwork. Role-cards of symptoms and practise of language of advice to encourage action
past health behaviours	Student-led survey to create and then ask questions of others in class about health.
barriers and supports	Examples of barriers to attend screening to be modelled on the video (e.g., transport issues, cost, feeling nervous having blood taken), followed by small group brainstorming possible solutions.
Behavioural intentions	writing activity to identify health intentions and goals over the next 6-12 months
HBF: Provider & Health Care System variables	
provider characteristics	Using internet and responding to questions, ELLs identify and describe providers that they could access
health care setting	Small groups use internet to respond to questions about different health care settings in Australia. They then prepare a powerpoint slide and oral presentation to inform other members of the class
practice patterns	ELLs read a brochure about attending for PAP smear testing, and answer comprehension questions
structural factors	Using internet or real brochures and responding to questions, ELLs research the healthcare system pertaining to the cancer topic at hand (e.g., how to attend for breast screening, to find out if they need to bring a healthcare card, or if payment is required).

Table 2.2 (continued).

	Example activity in curriculum
HAPA variables	
action planning	Writing exercise where ELLs plan when to self-check their skin for abnormalities, exercise, etc
coping planning	Small group exercise where ELLs brainstorm strategies for coping with feelings of not wanting to exercise. From this, each ELL writes down a coping plan that suits his/her own situation
Social Network variables	ELLs identify significant members of their own social network, and, in small groups, practise informing someone about the health information that they have learned in class or how to go about acting on it

Curriculum content.

The curriculum will comprise lessons that can each stand alone as a separate topic, to aid in flexible delivery for ESL teachers. Each lesson will have a cancer prevention health objective that aligns with national guidelines. English language objectives will follow the functional language skill competencies outlined in the three-level CSWE (Navitas English, n.d.) that align with the Australian Core Skills Framework that underpin Australian immigrant English programs.

Each lesson will incorporate a variety of media, including video vignettes and accompanying print materials that will play a pivotal role in addressing the key cancer prevention health messages in each lesson. The material available for each lesson will also encompass a graded, functional language curriculum designed to support ELLs in the development of the communicative competence required to access available local resources (e.g., going to the doctor, screening services). Specific topics include: (i) an understanding of what cancer is, and that many cancers are preventable, or treatable if caught early; (ii) eating healthily (iii) being physically active; (iv) reducing tobacco, alcohol and sun exposure, and (v) accessing various vaccinations for cancer prevention and engaging in cancer screening services, as appropriate for age and sex. It will be made clear that a pre-requisite for this course will be a basic understanding of the Australian health system (as taught in the survival settlement ESL course given to all ELL immigrants).

Class format will be as follows. A video vignette will form the focal part of each lesson. A story-line using the same characters in each vignette will be used to introduce the health topic in a way that enables participants to learn about the specific cancer risk factor (e.g., in Australia there would be a focus on sun exposure risks for skin cancer) as well as learn and practice specific functional language. Accompanying printed materials, structured around the video content and characters, there will be a variety of graded speaking, reading,

listening and writing activities to improve literacy skills and practice new language. Adopting the principles of a content-based, communicative approach (Freeman & Freeman, 1998), there will be a focus on pair-work, role-play and group communicative activities to: (i) practise key vocabulary and phrases for use outside the classroom; (ii) promote realistic discussion among ELLs about the similarities to their own culture and the differences they now encounter; and (iii) assist with access to online and print health materials. There will also be a focus on helping participants to apply planning strategies for healthy choices in Australia, and an emphasis on sharing the new information throughout their social networks.

Curriculum development.

The development of ACCESS will comprise four stages (see superscript numbers in the third column of Table 1). Stage 1 is a needs-assessment stage with ESL teachers and immigrant community personnel with the aim to identify implementation barriers and facilitating factors. Focus groups and interviews will be held with these stakeholders and the focus group/interview schedule based on RE-AIM. Transcripts will be analysed deductively using Thematic Framework Analysis (Srivastava & Thomson, 2009), driven by RE-AIM framework elements. The 'needs assessment' phase is considered to be an important initial phase of any curriculum development process, and said to be particularly important to ESL curricula due to the fact that ESL courses are taught to people from multinational backgrounds in a variety of settings throughout the world (Cullinan, 2016). The needs assessment fits with the essence of using a translation framework such as RE-AIM, involving key stakeholders across the intervention process.

In Stage 2, a draft curriculum of one lesson module will be developed based on theory, guided by the information obtained in Stage 1 and applying the content-based communicative approach used in second-language curriculum development (Krashen & Terrell, 1983) and matching the competency skill requirements of the CSWE used in the AMEP. ESL teachers

and students will be invited to provide their evaluation of a draft module by viewing the video vignettes and working through the module's activities and assessments whilst completing an evaluation questionnaire. This quantitative questionnaire will comprise validated curriculum evaluation checklists (e.g., (Badea & Iridon, 2015; Nimehchisalem & Mukundan, 2015)) as well as questions based on RE-AIM, inviting opinion ratings of any potential barriers of the module and its elements. A final draft will then be produced and final materials developed.

A controlled efficacy and feasibility trial will be held in Stage 3 where knowledge, behavioural and language outcomes will be formally assessed via validated questionnaires (e.g., pre and post-assessment of health literacy, attitudes and health beliefs and well as vocabulary and grammar), implementation factors examined (e.g., how much of the module was used as intended, and the nature of any adaptations/modifications), and opinion from teachers and ELL participants obtained. In Stage 4, a dissemination and implementation trial will be undertaken with the module trialled and evaluated across multiple settings, with Australian AMEP sites, staff and students being invited to participate. The trial evaluation, based on RE-AIM, will enable estimation of the potential public health impact of a cancer literacy ESL module by examining the proportion of ELLs (and their networks) reached, the degree to which the module and its elements are adopted by teachers and implemented into existing curricula as well as health literacy and English language outcomes for ELLs in class. The results of each of these stages will help tailor the most efficacious and effective combination of curriculum elements and activities which will then be applied to the development of the remaining modules in the ACCESS package.

Conclusions.

In Australia, the development of culturally targeted health interventions to address health disparities by reducing cancer risk in vulnerable populations (encompassing LEP) is a

key recommendation of national and state strategies (Cancer Council of South Australia, 2013; National Health Priority Action Council, 2006). This is echoed abroad (e.g., (National Institutes for Health, 2014)). Current cancer prevention resources may not be accessible for the current immigration profiles due to language, literacy and/or cultural barriers. A host country second-language cancer literacy curriculum that is culturally sensitive and designed to improve knowledge of, and behaviours associated with, cancer prevention, as well as second-language skills, provides a potentially feasible strategy to address these key national recommendations and deliver health messages to immigrants with LEP. With guidance from the RE-AIM framework, developing and testing a curriculum resource for efficacy as well as barriers and facilitators to implementation should greatly increase its effectiveness, because key issues to enhance program uptake at the individual, organisational and community levels are considered, with stakeholder input from the beginning. RE-AIM, as a framework that addresses external as well as internal validity equally, has qualities that lend direction to all stages of the research process. If followed through, this framework can provide researchers and program planners with the best chance of achieving successful implementation and maintenance.

ACCESS is a curriculum that will be developed in a manner consistent with the RE-AIM framework. If found to be efficacious in improving cancer prevention knowledge, health behaviours, intentions and plans, as well as English language skills in immigrant ELLs and their wider networks in Australia, this novel health messaging approach could serve as a model to be applied to the development and implementation of other immigrant language health literacy programs, addressing other chronic health conditions, other languages and immigrant language programs abroad, and has the potential to help mitigate the health disparities experienced by some immigrant ethnic populations when they arrive to a new country.

This point marks the end of the reproduced published paper.

Research Program Framework

The research process described in the remainder of this Chapter extends the publication reproduced above and follows recommendations in the literature that suggest "best practice" use of RE-AIM. Specifically, best practice use should: include RE-AIM elements for the planning of an intervention as well as the evaluation (Allen et al., 2011); engage stakeholder input throughout the research process (Shaw et al., 2019); evaluate all RE-AIM elements (Gaglio et al., 2013); use multiple indicators to assess each RE-AIM element (Gaglio et al., 2013; Shaw et al., 2019), including an evaluation of intervention fidelity (Whittemore, 2011); and incorporate qualitative data to gain greater insight into results (Gaglio et al., 2013).

Three of the four ESL health literacy evaluation trials identified in the systematic review by Chen et al. (2015) evaluated the internal validity of their interventions by focussing mostly on outcomes at the individual (student) level (Coronado et al., 2008; Elder et al., 1998; Elder et al., 2000; Soto Mas, Cordova, et al., 2015; Soto Mas, Ji, et al., 2015; Taylor et al., 2011; Taylor et al., 2009). Thus, little is known about these interventions' impact on staff, implementation barriers or sustainability. Consequently, whether combining health literacy education into ESL is a valid mode of health education for new immigrants still requires further examination.

The fourth evaluation trial identified in Chen et al.'s (2015) review was a pilot trial by Duncan and colleagues (2012) on the topic of improving fruit and vegetable consumption. In 2017, the researchers conducted a retrospective evaluation of their trial using the RE-AIM framework, in order to determine its potential impact within the target community of new immigrants attending ESL classes in the US state of Connecticut (Martinez et al., 2017). Guided by RE-AIM elements, the evaluation involved a number of quantitative and

qualitative methods. The researchers concluded that the curriculum had impacted a representative sample of the target population (*reach*), had improved vocabulary, reading skills, coping skills and knowledge (demonstrated *efficacy*), had been taken up by a representative number of sites and locations in the US state of Connecticut (*adoption*), and, based on reports from teachers, had been implemented as intended (*implementation*).

Nonetheless, closer inspection of the report highlighted that only around half of the curriculum was used during the trial period. The researchers acknowledged and discussed adaptions with teachers in focus groups conducted retrospectively, although the nature of the adaptions was not reported. From a teacher point of view, the ability to adapt and modify the materials to suit the unique needs of their students was viewed as a positive aspect. This flexibility enhanced *implementation* (Martinez et al., 2017), although issues of fidelity arose as activities deviated from those that were intended (Whittemore, 2011). No additional observational data were available to support implementation claims and the authors reported that no data existed to determine *maintenance* of outcomes over time.

Research Questions

Five broad research questions were developed for this dissertation, arising from the gaps in the literature, guided by the translational research framework RE-AIM, and informed by the discussions outlined in these first two chapters. They operate across two levels of inquiry, individual (student) and organisational (program), and seek to establish both the internal and external validity of a novel method of combining cancer literacy education and ESL in Australia.

Research Question 1.

Can a theory-driven, culturally sensitive, ESL cancer-literacy curriculum, developed with stakeholder input, improve psychological, behavioural and language outcomes linked to cancer morbidity?

The targeted behaviours that form the focus of the curriculum were derived from the Australian recommendations for primary and secondary cancer prevention (eat fruit and vegetables, engage in physical activity and sun protection, reduce alcohol, stop smoking and engage in age and sex-appropriate screening for bowel, breast or cervical cancer (Australian Government Department of Health, 2016; Cancer Australia, 2015). Primary outcome variables were knowledge of cancer, symptoms and prevention strategies, self-reported intentions to engage in each of these primary and secondary cancer prevention behaviours, cancer health literacy (functional, communicative and critical), and English language cancer-related vocabulary. Intentions to change behaviours related to cancer risk and prevention were chosen as primary outcomes in this study because it was an educational intervention with a short timeframe. Therefore, changes to intention may be noted before changes to behaviour. Secondary outcome variables were current cancer prevention and risk behaviours, attitudes towards the importance of these behaviours for health maintenance, self-efficacy to adopt these behaviours and English communication with health practitioners.

As outlined in the reproduced published paper that comprises the first part of this Chapter, elements of the Health Behaviour Framework (HBF) the Health Action Process Approach (HAPA) were selected to provide the theoretical base of the curriculum components. Both theoretical frameworks have been used in previous ESL health education research. Developed by Bastani et al (2010) and depicted in Figure 2.1, the HBF is a system level socio-ecological model that integrates individual and system level factors to explain the

multifaceted nature of health behaviour determination.

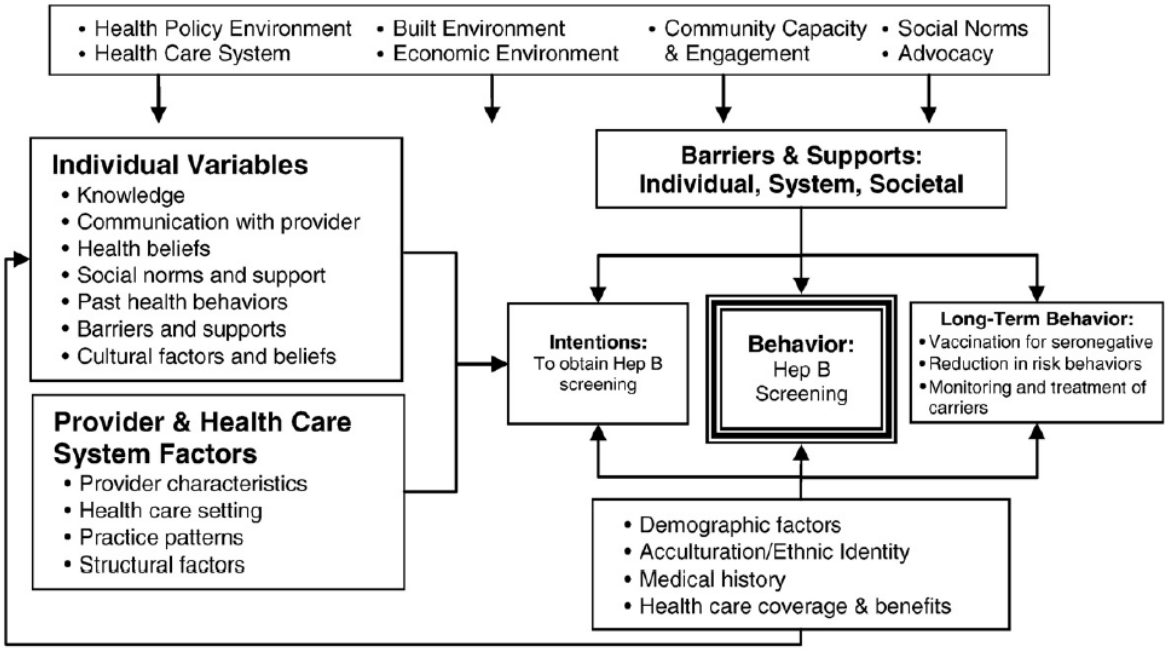


Figure 2.1. The Health Behaviour Framework (Bastani et al., 2010), p.64[3].

Although not fully "utilised" to explain intervention results (Davies et al., 2010), as outlined in the reproduced published paper in this Chapter, the HBF was selected to guide the development of the Hepatitis B ESL program for North Asian immigrants to Northern America. It was used to underpin the needs assessment conducted prior to curriculum development. For instance, needs assessment survey questions probed cultural factors associated with Hepatitis B screening, social supports and communications with health providers. Survey findings helped the researchers to shape their curriculum to include specific activities. For example, results from the needs assessment showed that over 75% of participants had not had a previous discussion with a health provider about testing for Hepatitis B. As a result, an activity was included into the curriculum to practice speaking with a health provider about having a screening test.

[3] Reprinted from Preventive Medicine, 50(1), Bastani et al, Integrating theory into community interventions to reduce liver cancer disparities: The Health Behavior Framework, p.64, Copyright 2010, with permission from Elsevier.

The Health Action Process Approach (HAPA), developed by Schwarzer (2008) incorporates the development of action and coping planning strategies to help bridge the gap between intentions and behaviour. The HAPA model is depicted in Figure 2.2.

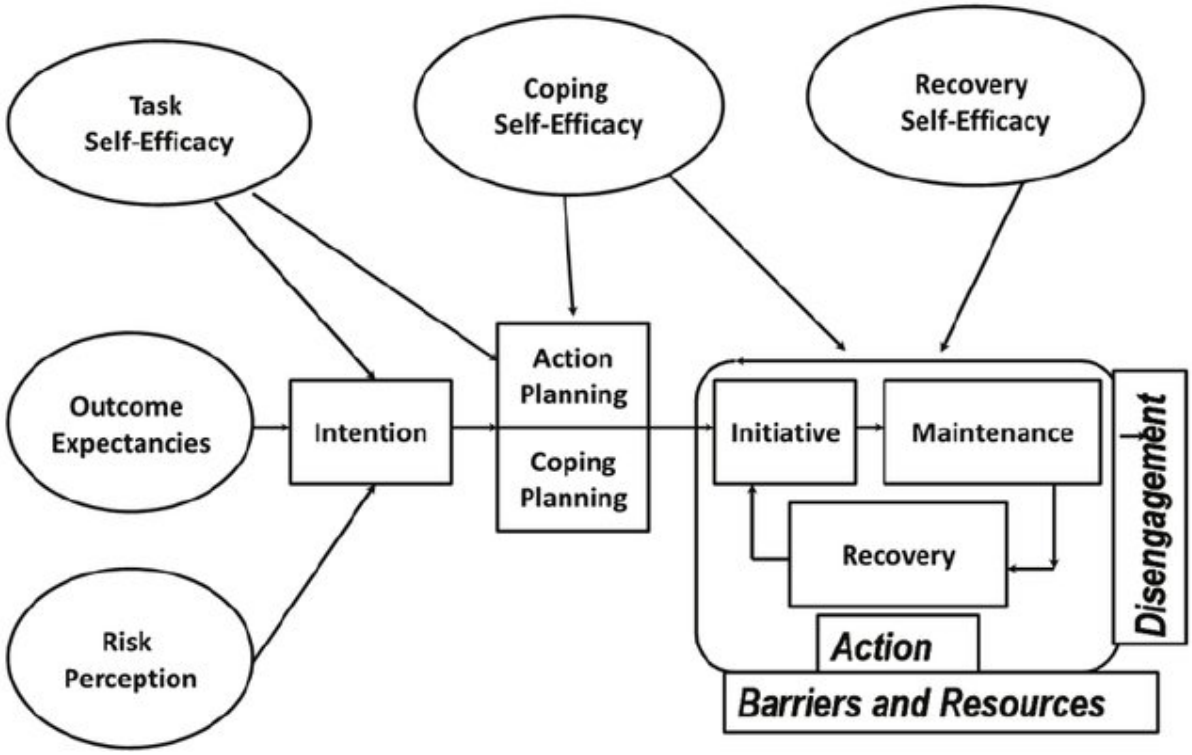


Figure 2.2. The Health Action Process Approach (Schwarzer, 2008) figure reprinted from (Gutiérrez-Doña, Renner, Reuter, Giese, & Schubring, 2012), p. 2785.[4]

The HAPA was used to underpin curriculum development and evaluation of the "Healthy Eating 4 Life" curriculum (Duncan et al., 2012; Martinez et al., 2017). Described in more detail in the reproduced published paper in this Chapter, briefly, this curriculum contained communicative activities to help students practice planning for change. Results showed that the intervention was efficacious at improving students' planning skills and actual behaviour change in the form of increased fruit and vegetable intake (Martinez et al., 2017).

[4] Reprinted from Applied Psychology, 57(1), Schwarzer, R Modeling health behavior change: How to predict and modify the adoption and maintenance of health behaviors, p.6, Copyright 2008, with permission from John Wiley and Sons.

Research Question 2.

Will cancer prevention messages learned in the classroom be shared with students' families and friends?

Research Question 3.

Will intervention fidelity be maintained when the curriculum is utilised in actual classes?

Research Question 4.

Will the intervention be used after the trial is completed?

Research Question 5.

Is the RE-AIM framework useful as a planning and evaluation tool?

Research Plan

Table 2.1 in the reproduced paper above (shown on page 38) depicts how RE-AIM, is used to achieve the research questions described and mapped across four stages of a community-based translational research process. The second column of Table 2.1 summarises key recommendations from the literature that relate to each RE-AIM component, and the third column describes how each RE-AIM component is planned to be addressed.

Figure 2.3 below shows the four stages of the research plan. Briefly, Stage 1 comprises an initial scoping study, Stage 2 refers to the development of the cancer literacy curriculum and Stage 3 refers to the evaluation of the curriculum's internal and external validity. Stage 4 of the research plan refers to the assessment of longer-term outcomes at three months (individual level - students) and six months (organisation level - teachers) post intervention.

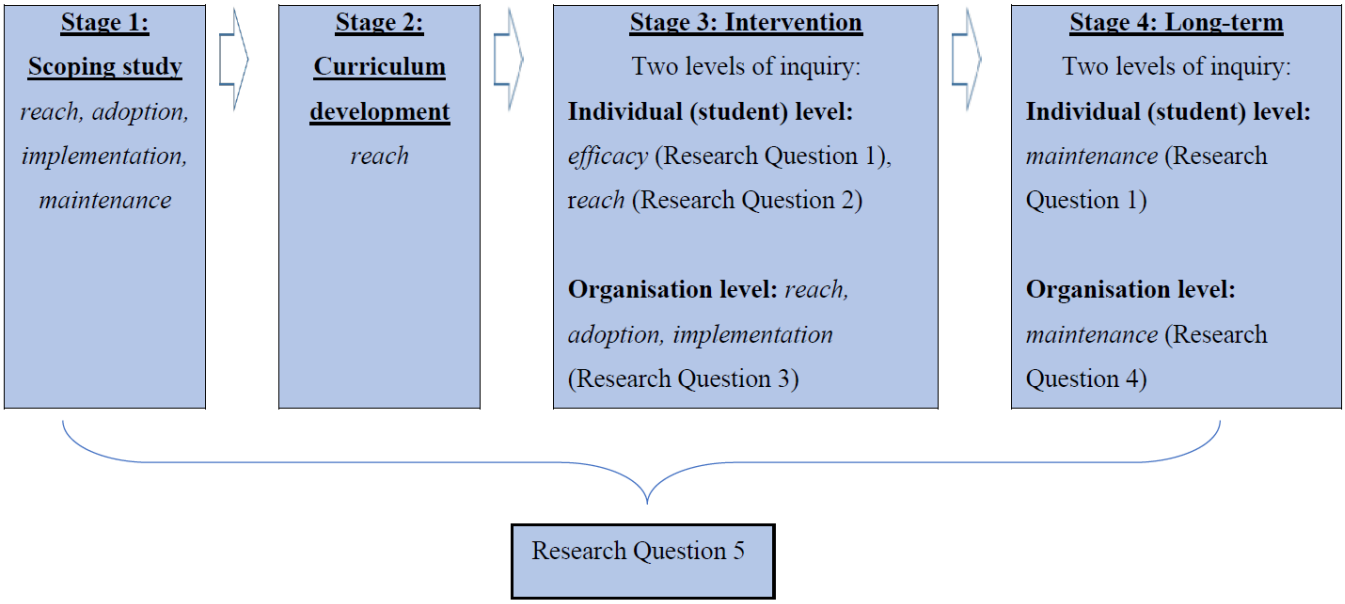


Figure 2.3. The four stages of the research plan.

A mixed-methods approach was utilised in this translational research project to address the broad research questions.

Stage 1.

In Stage 1, the scoping stage, the RE-AIM framework guided the development of focus group questions for ESL teachers in order to help identify potential barriers and potential facilitating factors to implementation. The framework also guided analyses of results using Thematic Framework Analysis (Srivastava & Thomson, 2009). This study is outlined and discussed in Chapter 3.

Stage 2.

Following publication of the published concept paper (Hughes et al., 2019), and after completing the scoping study (Stage 1), in Stage 2, a draft curriculum was developed. It incorporated information learned from Stage 1 and was guided by the Health Behaviour Framework (Bastani et al., 2010), and the Health Action Process Approach (Schwarzer, 2008). These theoretical models are described in more detail in Chapter 4. It must be noted

that four modules of the curriculum were developed for trial (not one, as suggested in the published concept paper reproduced in this Chapter) in response to teacher interest in this topic and reported information needs. The draft was then be taken back to key stakeholders, specifically ESL teachers and advanced level adult ESL immigrant students. A survey was administered with the aim of determining the potential *reach* of the curriculum to classes made up of different groups of students. Students differing by gender, cultural background, language level or religion were invited to participate. Based on these results, the curriculum was refined. This stage of the research plan is described in Chapter 4.

Stages 3 and 4.

Stages 3 and 4 of the research process, as outlined in the reproduced published concept paper in this Chapter, were modified slightly, following acceptance of the publication, and after undertaking the scoping study (Stage 1). In Stage 3, the Intervention stage, the finalised curriculum was implemented by teachers in existing Adult Migrant English Programs in South Australia, using a randomised, controlled research design. The invention trial and the selected methodology will be described in Chapter 5. Using RE-AIM as an evaluation guide to establish both the internal and external validity of this approach, three main types of analyses were undertaken across two levels of inquiry, the individual (student) level and organisational level as outlined in Figure 2.3, and addressing the broad Research Questions 1, 2, 3 and 4 of this dissertation. At the individual (student) level, measures of psychological, behavioural and language outcome variables were captured before and after exposure to the curriculum and compared to changes in students not exposed to the curriculum (wait-list controls; a between X within group design). These results provide a test of program *efficacy* and are presented and discussed in Chapter 6. Extending the investigation at the individual (student) level of inquiry, data on students' sharing of information obtained from ACCESS

with family and friends were captured to provide exploratory information on possible extended *reach* of the curriculum. These results and discussion appear in Chapter 7.

At the organisational level, teacher feedback together with observational data was utilised to measure the extent of *adoption* of the curriculum and its fidelity (*implementation*). These results are presented and discussed in Chapter 8.

In Stage 4, the impact of the curriculum on both individual student outcomes long-term (after three months) and the extent to which the curriculum had been implemented over time in the organisations (after six months) were investigated (*maintenance*). Maintenance at the individual (student) level is discussed in Chapter 6 and at the organisation level in Chapter 8. Finally, the dissertation concludes with consideration of the overall value of RE-AIM as a research tool, addressing Research Question 5.

Chapter Three: Implementing a Cancer Literacy Curriculum in Adult Immigrant English Programs: A Qualitative Scoping Study of Possible Barriers and Facilitators

Preamble

The manuscript in this Chapter addresses Stage 1 of the research program (see Figure 2.3 on page 53). and outlines a scoping study undertaken with stakeholders of immigrant, English-language programs in Australia. The manuscript, reproduced within this Chapter in APA format, was submitted to the Journal of Racial and Ethnic Health Disparities for peer review and subsequent publication.

The aim of the scoping study in Stage 1 was to identify constraints on the likely adoption of a curriculum designed to improve cancer literacy among non-English speaking immigrants to Australia, in addition to factors that may facilitate this process. A qualitative research design, in the form of focus groups and interviews with key stakeholders, was selected to address the early phase of this research, and transcripts were analysed using Thematic Framework Analysis (Srivastava & Thomson, 2009). Ethics approval to conduct this study was received by the Social and Behavioural Research Ethics Committee at Flinders University (project number 7076) Copies of the Participant Information Sheet and Consent Form are available in Appendix A.

A qualitative approach to research is characterised by its focus on meaning as it pertains to the participant. Data collection using open questioning enables participants to describe and discuss their responses in detail, providing the researcher a rich and deep understanding of an issue (Braun & Clarke, 2013). Using RE-AIM at the scoping stage of the current project should provide a good understanding of likely translational barriers and facilitators of adoption for consideration in curriculum development and implementation. A community-based participatory research (CBPR) approach early in curriculum development

also provides perspective and a rich opportunity for engaging important stakeholders (Holtrop, Rabin, & Glasgow, 2018). The CBPR approach involves working directly with the stakeholders to develop an intervention that will best serve their needs (Wallerstein & Duran, 2010).

In the literature on utilisation of RE-AIM to support research translation, it is recommended that using qualitative as well as quantitative methods enables each dimension of the framework to be evaluated to its fullest capacity (Holtrop et al., 2018). However, to date, the use of qualitative methods within the testing of RE-AIM has been limited. In a systematic literature review of 71 articles published between 1999 and 2010 that used the RE-AIM framework for planning or evaluation, Gaglio, Shoup and Glasgow (2013) found that qualitative methods had been rarely used. The lowest use was for exploration of potential *adoption* (3.5%) and the highest was for examination of *implementation* (15.6%).

The research questions that guided this phase, Stage 1 of the research plan, were:

1. What are the constraints on *reach*, *adoption*, *implementation, maintenance* and delivery of an ESL curriculum on cancer prevention?

2. What factors could facilitate *adoption*, *implementation, maintenance* and delivery of an ESL curriculum on cancer prevention?

Statement of Authorship

The paper that follows was submitted to the Journal of Racial and Ethnic Health Disparities on March 29, 2020. The authors were PhD Candidate, Donna Hughes-Barton and the supervisory team Dr Janine Chapman, Dr Ingrid Flight, and Principal supervisor

Professor Carlene Wilson. Full title: Hughes-Barton, D., Chapman, J., Flight, I. & Wilson, C. Utilizing RE-AIM to scope potential for feasible immigrant cancer literacy education. [5]

Candidate statement.

I confirm that I was the primary author of the paper, and that guidance and supervision were provided by the co-authors throughout the manuscript preparation, revision and submission process. I was responsible for the development of the research design, Ethics application, participant recruitment, data collection, data cleaning, analysis and writing. I am the corresponding author on the manuscript. Co-authors provided suggestions regarding methodology, data analysis and manuscript presentation, and provided advice on drafts.

[5] The present manuscript is referenced in Vancouver reference style in its submitted form, in which references are numbered consecutively. The manuscript has been reformatted in APA (American Psychological Association) Style (6th Edition) in accordance with the remainder of the thesis and tables have been placed within the body of the text and re-labelled as Table 3.1 and Table 3.2.

Reproduction of Manuscript: Utilizing RE-AIM to Scope Potential for Feasible Immigrant Cancer Literacy Education

Abstract.

Background.

Disparities in cancer incidence and mortality exist between settled and newly-arrived immigrant communities in immigrant-nations, such as Australia, Canada and USA. This may be due to differences in the uptake of cancer prevention behaviours and services for early detection, and cultural, language or literacy barriers impacting understanding of mainstream health messages. Blending cancer-literacy with immigrant English language education presents a promising means to reach new immigrants attending language programs. Guided by the RE-AIM framework for translational research, this study explored the feasibility and translation potential of this approach within the Australian context.

Methods.

Focus groups and interviews (*N*=22) were held with English-as-a-Second-Language (ESL) teachers and immigrant resource-centre personnel.

Results.

Thematic Framework Analysis, driven by RE-AIM, identified potential barriers to *Reach* for immigrants, *Adoption* by teachers, *Implementation* into immigrant-language programs and long-term curriculum *Maintenance*. Responses further highlighted that an *Efficacious* ESL cancer-literacy resource could be facilitated by developing flexible, culturally-sensitive content to cater for multiple cultures. Interviewees also raised the importance of developing the resource according to national curricula-frameworks, different language levels, and incorporating varied communicative activities and media.

Conclusions.

This study offers insight into potential barriers and facilitators to developing a resource feasible for inclusion in existing immigrant-language programs, and achieving reach to multiple communities.

Introduction.

In many nations with a high intake of immigrants, cancer incidence and mortality disparities between communities are increasing (Braun & Clarke, 2013; Singh & de Looper, 2002). One explanation for this includes sub-group differences in participation in early detection and prevention behaviours among immigrants. Mainstream health messaging designed to impact cancer incidence, including posters and fact sheets, may be inaccessible for cultural, language, and literacy reasons (Tsai & Lee, 2016). Improving English literacy (reading, writing and numeracy skills) and health literacy (the ability to apply literacy skills to health situations (Nutbeam, 2000)); that is focused on cancer prevention and early detection should enable new immigrants to acquire, understand and use health information and services to make informed cancer-related decisions for themselves and their families. Partnering with formal education service providers may be a means to develop both general English literacy and cancer-specific health literacy skills (Nutbeam, 2009).

There is emerging evidence to suggest that English-as-a-Second-Language (ESL) classes may be a feasible mechanism for delivery of health information to immigrants soon after their arrival. To date, four health-related ESL curricula have been evaluated (Chen et al., 2015). One found significant improvements in a Hepatitis B knowledge test in immigrants attending the course (Coronado et al., 2008; Taylor et al., 2011; Taylor et al., 2009). A second evaluation found significant improvements in functional health literacy scores following a cardiovascular education program (Soto Mas, Cordova, et al., 2015; Soto Mas, Ji, et al., 2015). An evaluation of a third curriculum, focused on nutrition for cardiovascular health,

found significant improvements in nutrition knowledge, self-reported fat avoidance behaviours and blood pressure and cholesterol readings after three months (Elder et al., 1998; Elder et al., 2000). The fourth evaluation of a semester-long healthy eating curriculum investigated health behaviour as well as knowledge and vocabulary outcomes (Duncan et al., 2012). The researchers found improvements in fruit and vegetable intake planning, consumption, and vocabulary skills after participation in the class.

Although these results show promise, health-related ESL curricula to date are limited in their utility, primarily because they are designed for a specific cultural group and therefore do not demonstrate *reach* across different populations. In Australia, freely available, government-sponsored adult literacy and ESL education is open to all who qualify on the basis of literacy or language need respectively. A recent Australian study (Morony et al., 2017) fostered partnerships between teachers and community health providers to deliver a curriculum designed to improve health literacy and numeracy among adults attending a government-sponsored general literacy course. Students came from a variety of socio-economic and cultural backgrounds, and the curriculum was designed to be accessible to all who enrolled. According to teacher reports, following attendance at the course, students from different backgrounds demonstrated improvements in health behaviours and vocabulary, health system knowledge, and literacy and numeracy skills as well as confidence to undertake new health-related activities such as filling in forms. The researchers concluded that although health was an engaging and appropriate topic for utilisation in literacy training, curriculum implementation challenges remained a significant barrier to adoption. These included the logistics of achieving health provider involvement, misalignment of the curriculum with existing teaching objectives and curricula, and time constraints that impacted teacher preparation and delivery of the health course. In order for programs like this to be translational, overcoming implementation barriers is a key challenge.

Establishing the "real-world" translation potential of any applied intervention is critical if uptake is the goal. Martinez et al. (2017) retrospectively analysed their ESL intervention trial (see Duncan et al. (2012) using the RE-AIM translational research evaluation framework. RE-AIM was developed by Glasgow et al. (1999) with the goal of helping researchers establish external validity (i.e., the generalizability of research findings to different populations and settings) as opposed to the more common focus on internal validity (i.e., efficacy) when evaluating the impact of community-based and clinical interventions. Glasgow proposed that dealing with barriers to uptake and maintenance at project commencement would ensure efficacious interventions were adopted and sustained (Glasgow et al., 1999).

RE-AIM is a research framework that describes five requirements to define translation effectiveness : (1) the intervention's *reach* to the broadest possible group of end users; (2) the demonstration of *efficacy* (i.e., proven internal validity – sufficient evidence that the intervention can change the dependent variables of interest; in the current context health behaviour or intention or attitudes or cognitions); (3) its *adoption* in a broad range of settings and by a number of different program deliverers; (4) the extent to which the intervention achieves consistent *implementation* as intended in settings, thereby sustaining efficacy; and (5) the likely sustainability or longer-term *maintenance* of the intervention or program in the different settings (Glasgow, Marcus, et al., 2004). Over the past 20 years, RE-AIM has shown utility as an easily operational framework to help guide research evaluation across many countries and settings. It has recently been extended to incorporate a broader macro-level context (Glasgow et al., 2019).

In the ESL space, Martinez and colleagues (2017) undertook a RE-AIM-guided, mixed-methods retrospective evaluation of their ESL intervention and highlighted a range of barriers to translation. These included time constraints, lack of resources, and misalignment between

the language difficulty of the curriculum and the student's capabilities. They reported that successful *adoption* by teachers and *implementation* into existing programs was contingent upon management support, accessible materials, and teacher enthusiasm and ability to use the curriculum flexibly to meet students' needs.

A systematic review of 25 non-ESL health literacy interventions (Allen et al., 2011) using the RE-AIM framework highlighted gaps in the reporting of aspects of external validity including *adoption* by staff, *implementation* into existing programs, and *maintenance* over time. Limited reporting of these outcomes means that published guidance for translation of research findings into practice or their generalisation to other settings is sparse.

Ideally, the RE-AIM framework should be used to *plan* an intervention in order to identify implementation challenges before they arise, and thus modify both the content and delivery requirements so as to minimise these barriers to uptake (Allen et al., 2011; Klesges et al., 2005). Utilisation of RE-AIM during the development of an intervention requires a commitment to Community-Based Participatory Research (CBPR), an approach that is time consuming, resource-intensive and generally challenging. Nonetheless, involving relevant stakeholders in the research prospectively rather than retrospectively ensures the best chance of achieving research translation. To date, this approach has been reported for one health intervention, a program to improve physical activity engagement in older adults in the United States (Belza et al., 2007). The researchers involved key stakeholders in the intervention's initial development and, at that stage and in consultation with stakeholders, identified potential barriers to implementation. Twelve months later, the researchers reported that the program had been successfully *implemented* and was still running as intended (i.e., had achieved *maintenance*).

With these factors in mind, we undertook a scoping study designed to use RE-AIM to investigate the translation potential of an ESL curriculum, focused on cancer literacy, developed for recently arrived immigrants attending government-sponsored, English language classes in Australia. A qualitative methodology was used in order to engage fully with participants as collaborators and to explore, in depth, factors that might hinder or assist implementation of a newly designed curriculum. Data were collected from a series of focus groups and individual interviews.

Method.

The study was conducted in metropolitan Adelaide, South Australia, between August and November, 2016. Focus groups (*n*=5 groups; 17 participants) and individual interviews (*n*=5) were conducted with both teachers and immigrant community resource centre personnel. Teachers from the government-sponsored Adult Migrant English Program (AMEP) participated at two Technical and Further Education (TAFE) sites and at one adult-education College. Input about the nature of curriculum challenges in the worksite, class constraints and student population needs was sought from AMEP teachers in order to ensure that the proposed curriculum met the minimum requirements for uptake. Interviews with staff at immigrant community resource centres in metropolitan Adelaide were also undertaken because these personnel deal with the immediate practical and social needs of new immigrants. These people have considerable knowledge of factors that may effect immigrants attending class and connecting with materials presented in class. All focus groups and interviews were held in meeting rooms at participants' workplaces.

Following Ethics approval, permissions were sought and received from AMEP managers and the chief executive officer from the Migrant Community Resource Centre. A standard invitation email with information sheet and consent form was sent to all staff via the managers. Interested participants contacted the researchers directly to participate. Focus

groups and five interviews were conducted, led by the first author, who is a registered psychologist and an ESL teacher with experience in curriculum preparation and experience in conducting qualitative research. A project officer took notes and recorded observations. All focus groups and interviews were audio-recorded with participants' permission, and were professionally transcribed verbatim.

The issues explored in the group and individual discussion sessions were based on the RE-AIM framework. Table 3.1 indicates the interview schedule with question prompts shown. The rationale for each question and the RE-AIM elements addressed by the questions are also listed. Data saturation (Fusch & Ness, 2015) was reached after five focus groups and five interviews, when no new information arose.

Table 3.1

Interview schedule: Key questions asked at focus groups/interviews, with sub-question topic probes (if needed) and RE-AIM elements

Questions asked	Rationale and RE-AIM elements
Introductions: Please state your name, your role here and the course/program you are currently teaching/coordinating	To break the ice and learn about the courses (and language levels) and programs taught/coordinated by participants
Preliminary Question: Who are the students here at the school? / Who are the clients who access the resource centre?	To identify students/client characteristics (*Reach*)
Sub-question topics: Demographics and access (ethnicity, gender, age, family role, religion, visa type, length of time in Australia, how school/centre accessed, reason for accessing school/centre) Spread of information outside class/program	
Transition Question 1: What curricula are currently taught here / What resources and programs are available here?	To find out what is currently used; the nature of any health curricula/programs/resources; if and how health communication is taught; to determine gaps regarding health topics (*Adoption, Implementation, Maintenance*)

Table 3.1 (continued).

Questions asked	Rationale and RE-AIM elements
Sub-question topics: Current health/health communication curricula, methods for teaching health topics Opinion of what students/clients need/want to know regarding health Observation of students/clients in health courses/programs and how the information is used Teaching preferences in existing courses (e.g., aspects utilised over and over/aspects modified or not used)	
Transition Question 2 (teachers only): Can you describe what happens at this school when a new course is introduced? Sub-question topics: Who decides curricula, how it is trialled/evaluated	To find out how new curricula is integrated into current programming; how it is implemented (e.g., as a whole or flexibly) and evaluated (*Adoption, Efficacy*)
Key Question: [Focus group] If a new curriculum regarding cancer prevention was developed to fit this school's existing programming and this school's migrant students, what would be most useful? [Interview] If a new resource was developed to help your clientele learn about cancer prevention in Australia, what would be most useful?	To examine logistics, barriers and facilitators of curriculum development and implementation (*Implementation, Adoption, Reach*)
Sub-question topics: Logistics: what topics, number of lessons/modules, length of lesson, how to best fit into current programming, when/where/who would teach it, extra resources required Students/clients who would benefit the most/least and why, potential barriers (e.g., cultural health beliefs, taboos), strategies to overcome barriers Preferred media and materials and curricula components, overall impression	
Closing Questions: What other schools and organisations offer programs to new arrivals? Is there anything else you would like to add? Is there anyone else I should speak with?	To give participants an opportunity to add additional comments/suggestions

Analysis.

Data were analysed deductively, utilizing thematic framework analysis (Braun & Clarke, 2006; Srivastava & Thomson, 2009). The anonymised transcripts were read and re-read, and items of interest were noted and mapped onto the elements of the RE-AIM framework. A draft coding framework was then developed corresponding to these elements. A sample of 20% of the transcripts was randomly chosen and two coders (DH-B and an independent project officer) used the analysis guide to separately code the transcripts in NVivo™ (version 11) text analysis software program. The coders subsequently discussed any discrepancies, until a consensus was reached. The full dataset was then coded.

Results.

Participant characteristics.

Twenty-two people participated in the study, 18 female ESL teachers and four immigrant community resource centre personnel (three female and one male). Seventeen ESL teachers participated in focus groups that ranged in size between three and four participants. An additional teacher was unable to join a focus group and was individually interviewed. The teachers' employers represented all of the migrant English programs taught in the AMEP and each level of English language proficiency offered, from beginners to upper-intermediate. The community immigrant resource centre staff participated in individual interviews. The majority of participants were of Caucasian ethnicity (86%, n = 19). They were aged between 40-69 years with a mean of 13.6 years of experience (range 1-35 years) and had worked with adults from many different cultural backgrounds.

Themes.

Three broad overarching theme categories were identified through the lens of RE-AIM, two of which characterised barriers and facilitating factors associated with *reach* and

adoption, and the third combined factors associated with *efficacy*, *implementation* and *maintenance*. These themes are summarised in Table 3.2.

Table 3.2

Themes identified deductively using Thematic Framework Analysis guided by the RE-AIM Framework

Themes identified deductively (guided by RE-AIM)					
THEMES related to REACH		THEMES related to ADOPTION by teachers OR organizations		THEMES related to EFFICACY, IMPLEMENTATION, MAINTENANCE	
Barriers	Facilitating factors	Barriers	Facilitating factors	Barriers	Facilitating factors
• Prior literacy/education • Cultural taboos (influencing student engagement in topic)	• Social networks • Multiple ethnicities • Client interest in health topics • Sharing of information in class	• Multicultural groups • Mixed gender classes • Student life-history (influencing teacher choice of topic) • Teacher discomfort	• Teachers feel responsible • Rapport • Topic flexibility • Current activity types • Core skills framework	• Mis-alignment with core curricula frameworks	• Current curricula frameworks and competencies • Communicative Approach • Varied media and activity types

Reach.

The aim of the investigation of *reach* at this scoping phase was to identify any potential barriers to *reach*ing different immigrant groups that a cancer prevention curriculum may pose, as well as factors that could enhance the curriculum's reach to as many immigrant groups as possible. Questions focussed on the characteristics of students who attend the AMEP, and cultural taboos that might impact teaching particular aspects of cancer prevention.

Student characteristics and the importance of family.

Teachers reported that enrolment in the AMEP was available to immigrants "…from all countries throughout the world" (FGp4, #017), every type of visa group except for student visas, and all adult age groups. Consequently, a typical class includes both men and women of different ages and cultural backgrounds.

Teachers noted that health was an engaging topic for their students: "They like it; they always want to do health as one of the topics." (FGp4, #02). Nonetheless, although supporting delivery of curriculum content to all immigrant groups, teachers noted that a cancer-related topic might be more challenging for students with very low language or literacy levels: "The lower levels they don't get much out of it because they're literally …matching pictures with words so you're not going to talk … about cancer with them." (FGp5, #018).

Both teachers and immigrant resource centre staff reported that the family unit was an important influence on individual motivations around health, therefore harnessing family networks may present an opportunity to *reach* immigrants not in the classroom. One teacher commented: "…a lot of them are also thinking about their families, as well, so they're not… thinking about 'I have this issue' – but they're also thinking from the point of view of my

husband, my wife, my children, and their family members, as well." (FGp3, #012). Moreover, given the young age of some, not all students were focused on health as an important topic for themselves, however: "… if they have kids, maybe they will be more concerned with their kids on health, they will be more proactive on that area, if something's starting to go wrong with your child, they will show their concern." (Iv4, #022).

Cultural issues impacting attitude to health and cancer.

There were mixed responses from both teachers and immigrant resource centre staff about the cultural acceptability of health topics related to cancer. Cultural diversity within classes suggested that responsiveness would be likely to vary, consistent with cultural variation in health beliefs and potential taboos around consideration of mortality and gender issues. For example, teachers commented: "…if you mention the word cancer then you're going to get it or they think you can catch it." (FGp5, #018); "…nobody wants to talk about it, because nobody might even want to think that you have it … so it's not taboo, as such, it's just that people wouldn't discuss it." (Iv4, #022).

Conversely, teachers also suggested that some students might want to reflect on their personal experience of cancer. One indicated that lunch-time guest speakers from community cancer organisations were very well attended:

> "I've had other students … who really want to talk about it because their mother died of breast cancer and their auntie died of breast cancer or whatever so they've got a vested interest in finding out more and they… think oh okay and I've got a daughter now I do want to find out…" (FGp5, #018).

> "…they're usually interested and they want to go [to the information sessions], they want to hear about it, it's not something they've had the opportunity of having before." (Iv6, #015).

Sharing of personal experience within ESL classes was reported as common. This reflected the widespread use of the "communicative approach" to language teaching (CLT) whereby language learners, who are members of different socio-cultural groups, are encouraged to interact because such interaction is viewed as both the means and the ends of language instruction (Breen & Candlin, 2008). A common activity within this approach is to encourage sharing of information within the classroom as a way to "compare and learn from each other and see similarities and differences" (FGp1, #003). Teachers reported using CLT as a way to introduce sensitive topics. This involved turning the topic into a language exercise, and focussing on the language of comparison: "…comparing is really interesting [for the students] … what do the Bhutanese do, and what do the Africans do, and what do the Afghanis do…" (FGp3, #011).

Adoption.

The aim of investigating *adoption* at this scoping phase was to identify potential barriers to, and facilitators of, teacher utilisation of a cancer literacy curriculum in the classroom. Research questions probed the perceived cancer health needs of new immigrants, current resources, and optimal teaching practices, and barriers or facilitators to *adoption* of the proposed curriculum.

A sense of responsibility.

Immigrant resource centre staff reported that the majority of new immigrants they saw were likely unaware of health guidelines focused on cancer prevention and the resources available in Australia. Teachers stated that they felt a personal sense of responsibility to help students find out about available services, and reported that a combination of health information and appropriate language could empower their students:

> "…and you have to sort of make them comfortable and empower them so making an appointment or changing an appointment or asking for an interpreter and actually telling the doctor what they, what is wrong with them. And questioning the doctor, that's a lot of power in that." (FGp5, #018).

Although one teacher reported a reluctance to include health topics in her teaching program because "of the negativity behind them" (FGp5, #016), the majority indicated a supportive attitude to including cancer literacy education within the curriculum and indicated a preparedness to *adopt* the proposed program. Acceptance largely reflected a focus on practical concerns when determining class content, and that little cancer-specific information was currently available: "It would be great because as we've said, because it's authentic, something very practical that they can do for themselves to keep themselves healthy and… it's learning, yes, learning about their adopted country." (FGp2, #006).

Topic autonomy.

Interviewees highlighted the potential for a cancer literacy curriculum to fit the dual goals of improving English language and cancer-related health knowledge, and noted that even within the constraints of meeting stringent skill competencies in their lesson planning, flexibility in topic choices within the AMEP provided good opportunities for implementation. Thinking about her current classes, one teacher commented:

> "…[the curriculum] is fairly open-ended, because it might have things like being able to use computer skills or being able to read a paragraph, or being able to write, and so, thematically you can bung pretty much anything into that." (FGp3, #012).

This perspective suggested that even potentially culturally challenging topics like HPV vaccination and cervical cancer could be raised carefully, after initial trust between students and teachers had been established, and once teachers had had a chance to learn about the life

histories of the students. In this way, teachers could judge the timing of teaching 'sensitive' topics: "Before you know your students, you're careful…and then as their stories unfold and you get to know them better then you know what you can do and what you can't do." (Iv5, #015).

Mixed classes.

Participants raised a number of concerns that could act as barriers to *adoption*. For example, resource centre staff commented that, ideally, health information should be tailored to the needs of specific cultural and gender groups, and delivered in ways that are acceptable to those groups. However, the structure of the AMEP does not enable this. Teachers reported that each AMEP class typically contained members of many different cultural groups and both men and women. Furthermore, the teachers said that each term, they may get a new class with a different cultural and gender mix.

Teachers commented that the mixed culture and gender groups in class required flexible curricula. They readily acknowledged that communicating with mixed classes of students could be a barrier to *adoption*: "Because our classes have got males and females and if we talk about a women's issue and the men are there, the women are not going to [speak]…" (FGp5, #018).

Despite mixed-gender classes, teachers identified the capacity to split classes by gender for periods of time, highlighting an opportunity for gender-specific health information instruction, and therefore an opportunity for increased *adoption* of the program.

> "[Name of health organisation] do information sessions and have interpreters for the main, four main language groups and it's voluntary usually in lunch times if students go and they might be women's health sessions and men's health sessions as well." (FGp5,

#008); "…and the men and the women are separate so they are feeling very safe." (FGp1, #002).

Teacher resources.

A further potential impediment to *adoption* raised by the teachers was the strict requirement to address the different language skill competencies that the AMEP prescribe for each language level taught. These were designed to cover specific proficiency goals in speaking, reading, listening and writing. Teachers reported favouring curriculum resources that conformed to the targeted competencies, arguing that resources designed in this way facilitated lesson planning. Finally, some teachers mentioned that the most useful curriculum materials were those that provided additional background information, not included in the lesson, but which improved the instructor's background knowledge and confidence with the course content.

"…if we've got extra information particularly like health information that we may not know the details of, it would be good to have extra information that when the students then ask questions we can [answer], or [know] where to go for further information." (FGp2, #006).

Efficacy, Implementation, Maintenance.

The RE-AIM goals of establishing *efficacy, implementation* and *maintenance* barriers were difficult to address in the scoping phase, before the participants had been exposed to the curriculum. Nonetheless, preliminary feedback was collected on likely barriers and facilitators that could impact successful integration and maintenance of a cancer literacy curriculum within each interviewee's employment setting. Given the largely hypothetical nature of these considerations, questions delved into education and assessment requirements.

Language approach and lesson structure.

Teachers reported that any additions to the teaching program would need to fit within the Australian Core Skills Framework (Australian Government: Department of Education and Training) and Certificates of Spoken and Written English (Navitas English, n.d.), by which competency levels students were assessed each term. In addition, as mentioned previously, teachers reported that all curricula taught at the language schools followed the "communicative approach" of language instruction. Within this approach, all activities are designed to promote real or realistic communication between people. Examples of classroom activities within this approach include role-plays, classroom surveys, jigsaw activities where students have only half of a text and must communicate to find out the other half, pair-work, small group projects, and whole class discussions (Harmer, 2007). Teachers explained that, "…encourage(ing) the students to talk, and to learn from each other as well as, you know, we all learn from each other" (Iv5, #015), was integral to this approach.

> "The thing is to make it communicative because that's what we advertise; that we're communicative, and that's what we're trying to get and a lot of the reasons why our students don't go and access information is because they feel they can't communicate." (FGp2, #005).

> "Starting with their own experience and then using role plays, using authentic situations that they can relate to and then enabling them to build their language, build the field, build their knowledge of all the language and use it and then they do retain a lot more." (FGp1, #001).

Consistent with the above observations, a cancer literacy curriculum should be designed to integrate with this communicative approach and the activity types already in use within existing curricula, as well as practise different language skills. As one teacher remarked: "…

it's an integrated approach to language learning, you do speaking, listening, reading and writing every day, it's all integrated." (Iv5, #015).

Furthermore, teachers reported that creating lessons each day that incorporated a range of media (video, audio, paper resources) could facilitate successful *implementation*. Immigrant resource centre staff concurred, citing examples of their own community sessions that incorporated pictures, video, as well as talking activities.

In addition to factors that facilitated *implementation* within their organizations, teachers also identified factors that would be likely to facilitate *maintenance* of a curriculum over time. Specifically, they highlighted how curricula repeatedly used within the school usually covered 'survival' topics including how to access government services. This suggests the need to ensure that a cancer literacy curriculum provide scope for continuous update, consistent with changing government provided services and health guidelines. In addition, frequently used resources were prepared for several levels of language proficiency.

Summary.

Both ESL teachers and immigrant resource centre staff supported the development of a curriculum designed to help new immigrants learn about cancer risks and prevention strategies in an Australian context. Immigrant resource centre staff recommended that materials be targeted and delivered to specific cultures, however ESL teachers reported that this is not possible in the government-sponsored AMEP classes, which are multicultural. To this end, teachers noted that a useful and acceptable cancer literacy resource in the ESL context should be flexible and culturally-sensitive in order to cater simultaneously for students from multiple cultures. A curriculum in this form would both comply with current class structures and optimise *reach.* In addition, successful *adoption* and *implementation* of a curriculum within existing language programming would be dependent on the curriculum

being developed according to national curricula frameworks, having different language levels, and incorporating varied communicative activities and media.

Discussion.

The adult learning environment offered by the government-sponsored TAFE system in Australia has previously been reported to be an ideal forum for English literacy and general health literacy education (Morony et al., 2017). Participants in the current study suggested that a cancer literacy curriculum structured in accordance with the competency framework that guides ESL instruction in Australia would be acceptable. It should; utilise a communicative language teaching approach; provides interactive activities suitable for multicultural classes of different ages; and focus on practical communicative activities. Encouragingly, participants confirmed the potential, within the AMEP, to support a cancer literacy curriculum. Moreover, based on past experience, the teachers anticipated a high level of student interest in the topic.

This scoping study utilised the RE-AIM framework to guide a focus group and interview schedule to explore the potential acceptability of an ESL cancer literacy curriculum resource for inclusion in the AMEP and constraints that would impact uptake. Using the RE-AIM framework enabled the identification of factors unique to the ESL context that could hinder or enable curriculum development as well as implementation of the curriculum into existing ESL programming.

A main requirement for the delivery of a cancer literacy curriculum within the Australian ESL education setting was that any curriculum should be robust, and adaptable to the diverse needs of students distinguished by both literacy competence and cultural background. This requirement distinguishes the required curriculum from existing ESL health curricula developed elsewhere (Coronado et al., 2008; Coronado et al., 2005; Elder et al., 1998; Soto

Mas, Ji, et al., 2015; Taylor et al., 2008; Taylor et al., 2011) and contrasts with recommendations from staff from an immigrant resource centre interviewed in the current study. Notwithstanding these differences, the development of a multi-cultural curriculum was deemed important and feasible.

Probing further, teachers revealed strategies that they used in order to accommodate multicultural classes. They reported that the communicative language teaching approach, which encourages speaking practice and real communication between students in class, coupled with students' natural interest in their classmates, provides an environment in which cultural differences can be explored. Teachers reported exploiting this by planning regular speaking activities where students worked in groups with others from different cultural backgrounds. This suggests that a curriculum that is designed to be used in a multi-cultural context, but which is sensitively written to be applicable to the concerns of specific cultural groups participating, might achieve *adoption* in the widest possible range of ESL settings.

The results reported here also identify ancillary benefits to immigrant health that might flow from targeting cancer literacy through ESL instruction. Comments from participants indicated that immigrants not in class for a variety of reasons, specifically family members and friends, may benefit indirectly through their connection with those that do attend class. This suggests that *reach* may be indirectly magnified through social network influence, especially when this is encouraged within the lessons.

There is some empirical support for this idea. Within the Australian TAFE system, Morony et al. (2017) found that students attending the school but not exposed to the health curriculum, indicated a desire for the same information. This confirms that students share content materials learned in the class with others outside the class. In another study (Santos, McClelland, & Handley, 2011), it was reported that information from an ESL lesson on

diabetes was shared with the social networks of approximately two-thirds (*n*=105, 64%) of students attending. Furthermore, results from social network analyses have demonstrated that participants report a strong dependence on their family and social networks for seeking, understanding and using health information (Edwards et al., 2015). Future studies should aim to investigate the nature and extent of health information sharing between ESL language students and their wider family, social and community networks in order to map, more accurately, the *reach* of interventions. In addition, this could be exploited in a curriculum by including communicative classroom and homework activities that encourage sharing of health information outside class.

In addition to ways to improve intervention *reach*, the use of RE-AIM at this scoping phase was also helpful in determining factors that could support the *implementation* and *maintenance* of a new cancer prevention curriculum. A major implementation challenge reported in the literature has been to cover curriculum content goals while simultaneously building English literacy skills according to course requirements and student level (Martinez et al., 2017; Morony et al., 2017). In the current study, results suggested that a health curriculum, with core skills requirements embedded within it, may be more likely to be *adopted* by teachers who are looking for materials to meet skills requirements in their students. It is also more likely to be *implemented* into existing curriculum planning, and therefore potentially more likely to be *maintained* over time compared to one that does not specifically reflect English literacy training goals.

In the current study, teachers reported a preference for a curriculum that incorporated a range of media, a variety of activity types, and was flexible so that teachers could adapt and modify to suit different class requirements. In the language classroom, using multiple methods, including exposure to print media, video, audio, realia (i.e., real world English-language materials) and internet across different language skills (reading, writing, listening,

speaking) can help with the 'noticing of' new language in multiple and different ways (Ellis, 2002). In addition, ESL teachers are at the forefront of educating new arrivals about a vast array of topics (Morony et al., 2017). Providing additional cancer literacy content that links to related resources can assist both teacher and student develop confidence in this domain.

Conclusions.

Widespread implementation of a cancer literacy curriculum within existing migrant language programs could be an important mechanism for the delivery of health messaging to migrants who may miss out on mainstream public health messages due to cultural, language or literacy reasons. The findings from this preliminary study support the development of a cancer literacy ESL resource for migrants to Australia. The RE-AIM framework of dissemination and implementation was used to guide the interviews and focus groups with key Australian stakeholders. Using a translational research framework enabled insight into the potential barriers that could influence the development and implementation of a curriculum feasible for inclusion into existing immigrant language programming in Australia.

Specifically, it is recommended that curriculum developers writing for the current immigrant English programs in Australia be mindful to avoid content aimed at one specific culture or gender; that the material should be flexible for use with different class types and language levels; it should focus broadly on practical language skills, and should utilise a multi-media instruction mode. Curriculum developers should also be mindful of immigrants who are not represented in class, and tailor activities to encourage discussion of topic materials with students' wider social and community networks. A curriculum package should include supplementary resources for the teacher's own reference and adaptation. Furthermore, the curriculum should be developed to practise vocabulary and grammar as well as the language skills of speaking, listening, reading and writing. This will ensure alignment

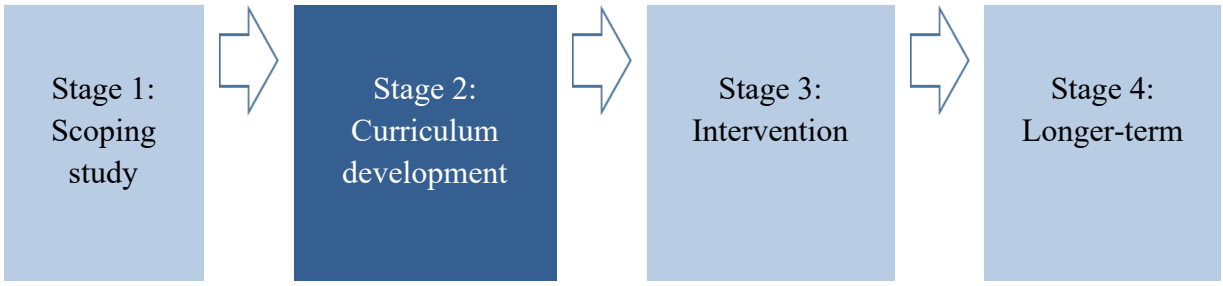
with current national curricula guidelines and, thereby, facilitate implementation into existing programming and maintenance over time.

The results of this study provide recommendations that suit the Australian immigrant language context. However, the approach and methodology used in this study, based on the RE-AIM framework, is suitable for broader application and can be adapted to enable the investigation of country-specific features that could hinder or promote implementation in other immigrant nations.

This point marks the end of the reproduced manuscript submitted to the journal.

The Next Step

With these results in hand, Stage 2 of the research program (see Figure 2.3 on page 53), the development of a draft curriculum, commenced.



The development of the curriculum (Stage 2) involved two phases. In the first phase, a draft curriculum was developed based on feedback received in the scoping study and relevant literature. In the second phase, key stakeholders were invited to consult and give feedback on the draft curriculum. This study was undertaken in 2018. Both phases of the development of the curriculum (Stage 2) are described in Chapter 4.

Chapter Four: The Development of an ESL Cancer Literacy Curriculum and Assessment of its Potential Reach to New Immigrants

Overview

The teachers in the qualitative scoping study described in Chapter 3 confirmed that there is no curriculum currently available to educate new immigrants to Australia about the cancer prevention and early detection recommendations specific to this country. They indicated support for the development of a curriculum on this topic. The RE-AIM framework was helpful to identify key factors that need to be considered during the curriculum development phase, in order to create a resource that would fit in with existing materials used widely across AMEP sites. These factors are summarised in Table 4.1.

Table 4.1

Core elements of a cancer prevention curriculum to be developed

RE-AIM element	Key elements to be included
Reach to all new immigrants	Sensitive to all cultures, genders; incorporate activities to encourage sharing with students' wider networks
Efficacy of material taught	Activities align with Certificates of Spoken and Written English (CSWE) to enable student competencies to be reported on
Adoption by teachers; *Implementation* into existing curricula and *Maintenance* over time	Align with a communicative approach to language learning; show sensitivity to multicultural, multi-gender classes; different language levels accounted for; topic and activity flexibility; activities align with CSWE; varied media used

In this Chapter, Stage 2 of the research plan (depicted in Figure 2.3 on page 53), the development of a draft curriculum, is outlined. The development process was guided by the

results of the scoping study (Stage 1) summarised in Table 3.2 (on page 69) and best practice ESL curriculum development guidelines from the literature. These best practice guidelines are discussed in more detail later in this Chapter. The draft curriculum was designed to incorporate key health messages and be underpinned by elements of the Health Behaviour Framework (Bastani et al., 2010) and the Health Action Process Approach (Schwarzer, 2008) as depicted in Table 2.2 on page 41. The overarching aim was to encourage improvement in cancer specific knowledge and vocabulary, health behaviour intentions that minimised cancer morbidity and health literacy, and the theories provided a framework to guide *efficacy* evaluation.

A draft curriculum was developed, as described below consistent with a CBPR approach. This was then taken back to key stakeholders (teachers of the AMEP and students) for their opinion on the curriculum's potential *reach* to all students who attend the AMEP, and their wider social networks. From a RE-AIM point of view, considering *reach* while the curriculum was still in early draft stage was important because it provided the opportunity to make additional changes prior to implementation and evaluation. Teachers were also invited to give their opinion on the nature of the materials so that changes could be made to make the curriculum more amenable to *adoption* by them. A mixed methods approach was undertaken.

Key Curriculum Components

The communicative approach to language teaching used by teachers of the AMEP.

In the scoping study (Stage 1), the AMEP teachers reported that they teach using a communicative language teaching (CLT) approach. They described teaching vocabulary and grammar within clear communicative contexts. CLT emerged in the 1960s and 1970s and is now widespread in the English language teaching field. Prior to the mid-20th century, the predominant language teaching approach was a grammar-translation method. This method focussed predominantly on accuracy of language form, practising reading and writing skills

over speaking and listening skills. A common criticism of the grammar-translation method is that students emerge being able to read but not to communicate with others with confidence (Zhou & Niu, 2015). In the 1970s, Stephen Krashen developed his theory of second language acquisition that suggested that exposure to natural and incidental language was as important in second language learning as was the active study of grammatical form (Krashen & Terrell, 1983). This theory sparked a range of approaches that saw speaking and listening skill development become more prominent in the classroom and attention given to the role of cognitive, motivational and sociocultural factors in second language acquisition (Harmer, 2007). Initially, the communicative approach was criticised for being too unfocussed, with students emerging with scattered skills devoid of form (Zhou & Niu, 2015). The modern communicative approach, used by the teachers at the AMEP, aims to build "communicative competence" (Hymes, 1972) which is described as a blend of grammatical competence with sociolinguistic competence, that is, knowledge of when and how to use language appropriately, and with whom (Canale & Swain, 1980). In an operational sense, this means that at times in the classroom, activities will focus on accuracy of form, but at other times, there will be a focus on fluency over accuracy.

Core features of this communicative approach are sole use of the target language in the classroom, even at beginner levels, and the use of authentic texts and media, with graded activities to correspond to the level of the students. In addition, the approach favours learner-centredness, where students are encouraged to discover language form inductively as well as bring their own life experiences into discussions to make communication meaningful and purposeful. The teacher's role in the classroom is less didactic than in a traditional classroom where the teacher stands out front and students sit quietly. In the communicative classroom, the teacher takes a facilitator role, and students are more active (Harmer, 2007). Teachers prepare communicative activities that are structured within clear, meaningful contexts that are

relevant to the students. Students are also encouraged to continue learning outside of the classroom (Nunan, 1991; Zhou & Niu, 2015). Activities conducted in the classroom are designed to help prepare the learner for these future communicative events outside the classroom (Nunan, 1991).

The communicative approach and the adult learning environment.

The core features of the communicative approach outlined are very similar to the underlying tenets of all adult education. Education directed at adults is generally learner-centred and starts from the premise that the student is motivated, self-directed and has accumulated a wealth of experiences to bring to a new learning situation. Similarly, others have described the adult student as keen to learn, apply and share their knowledge (Knowles, 1973; Merriam, 2001).

Freedman, Miner, Echt, Parker and Cooper (2011) suggest that the adult education environment is a socially supportive one, and this can be utilised in the teaching of health topics in two key ways, by providing: (1) informational social supports (sharing information and giving advice) and (2) emotional social supports (reassuring others and giving encouragement). In this way, the adult student is in a unique position of "lay health advisor", providing and sharing information.

Freedman et al. (2011) conducted a qualitative study involving three teachers of adult functional health literacy and 21 adult students. Through interviews and observations, they found that the students were highly motivated to share health information within the classroom setting with other students and to share what they had learned in class with family and friends outside of class. This may also be the case in the ESL context. For instance, as mentioned in Chapter 2, Santos et al. (2011) reported that two thirds of their class had shared diabetes health advice with others outside of class without being prompted to do so.

Similarly, the teachers interviewed in the scoping study, outlined in Chapter 3, reported that students attending the AMEP were very keen to learn about life and health practices from people with different cultural backgrounds in class. In fact, the very nature of the multi-cultural classrooms in the AMEP requires students to practice language forms and functions in order to communicate, thus providing a safe rehearsal space within the classroom to try out communicating health messages prior to going out into the wider community.

Activities of the communicative adult language classroom.

Freeman & Freeman (1998) outlined "best practice" guidelines for teachers to improve speaking and listening skills in the adult ESL classroom. These activities include role-play using realistic situations; small group discussions on personally relevant and interesting topics, solving puzzles by sharing information, or watching short videos on relevant themes where target vocabulary and grammar are modelled naturally. Guidelines for improving reading and writing skills recommend the use of authentic texts, with graded exercises to build comprehension (Freeman & Freeman, 1998). Studies investigating the nature and impact of different types of ESL classroom activities and media are sparse in the literature but provide initial evidence of the role of these types of activities in promoting language acquisition. A summary follows.

Use of video.

The use of video in the ESL classroom enables students to see and hear language spoken authentically in a realistic context, providing a natural bridge between learning in the classroom and the outside world (Williams & Lutes, 2007). Wagner (2010) conducted a pre-post quasi-experimental two group trial involving 29 intermediate and advanced ESL classes (N = 202 students from multiple cultural backgrounds). Students completed comprehension tasks before and after listening to audio text (control classes) or viewing a video with audio text (intervention classes). The results showed that the students in the intervention classes

(who viewed the video) had significantly higher post-test scores on comprehension tasks compared to the control classes who listened to the audio. The results suggest that video offered something over and above audio that could aid language comprehension. This could be the non-verbal cues and the visual modelling evident in pictures.

Video may also be more entertaining for students, sparking interest and motivation. Williams and Lutes (2007) ran a randomised controlled study in which students were randomly allocated to study a course either with or without a video component. Four adult ESL classes participated, two intervention and two control, $n = 30$ per class. They found significant differences between intervention and control students on aspects of the post-course survey: intervention students reported significantly greater enjoyment of the classroom materials, looking forward more to attending class, more time spent preparing for class and a greater desire to take a similar classes in the future. In addition, intervention students reported that they engaged with the video storyline and felt disappointed if they missed the next "episode".

Use of authentic texts.

In addition to enabling language learners to hear authentic language in class, there is an argument for the use of authentic reading materials in class. Authentic local materials provide the opportunity for students to practice in dealing with real-life texts as well as increase awareness of local cultural norms and practices. Harmer (2007) suggests that authentic materials can be used in classes of students at any language ability level, provided that they are accompanied by vocabulary and exercises that are graded to the language learners' level. In a recent North American interview study involving 16 male and female students from Arabic, Chinese, Japanese and Spanish cultural backgrounds, Albiladi (2019) found authentic texts such as newspaper articles were favoured by the students over specially-designed texts. The students reported that they preferred authentic texts because the texts increased their

cultural awareness of the United States, contained topical current events and were therefore more motivating to read and discuss afterwards in class.

Role-play.

Role-play is a conversation in a simulated real-life scenario, such as asking for something in a pharmacy, or visiting the doctor. In the ESL classroom, a role-play may be preceded by shaping exercises to practice form or vocabulary and scaffolded to the level of language ability. For example, lower levels may receive an entire script with a little opportunity for personalised information, such as providing one's own information in a telephone interview, and upper level role-plays may only be provided with scenario cards and some target language (Harmer, 2007).

In a review of the literature regarding the use of role-play in the foreign language classroom, Rojas and Villafuete (2018) reported that role-play activities can help motivate students to speak and develop fluency skills by promoting "realistic" meaningful interactions in class. In a pre-post, non-controlled trial in Pakistan, Rashid and Qaisir (2017) investigated the use of role-play in the development of critical thinking skills in a children's ESL classroom over the course of a term. In each of 29 role-play activities over the term, students worked in small groups and were given scenario cards and roles to enact. After the role-play, the students remained in the groups and discussed the experience. Students completed surveys designed to test critical thinking skills at the beginning and end of term. Results showed significant improvements in critical thinking skills in the students over the course of the term, and the researchers also noted greater confidence in the students in being able to express their opinions. These results highlight the value in including communicative activities using role-play activities in an ESL curriculum.

Small group discussions.

Small group discussions in the ESL classroom are used as a technique to enhance students' opportunities to speak and listen. In a class of 20 or more students, a whole class discussion may provide each student with only a few opportunities to speak and may inhibit quieter students from doing so. Dividing the students into pairs or small groups of four or five students provides more speaking opportunities (Harmer, 2007). Zhang (2010) also suggests that small group discussion activities are motivating for students because they encourage realistic communication and help promote confidence to speak, as well as provide opportunities for students to practice vocabulary and language forms in a comfortable setting. Open discussions can be preceded firstly by structured focussing exercises to learn new vocabulary, such as matching new words with meanings, or grammar pattern practice. After doing this, language shaping exercises such as gap-filling exercises, or sentence completion can be done, where the new vocabulary or grammar can be practiced in a controlled way before more open discussions occur (Harmer, 2007).

In the multi-cultural classrooms of the AMEP, students are presented with an opportunity to interact with others from different cultural backgrounds. Carefully constructed communicative tasks can enable students to explore their own beliefs and compare them with people from other cultural backgrounds.

Solving puzzles.

A variety of communicative puzzle-solving activities can be utilised in the ESL classroom. These include information gap and jigsaw activities where each student is provided with only a portion of a larger text. Students must communicate with other members of the class, asking and answering questions, in order to complete the text (Harmer, 2007). In a recent small Korean study, Lee (2017) videotaped six ESL dyads as they undertook a jigsaw activity. Analysis of the transcripts revealed that the students practiced different types

of speech during the task, including exploratory (questioning, explaining), cumulative (repetitions, confirmations, elaborations) and disputational (disagreements, assertions). After the activity, students also reported feeling motivated by the task, and keen to communicate to solve the puzzle. In addition, they reported that they found themselves immersed in the puzzle, losing anxiety about accuracy in their desire to communicate in English.

The literature reviewed above indicates that the use of video, authentic texts, role play, small group discussions and puzzle solving are crucial elements to consider when developing curricula for communicative adult language learning contexts. Table 4.2 further demonstrates the importance of these communicative activities by outlining how they were incorporated in the previously published ESL health literacy evaluation trials introduced in Chapter 2. A variety of communicative activities were used across these curricula. All curricula incorporated small group discussions and three of the four included role-play and the use of videos to illustrate health messages. Implementation data captured by some of the researchers via teacher report (Martinez et al., 2017) or impromptu observation (Woodruff, Candelaria, Elder, Gichon, & Zaslow, 1996) indicated that not all activities listed were taught. Teachers reported flexibility in selection of activities for use in class.

Table 4.2

Communicative activities used in previous, evaluated ESL health literacy curricula

Curriculum	Examples of communicative activities
Language for Health (Candelaria, Woodruff, & Elder, 1996; Elder et al., 1998; Elder et al., 2000)	• Structured role-plays in pairs and small groups • Small group discussions • Reading and interpreting food labels • Videos with comprehension questions

Table 4.2 (continued).

Curriculum	Examples of communicative activities
Hepatitis B ESL (Taylor et al., 2008; Taylor et al., 2011; Taylor et al., 2009)	• Role-play in small groups/whole class providing advice to a range of health situations and problems • Jigsaw activities in pairs • Video scenario of a man speaking to a doctor about being tested for Hepatitis B, and then having a blood test, followed by a guided classroom discussion
"Healthy Eating 4 Life" (Martinez et al., 2013)	• Video modelling a family choosing healthy foods • Small group discussions of own health beliefs and behaviours • Planning own health behaviour change • Role-play between patient and a health-care provider
Health Literacy (Soto Mas, Ji, et al., 2015)	• Small group personalised discussions of own health experiences • Reading different types of real health documents • Finding reliable health information on the internet

In summary, a communicative approach to ESL education is used by the teachers of the AMEP. It also underpinned the activities of the four ESL health curricula reported in the literature, described in Table 4.2 above. Communicative activities used in these four curricula and currently by the AMEP teachers include small group discussions, role-plays and jigsaw communication activities, and different media were used, including video scenarios and authentic texts. Incorporating these types of activities and media into a cancer literacy curriculum could help increase its *implementation* into the AMEP; increase its *adoption* by teachers and potentially enhance *efficacy*.

Health behaviour change theory and communicative activities.

As outlined in Chapter 2, a gap in the current literature on the evaluation of ESL curricula is that theory has not been fully utilised in curriculum development or evaluation. Doing so would help researchers to explain any changes noted in students' performance after

studying the curriculum. The previous section outlined the communicative language approach. A central component of the communicative approach is the focus on interacting with authentic situations and materials that enable meaningful communicative practice opportunities. The Health Behaviour Framework (HBF), and elements of the Health Action Process Approach (HAPA) were selected to provide the behaviour change theoretical base of the curriculum components. Figure 2.1 (page 50) and Figure 2.2 (page 51) in Chapter 2 shows these models pictorially.

Table 4.3 lists examples of communicative classroom activities that could be incorporated into a cancer literacy ESL curriculum that blends components from these theories within a communicative approach to language learning. It can be seen in the table that the behaviour change theories selected complement the communicative language teaching approach. Meaningful communicative activities that develop and practice English language skills also develop behavioural and cognitive skills that could lead to behaviour change. The focus of these theoretical components is from the point of view of student skill development. The goal is to develop both English language and cancer health literacy skills within the student, to empower them to be able to make more informed decisions regarding accessing cancer prevention information for themselves and their families. In addition, activities to encourage sharing of health messages to students' social networks (others outside of class) are included, to enable exploration of the potential of the ESL classroom as a point to disseminate information into immigrant communities. This table is re-printed from Chapter 2 (shown as Table 2.2, page 41).

Table 4.3

Examples of health behaviour theoretical constructs to be included in communicative activities in the curriculum

HBF: Individual variables	Example activity in curriculum
knowledge	1. Pairwork jigsaw reading/listening activity. Two forms (with blanked parts) of a reading about how to prevent skin cancer are given to pairs sitting back to back. ELLs must ask questions to be able to complete the information. 2. Using the internet to find answers to questions about symptoms
communication with provider	Role-play activity in small groups to practise going to a doctor to talk about symptoms
cultural factors & health beliefs	Examples of different cultural health beliefs shown to ELLs (on video, readings) for ELLs to compare and contrast, followed by small group discussion of beliefs (either current or traditional) from their own cultural backgrounds
social norms	Small group / whole class discussion of traditional cultural health practices compared to practices in Australia
social support	Pairwork. Role-cards of symptoms and practise of language of advice to encourage action
past health behaviours	Student-led survey to create and then ask questions of others in class about health.
barriers and supports	Examples of barriers to attend screening to be modelled on the video (e.g., transport issues, cost, feeling nervous having blood taken), followed by small group brainstorming possible solutions.
behavioural intentions	writing activity to identify health intentions and goals over the next 6-12 months
HBF: Provider & Health Care System variables	
provider characteristics	Using internet and responding to questions, ELLs identify and describe providers that they could access
health care setting	Small groups use internet to respond to questions about different health care settings in Australia. They then prepare a powerpoint slide and oral presentation to inform other members of the class
practice patterns	ELLs read a brochure about attending for PAP smear testing, and answer comprehension questions
structural factors	Using internet or real brochures and responding to questions, ELLs research the healthcare system pertaining to the cancer topic at hand (e.g., how to attend for breast screening, to find out if they need to bring a healthcare card, or if payment is required).

Table 4.3 (continued)

	Example activity in curriculum
HAPA: variables	
action planning	Writing exercise where ELLs plan when to self-check their skin for abnormalities, exercise, etc
coping planning	Small group exercise where ELLs brainstorm strategies for coping with feelings of not wanting to exercise. From this, each ELL writes down a coping plan that suits his/her own situation
Social Network variables	ELLs identify significant members of their own social network, and, in small groups, practise informing someone about the health information that they have learned in class or how to go about acting on it

Curriculum competency framework.

In the qualitative scoping study outlined in Chapter 3, the AMEP teachers reported that materials used in classes must be aligned with the Certificates of Spoken and Written English (CSWE). These are a set of language competencies graded for each of four Certificate levels (at present, only Certificates (CSWE) 1, 2, and 3 are being taught). In addition, students are assessed according to these competencies (Feez, 2008). Being able to demonstrate use of language in a realistic setting is typical of a communicative approach to language teaching (Canale & Swain, 1980). Table 4.4 provides examples of these competencies - 2013 listing.

Table 4.4

Examples of CSWE competencies (2013 listing) for the three AMEP levels

CSWE I learning outcomes
A2: Participate in the formal learning environment
B1: provide personal information using spoken language
B2: Complete a short form
C1: Demonstrate understanding of a short spoken transaction
C2: Participate in a short spoken transaction
D1: Demonstrate understanding of a spoken information text
D2: Demonstrate understanding of a written information text
E1: Demonstrate understanding of short informal spoken exchange
E2: Participate in a short informal spoken exchange
F2: Give a short spoken description
I2: Demonstrate understanding of short written instructions
CSWE II learning outcomes
A2: Participate in and contribute to the formal learning environment
A3: Develop independent learning skills
B1: Demonstrate understanding of a casual conversation
B2: Participate in a short casual conversation

Table 4.4 (continued)

CSWE II learning outcomes
D1: Demonstrate understanding of a spoken information text
D2: Give information in a simple presentation
E1: Demonstrate understanding of a telephone message
E2: Participate in a telephone exchange to leave a message
F2: Give spoken instructions
G1: Demonstrate understanding of a simple interview
G2: Participate in a simple interview
H1: Complete a formatted text
I1: Demonstrate understanding of a short written information text
I2: Demonstrate understanding of short written instructions
J2: Write an informal text
L2: Write a short information report
N1: Carry out calculations with time
O1: Interpret and complete simple tables/graphs/charts
CSWE III learning outcomes
A2: Contribute to the formal learning environment
A3: Develop capacity for independent learning
B1: Demonstrate understanding of a casual conversation with topic changes
B2: Participate in a casual conversation with topic changes
E1: Demonstrate understanding of a spoken information text/oral presentation/media interview
E2: Deliver a short spoken presentation
F1: Demonstrate understanding of a spoken discussion
F2: Participate in a spoken discussion
H1: Demonstrate understanding of a complex written information text
H2: Demonstrate understanding of complex written instructions
I3: Interpret visual texts
R1: Carry out multiple step calculations
R2: Apply measurement techniques to problem solving

Development of the Draft Curriculum

Four modules.

A draft curriculum was developed, following the recommendations arising from the qualitative study in Chapter 3 and the literature reviewed above. The teachers indicated in the focus groups that a cancer prevention curriculum specific to Australia did not exist. Four draft curriculum modules were designed to provide an overview of cancer and cancer prevention/treatment in Australia. Module 1 was designed to provide an overview of cancer – what it is and introduce key cancer-related vocabulary. Module 2 was designed to describe vocabulary associated with going to the general practitioner (GP) to discuss symptoms and to find out more about cancer prevention. Modules 3 and 4 were designed to introduce language students to the Australian recommendations for primary cancer prevention (Module 3) and secondary cancer prevention (Module 4). Table 4.5 provides a list of the key health messages that comprise the content across the four modules of the curriculum, based on Australian guidelines (Australian Government Department of Health; Cancer Australia).

Table 4.5

Key health messages embedded in the curriculum

Key health messages (all Modules)
Everyone is at risk of developing cancer
Many common cancers in Australia can be prevented
We can help prevent many cancers by engaging in healthy lifestyle behaviours
Many cancers can be treated if found early
In Australia, people can go to their GP to discuss symptoms and to arrange cancer screening tests

Table 4.5 (continued)

Australian national guidelines for cancer prevention
Primary prevention (Modules 1 and 3)
Eat healthy food: 2 serves fruit and 5 serves vegetables per day; reduce red and processed meats
Maintain a healthy body weight: BMI < 25
Keep active: 2.5-5 hours per week
Stop smoking
Be sun smart: wear sunscreen, hat, sunglasses, clothing, seek shade
Reduce alcohol: Max 2 standard drinks for men, 1 for women per day
Secondary prevention (Modules 1 and 4)
Breast cancer screening: Free for women aged 50-74 years
Bowel cancer screening: Free for men and women aged 50-74 years
Cervical cancer screening: Free for women aged 25-74 years
Immunisation against HPV virus (for cervical cancer): Free for adolescents to 19 years
Skin checks for skin cancer: Check skin regularly, report changes

Each of the four modules contained activities that focussed on listening, reading and speaking skills. At the beginning of each module, the listening activities were accompanied by a video that introduced the topic in a clear context and modelled key vocabulary and phrases.

Video development.

Four video scripts were written, one to accompany each module. The scripts were carefully constructed to contain the key health messages, health behaviour theory constructs, such as modelled action and coping planning from the HAPA (Schwarzer, 2008), as well as model target vocabulary and phrases in a clear, meaningful context.

Context and synopsis.

Across the four modules, the "scene setting" video follows a group of five adult English language students from different cultural backgrounds who meet outside class[6]. They discuss the topic of cancer prevention in Australia. In Module 1 ("What is cancer?"), the students speak before and after attending a lunchtime lecture about cancer prevention. The lecture introduces the key health messages and cancer-specific vocabulary of the course. The students discuss these messages and health beliefs arising from their different cultures. In Module 2 ("Going to the GP"), the students decide to go for a walk after class, but one is unable to because she is worried about her father's health and is concerned that he may show symptoms of cancer. Her fellow students help her to make an appointment to take him to the see a GP. In the next scene, she makes a phone call to make the appointment with a receptionist. The final scene shows her and her father at the GP appointment, asking for advice about his symptoms. Module 3 ("Cancer prevention in Australia: Primary prevention") depicts the students meeting between class and discussing ways to be healthy in Australia. National guidelines for primary prevention form the focus of their discussion, which includes the students making individual plans to help increase their own cancer prevention behaviours and those of their family members. In Module 4 ("Cancer prevention in Australia: Secondary prevention"), the Australian screening services for bowel, breast and cervical cancer are discussed among the students, including the ages for which the screening tests are offered for free. The students personalise this information and the final scene shows one of the students visiting a GP to ask about a screening test on behalf of her parents.

[6] The videos were filmed on the 9th May, 2018 and edited by Andrew Ganczarczyk of the Medical Imaging Media Unit of the Flinders Medical Centre, funded by a Flinders Foundation FCIC Small Research Grant 2017. Semi-professional actors for the video were cast by the PhD candidate who attended the Actors' Ink casting agency for an open audition afternoon.

The scripts for the videos appear in Appendix B with key health messages, target language and theoretical elements highlighted.

Worksheets.

Each lesson appears in a Worksheet, and the lessons that focus on listening skills use the video. All Worksheets, regardless of skill focus, include activities to promote student-to-student discussion. For example, Figure 4.3 depicts sample small group discussions that accompanied the Module 1 Listening worksheet.

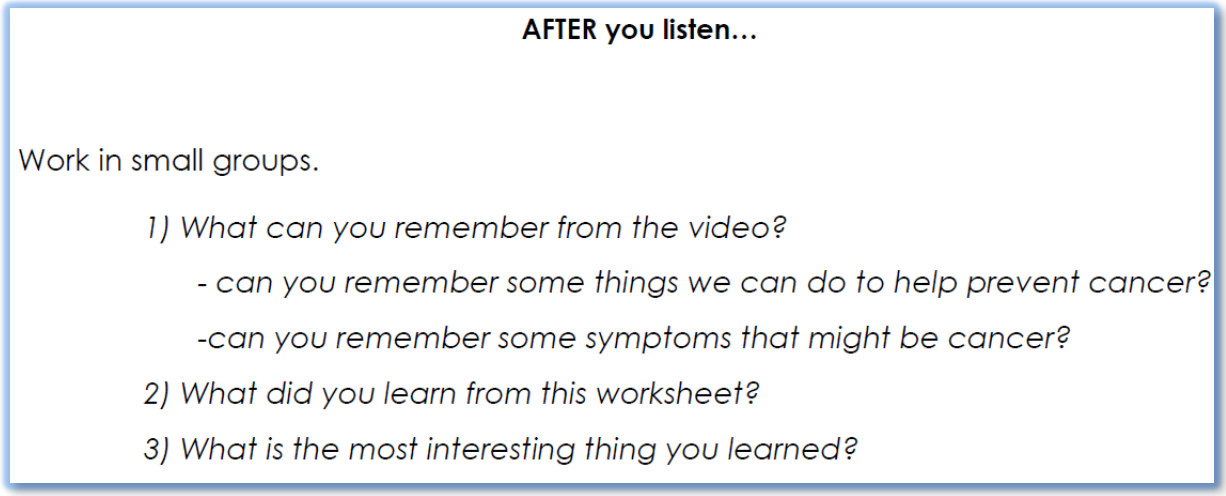


Figure 4.3. Example small group discussion activity following the Listening worksheet accompanying Module 1.

Figures 4.4 and 4.5 show how two theoretical elements from the HBF (cultural health beliefs) and HAPA (action and coping planning), shown earlier in Table 4.3, underlie activities in the worksheets. Figure 4.4 depicts a speaking exercise from Module 1 designed to address cultural factors and health beliefs (from the HBF) for students to do in mixed cultural small groups.

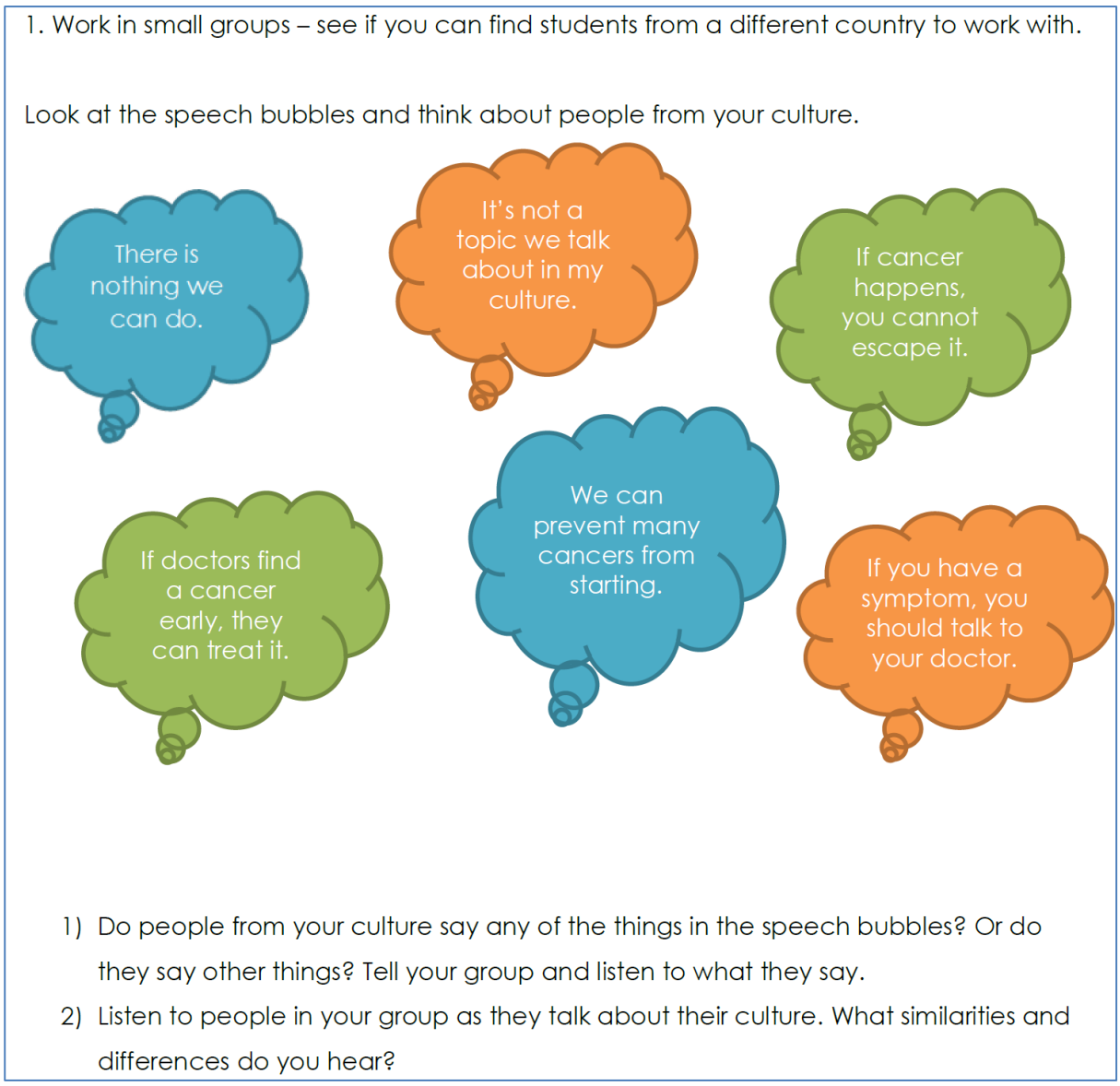


Figure 4.4. Small group speaking activity from Module 1, targeting cultural health beliefs.

Figure 4.5 shows an activity from Module 3 ("Cancer prevention in Australia: Primary prevention") in which students plan for their own health behaviour change.

3. Think about your health. Look at the statements below. Which do you agree with?

- I can eat more fruit and vegetables ❒
- I can be more physically active ❒
- I can wear sunscreen outside ❒
- I can stop smoking ❒
- I can drink less alcohol ❒

1) Look at the statements you have ticked. Talk to your partner: What can you do to become healthier here in Australia?

For example: I can eat more fruit and vegetables ☑

This week I can bring a salad each day for lunch instead of chips.

Write what you can do here:

_____

_____

_____

_____

_____

2) Tell other students in the class about your plans.

3) Now, what if something goes wrong with your plans? Think about what you can do, so you can keep your plan.

My plan: *This week I can bring a salad each day for lunch instead of chips*	
What could go wrong?	**What could I do?**
My friends might have chips, and it will be hard for me not to eat them	*I can see if my friends want to bring salads too, and we can help each other*

Look at your plans on the previous page. Write things that could go wrong, and what you could do, so that you can keep your plans.

My plan:	
What could go wrong?	**What could I do?**
1)	
2)	
3)	

Tell others in your class your plan.

Figure 4.5. Planning for health behaviour change (HAPA, Schwarzer, 2008), action planning (question 3, parts 1 & 2) and coping planning (question 3, part 3).

In the draft curriculum, the CSWE competencies underlying each worksheet were listed in the appendix of this draft version. These were provided to facilitate teachers' reporting of work done during term, by competencies.

Whilst still in this draft form, the curriculum was taken back to stakeholders (ESL teachers and students) for comment. The primary objective, at this initial stage, was to assess the potential of the curriculum to *reach* immigrants from different cultural backgrounds, genders and different ages who attend the AMEP as well as members of their wider social networks. Secondary to this was the need to obtain teacher feedback to enhance the curriculum's *adoption* and *implementation* potential. A mixed methods study design was selected in order to quantify feedback as to the likelihood of *reach*ing different populations and learn who may be at risk of missing out, as well as enable participants to elaborate on how to improve the curriculum in order to enhance its potential to *reach* these at-risk populations.

Mixed Methods Study to Obtain Stakeholder Feedback about Reach

Aims.

There were three aims in this study, conducted in order to refine and finalise the cancer literacy curriculum.

Aim 1: To determine if the four modules of the draft curriculum and the worksheets were relevant for use with all immigrants who attend the AMEP.

Aim 2. To identify the elements of the curriculum that would not be relevant to use with some groups of immigrants, and why.

Aim 3. To determine if the health messages, knowledge and language taught in the curriculum could be shared among ESL students' wider social networks outside of class.

Methods.

Recruitment.

Following Ethics approval by the Social and Behavioural Research Ethics Committee at Flinders University (project number 7898), the manager of the AMEP was contacted by email. The study was explained, and a request was made to invite all teachers and advanced-level English language students to participate. Advanced-level students only were invited at this stage due to the English language demands associated with the review of the draft curriculum and survey completion. In total, 62 teachers of the AMEP across all metropolitan TAFEs were invited. The students of teachers who taught more advanced level students (Certificate 3) were also invited to participate through teacher invitation. Interested participants (both teachers and students) contacted the researcher directly for more information. The researcher then sent a Participant Information Sheet and Consent form to each potential participant, and those who returned a signed consent form were included in the study. Copies of these forms are available in Appendix C.

Procedure.

Each participant was sent a draft copy of the curriculum and a survey online or in paper form with a reply-paid envelope if preferred. There were two versions of the survey prepared, one for teachers and one for students. The surveys are described below. Each participant was asked to look through the worksheets for all four modules when answering the survey, but to save their time, participants were only required to peruse two of the four videos. They were all sent the video accompanying Module 1 (“What is cancer?”) and were randomised to receive one of the remaining three videos. Randomisation within each group of teachers or students was achieved by first generating a random listing of numbers (corresponding to Modules 2, 3 or 4) using the random number generator in Microsoft Excel, and then by allocating each participant to the next available number as they entered the study. The videos

were provided to participants either online via OneDrive, or manually via a USB, as per each participant's request. Each participant was provided with a $50 Coles Myer gift card as a reimbursement for their time. Copies of the two surveys (teachers' survey and students' survey) are in Appendix D.

Measures.

Teachers' survey.

Participating teachers were individually interviewed either face to face or by telephone, during which they were guided through the survey and curriculum. The survey items included: (i) relevance of each of the four modules' video and worksheets to use with classes of students differing by language level, gender, ethnicity and religion; (ii) identification of most pertinent worksheet in Module 3 ("Cancer prevention in Australia: Primary prevention") to identify pertinent primary prevention topics for classes comprising different language levels, genders, ethnicities and religions; (iii) indication of appropriate communicative activity types (e.g., role play, small group discussions) for classes comprising different language levels, genders, ethnicities and religions; and (iv) identification of groups of students (differing by gender, age, visa type or ethnicity) who may or may not benefit from participating in lessons about cancer prevention. During the interviews, both teacher and interviewer, the PhD student, had a copy of the survey and a copy of the draft curriculum. The interviews were recorded for note-taking purposes, with participants' consent. The teachers completed the survey by indicating their responses to each item to the interviewer, the PhD student, who ticked survey boxes and wrote down each comment verbatim. The interviews took approximately one hour.

Students' survey.

The advanced level students were invited to complete the survey online or on paper (whichever they requested) and follow survey prompts to watch the videos and look at the

worksheets of the curriculum. After looking at each curriculum component, the students were asked to complete survey questions. The survey items comprised: statements regarding the (i) suitability of curriculum components for showing (each video or each Modules' worksheets) to younger (aged 18 - 45 years), middle aged (aged 46 – 65 years) or older (aged 66 years and over) men and women from their own cultural communities; (ii) the likelihood of students from their cultural background sharing different sections of the curriculum with members of their family (men and women from different generations) and wider social network; and (iii) their own impression of learning from the curriculum. For each item throughout the survey, space was provided for students to elaborate in writing on their responses.

Results.

Participants.

Fourteen teachers and eleven students participated in the study. Table 4.6 shows participant demographics.

Table 4.6

Participant demographics)

	Teachers N=14[a] N (%)	Advanced students N=11[a]N (%)
Gender		
Male	0	3/11 (27.3)
Female	14/14 (100)	8/11 (72.7)
Age range[b] (Mean range):	50-59 years (range 30-39 to 60-69 years)	20-29 years (range 20-29 to 60-69 years)
Ethnicity		
Caucasian	12/14 (85.7)	0
Middle Eastern	2/14 (14.3)	3/10 (30)
Asian	0	7/10 (70)

Table 4.6 (continued).

	Teachers N=14[a] N (%)	Advanced students N=11[a] N (%)
Born in Australia		
Yes	11/14 (78.6)	0
No	3/14 (21.4)	11/11 (100)
Time in Australia - students (Median months/range)	-	12.5 months (range 5 months to 8 years)
English spoken at home	12/14 (85.7)	0
Education, highest level		
High school	0	1/7 (14.3)
University, Bachelor	0	4/7 (57.1)
University, Post-grad	14/14 (100)	2/7 (28.6)
Employment status-students		
Employed full-time		0
Employed part-time		2/10 (20)
Unemployed/home duties		3/10 (30)
Student full-time		5/10 (50)

Note. Results presented as *N* (%) unless otherwise stated.
[a]Denominator varied due to missing values; [b] Age ranges were provided for teachers and students to select from: 20-29 years, 30-39 years, 40-49 years, 50-59 years, 60-69 years.

Teachers had taught a median of 11.50 years in ESL (*SD* = 6.49, range 7 - 28 years). Ten teachers (71.4%) were currently teaching full-time, and all 14 teachers reported having multicultural classes at present, teaching students representing 35 countries. Thirteen teachers (92.9%) currently co-taught courses and between them taught each level of English language proficiency, from beginners to advanced level. In the student group, 10 / 11 (90.9%) students reported their demographic information. These 10 students represented 7 countries: two from each of Iran, China, and Hong Kong and one student from each of South Korea, Bangladesh, Iran and Nepal.

Findings related to teachers' feedback.

The teachers' survey was designed to address the first two of the study's research aims.

Aim 1: To determine if the four modules of the draft curriculum and the worksheets were relevant for use with all immigrants who attend the AMEP.

Aim 2. To identify the elements of the curriculum that would not be relevant to use with some groups of immigrants, and why.

Survey responses.

Relevance of videos and worksheets to different groups of students.

To determine relevance of each of the curriculum's videos for selection with different groups of students, teachers responded to 17 items, each describing a different group of students (e.g., language learners in CSWE I; classes comprising mixed genders). They responded to each item on a 5-point Likert scale ranging from 1 *(strongly disagree)* to 5 *(strongly agree)*. Responses of 4 *(agree)* or 5 *(strongly agree)* were summed. To determine relevance of the worksheets within each module, teachers also responded to 17 items, each describing the same descriptions of groups of students. For each item (group of students), teachers indicated the worksheets of the module that could be selected to use in class. Teachers could tick specific worksheets (e.g., Listening Worksheet 1) or tick a box to indicate *All of the worksheets* or *None of the worksheets* or *Not Applicable* if they had never taught a class comprising the item's specific group of students. Results indicated that all teachers unanimously responded to two scale anchors only, by ticking *All of the worksheets* or *None of the worksheets* to each item. Table 4.7 indicates the *N* and percentage of teachers who indicated that they *agreed* or *strongly agreed* with each statement about relevance of the videos and those who indicated *All of the worksheets* regarding each statement about relevance of the worksheets for each module.

Table 4.7

AMEP teachers' reports of relevance[a] of the curriculum modules' videos and worksheets with classes comprising different groups of students

	Module 1		Module 2		Module 3		Module 4	
Class comprising students:	video	worksheets	video	worksheets	video	worksheets	video	worksheets
CSWE[b] I - lower	8/14 (57.1)	7/14 (50%)	3/5 (60)	11/13 (84.6)	3/3 (100)	11/14 (78.6)	2/4 (50)	11/13 (84.6)
CSWE I - higher	9/12 (75)	8/13 (61.5)	5/5 (100)	12/13 (92.3)	4/4 (100)	12/13 (92.3)	2/4 (50)	13/14 (92.9)
CSWE II	14/14 (100)	13/14 (92.9)	5/5 (100)	12/13 (92.3)	4/4 (100)	13/14 (92.9)	4/4 (100)	13/14 (92.9)
CSWE III	14/14 (100)	13/14 (92.9)	5/5 (100)	12/13 (92.3)	4/4 (100)	13/14 (92.9)	4/4 (100)	13/14 (92.9)
CSWE IV	14/14 (100)	12/14 (85.7)	5/5 (100)	12/13 (92.3)	4/4 (100)	13/14 (92.9)	4/4 (100)	13/14 (92.9)
Mixed gender	14/14 (100)	13/14 (92.9)	5/5 (100)	12/13 (92.3)	3/4 (75)	13/14 (92.9)	3/4 (75)	13/14 (92.9)
Mostly male	13/14 (92.9)	12/14 (85.7)	4/5 (80)	11/13 (84.6)	3/4 (75)	12/14 (85.7)	4/4 (100)	12/14 (85.7)
Mostly female	13/14 (92.9)	12/14 (85.7)	4/5 (80)	11/13 (84.6)	4/4 (100)	12/14 (85.7)	4/4 (100)	12/14 (85.7)
From African countries	14/14 (100)	13/14 (92.9)	5/5 (100)	12/13 (92.3)	4/4 (100)	13/14 (92.9)	4/4 (100)	13/14 (92.9)
From Asian countries	14/14 (100)	13/14 (92.9)	5/5 (100)	12/13 (92.3)	4/4 (100)	13/14 (92.9)	4/4 (100)	13/14 (92.9)
From European countries	14/14 (100)	13/14 (92.9)	5/5 (100)	12/13 (92.3)	4/4 (100)	13/14 (92.9)	4/4 (100)	13/14 (92.9)

Table 4.7 (continued)

	Module 1		Module 2		Module 3		Module 4	
Class comprising students:	video	worksheets	video	worksheets	video	worksheets	video	worksheets
From Latin American countries	14/14 (100)	13/14 (92.9)	5/5 (100)	12/13 (92.3)	4/4 (100)	13/14 (92.9)	4/4 (100)	13/14 (92.9)
From Middle Eastern countries	14/14 (100)	13/14 (92.9)	5/5 (100)	12/13 (92.3)	4/4 (100)	13/14 (92.9)	4/4 (100)	13/14 (92.9)
From Oceanic countries	14/14 (100)	13/14 (92.9)	5/5 (100)	12/13 (92.3)	4/4 (100)	13/14 (92.9)	4/4 (100)	13/14 (92.9)
Muslim religion	13/14 (92.9)	13/14 (92.9)	5/5 (100)	12/13 (92.3)	4/4 (100)	13/14 (92.9)	4/4 (100)	13/14 (92.9)
Buddhist religion	13/14 (92.9)	13/14 (92.9)	5/5 (100)	12/13 (92.3)	4/4 (100)	13/14 (92.9)	4/4 (100)	13/14 (92.9)
Christian religion	13/14 (92.9)	13/14 (92.9)	5/5 (100)	12/13 (92.3)	4/4 (100)	13/14 (92.9)	4/4 (100)	13/14 (92.9)
Other religion	13/14 (92.9)	13/14 (92.9)	5/5 (100)	12/13 (92.3)	4/4 (100)	13/14 (92.9)	4/4 (100)	13/14 (92.9)

Note. Results presented as n/N^{c} *(%)*

[a]Videos: The data in this table refers to the proportion of teachers who responded 4 *(agree)* or 5 *(strongly agree)* to each item (responses of 4 or 5 to each item were summed); Worksheets: The data in this table refers to the proportion of teachers who responded *All of the worksheets* to each item (responses to each item were summed); [b]CSWE is another term teachers use for "Certificate" in describing class level; [c]All teachers rated Module 1. Denominator reflects randomisation of teachers to view videos from Modules 2 to 4, and some missing values.

The results show that the teachers were unanimous in agreeing that the videos were relevant to select for use with classes comprising any mix of cultural background. Except for one teacher, who was not in favour of the formatting of the draft curriculum, teachers reported that the videos and worksheets could be selected to use with classes that included males and females and people of different religions. Additionally, teachers reported that the videos and worksheets could be selected for use with classes at CSWE II (Certificate 2) language level or higher. Teachers had some reservations regarding suitability of Module 1's ("What is cancer?") video (agreement only for 8 / 14 teachers, 57.1%) and worksheets (7 / 14 teachers, 50%) for selection for classes comprising lower level students in CSWE I (Certificate 1), particularly students with much lower English skills. The teachers also reported doubts about selecting the Module 2 ("Going to the GP") video (agreement only for 3 / 5 teachers, 60%) and Module 4 ("Cancer prevention in Australia: Secondary prevention") video (agreement only for 2 / 4 teachers. 50%) for use in classes comprising these lowest level language students. They reported that the language level was too high. Teachers elaborated with comments to suggest that the and worksheets for all modules were too complex (too busy, too much language, not enough pictures) for the lowest language level (CSWE I) students.

Identification of pertinent worksheets in Module 3 for different groups of students.

The teachers were asked to indicate which of the Module 3 ("Cancer prevention in Australia: Primary prevention) Reading worksheets (there was at least one per primary prevention behaviour) would be most applicable to classes comprising groups of students who differed by language level, gender, culture or religion. This would provide an indication of the types of topics that could likely be selected by teachers more (or less) frequently for inclusion when teaching classes comprising different groups of students. For each group of students, teachers were asked to indicate by ticking one box the one worksheet that they

would select as most appropriate for a class comprising that group of students. The participants had trouble answering this question, as they elaborated in the interview, because it was reported that selection of the worksheets at any one time would depend on the students' needs in that particular class. To illustrate their dilemma in selecting one sheet, most teachers ticked more than one box, and their answers did not vary for groups of students differing by language level, gender, culture or religion.

Twelve of the 14 teachers (12 / 14, 85.7%) responded to the items to indicate preferred worksheets. Half of these indicated preference for worksheets on the topic of being "sun smart". Spoken responses revealed that this topic was of particular interest to their students when they arrive in Australia because of Australia's reputation for having harsh sun conditions. The other worksheets that were ticked as preferred classroom topics for selection by teachers were worksheets about increasing physical activity and eating more fruit and vegetables. Teachers elaborated orally to reveal that these three topics (being sun smart, increasing physical activity and eating more fruit and vegetables) would be of high acceptability to their adult students because they were topics to which most adults could relate.

Communicative activity types for different groups of students.

Teachers were also invited to comment on the suitability for 17 student groups who differed by language level, gender, culture and religion of the variety of speaking activities that were included in the draft curriculum. These activities included cross-cultural small group discussions, role-plays, student surveys, activities to plan own health behaviour change, activities to practice telling others of topics learned, jigsaw communication activities and giving presentations. For each student group (e.g., CSWE I; mixed gender; students from African countries), teachers ticked the types of communicative activities that they would

select if teaching a class comprising that student group. Teachers were also invited to elaborate on their responses orally, as they wished.

Results of frequency data showed that the teachers reported unanimously (14 / 14, 100%) that all communicative activity types were suitable for classes of students from any cultural or religious background. One teacher reported that she would be careful in selecting dyads for a role-play in mixed gender classes with students from the Middle East, indicating she would ensure that dyads in these classes were comprised of students from the same gender, in order to promote student comfort. Almost all teachers (13 / 14. 92.9%) indicated that all types of communicative activities were suitable for students in the language levels CSWE II (Certificate 2) and higher. However, only half of the teachers (7 / 14, 50%) reported that the activities were all suitable for CSWE I students. Four of the other seven teachers indicated that only activities that could be structured and scripted (e.g., role-plays, planning activities and surveys) would be suitable for these lower level students, to aid comprehension.

Identification of different groups of students who may or may not benefit from the curriculum.

Teachers were also asked for their opinion of the perceived benefit of exposure to the curriculum for the average student who fit different description groups based on language level, gender, age, country of origin or religion. Except for commenting on Beginner (1 / 14, 7.1%) and Elementary level language students (2 / 14, 14.3%) who enrolled in CSWE I, all teachers (14 / 14, 100%) reported that the contents of the curriculum would be of benefit to the average language student regardless of language level, gender, age, country of origin or religion. When probed further to comment on any group that they would not use the curriculum with, three teachers (3 / 14,21.4%) said that they would have reservations using the curriculum with students who had a diagnosis of cancer; one teacher (1 / 14, 7.1%) with students who were newly arrived and traumatised, because the topic may be too confronting;

and one teacher (1 / 14, 7.1%) said that they would have reservations about using the curriculum with students who were doctors or healthcare professionals in their home country because they may already know the material.

Teachers' suggestions for curriculum improvement.

The teachers provided verbal suggestions to improve draft curriculum components to make it more amenable to all immigrants who attend the AMEP, in particular, the lower level language students enrolled in CSWE I. These suggestions are outlined in the first half of Table 4.8. The table also summarises teachers' suggestions for improving the content to match other curricula used regularly within the AMEP.

Table 4.8

Teacher suggestions to improve the curriculum's reach

Suggestions to reach lower level (CSWE I) language students
1. More pictures, less text
2. Structured role-plays (completely scripted, or with few details missing)
3. Include scripted student surveys
Suggestions to alter draft curriculum to align with current AMEP curricula for students
1. Combine CSWE I, II and III (Certificates 1, 2 and 3) worksheets into one book to enhance its flexibility when used in classes of different abilities.
2. Alter aesthetic elements: increase font size, less text, more space on worksheets, more pictures (photos not hand-drawn).
3. Provide answers to activities.
4. Provide a glossary of vocabulary with pronunciations and meanings.

Findings relating to student feedback.

The students' survey was designed to inform development of the curriculum by addressing the study's Aims 1 and 3. Aim 1 will be discussed first, followed by Aim 3. Results of quantitative analyses of survey items are provided, as well as illustrative comments written by the students to support their survey answers. The students' written comments are re-printed accurately, as provided by them. The use of [*sic*] to indicate grammatical or punctuation errors has not been deployed because of the repetitive nature it would cause, detracting from the students' words.

Aim 1: To determine if the four modules of the draft curriculum and the worksheets were relevant for use with all immigrants who attend the AMEP.

Aim 3. To determine if the health messages, knowledge and language taught in the curriculum could be shared among ESL students' wider social networks outside of class.

Suitability of videos and worksheets for showing to different members of students' cultural background.

To address Aim 1 and determine the suitability of each module's videos and worksheets, students were given a list of six items corresponding to three different age groups (younger, middle aged and older) for each of two genders (male and female). They were asked to consider the suitability of the videos and worksheets within each module for use with each of the six groups (for example, younger men). For each item, students indicated their agreement about suitability on a 5-point Likert scale ranging from 1 *(strongly disagree)* to 5 *(strongly agree)*. Responses of 4 *(agree)* or 5 *(strongly agree)* were summed. Table 4.9 shows the results.

Table 4.9

AMEP advanced-level students reports of the suitability[a] of the videos and worksheets with members of their cultural communities[b]

	Module 1		Module 2		Module 3		Module 4	
Appropriate for:	video	worksheets	video	worksheets	video	worksheets	video	worksheets
Younger men (aged 18-45)	10/11 (90.9)	11/11 (100)	5/5 (100)	5/6 (83.3)	5/5 (100)	6/6 (100)	4/4 (100)	4/5 (80)
Middle aged men (aged 46-65)	10/11 (90.9)	10/11 (90.9)	5/5 (100)	6/6 (100)	4/5 (80)	5/6 (83.3)	4/4 (100)	4/5 (80)
Older men (over 66 years)	8/11 (72.7)	4/11 (36.4)	5/5 (100)	4/6 (66.7)	2/5 (40)	2/6 (33.3)	3/4 (75)	3/5 (60)
Younger women (aged 18-45)	10/11 (90.9)	11/11 (100)	5/5 (100)	6/6 (100)	5/5 (100)	6/6 (100)	4/4 (100)	5/5 (100)
Middle aged women (aged 46-65)	9/11 (81.8)	8/11 (72.7)	5/5 (100)	6/6 (100)	3/5 (60)	4/6 (66.7)	4/4 (100)	4/5 (80)
Older women (over 66 years)	7/11 (63.6)	4/11 (36.4)	4/5 (80)	4/6 (66.7)	2/5 (40)	2/6 (33.3)	3/4 (75)	3/5 (60)

Note. Results presented as *n/N (%).*

[a]The data in this table refers to the proportion of students who responded 4 *(agree)* or 5 *(strongly agree)* to each item (responses of 4 or 5 to each item were summed); [b]All students rated Module 1. Denominator reflects randomisation of students to view videos from Modules 2 to 4, and some missing values.

Results showed that there was a high degree of agreement (more than 80% across the sample) that the videos and worksheets were suitable for younger men and women and middle-aged men from the students' respective cultural communities. Agreement of suitability of the materials for older men was lower, ranging from 33.3% agreement for suitability of the worksheets for Module 3 ("Cancer prevention in Australia: Primary prevention) to 100% for the video of Module 2 ("Going to the GP"). Agreement of suitability for older women was slightly less, ranging from 33.3% for suitability of the worksheets for Module 3, to 80% for the video of Module 2.

Students were provided with space to elaborate in writing on their responses. One student wrote that it was likely that the curriculum's video and worksheets would resonate with younger and middle-aged adults to a greater extent than with older men and women, due to perceptions of the family role of the older members of their communities: "They are not interest to learn new things according to them women at that age should give advice not time for learning new topics." (ID20, female, Bangladesh). Another student explained that perceived language difficulties may reduce the suitability of the worksheets for older adults: "In my culture, the older people almost don't understand English. So no matter the video or the worksheet, both of them are difficult for older people to understand." (ID17, female, China).

Likelihood of information sharing within the cultural communities of student participants.

To address Aim 3, and investigate sharing of health messages, students were asked to indicate the likelihood of people from their culture sharing information included in the curriculum with 16 different family and friend social network members (e.g., husband, grandmother, female friend). They indicated the likelihood of people sharing with each

network member by selecting a response on a 5-point Likert scale ranging from 1 *(extremely unlikely)* to 5 *(extremely likely)*. Responses of 4 *(likely)* or 5 *(extremely likely)* were summed and are shown in Table 4.10. Space was also provided for students to provide comments to elaborate on their responses.

Table 4.10

Advanced level students' responses of the likelihood[a] of students from their culture to share information from the videos and worksheets in each module with members of their wider social networks[b]

	Information from videos and worksheets in:			
Likelihood to share with:	Module 1	Module 2	Module 3	Module 4
Husband	11/11 (100)	7/7 (100)	8/8 (100)	5/6 (83.7)
Wife	10/11 (90.9)	7/7 (100)	7/8 (87.5)	5/6 (83.7)
Son	6/11 (54.5)	7/7 (100)	7/8 (87.5)	5/6 (83.7)
Daughter	6/11 (54.5)	7/7 (100)	7/8 (87.5)	6/6 (100)
Father	8/11 (72.7)	7/7 (100)	8/8 (100)	5/6 (83.7)
Mother	8/11 (72.7)	7/7 (100)	8/8 (100)	6/6 (100)
Grandfather	4/11 (36.4)	7/7 (100)	6/8 (75)	5/6 (83.7)
Grandmother	4/11 (36.4)	7/7 (100)	6/8 (75)	5/6 (83.7)
Uncle	6/11 (54.5)	7/7 (100)	7/8 (87.5)	5/6 (83.7)
Aunt	6/11 (54.5)	7/7 (100)	6/8 (75)	6/6 (100)
Male friend	4/11 (36.4)	7/7 (100)	6/8 (75)	4/6 (66.7)

Table 4.10 (continued).

	Information from videos and worksheets in:			
Likelihood to share with:	Module 1	Module 2	Module 3	Module 4
Female friend	6/11 (54.5)	7/7 (100)	6/8 (75)	5/6 (83.7)
Male colleague	4/11 (36.4)	4/7 (57.1)	5/8 (62.5)	5/6 (83.7)
Female colleague	5/11 (45.5)	4/7 (57.1)	5/8 (62.5)	5/6 (83.7)
Male classmate	7/11 (63.6)	5/7 (71.4)	5/8 (62.5)	5/6 (83.7)
Female classmate	7/11 (63.6)	5/7 (71.4)	5/8 (62.5)	5/6 (83.7)

Note. Results presented as *n/N (%)*.

[a]The data in this table refers to the proportion of students who responded 4 *(likely)* or 5 *(extremely likely)* to each item (responses of 4 or 5 to each item were summed); [b]All students rated Module 1. Denominator reflects randomisation of students to view videos from Modules 2 to 4, and some missing values.

The messages included in the modules were reported by the advanced level ESL students as likely to be shared with men and women from their culture outside the classroom. There was almost unanimous agreement that messages were likely to be shared with a spouse, and over 75% reported sharing could occur with immediate family of different generations (parents and children) and, to a lesser extent, with more elderly relatives, friends and colleagues.

The introductory Module 1 ("What is cancer?") was identified as relevant to share with a spouse. Students were more divided regarding sharing information with other members of the family. Around three quarters (8 / 11, 72.7%) reported that they would share information with a parent but less reported that they would share this information with a child (6 / 11, 54.5%) or grandparent (4 / 11, 36.4%). All students indicated that they would share

information from Module 2 (“Going to the GP”) with members of their families, regardless of age. Students also reported that it would be likely or extremely likely that information learned in Module 3 (“Cancer prevention in Australia: Primary prevention”) behaviours would be shared with a husband or parent. Nearly all students (7 / 8, 87.5%) reported that information would be shared in their culture with a wife or children. Module 4 (“Cancer prevention in Australia: Secondary Prevention”) was viewed by six students. Almost all (66.7 - 100%) reported likelihood that a student from their culture would share this information. Many students elaborated on their responses by providing written comments. Some wrote about reluctance to discuss topics such as cancer with family members from different generations, as illustrated in these comments: “According to our culture parents do not like to discuss the topic like cancer with their son and daughter. It is a depressing topic.” (ID20, female, Bangladesh); “Grandfather-Grandmother: In my culture both of them don't care about anything, they always say we will die soon, so let us live.” (ID26, male, Iran).

Two students also reported that students may be reluctant to discuss the topic of primary prevention (referring to the videos and worksheets of Module 3) with the older generations in their culture because of their own experience. One stated: “Uncle aunt grandfather grandmother: I personally don't talk about primary prevention for them. Because they think they are the boss and know everything.” (ID19, female, Nepal). Another reported:

> “In my culture, we don't like to talk about the disease. But in this module, the video and the worksheet are interesting and easy to talk with our relatives and friends. But this part is really hard for the older people because of language.” (ID17, female, China).

Students also provided written comments to support their opinions about people in their culture sharing messages about secondary prevention (the videos and worksheets of Module 4). Sharing messages about secondary prevention was particularly seen as more likely among

females. One student reported: “In some cultures, people might feel embarrassed to discuss issues such as breast cancers with sons or fathers.” (ID22, male, Iraq). Another student wrote:

> “Men think we are superwomen; no one thinks that we might get sick and this is why I found it unlikely for men to discuss this with their wife. I really talked to my husband about the cervical examination before going to the doctor but I found it really embarrassing and unnecessary to talk about this to my grandfather, my son or my male friend or classmate. I only feel it necessary if I talked to my female friends or family member.” (ID24, female, Iraq).

Students’ impressions of learning from the cancer literacy curriculum.

Students were also asked to respond to three statements about their own impressions of the curriculum: (1) “As a language student, I would like to have studied this course”; (2) “I learned something new about cancer, or cancer prevention, after looking at this course”; (3) “The way I think about cancer has changed after looking at this course”. For each of these three statements, students indicated their agreement on a 5-point Likert scale ranging from 1 *(strongly disagree)* to 5 *(strongly agree)*.

Nine of the 11 student participants (81.8%) completed these three questions. Of these nine, eight (88.9%) gave the response of 4 *(agree)* or 5 *(strongly agree)* that they would like to have studied the course, and that they learned something new about cancer or cancer prevention during their time looking over the curriculum components. One additional student gave a neutral response and commented that they already had a medical background and knew quite a lot about cancer already. Seven of the nine students (77.8%) who responded to the three questions indicated agreement that looking at the curriculum changed the way that they thought about cancer, and another two gave a neutral response. The following written comments were provided by the student participants: “It is useful to know the facilities

available in Australia about cancer treatment and prevention especially for the new migrants who would not know the services provided…" (ID22, male, Iraq).

> "The video was well taken and easy to understand. It is very helpful for everyone to learn more knowledge about cancer. Personally I like both the videos and exercises; I hope this will become an additional Module in the future." (ID18, female, Hong Kong).

> "I have learned something new about cancer or cancer prevention after looking at this course. In my family grandmother died because of cancer. My mother, uncle and sister-in-law survived from cancer because of their diagnosis at first stage. My father-in-law died in cancer. I have learned about prevention and will try to make people around me to prevent from cancer." (ID20, female, Bangladesh).

Summary of results.

In summary, results from the teachers' survey revealed that the draft curriculum components (videos and worksheets) were considered relevant to use in classes comprising students from any cultural or religious backgrounds, age or gender, but not those with the lowest English proficiency level. Results from the students' surveys indicated that the health messages of the curriculum could resonate with younger and middle-aged adults in their communities more than with older adults. Students also reported that the health messages included in the modules were likely to be shared with people outside the classroom, particularly with immediate family members such as spouses, parents, children, and with older female relatives.

Discussion

This study sought to obtain stakeholder (ESL teachers' and students') feedback on a draft cancer literacy curriculum, so that a refined, final curriculum could be prepared ready for

applied use and evaluation. Based on the scoping study (described in Chapter 3) and the literature, a draft cancer literacy curriculum was developed. Its focus was the Australian recommendations for primary and secondary cancer prevention and it blended elements of behaviour change theory into communicative activities designed to improve student knowledge, encourage the development of behavioural intentions to increase cancer prevention behaviours and to encourage sharing of information learned with others outside of class. The draft curriculum had four modules, each comprising a video and worksheets to practise listening, reading and speaking skills that aligned with the Certificates of Spoken and Written English: Certificate 1 (CSWE I), Certificate 2 (CSWE II) and Certificate 3 (CSWE III).

A mixed methods study was then undertaken to obtain feedback from the key stakeholders about the *reach* of the curriculum. The AMEP caters to a multicultural audience where participating cultural groups change every term for each teacher. Consequently, the initial curriculum translational research goal was to investigate utility in this challenging environment by exploring *reach* and thus likely *adoption* for use in class by teachers. Results revealed that the draft curriculum components would be selected for use by teachers when teaching classes of students at CSWE II (Certificate 2) level or higher, as well as men and women from any cultural or religious background. However, the materials in the draft curriculum were not considered relevant to students with very low levels of English because they were too difficult. Results also revealed that the curriculum had good potential *reach* among most students and their social networks although it may not be as efficacious for older adults and those with very poor English.

A CBPR approach was used in this study (Wallerstein & Duran, 2010). Participation by teachers at this stage was integral to produce a final product with a greater chance of being used, including the fact that the language and look of the curriculum could be refined to

match other AMEP resources and guidelines. In addition, participation provided an opportunity for teaching staff to gain a degree of ownership towards the final product as an AMEP resource. As a result of their consultation, changes outlined in Table 4.11 were made to the draft.

Table 4.11

Changes made to the draft curriculum based on the results of teacher and student feedback

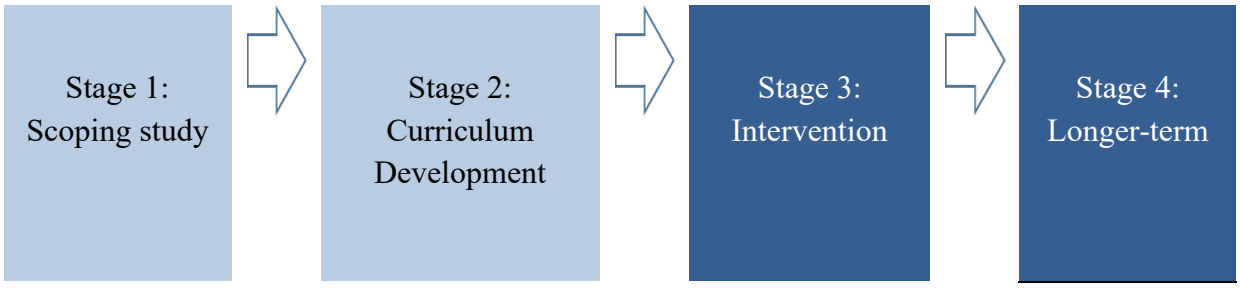
Changes made to improve *reach* to lower level (CSWE I) students
1. More pictures and less text were included on CSWE I worksheets
2. Role-plays were completely scripted, or with only a few details missing
3. Scripted student surveys were included for students to interview each other
Changes made to improve *reach* to students by increasing *adoption* and potential for use by teachers
1. CSWE I, II and III worksheets were combined into one book to enhance its flexibility when used in classes of different abilities. The book was ring-bound to enable teachers to photocopy with ease. Blank pages were introduced to enable each worksheet to stand alone.
2. An "Overview for Teachers" page was created for each worksheet, outlining CSWE competencies covered, the key health messages covered, and provide answers to exercises and links to pages containing vocabulary flashcards, speaking activities, glossary of meanings.
3. CSWE competencies made more visible (most teachers did not see it at the end of the book)
4. Key vocabulary words that appear on screen during the videos had their appearance times lengthened, and a page of Australian recommendations for primary and secondary prevention of cancer placed as a still at the end of the videos, for teachers to use to emphasise key messages in class.
5. Tabs were placed in the curriculum to differentiate each CSWE level, and different coloured, glossy pages were placed to introduce each module within each CSWE level so enable quick access to worksheets.

Conclusion

The draft curriculum was altered based on the results of the study. The final curriculum, the Australian Curriculum of Cancer prevention Education to Speakers of other languageS (ACCESS) is available in the Supplementary File with the accompanying videos. The cover, two introductory pages and the Table of Contents can be seen in Appendix E. The next stage of the process involved testing the impact of this curriculum on English language and cancer literacy knowledge and skills in South Australia. This included implementing the program in AMEP classrooms and collecting data to assess its *efficacy* for changing cancer knowledge, intentions to change behaviours linked to cancer, health literacy and English language skills. Additionally, data were collected to determine *reach* in situ, *adoption* by teachers, *implementation* into existing curricula and *maintenance* over time.

The Next Step

With these results in hand, Stages 3 and 4 of the research plan depicted in Figure 2.3 on page 53 (Intervention and Longer-term follow up), commenced. Stages 3 and 4 addressed broad Research Aims 1, 2, 3 and 4 of this dissertation.



An introduction to the intervention and its methodology are outlined in Chapter 5. The results and their discussion span Chapters 6 to 8. Chapter 6 presents results of the evaluation of *efficacy* and *maintenance* at the individual (student) level. Chapter 7 focusses on an investigation of students' sharing of health messages with family and friends outside of class

(*reach*), and Chapter 8 presents results of the evaluation of the intervention at the organisational level (*reach*, *adoption*, *implementation*, *maintenance*).

Chapter Five: Using RE-AIM to evaluate the Impact of the "ACCESS" Cancer Literacy Curriculum: Introduction and Methods

Overview

The previous two studies described in Chapters 3 and 4 used the RE-AIM translational research framework to underpin both planning and evaluation. Through this broad lens, it was determined that there was scope to develop and implement a cancer literacy curriculum within existing Adult Migrant English Programs (AMEP) in South Australia, and that information about cancer prevention was likely to reach a diverse population of immigrants who arrive to Australia with reduced English proficiency. Following development and initial investigation for likely *reach*, the implementation of the ACCESS curriculum into existing educational programming within the AMEP in South Australia was trialled and evaluated.

This chapter describes the methodology applied in the trial. The findings from the evaluation span the next three chapters. The design of the intervention was a cluster randomised, controlled trial with a sample of AMEP ESL teachers and their students. The trial was held during an 11-week school term and a follow-up investigation for *maintenance* was conducted later in the year. The RE-AIM framework was used for evaluation in order to examine the impact of the intervention at two levels of inquiry: (1) individual (student) outcomes and (2) acceptability at the staff and organisational levels. Specifically, the framework was utilised to guide reporting on the representativeness of settings and participants (*reach, adoption*), *efficacy* and the dissemination and implementation process (*reach*, *adoption*, *implementation*, *maintenance*). Thus, the evaluation process across Chapters 6, 7 and 8 will focus on both internal and external validity and facilitate commentary on the likely public health impact of delivering cancer prevention health messages through ESL partnership.

Introduction

The RE-AIM framework has been in use as an evaluation tool for 20 years and cited in over 450 evaluation publications (Glasgow et al., 2019). Several key publications have also provided recommendations on how best to report on the different RE-AIM elements (Allen et al., 2011; Glasgow & Estabrooks, 2018; Klesges et al., 2005). In addition, the RE-AIM website provides tools and recommendations to researchers to aid optimal program evaluation ("RE-AIM.org", n.d.). Table 5.1 provides a summary of these recommended activities for researchers to undertake to evaluate trials and improve trial reporting.

Table 5.1

Recommended activities for intervention evaluation with RE-AIM[a]

RE-AIM element	Activities
Individual level	
Reach	Calculate the representativeness of participants to wider population; comment on those excluded; comment on recruitment strategies
Efficacy	Report primary outcomes with effect sizes; comment on positive and negative outcomes
Maintenance	Report on primary outcomes over time
Organisation level	
Adoption	Calculate the representativeness of staff and settings; comment on those excluded
Implementation	Report on the extent to which the intervention was delivered as intended
Maintenance	Report on intervention use 6-months later

Note. [a]Recommended activities sourced from RE-AIM website ("RE-AIM.org", n.d.).

As discussed in Chapter 2, four ESL health education curricula have published evaluations, although only one (Martinez et al., 2017) used an implementation evaluation

framework. Table 5.2 lists these four curricula. Specifically, the table shows the study designs adopted by the researchers and outcomes reported. The final column shows the elements of RE-AIM that these evaluated outcomes test, either directly or indirectly.

Table 5.2

Outcomes reported in previous ESL health education trials

Curriculum	Study design	Outcomes reported by researchers	RE-AIM elements
Language for Health (cardiovascular health)	Multi-centre cluster randomised control trial (Elder et al., 1998); Two-group (intervention, control) repeated measures (Elder et al., 2000). Implementation factors (Woodruff et al., 1996).	Students' physiological and psychological (knowledge, self-efficacy, beliefs/attitudes, intentions), behavioural (fat avoidance) outcomes	Efficacy, Maintenance (student-level), Implementation
Hepatitis B	Pre-post test (Coronado et al., 2008); group randomised controlled trial (Taylor et al., 2011; Taylor et al., 2009)	Students' knowledge	Efficacy, Maintenance (student-level)
Health Literacy	Pre-post test (Soto Mas, Cordova, et al., 2015); randomised controlled trial (Soto Mas, Ji, et al., 2015)	Students' functional health literacy	Efficacy
"Healthy Eating 4 Life" (HE4L)	Pre-post test (Duncan et al., 2012)	Students' psychological (knowledge, intentions, outcome expectations, action and coping planning), behavioural (fruit and vegetable intake) and English language (state-wide tests of vocabulary, reading and listening) outcomes	Efficacy
"Healthy Eating 4 Life" (HE4L)	Retrospective evaluation using RE-AIM (Martinez et al., 2017)	Outcomes at student and staff level	Reach, Efficacy, Adoption, Implementation

As noted in in Table 5.2, the evaluation trials predominantly concentrated on investigating outcomes at the individual (student) level. Soto Mas et al.'s work assessed

functional health literacy (Soto Mas, Ji, et al., 2015; Soto Mas et al., 2013). All other researchers evaluated knowledge outcomes. In addition, intention to improve dietary choices was assessed in one of these (Elder et al., 2000) and English language skills in another (Duncan et al., 2012) and both were found to increase as a result of the interventions.

These evaluations at the individual (student) level provided a test of internal validity, the *efficacy* of the interventions. Although an appraisal of *efficacy* was essential in each evaluation, data collected to address it provided little or no information about the interventions' likely uptake by educators and schools, implementation into regular ESL programming, and wider impact. In order to examine these wider implications, two research teams reported some evaluation of implementation in the literature. The team investigating the "Healthy Eating 4 Life" (HE4L) curriculum in 2012 (Duncan et al., 2012) evaluated their trial retrospectively, against the RE-AIM framework, and published their results in 2017 (Martinez et al., 2017). They reported that this latter evaluation provided them with more evidence with which to make conclusions about their 2012 trial and its implementation process within ESL classrooms in the US state of Connecticut.

Martinez et al. (2017) evaluated *reach* of students and *adoption* by teachers by calculating the representativeness of participants compared to their target demographics. They concluded that the trial had been representative of the ESL demographic in Connecticut at that time, inferring that it was therefore likely that their curriculum could reach the students for whom it was intended. The curriculum's *implementation* was assessed to determine the degree to which the course had been taught as intended. The intention of the researchers was that the curriculum "could be implemented as a stand-alone curriculum or as individual lessons that could be combined with other ESL curricula" (Martinez et al., 2017), p. 658. Implementation was evaluated via weekly surveys to 18 teachers during the intervention, and focus groups conducted after the intervention finished. The researchers noted that staff taught

most rigorously from the first unit ("Your lifestyle and your health") of their four-unit curriculum (78 - 100% completion of the unit about food choices), and less from the second unit ("Navigating the health system"), with 28-39% completion. Three of the 18 teachers taught some activities from unit 3 ("A balanced diet") and no teachers taught from unit 4 ("Celebrations"). The predominant reason for lack of adherence to all four units by teachers was time constraints, despite high teacher enthusiasm for the curriculum. In addition, the curriculum, which was aimed at low-beginner language students, was deemed too difficult for several classes. Despite these findings, the researchers reported that the curriculum had been implemented as intended but not as a stand-alone curriculum. They concluded that it would be better implemented if it could complement other curricula requirements and be flexible and adaptable to deal with time and language level barriers.

Using RE-AIM directed the attention of Martinez et al. (2017) to report on aspects of the intervention that would have been lost if they had only concentrated on *efficacy*. Despite this, their evaluation using RE-AIM was limited in several ways. Their evaluation of *efficacy* was limited by the lack of a control group. The inclusion of a control provides a point of comparison in an intervention trial, so that any observed differences may be attributed more confidently to the intervention, rather than other factors (Spence et al., 2018). Their appraisal of *implementation* was restricted to teacher reports, due to the retrospective nature of the evaluation. In addition, *maintenance* at both the student and staff/organisation level was not assessed by the researchers, who explained that the HE4L curriculum trial was a pilot, and the evaluation occurred several years after the trial.

In the other study, Woodruff et al. (1996) investigated *implementation* by attending occasional classes teaching the "Language for Health" curriculum. They attended unannounced and conducted an observation of the fidelity of the lesson using a checklist to tick curriculum components that were used and not used. They reported that the observed

classes taught around 75% of the curriculum. In this study, teachers' reports of usage of other parts of the curriculum were not obtained; fidelity was only tested through unannounced observations.

Intervention: Two Levels of Inquiry

The current trial aimed to overcome limitations in previous studies' design and evaluation. Specifically, the evaluation of the ACCESS curriculum aimed to appraise its potential utility for improving cancer prevention among immigrants through delivery within existing ESL programming. Based on the recommendations in the literature (Allen et al., 2011; Glasgow & Estabrooks, 2018; Klesges et al., 2005), previous reports (Martinez et al., 2017) and the results of earlier studies outlined in Chapters 3 and 4, the research aims and hypotheses for the present intervention trial were developed at two levels of inquiry. The first level targeted the individual (student) (addressing RE-AIM elements of *efficacy*, *maintenance* and *reach*) and the second level focussed on the organisation (addressing RE-AIM elements of *reach*, *adoption*, *implementation* and *maintenance*). Evaluation activities were designed to address the first four of the five broad research questions addressed in this dissertation, as outlined in the two sections that follow: (1) Individual (student) level inquiry and (2) Organisational level inquiry.

(1) Individual (student) level inquiry.

Efficacy.

The evaluation of *efficacy* aimed to determine the internal validity of the intervention and examine the impact of the curriculum on a range of individual outcomes. This underpinned the dissertation's broad Research Question 1: Can a theory-driven, culturally sensitive, ESL cancer-literacy curriculum, developed with stakeholder input, improve psychological, behavioural and language outcomes linked to cancer morbidity?

There were two aims.

Aim 1: To investigate change on four categories of primary outcome variables spanning knowledge, behavioural intentions to prevent cancer, health literacy and English language skills between Intervention and Wait-list Control groups over time.

Hypothesis 1: Students' scores on each of the primary outcome variables improve more in the Intervention group than in the Wait-list Control group following completion of lessons from the ACCESS curriculum.

Primary outcome variables.

Based on previous research in this area (outlined in Table 5.2), four categories of primary outcome variables were selected for evaluation in the current study. These were (1) Knowledge, (2) Intentions to change cancer prevention behaviours, (3) Health literacy and (4) English language skills. Intentions to change behaviours rather than actual behaviour changes were chosen as primary outcomes in this study. This selection was made due to the relatively short follow-up time, suggesting that initial changes in intention were more likely to be noted than changes in actual behaviour. The primary outcome variables selected for the evaluation of the intervention's *efficacy* are described in Table 5.3.

Table 5.3

Description of the primary outcome variables selected for evaluation of efficacy

Variables	Description
Knowledge (4 variables)	
Cancer Prevention – Primary	Knowledge of the seven Australian guidelines for primary prevention: eat fruit and vegetables, be active, be sun smart, maintain a healthy weight, reduce alcohol, stop smoking, have vaccination against human papillomavirus (Cancer Australia, 2015)
Cancer Symptoms	Knowledge of seven cancer symptoms covered in the curriculum: unexplained lump, bleeding, tiredness, pain or weight loss, a cough that does not go away, change in the body or on the skin
Cancer Prevention - Secondary	Knowledge of the three free cancer screening tests offered to Australians of various ages: bowel cancer, breast cancer and cervical cancer screening, as well as knowledge of HPV vaccinations for young people (Australian Government Department of Health)
General Cancer Knowledge	General key cancer-specific health messages covered in the curriculum. Seven items covering five key topics: cancer is not always a death sentence, many cancers can be treated if caught early, cancer screening can help save lives, discuss a symptom with a doctor, go to a GP about symptoms, not the hospital Emergency department
Behavioural Intentions to prevent cancer (6 variables):	
Increase Fruit and Vegetables	Intentions to increase own consumption of fruit and vegetables in the coming year
Increase Physical Activity	Intentions to increase own physical activity in the coming year
Increase Sun Protection	Intentions to increase the Australian Sun Smart (Cancer Australia, 2015) sun protective behaviours in the coming year (wear sunscreen, a sunglasses, long sleeves and hat outside, seek shade)
Reduce Alcohol	Intentions to reduce own consumption of alcohol in the coming year (if applicable)
Stop Smoking	Intentions to stop smoking in the coming year (if applicable)
Screen for Cancer	Intentions to screen for cancer in the future
Health Literacy (Nutbeam, 2008) (3 variables):	
Functional Health Literacy	Self-rated ability to understand factual health information and use health services
Communicative Health Literacy	Self-rated ability to access and interact with written and verbal health information
Critical Health Literacy	Self-rated ability to critically appraise health information to make health choices
English language skills (1 variable)	
Cancer Vocabulary	Understanding of definitions of 15 cancer-specific words used in the curriculum

Aim 2: To investigate change on four categories of secondary outcome variables: current cancer prevention and risk behaviours, attitudes towards cancer prevention

behaviours as important for health, self-efficacy to participate in cancer prevention behaviours, and English communication between Intervention and Wait-list Control groups over time.

Hypothesis 2: Students' scores on each of the secondary outcome variables improve more in the Intervention group than in the Wait-list Control group following completion of lessons from the ACCESS curriculum.

Secondary outcome variables.

Four categories of variable were also selected as secondary outcomes. These were (1) Current behaviours; (2) Attitudes towards these cancer preventive behaviours as important for health; (3) Self-efficacy to increase cancer preventive behaviours and reduce cancer risk behaviours; and (4) English communication: students' ability to communicate with health providers. Attitudes and self-efficacy were included because they are established correlates of behavioural intention (Schwarzer, 2008). Students' ability to communicate with health providers was included as a practical language outcome, over and above vocabulary. These secondary outcome variables are described in Table 5.4.

Table 5.4

Description of the secondary outcome variables selected for evaluation of efficacy

Secondary outcome variables	Description
Current Behaviours[a] (6 variables)	
Current Fruit Intake	Number of serves of fruit consumed per day over past week
Current Vegetable Intake	Number of serves of vegetables consumed per day over past week
Current Physical Activity	Number of minutes of physical activity done over past week
Current Sun Protection	Amount[b] of own sun protection behaviours this summer
Current Alcohol Consumption	Number of drinks consumed per day over past week
Current Smoking	Number of cigarettes/pipes/cigars smoked over past week
Attitudes (5 variables)	
Fruit and Vegetable Intake Attitude	Attitude towards importance of increasing fruit and vegetables for health
Physical Activity Attitude	Attitude towards importance of increasing physical activity for health
Sun Protection Attitude	Attitude towards importance of increasing sun protection for health
Alcohol Consumption Attitude	Attitude towards importance of reducing alcohol consumption for health
Stop Smoking Attitude	Attitude towards importance of stopping smoking
Self-efficacy (6 variables)	
Increasing Fruit and Vegetables	Confidence to increase own consumption of fruit and vegetables in the coming year
Increasing Physical Activity	Confidence to increase own physical activity in the coming year
Increasing Sun Protection	Confidence to increase own sun protection behaviours in the coming year
Reducing Alcohol	Confidence to reduce own alcohol consumption in the coming year
Stopping Smoking	Confidence to stop smoking in the coming year
Having a Screening Test	Confidence to have a screening test for cancer in the future
English Communication (2 variables)	
Making a GP Appointment	Words and phrases to construct a phone call to make an appointment with a GP.
Doctor Conversation	Phrases to have a conversation with a doctor regarding symptoms and screening for cancer.

Note. [a]Current Fruit Intake and Current Vegetable Intake were measured as two variables because the Australian recommendations differ for the consumption of each. Current screening behaviours (bowel, breast and cervical) were not included as secondary outcome measures because it was anticipated that the age of most students would not lie within the age ranges for the free screening tests available in Australia; [b]Current Sun Protection was calculated based on student ratings of the frequency of engagement in 5 behaviours (wear sunscreen, sunglasses, long sleeves, hat and stay in shade) measured on a Likert scale ranging from 1 *(never)* to 5 *(always)*.

Maintenance.

At the individual (student) level, the evaluation of *maintenance* aimed to determine if any changes to individual level outcomes, achieved by exposure to the ACCESS curriculum were maintained over time.

Aim: To determine if any changes to individual level primary and secondary outcomes achieved by exposure to the ACCESS curriculum were maintained over time (3 months later).

Hypothesis: Improvements in primary and secondary outcome measures noted immediately after the intervention are maintained three months later.

Maintenance at the individual (student) level was assessed only three months post-intervention because of the time constraints on contact with students in the current trial. This is approximately half the suggested follow-up time of six months, as recommended in the literature (Allen et al., 2011; Glasgow & Estabrooks, 2018).

The results from the individual level *efficacy* evaluation components (primary outcomes, secondary outcomes) and *maintenance* are presented in Chapter 6.

Reach.

The evaluation of *reach* at the individual level aimed to explore students' sharing of cancer prevention information with family and friends outside the classroom. This aim underpins the dissertation's broad Research Question 2: Will cancer prevention messages learned in the classroom be shared with students' families and friends?

There were three aims.

Aim 1: To investigate the extent to which students shared information about primary or secondary cancer prevention learned in the course with both their family and their friends outside the classroom.

Aim 2: To explore which of the 7 primary cancer prevention messages (increase fruit and vegetable consumption; reduce red meat consumption; increase physical activity; maintain a healthy body weight; be 'sun smart'; reduce alcohol consumption; stop smoking) and 3 secondary cancer prevention messages (screening for bowel, breast and cervical cancer in Australia) were shared more readily with family and with friends.

Aim 3. To investigate predictors of students' sharing of information about primary and secondary cancer prevention behaviours with family and friends. Based on previous literature, it was hypothesised that:

Hypothesis 1: Gender (being female), Age (being older), and Time in Australia (for a greater number of years) predicts a higher frequency of general information sharing with family and with friends. These three predictors were also tested on an additional four specific information sharing outcomes (Eating less red meat; Maintaining a healthy body weight; Stopping smoking, and Reducing alcohol), with the same hypothesis.

Hypothesis 2: Information sharing related to 3 specific primary (Fruit and Vegetables; Physical Activity and Sun protection) and 3 secondary prevention behaviours (Bowel, Breast and Cervical Screening) are each predicted by: Gender; Age; Time in Australia; Current engagement with the corresponding cancer prevention behaviour; and Intention to engage in the corresponding cancer prevention behaviour.

The results of the individual level *reach* evaluation component are presented in Chapter 7.

(2) Organisational level inquiry.

The investigation at the organisational level of inquiry focussed on the external validity of the intervention trial.

Reach.

Aim: To compare the characteristics of student study sample against the wider population of Certificates 2 and 3 students.

This aim was developed in response to comments made by the teachers in the focus groups of the study presented in Chapter 3 (Stage 1 of the research plan: scoping study). The teachers indicated that their classes were multicultural and comprised men and women from all adult ages, all over the world. Therefore, the investigation sought to determine whether the study sample of students was representative of the wider population, and therefore potentially able to *reach* the target population of all immigrants in Certificates 2 and 3 who attend the AMEP.

Adoption.

There were two aims that sought to determine representativeness of the study sample of teachers and to explore teachers' use of curriculum materials.

Aim 1: To examine the characteristics of the sites and to compare the characteristics of the teaching staff and settings that adopted (trialled) the ACCESS cancer prevention curriculum.

Aim 2: To explore teachers' use of the ACCESS curriculum during the trial.

Implementation.

Aim: To determine the degree to which the course was delivered as intended.

This aim underpinned the dissertation's broad Research Question 3: Will intervention fidelity be maintained when the curriculum is utilised in actual classes?

Teachers attended a pre-trial meeting and were instructed to teach from each of the four modules during the four-week trial. Their instructions are described in more depth in Chapter 8. In brief, they were instructed to use the video and accompanying Listening worksheets first when teaching from each module. They were also told to encourage students to share information learned in class with family and friends outside of class. These instructions were conveyed verbally and in the "Overview" section of the ACCESS curriculum, which they were asked to read prior to the intervention.

Maintenance – continued use of ACCESS.

Aim: To investigate longer-term (6-month) use of the curriculum by teachers.

The investigation aimed to determine whether the ACCESS curriculum continued to be utilised by teachers six months following completion of the initial trial. This aim underpinned the dissertation's broad Research Question 4: Will the intervention be used after the trial is completed?

The results from the Organisational level inquiry: *reach*, *adoption*, *implementation* and *maintenance* evaluation components are presented in Chapter 8.

Methods

Study design.

A cluster randomised controlled trial design was chosen to address the research aims. The controlled trial design was selected to control for the impact of exposure to ESL instruction across time on all outcomes of *efficacy*. Changes in performance on the outcome variables for determination of *efficacy* were compared between students who had received the

ACCESS intervention (Intervention group) and students attending the "usual" ESL classes and who were "waiting" to participate in ACCESS (Wait-list Control group).

Figure 5.1 outlines the study design and procedure.

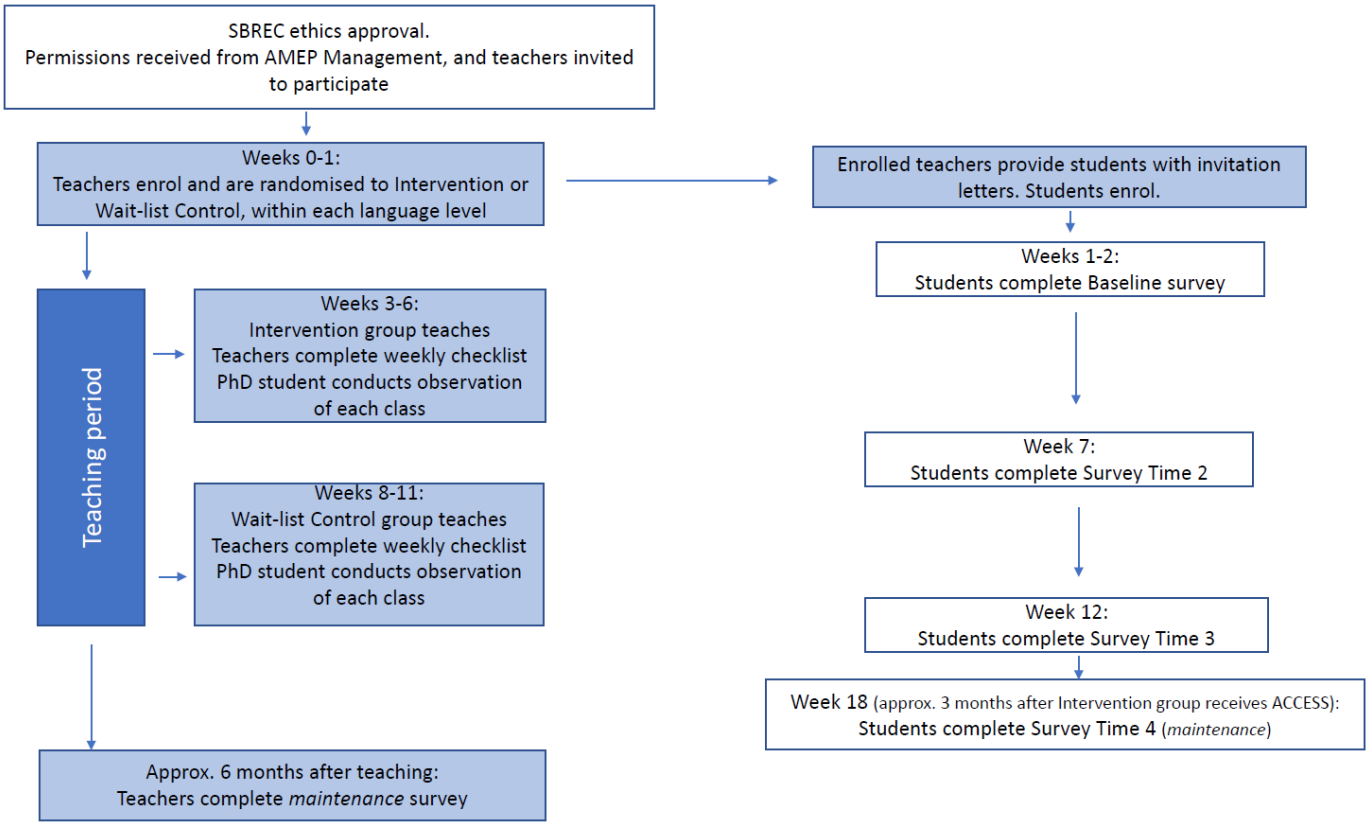


Figure 5.1. Trial design and procedure.

Data collection activities.

Individual (student) level outcomes.

Figure 5.2 outlines the data collection activities for the individual (student) level outcomes.

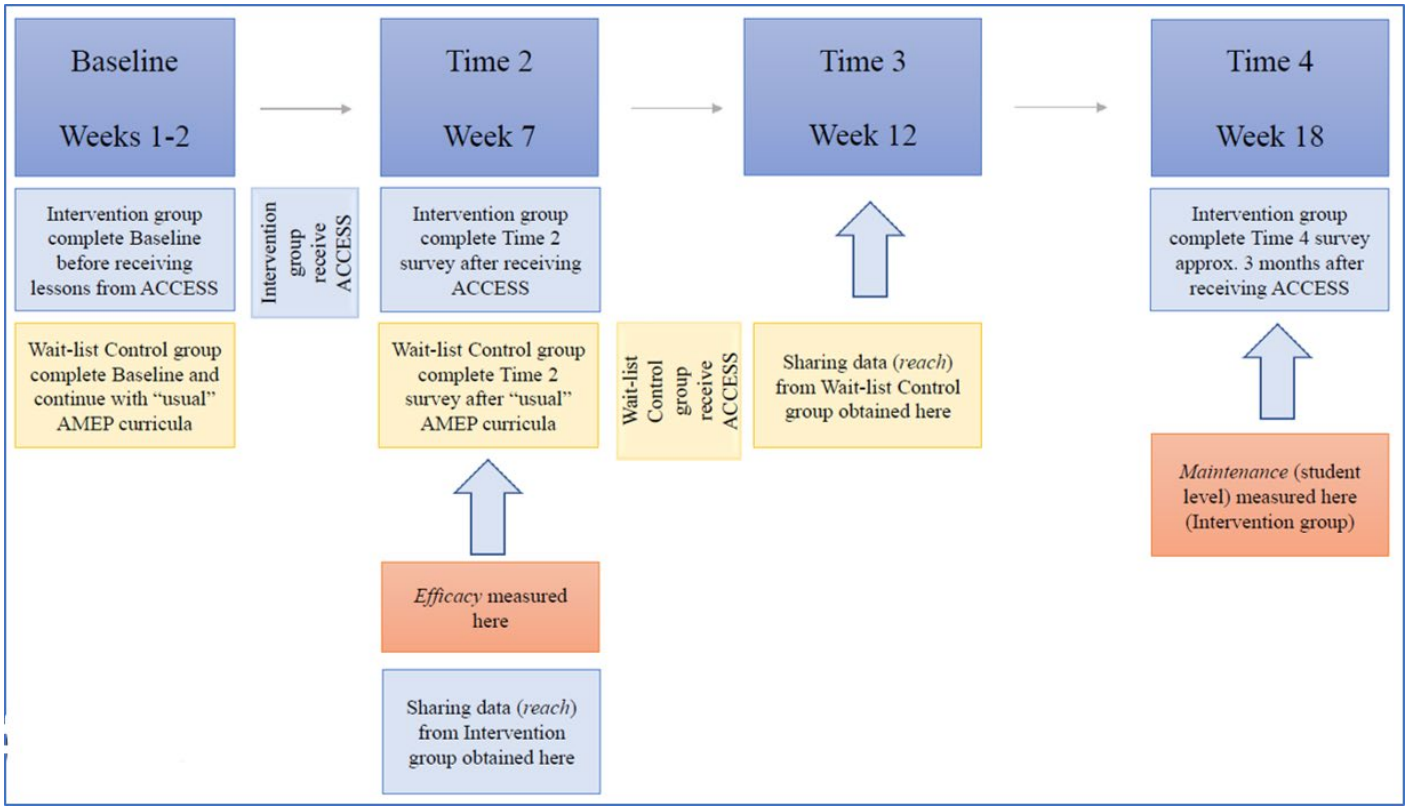


Figure 5.2. Data collection activities for the individual (student) level outcomes.

Data to determine *efficacy* were obtained at Baseline and Time 2, after the Intervention group had received lessons from ACCESS. The Wait-list Control group received lessons from the ACCESS curriculum after the Intervention group. They received lessons from ACCESS between Times 2 and 3 instead of continuing with "usual" ESL classes. They completed surveys at all four time-points, as did the Intervention group. However, their data were not used for *efficacy* analyses at Time 3 after they received lessons from the ACCESS curriculum, nor for *maintenance* analyses at Time 4.

Data to determine *reach* (students' sharing of curriculum information with family and friends) were obtained at Time 2 (Intervention group) and at Time 3 (Wait-list Control group). Data from the Wait-list Control group's Time 3 survey items on sharing of information from the ACCESS curriculum with family and friends were pooled with data from the Intervention group's Time 2 survey items on sharing of information. This provided a

larger sample from which to investigate *reach* into the wider community, at the individual (student) level. Therefore, the Time 3 survey was only used to capture sharing data from the Wait-list group, immediately after they had been exposed to the ACCESS curriculum.

Data to determine *maintenance* at the individual (student) level were obtained at Time 4. The Time 4 survey was only used to capture three-month longer-term data on primary and secondary outcome variables from participants within the Intervention group.

Organisational level outcomes.

Data to determine representativeness of the student study sample to the wider student population were obtained from demographic questions answered on the Baseline student survey. Data to determine representativeness of the teacher study sample to the wider teacher population were obtained from demographic questions in the teachers' post-course survey completed immediately after they taught from the curriculum. Data to determine *adoption* and *implementation* of the curriculum during the trial were obtained from teachers completing weekly checklists and classroom observations. Data to determine *maintenance* (ongoing use of ACCESS) were obtained from teachers, surveyed six months post-intervention. The teachers' weekly surveys, observation checklist, post-course survey and maintenance surveys are described in more detail in Chapter 8, where results are presented. For the evaluation of *adoption* , *implementation* and *maintenance* at the organisation level, data from teachers surveys were pooled from all participating teachers, that is, those who taught the Intervention group and from those who taught the Wait-list Control group, in order to capture results from a larger sample.

Sample size calculations.

Sample size was calculated at the individual (student) level. Randomisation of students to Intervention or Wait-list Control was done at the level of class (and teacher) within each of

two language levels (Certificate 2 and Certificate 3). The sample size calculation accounted for this 'clustering' of students within class. The primary outcome variable used to calculate sample size, was the Knowledge variable: Cancer Prevention – Primary. This variable, created for the trial, required participants to write as many of the seven primary prevention strategies covered in the course, as they could remember. One point was awarded for each correct strategy of the seven covered in the course. Additional strategies written were not awarded a point. Knowledge scores consequently ranged from 0 - 7. This variable was selected because information about primary cancer prevention behaviours was covered in each of the first three modules of the course, in the videos, and in worksheets designed to improve each language skill. Sample size was calculated for the intervention trial using two steps.

Step 1: A procedure as recommended by Taylor (2011) was used to calculate the independent (i.e., non-clustered) sample size. A Multivariate Analysis of Variance (MANOVA) procedure was conducted. This procedure prescribed the creation of a dummy dataset, and MANOVA procedures were then used until the required significance level was reached. A cut-off of 0.5 standard deviation was used for identification of change. This cut-off was based on the results of a systematic review of 38 studies of health-related psychosocial outcomes, in which Norma, Sloan and Wyrwich (2003) concluded that 0.5 of a standard deviation was the "threshold of discrimination" (p.582) for a minimally important difference. The use of 0.5 as a cut-off was reinforced by the fact that the authors of a recent Australian study (McCaffery et al., 2016) used this recommended 0.5 standard deviation to determine sample size for their study. This study investigated health literacy in a sample of adult students studying health at Technical and Further Education (TAFE) sites in Australia (the same sites that teach the AMEP).

Using this procedure, it was determined that 60 student participants were required to detect a difference in the mean total Knowledge variable Cancer Prevention – Primary score between the Intervention (n = 30) and Wait-list Control (n = 30) groups, assuming a 0.5 *SD* effect size with 80% power, α = 0.05. There were two language levels: Certificate 2 (lower language level) and Certificate 3 (higher language level), therefore to have an adequate sample, each level would require 30 students (15 Intervention and 15 Wait-list Controls).

The teachers who participated in the previous studies outlined in Chapter 3 (Stage 1: scoping study) and Chapter 4 (Stage 2: curriculum development) provided information that each ESL class within the AMEP had an upper size limit of 25 students. Assuming a response rate of 30% to the invitations, it was anticipated that eight students in each class would accept an invitation and enrol in the study. Given the powered individualised *n* of 15 students in each arm (80% power) at each language level, two classes in each arm at each language level (overall, four classes at each language level) would be required to provide the power to test the impact of ACCESS on students' Knowledge variable Cancer Prevention - Primary.

Step 2: An additional sample size calculation step was taken to account for clustering of students within classes (the "Design Effect"). The Design Effect is "the ratio of the actual variance of a sample to the variance of a simple random sample of the same number of elements" ((Kish, 1965) p.258) and refers to the observation that performance can tend to correlate within clusters (i.e., classes of students). Its calculation is a function of an intra-cluster correlation coefficient (ICC) and mean cluster size. The formula provided by Kish (1965) was used to calculate the Design Effect for this trial.

Formula: DE = 1 + (Mean cluster size – 1)*ICC

For the current trial, the ICC for the variable Cancer Prevention – Primary was unknown prior to the trial, and no related ICCs were reported in the literature. Therefore, an

ICC of 0.05 was used as a default value. This followed the recommendations of Adams et al. (2004) and van Breukelen and Candel (2012) who suggested that an ICC of 0.05 is a good default value for trials in primary health care. In the health literacy education trial at TAFE in Australia, McCaffery et al. (2016) used this recommended ICC of 0.05. The formula was populated using the mean class size determined in Step 1 (eight students per class).

DE = 1 + (8-1)*.05

DE = 1.35

The number of required classes (clusters) calculated in Step 1 (four classes) was multiplied by 1.35 = 5.4 classes. Therefore, it was concluded that six classes per language level should provide adequate power for the trial. Six classes per level, each with eight students, resulted in a total of 48 students required for each language level (total $N = 96$). Finally, to allow for 15% drop-out rate in a longitudinal trial (McCaffery et al., 2016), another 14 students were required, bringing the total required minimum number of students per class to nine, ($n = 55$ per language level) and a total student population required of $N = 110$.

Ethics approval.

Full approval with the Social and Behavioural Research Ethics Committee was obtained on 26th November, 2018 (project number 8127).

Participants.

Teachers of Certificates 2 and 3 at all sites offering the AMEP were invited to participate. These Certificate levels (2 and 3) correspond to Pre-Intermediate and Upper-Intermediate / Advanced levels of English proficiency. Following informed consent, each teacher participant was randomised to the Intervention or Wait-list Control group.

Randomisation was achieved by first generating a random listing of numbers (corresponding to Intervention or Wait-list Control) using the random number generator in Microsoft Excel. A random list was generated within each of the two language levels. Each participant was allocated to the next available number, within their language level, as they entered the study. All students enrolled in the Term 1 class of a participating teacher were also invited to participate. Copies of teacher and student Participant Information Sheets and Consent forms are in Appendix F. Teachers of Certificate 1 (the lowest English language level) were not invited nor were eligible to participate because their students would not be able to complete the required trial surveys with ease (the surveys were in English only).

Survey measures: Individual (student) level of inquiry.

All enrolled student participants were provided with the Baseline survey (see Appendix G) and completed it before Week 3 of Term 1 (see Figures 5.1 and 5.2). All enrolled students completed the Time 2 survey in Week 7, the Time 3 survey in Weeks 12-13 (holiday break, approximately one month after intervention) and a Time 4 survey half-way through Term 2 (Week 18: approximately three months after exposure to the curriculum resource for Intervention students). Surveys were in paper form. This followed advice from AMEP teachers to make the process equitable because many students did not have access to internet outside of class. Students were provided with a reply-paid envelope in which to return their surveys to class, from where they were collected. Each student was reimbursed for their time with $50 of Coles Myer gift cards: $10 was given after each of Baseline, Time 2 and Time 3 surveys, and $20 after the final Time 4 survey.

At the student level of the evaluation, *efficacy* and *maintenance* were evaluated against the primary and secondary outcome measures listed and described in Tables 5.3 and 5.4,

respectively. A full description of the origin and scoring of these variables follows and are summarised in Table 5.5.

Primary outcome variables.

Knowledge.

Four variables were operationalised to assess acquisition of knowledge as described in ACCESS. Items adapted from the Awareness and Beliefs about Cancer measure (ABC) (Simon et al., 2012), formed these four variables. The ABC was originally designed as a population-based telephone survey to measure awareness and beliefs about cancer symptomatology and causes, as well as medical help seeking, and has been validated in International Cancer Benchmarking Partnership countries (Forbes et al., 2013). The four Knowledge variables constructed by modifying items in the ABC were Cancer Prevention – Primary, Cancer Symptoms, Cancer Prevention – Secondary and General Cancer Knowledge (See Table 5.3 for a description of each variable).

Cancer Prevention – Primary was an "open" item. It asked participants to list as many primary prevention strategies as they could remember from the course. Each correctly identified primary prevention behaviour was awarded 1 point (maximum score 7, range 1-7). Cancer Symptoms was similar. It asked participants to list as many of the seven cancer symptoms as they could remember from the course. Each correctly identified symptom was awarded 1 point (maximum score 7, range 1-7). Cancer Prevention – Secondary was developed to ask students to state the age ranges during which people in Australia are recommended to have screening tests for bowel, breast and cervical cancer and vaccinations for teenagers for HPV. There was an additional question to ask how much these screening tests cost, to check that participants had learned that the tests are free in Australia. Each correct response was given 1 point (maximum score 5, range 1-5). Finally, General Cancer

Knowledge was modified from the ABC's scale that contained five statements. In the original ABC, respondents indicate agreement on a 4-point Likert scale ranging from 1 *(strongly disagree)* to 4 *(strongly agree)* to statements such as "cancer can often be cured". For the current trial, the statements were adapted to include the key cancer messages covered in the curriculum and the language was modified to that modelled in the curriculum and videos. For example, "cancer can often be cured" was changed to "many cancers can be treated" and scoring was changed to a *True/False* format. There were seven items covering five key messages included in the curriculum: cancer is not always a death sentence, many cancers can be treated if caught early, cancer screening can help save lives, discuss a symptom with a doctor, go to a GP about symptoms and not a hospital's Emergency department.

Behavioural intentions to prevent cancer.

Students' intentions to engage in cancer prevention behaviours and to screen for cancer in the future were measured by 6 single items. Statements for each intention (Increase Fruit and Vegetables, Increase Physical Activity, Increase Sun Protection, Reduce Alcohol, Stop Smoking, and Screen for Cancer) such as "I want to eat more fruit and vegetables this year" were responded to by students indicating agreement on a 7-point Likert measure ranging from 1 *(strongly disagree)* to 7 *(strongly agree).* Each variable provided a single score from 1 to 7.

Health literacy.

A measure of health literacy was selected for use in the current trial based on conformity with Nutbeam's (2008) definition of health literacy. Nutbeam identified three different types: functional, communicative and critical. The focus on communicative health literacy was considered particularly important in supporting cancer preventive behaviour in immigrants. This form of literacy is concerned with the ability to access and interact with written and verbal communication and is a core goal of ESL instruction. In the absence of a

specific "cancer literacy" measure derived from Nutbeam's definition of health literacy for the general, non-clinical, population , the general health literacy measure All Aspects of Health Literacy Scale (AAHLS) (Chinn & McCarthy, 2013) was selected for the current trial. This measure was developed in accordance with Nutbeam's definition of health literacy, and measured functional, communicative and critical health literacy in a self-report format. This format shifted focus from testing specific reading and writing skills to an understanding of an individual's health literacy competencies within their own social context. This "self-report" approach was selected for the current study to remove additional language burden from the ESL students and to monitor change over time.

The original AAHLS contains 10 health literacy items and was designed for the general English-speaking population. Six items measured functional and communicative health literacy, three each, and four items measured critical health literacy. This original version requires participants to respond to each item on a 3-point Likert scale ranging from 1 *(often)* to 3 *(rarely)*. In 2018, the AAHLS was modified (Chen, Goodson, Acosta, Barry, & McKyer, 2018) for use with Chinese immigrants with reduced English proficiency. As a result of cognitive interviews with 405 participants, the wording of some items was changed and the original three-point Likert response scale was extended to a 5-point Likert scale ranging from 0 *(never)* to 4 *(always)*, with higher scores indicating better health literacy. This revised measure, and its scoring, were used for the current trial, and each item's language was simplified further and adapted to read as a competency fitting the Australian context. For example, the functional health literacy skill of completing medical forms was adapted from "Do you need help to fill in English official documents in English?" was adapted to "I need help to fill in English forms in Australia". Two of the three Functional Health Literacy subscale items were reverse-scored and each subscale's item responses were summed. Three scores were obtained from the AAHLS: Functional Health Literacy (maximum score 12,

range 0 - 12); Communicative Health Literacy (maximum 12, range 0 - 12); Critical Health Literacy (maximum score 16, range 0 – 16).

English language skills.

Duncan et al. (2012) assessed English language outcomes via a test of fruit and vegetable knowledge, and state-wide assessment of reading and listening. Following this example, the current investigation included the variable Cancer Vocabulary, a vocabulary test comprising 15 cancer terms covered in the curriculum. Students were required to match each word correctly to a description of each term. Correct responses were summed to provide an overall Cancer Vocabulary score (maximum 15, range 0 – 15).

Secondary outcome variables.

Current cancer prevention and risk behaviours.

There were six items: number of serves of fruit consumed, number of serves of vegetables consumed, amount of physical activity done, sun protection behaviours, number of alcoholic drinks consumed and number of tobacco items smoked. Current Fruit Intake and Current Vegetable Intake were each measured by asking students to write the number of serves they had consumed each day over the past week. Examples were provided to inform students what a "serve" comprised. Current Physical Activity was measured by asking students to indicate the number of minutes of physical activity completed each day Monday to Sunday over the past week. The daily amounts were then totalled to create the Current Physical Activity score. Current Sun Protection was measured by asking students to rate how often they had engaged in each of five sun protection behaviours over the current summer period (wear sunscreen, sunglasses, long sleeves, a hat and stay in the shade) on a 5-point Likert scale ranging from 1 *(never)* to 5 *(always).* Responses to each item were summed to provide the overall Current Sun Protection score (maximum 25, range 5 – 25). Current

Alcohol Consumption was measured by asking students to indicate the number of alcoholic drinks consumed each day Monday to Sunday over the past week. The daily amounts were then totalled to create the Current Alcohol Consumption score. Current Smoking was measured by asking students to indicate the number of tobacco items (cigarettes, pipes, cigars) they had smoked per day over the past week. It is to be noted that current screening behaviours (bowel, breast and cervical) were not included as secondary outcome measures for the intervention trial because it was anticipated that the age of most students would not lie within the age ranges for the free screening tests available in Australia.

Attitudes towards cancer prevention behaviours as important for health.

Five single items measured students' attitudes towards cancer preventive behaviours as important for health. Statements for each attitude (Fruit and Vegetable Intake Attitude, Physical Activity Attitude, Sun Protection Attitude, Alcohol Consumption Attitude, and Stop Smoking Attitude) such as "I think eating fruit and vegetables is important for health" were responded to by students indicating agreement on a 7-point Likert measure ranging from 1 *(strongly disagree)* to 7 *(strongly agree).* Each variable provided a single score from 1 to 7.

Self-efficacy to participate in cancer prevention behaviours.

Students' self-efficacy to participate in different cancer preventive behaviours was measured by six single items. Agreement with each statement,) such as "It will be easy for me to eat more fruit and vegetables this year", were recorded on a 7-point Likert scale. Responses ranged from 1 *(strongly disagree)* to 7 *(strongly agree).* Each variable provided a single score from 1 to 7.

English communication.

The evaluation added two tests to further the investigation of communicative language outcomes beyond vocabulary: (1) Making a GP Appointment, and (2) Doctor Conversation.

These paper-based tests were devised to replace oral testing which was not possible in the circumstances. They were devised based on written-style communicative activities that the students were familiar with in the communicative classroom (Harmer, 2007). The variable Making a GP Appointment involved 13 lines of conversation between a medical receptionist and a patient phoning to make an appointment with a GP. Every second line (six in total) was in the form of a jumbled sentence. Students were required to rearrange the words and phrases to make a whole conversation. For example, the line "Hello. I would like to make an appointment to see a GP" was presented as "I would / an appointment / a GP / Hello. / like to / to see / make. Each correctly arranged sentence accrued one point (total 6, range 0 – 6). The variable Doctor Conversation was more open. Four written prompts were provided to guide students to write a sample conversation in the context of having a conversation with a GP. For example:

"Doctor: Now, what can I do for you today?

You: [tell the doctor about a symptom you have, and ask for something about it]"

One point was awarded for each conversation element that was intelligible, even if grammar was not correct (total 4, range 0 – 4).

Students' sharing of information learned in class.

Immediately post-Intervention, the student surveys contained extra questions to determine if any information learned in the curriculum had been shared with family or with friends (see Figure 5.2). Two composite scores were calculated: Sharing with Family and Sharing with Friends.

To determine Sharing with Family, students were given a question prompt: "Did you share information with family about…" and a list of 10 primary or secondary cancer prevention behaviours. The seven primary cancer prevention behaviours listed were those

mentioned in the ACCESS curriculum: eating more fruit & vegetables, eating less red meat, being more active, maintaining a healthy body weight, being sun smart, stopping smoking, and reducing alcohol. The three secondary cancer prevention behaviours listed were: bowel cancer, breast cancer and cervical cancer screening in Australia. For each behaviour, students ticked "Yes" or "No" to indicate whether they had shared the information or not. The number of "Yes" responses were summed to give the score (total 10, range 0 – 10) for Sharing with Family. To determine Sharing with Friends, students completed a replica list. The same scoring procedure applied.

Table 5.5 lists all the variables included in the evaluation at the individual (student) level of inquiry.

Table 5.5

Measures included in the student surveys for the evaluation of efficacy, maintenance (primary and secondary outcomes) and reach (sharing)

Measure	Anchors	#item	Example(s) / description	Scoring
Primary Outcomes				
Knowledge (4 variables)				
Cancer Prevention - Primary		7	Participants write as many strategies they can remember from the course	Correct responses summed (range 0-7)
Cancer Symptoms		7	Participants write as many symptoms they can remember from the course	Correct responses summed (range 0-7)
Cancer Prevention – Secondary		5	1. Bowel cancer screening: For men and women aged from ____ to ____ years.	Total correct responses, each age +/- 5 years (range 0-5)
General Cancer Knowledge	*True / False / Don't know*	7	1. If doctors find a cancer early, they can treat it. 2. We can't do anything to prevent cancer.	Total correct responses (range 0-7)
Behavioural intentions (6 variables)				
Increase Fruit and Vegetables	1 *(strongly disagree)*; 7 *(strongly agree)*		I want to eat more fruit and vegetables this year.	Single score (range 1-7)
Increase Physical Activity	1 *(strongly disagree)*; 7 *(strongly agree)*		I want to do more exercise this year.	Single score (range 1-7)
Increase Sun Protection	1 *(strongly disagree)*; 7 *(strongly agree)*		I want to be more sun smart this year.	Single score (range 1-7)
Reduce Alcohol	1 *(strongly disagree)*; 7 *(strongly agree)*		I want to drink less alcohol this year.	Single score (range 1-7)
Stop Smoking	1 *(strongly disagree)*; 7 *(strongly agree)*		I want to stop smoking this year.	Single score (range 1-7)
Screen for Cancer	1 *(strongly disagree)*; 7 *(strongly agree)*		I want to have a screening test for cancer in the future.	Single score (range 1-7)

Table 5.5 (continued).

Measure	Anchors	#item	Example(s) / description	Scoring
Health literacy (3 variables)				
Functional Health Literacy	0 *(never)*; 4 *(always)*	3	I need help in Australia to read information given to me by a doctor.	Sum responses (range 0-12)
Communicative Health Literacy	0 *(never)*; 4 *(always)*	3	When I talk to a doctor in Australia, I can tell them all the information they need to help me.	Sum responses (range 0-12)
Critical Health Literacy	0 *(never)*; 4 *(always)*	4	In Australia, I can find out lots of different information about my health.	Sum responses (range 0-16)
English language skills (1 variable)				
Cancer vocabulary		15	Word match: Participants match target vocabulary words (e.g., cancer, screening test, benign) with a listed description	Total correct responses (range 0-15)
Secondary outcomes				
Current behaviours (6 variables)				
Current Fruit Intake		1	Last week, I ate ____ serves of fruit each day.	Single score
Current Vegetable Intake		1	Last week, I ate ____ serves of vegetables each day.	Single score
Current Physical Activity		7	Last week, I exercised on Monday for ____ minutes	Sum responses from each day
Current Sun Protection (5 items)	1 *(never)*; 5 *(always)*	5	1. This summer, how often did you wear sunscreen outside?	Sum responses (range 5-25)
Current Alcohol Consumption		7	Last week, I drank alcohol on Monday, I drank _____ drinks.	Sum responses from each day
Current Smoking		1	Last week, I smoked _____ cigarettes/pipes/cigars each dat.	Single score
Attitudes (5 variables)				
Fruit and Vegetable Intake Attitude	1 *(strongly disagree)*; 7 *(strongly agree)*	1	I think eating fruit and vegetables is important for health.	Single score (range 1-7)
Physical Activity Attitude	1 *(strongly disagree)*; 7 *(strongly agree)*	1	I think exercise is important for health.	Single score (range 1-7)
Sun Protection Attitude	1 *(strongly disagree)*; 7 *(strongly agree)*	1	I think being sun smart is important for health.	Single score (range 1-7)

Table 5.5 (continued).

Measure	Anchors	#item	Example(s) / description	Scoring
Alcohol Consumption Attitude	1 *(strongly disagree)*; 7 *(strongly agree)*	1	I think drinking less alcohol is important for health.	Single score (range 1-7)
Stop Smoking Attitude	1 *(strongly disagree)*; 7 *(strongly agree)*	1	I think not smoking is important for health.	Single score (range 1-7)
Self-efficacy (6 variables)				
Increasing Fruit and Vegetables	1 *(strongly disagree)*; 7 *(strongly agree)*	1	It will be easy for me to eat more fruit and vegetables this year.	Single score (range 1-7)
Increasing Physical Activity	1 *(strongly disagree)*; 7 *(strongly agree)*	1	It will be easy for me to do more exercise this year.	Single score (range 1-7)
Increasing Sun Protection	1 *(strongly disagree)*; 7 *(strongly agree)*	1	It will be easy for me to be more sun smart this year.	Single score (range 1-7)
Reducing Alcohol	1 *(strongly disagree)*; 7 *(strongly agree)*	1	It will be easy for me to drink less alcohol this year.	Single score (range 1-7)
Stopping Smoking	1 *(strongly disagree)*; 7 *(strongly agree)*	1	It will be easy for me to stop smoking this year.	Single score (range 1-7)
Having a Screening Test	1 *(strongly disagree)*; 7 *(strongly agree)*	1	It will be easy for me to have a screening test in the future.	Single score (range 1-7)
English Communication (2 variables)				
Making a GP Appointment		6	Participants put words together to make a doctor's appointment 1. I would / an appointment / a GP / Hello / like to / to see / make	Total correct responses (range 0-6)
Doctor Conversation		4	Following prompts, participants are given space to write a conversation with a doctor about a symptom and to ask for a screening test.	Total intelligible responses (range 0-4)
Other variables				
Demographic variables			Age (yrs), gender (m/f), country of birth, time lived in Australia (yrs), highest level education (< year 7/Primary school (Year 7)/High school (Year 12)/Diploma/Advanced Diploma/University Bachelor Degree/Graduate Diploma/Certificate/University Postgraduate Degree)	single values

Table 5.5 (continued).

Measure	Anchors	#item	Example(s) / description	Scoring
Language level			Certificate 2 or 3	
Prior Screening	*Yes/ No / Don't know*	3	Did you ever have a screening test (in Australia or your home country)?	Single score for each item (bowel, breast, cervical)
Additional at T2[a], T3				
Enjoyment	1 *(strongly disagree)*; 7 *(strongly agree)*	1	1. I enjoyed the course.	Single score (range 1-7)
Perceived usefulness	1 *(strongly disagree)*; 7 *(strongly agree)*	1	2. The information I learned in the course was useful to me and my family	Single score (range 1-7)
Sharing with Family[b]	*Yes / No*	10	1. Did you share information with family members about eating more fruit and vegetables?	*Yes* response to each item = 1, responses summed (range 0-10)
Sharing with Friends[b]	*Yes / No*	10	1. Did you share information with friends about eating more fruit and vegetables?	*Yes* response to each item = 1, responses summed (range 0-10)

Note. [a]Intervention group only; [b]Items to determine sharing of information about 7 primary cancer prevention behaviours (eating more fruit & vegetables, eating less red meat, being more active, maintaining a healthy body weight, being sun smart, stopping smoking, reducing alcohol) and 3 secondary cancer prevention behaviours (bowel, breast and cervical screening in Australia) with family or with friends.

Data analysis plan.

Extending Table 5.2, which outlined evaluation recommendations from the literature, the internal and external validity of the intervention was assessed across each element of RE-AIM. At the individual (student) level, the intervention's *efficacy*, its internal validity, was assessed via repeated measures. Prior to data collection, hierarchical cluster analyses of repeated measures were planned to account for the "clustering" of students within classes. The sample size calculation took clustering into account. However, cluster analyses assume adequate cluster numbers, cluster size and equal numbers across clusters (Eldridge, 2012).

Recruitment of classes and data collection is described in more detail in Chapter 6. It must be noted here however, that the number of clusters (classes) that enrolled to participate in the trial was small and the number of surveys returned from students varied widely between classes (e.g., Baseline survey return ranged from 3 in one class to 22 in another). For these reasons, accounting for clustering in analyses was not deemed possible once data collection began (Eldridge, 2012). One of the four previously published ESL health education evaluation trials also concluded this, for similar reasons (Elder et al., 2000), and went on to analyse their intervention with multivariate analysis of variance (MANOVA) procedures. The analysis of *efficacy* in the current trial followed this model.

In addition to the investigation of *efficacy*, the evaluation plan investigated *reach* and *maintenance* at the individual (student) level, and *reach*, *adoption*, *implementation* and *maintenance* at the staff/organisational level. Tables 5.6 and 5.7 depict the data analysis plan at each level of evaluation: individual (student) and organisation.

Table 5.6
Data analysis plan at the individual (student) level

Research questions, aims and planned analyses
Efficacy
Broad Research Question 1: Can a theory-driven, culturally sensitive, ESL cancer-literacy curriculum, developed with stakeholder input, improve psychological, behavioural and language outcomes linked to cancer morbidity?
Aim 1: To investigate change on four categories of primary outcome variables spanning knowledge, behavioural intentions to prevent cancer, health literacy and English language skills between Intervention and Wait-list Control groups over time.
Primary outcome variables: (1) Knowledge: Cancer Prevention – Primary, Cancer Symptoms, Cancer Prevention – Secondary, General Cancer Knowledge; (2) Behavioural Intentions to prevent cancer: Increase Fruit & Vegetables, Increase Physical Activity, Increase Sun Protection, Reduce Alcohol, Stop Smoking, Screen for Cancer; (3) Health Literacy: Functional Health Literacy, Communicative Health Literacy, Critical Health Literacy; (4) English Language Skills: Cancer Vocabulary.
Hypothesis 1: Students' scores on each of these primary outcome variables improve more in the Intervention group than in the Wait-list Control group following completion of lessons from the ACCESS curriculum.
Aim 2: To investigate change on four categories of secondary outcome variables: current cancer prevention and risk behaviours, attitudes towards cancer prevention behaviours as important for health, self-efficacy to participate in cancer prevention behaviours, and English communication between Intervention and Wait-list Control groups over time.
Secondary outcome variables: (1) Current cancer prevention & risk behaviours: Current Fruit Intake, Current Vegetable Intake, Current Physical Activity, Current Sun Protection, Current Alcohol Consumption, Current Smoking; (2) Attitudes towards cancer prevention behaviours as important for health: Fruit & Vegetable Intake Attitude, Physical Activity Attitude, Sun Protection Attitude, Alcohol Consumption Attitude, Stop Smoking Attitude; (3) Self-efficacy towards cancer prevention behaviours: Increasing Fruit & Vegetables, Increasing Physical Activity, Increasing Sun Protection, Reducing Alcohol, Stopping Smoking, Having a Screening Test; (4) English Communication: Making a GP Appointment, Doctor Conversation.
Hypothesis 2: Students' scores on each of the secondary outcome variables improve more in the Intervention group than in the Wait-list Control group following completion of lessons from the ACCESS curriculum.
Measures used: Student surveys Baseline and Time 2 to investigate time x condition changes (Baseline to Time 2) for all primary and secondary outcomes.
Planned Analyses: Analyses for Aims 1 and 2 were considered separately. For each, analyses involved Multivariate Analysis of Covariance (MANCOVA). Effect sizes were calculated to indicate the magnitude of effect. Cohen's *d* was calculated for t-tests, where 0.2 = small, 0.5 = medium and 0.8 = large; Cramér's V (shown as φ_c) for $\chi 2$ where .1 = small, .3 = medium and .5 = large; partial *Eta*^{2} (donated as η_p^2) for results of MANCOVA analyses, where .01 = small, .06 = medium and .138 = large (Cohen, 1988). Covariates: Any Baseline demographic variables that differed between Intervention and Wait-list Controls.

Results are presented in Chapter 6.

Table 5.6 (continued).

Research questions, aims and planned analyses
Maintenance
Aim: To determine if any changes to individual level primary and secondary outcomes achieved by exposure to the ACCESS curriculum were maintained over time (3 months later). Hypothesis: Improvements in primary and secondary outcome measures noted immediately after the intervention are maintained three months later. Measures used: Intervention students' surveys Time 2 and 4. Planned Analyses: Comparisons between Time 2 and Time 4 using t-tests, for each variable separately. Effect sizes determined by Cohen's (1988) *d*, where 0.2 = small, 0.5 = medium and 0.8 = large. Results are presented in Chapter 6.
Reach
Research Question 2: Will cancer prevention messages learned in the classroom be shared with students' families and friends? Aim 1: To investigate the extent to which students shared information about primary or secondary cancer prevention learned in the course with both their family and their friends outside the classroom. Aim 2: To explore which of the 7 primary cancer prevention messages (increase fruit and vegetable consumption; reduce red meat consumption; increase physical activity; maintain a healthy body weight; be "sun smart"; reduce alcohol consumption; stop smoking) and 3 secondary cancer prevention messages (screening for bowel, breast and cervical cancer in Australia) were shared more readily with family and with friends. Aim 3. To investigate predictors of students' sharing of information about primary and secondary cancer prevention behaviours with family and friends. Based on previous literature, it was hypothesised that: Hypothesis 1: Gender (being female), Age (being older), and Time in Australia (for a greater number of years) predicts a higher frequency of general information sharing with family and with friends. These three predictors were also tested on an additional four specific information sharing outcomes (Eating less red meat; Maintaining a healthy body weight; Stopping smoking, and Reducing alcohol), with the same hypothesis. Hypothesis 2: Information sharing related to 3 specific primary (Fruit and Vegetables; Physical Activity and Sun protection) and 3 secondary prevention behaviours (Bowel, Breast and Cervical Screening) are each predicted by: Gender; Age; Time in Australia; Current engagement with the corresponding cancer prevention behaviour; and Intention to engage in the corresponding cancer prevention behaviour.

Measures used: Students' surveys immediately post-ACCESS: Intervention students' Time 2 surveys; Wait-list Control students' Time 3 surveys.

Table 5.6 (continued).

Research questions, aims and planned analyses
Reach
Planned Analyses: Aims 1 and 2: frequency analyses of "yes" responses; Aim 3, Hypothesis 1: multiple regression analyses using composite continuous scores Sharing with Family, Sharing with Friends as outcome variables, gender (male/female), age (in years) and time in Australia (in years) as predictor variables; logistic regression analyses to predict sharing of information about red meat, body weight, smoking, alcohol. Hypothesis 2: logistic regression analyses to predict sharing of information about specific primary and secondary cancer prevention behaviours: Specifically, in addition to gender, age and time spent living in Australia, analyses were conducted to assess the ability of: (i) Current Fruit Intake, Current Vegetable Intake and intentions to Increase Fruit and Vegetables to predict sharing information about eating more fruit and vegetables; (ii) Current Physical Activity and intentions to Increase Physical Activity to predict sharing information about being more active; (iii) Current Sun Protection and intentions to Increase Sun Protection to predict sharing information about being sun smart; (iv) intentions to Screen for Cancer to predict sharing information about each of bowel cancer screening in Australia, breast cancer screening in Australia and cervical cancer screening in Australia. Results are presented in Chapter 7

Table 5.7

Data analysis plan at the organisation level

Research questions, aims and planned analyses
Reach
Aim: To compare the characteristics of student study sample against the wider population of Certificates 2 and 3 students. Measures used: Students' Baseline surveys; AMEP demographics. Planned Analyses: 1. % students who participated / total number of enrolled students in Certificates 2 and 3 across TAFE 2. Comparison of demographic variables (proportion of students in each language level, age, gender) of students who participated vs those who did not 3. Comparison of students' demographics who enrolled and stayed in to complete the trial vs those who dropped out and did not complete the trial, and non-completers' reasons for not completing the trial. Analyses conducted using t-tests for continuous data and χ^2 for nominal data. Effect sizes were calculated to indicate the magnitude of effect. Cohen's *d* was calculated for t-tests, where 0.2 = small, 0.5 = medium and 0.8 = large; Cramér's V (shown as φ_c) for χ^2 where .1 = small, .3 = medium and .5 = large (Cohen, 1988). Results are presented in Chapter 8.
Adoption
Aim 1: To examine the characteristics of the sites and to compare the characteristics of the teaching staff and settings that adopted (trialled) the ACCESS cancer prevention curriculum. Measures used: Teachers' post-course survey; AMEP demographics Planned Analyses: 1. % sites participating vs overall number of sites, and % classes participating vs overall number of classes possible 2. % teachers who participated / total number of teachers approached in Certificate 2 and 3; % teachers who participated / total number of teachers in AMEP 3. List reasons for not taking part/dropout/ineligibility of those who showed interest or responded to invite. Aim 2: To explore teachers' use of the ACCESS curriculum during the trial. Measures used: Teachers' weekly surveys; teachers' post-course survey.

Table 5.7 (continued).

Research questions, aims and planned analyses
Adoption
Planned Analyses: 1. t-tests to test for differences in usage (time per week) between teachers in the Intervention group and teachers in the Wait-list Control group (when they taught from the curriculum later in term). 2. For each worksheet within ACCESS: Frequency analyses to investigate: frequency of use, length of lessons, time spent in lesson preparation, teachers' likelihood of re-use (on a 5-point Likert measure ranging from 1 *(very unlikely)* to 5 *(very likely)* 3. Teachers' overall impressions: Frequency analyses: ease of use, how well each worksheet matched students' language level, improved their vocabulary, encouraged conversation and improved knowledge. Ratings on each variable on a 5-point Likert scale ranging from 1 *(strongly disagree)* to 5 *(strongly agree)*. 4. List noted barriers and facilitators -i) From Weekly surveys: preparation time for each worksheet; likelihood to use in future; teacher comments -ii) From post-teaching survey: perceived student interest; and for each worksheet – ease of use, level, ability to improve language, encourage conversation, improve knowledge; likelihood of teacher to use again; other comments Results are presented in Chapter 8.
Implementation
Research Question 3: Will intervention fidelity be maintained when the curriculum is utilised in actual classes? Aim: To determine the degree to which the course was delivered as intended. Measures used: Teachers' weekly surveys; Classroom observations. Planned Analyses: Quantitative: 1. Number (%) teachers who used the Listening worksheets of ACCESS. 2. Observations to determine: number of activities taught on a worksheet / number of activities available on the worksheet; identification of activities not taught, list of modifications made

Table 5.7 (continued).

Research questions, aims and planned analyses
Implementation
Planned Analyses: Qualitative -i) From Teacher Weekly surveys: adaptations / supplementations noted; types of modifications; teachers' written comments to suggest barriers or facilitating factors to implementation -ii) From Observation checklist: any noted barriers or facilitating factors to implementation – teacher spoken comments, students' spoken comments Results are presented in Chapter 8.
Maintenance
Research Question 4: Will the intervention be used after the trial is completed? Aim: To investigate longer-term (6-month) use of the curriculum by teachers. Measures used: Teachers' maintenance survey, 6 months post-intervention. Planned Analyses: Frequency analyses of number of worksheets used; barriers and facilitating factors to maintenance noted in written comments. Results are presented in Chapter 8.

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The Next Step

Chapters 6, 7 and 8 report the results of the evaluations. Chapter 6 presents the *efficacy* and *maintenance* results at the individual (student) level of inquiry, assessing the internal validity of the intervention. Still at the individual level, but exploring external validity, Chapter 7 presents *reach* results from the investigation into students' sharing of cancer prevention information outside of class, extending the recommended assessment of *reach* of the ACCESS curriculum. Results at the organisational level of inquiry (*reach*, *adoption*, *implementation*, *maintenance*), assessing the intervention's external validity, are presented in Chapter 8.

Chapter Six: Using RE-AIM to evaluate the Impact of the ACCESS Cancer Literacy Curriculum. Results at the Individual Student Level

Overview

The previous chapter introduced Stages 3 and 4 of the research plan (depicted in Figure 2.3 on page 53: Intervention and Longer term) designed to evaluate the impact of the ACCESS curriculum within the AMEP in South Australia. It described the aims and the methods used to conduct the evaluation of the trial at two levels of inquiry – individual (student) level, and organisational level, and outlined the planned analyses.

The current chapter will focus on the evaluation at the individual (student) level. This evaluation will examine the *efficacy* of the intervention (in relation to impact on primary and secondary outcome variables, and *maintenance*) and thus focus on its internal validity. It addresses the dissertation's broad Research Question 1: Can a theory-driven, culturally sensitive, ESL cancer-literacy curriculum, developed with stakeholder input, improve psychological, behavioural and language outcomes linked to cancer morbidity?

Student Participants

Survey completion.

Table 6.1 shows the number of invitations provided to each participating teacher, and the number of surveys that were returned at each participating site at each time point. The number of participants per class varied widely. In addition, early in the term, three Intervention participants moved between classes and levels, a practice described as normal early in the term as teachers found the best language fit for each student.

Table 6.1

Number of surveys returned / class at each of the four time points during the trial

Language Level	Site of class	Number of invitations provided	*N* at Baseline	*N* at Time 2	*N* at Time 3	*N* at Time 4
		Intervention Group				
Cert 2	Salisbury	25	4	2	1	1
Cert 2	Salisbury	18	9	6	7	6
Cert 2	Noarlunga	14	4	1	2	2
Cert 3	Salisbury	25	18	16	13	13
Cert 3	Salisbury	25	7	6	5	3
Cert 3	Adelaide	20	7	6	5	4
Total Intervention		127	49	37	33	29
		Wait-List Controls				
Cert 2	Thebarton	14	14	14	13	14
Cert 2	Adelaide	25	15	16	15	14
Cert 2	Elizabeth	20	22	20	12	14
Cert 3	Adelaide	25	3	3	3	2
Cert 3	Elizabeth	25	10	10	5	4
Cert 3	Noarlunga	15	12	11	11	8
Total Wait-list Control		124	76	74	59	56
Grand Total (Intervention plus Wait-list Control)		251	125	111	92	85

The number of invitations provided to each class varied somewhat, but approximately the same number were provided to Intervention and Wait-list Control groups. The number of

surveys returned at each time point varied widely. In some classes, almost all participants completed each survey time point, but in other classes, the number of students completing a survey varied. Figure 6.1 depicts the flow of students through the four time points of the trial.

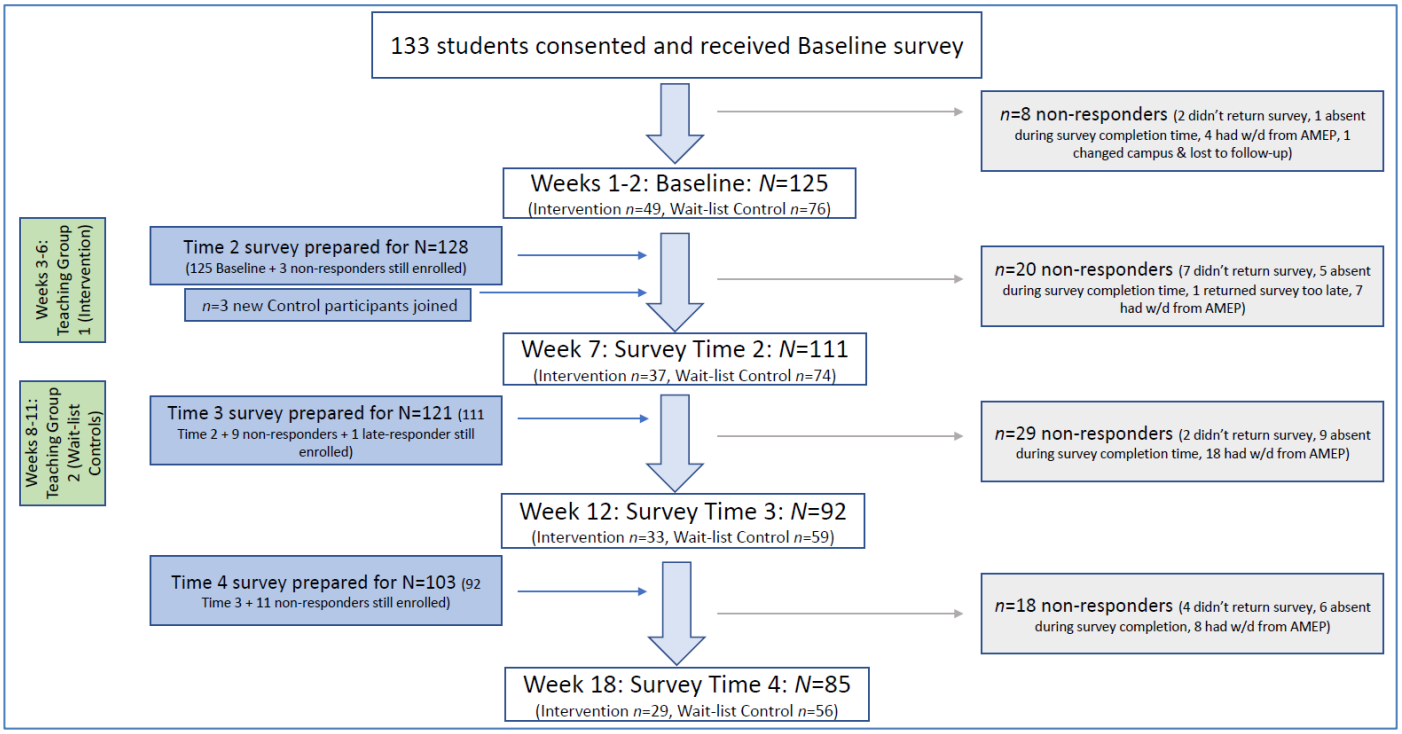

Figure 6.1. Flowchart showing student participation throughout the trial.

As depicted in Figure 6.1, $N = 125$ students completed the Baseline survey ($n = 49$ Intervention and $n = 76$ Wait-list Controls) and $N = 111$ students completed the Time 2 survey ($n = 37$ Intervention and $n = 74$ Wait-list Controls). Data from these two survey time points (Baseline and Time 2) were used to determine *efficacy* and respond to the broad Research Question 1. This is also depicted in Figure 5.2, shown on page 144.

Baseline characteristics.

Table 6.2 depicts characteristics for the $N = 125$ student participants who completed the Baseline survey.

Table 6.2

Baseline demographic variables for student Intervention and Wait-list Control group participants (N = 125)

Variables[a]	Total N = 125	Intervention *n* = 49	Wait-list Control *n* = 76	Test for significant difference	*p*	Effect size
Language level						
Certificate 2 *n* (%)	68 (54.4)	17 (34.7)	51 (67.1)			
Certificate 3 *n* (%)	57 (45.6)	32 (65.3)	25 (32.9)	χ^2 (1,125) = 11.34	p = .001**	φ_c = -.32
Number of home countries	36	21	28			
Age (range 18 - 65)	36.19 (11.82)	34.74 (10.95)	37.11 (12.39)	t (121) = -1.08	p = .28	*d* = 0.20
Gender:						
Male *n* (%)	38 (30.4)	17 (34.7)	21 (27.6)			
Female *n* (%)	87 (69.6)	32 (65.3)	55 (72.4)	χ^2 (1,125) = 0.41	p = .523	φ_c = .08
Highest level of education *n* (%):						
High school or less	71 (61.2)	23 (48.9)	48 (69.6)			
Education beyond high school	45 (38.8)	24 (51.1)	21 (30.4)	χ^2 (1,116) = 4.18	p = .041*	φ_c = -.21
Time in Australia						
Mean years (*SD*) (range .08 – 25)	2.00 (4.85)[b]	2.44 (2.94)	4.61 (5.09)	t (119.08)= -3.00	p = .003**	*d* = 0.52

Note. [a]Values at individual level are means (SD) unless otherwise stated; [b]This variable had one extreme outlier which was removed from all future analyses using Time in Australia as a covariate.

*p < .05; **p < .01; ***p < .001.

The students represented 36 countries. The largest number of students from a single country came from Afghanistan (17 / 125: 13.6%), followed by Bhutan (16 / 125: 12.8%), China (12 / 125: 9.6%) and Myanmar (11 / 125: 8.8%). The remaining students came from countries across Asia, Africa, Europe, the Middle East and South America. Most participating students were female and had attended school to the end of high school or less.

At Baseline, demographic characteristics were examined between students in the Intervention and the Wait-list Control groups. Chi-square (χ^2) tests of independence and independent samples t-tests were conducted to explore between-group differences. The magnitude of effect (effect size) was determined by Cohen's *d* for t-tests, where 0.2 = small, 0.5 = medium and 0.8 = large; and Cramér's V (φ_c) for χ^2 analyses, where .1 = small, .3 = medium and .5 = large (Cohen, 1988). The Intervention and Wait-list Control groups differed significantly on three Baseline demographic variables. The two groups differed on three demographic variables: language level, χ^2 (1,125) = 11.34, p = .001, φ_c = -.32; highest education level attained, χ^2 (1,116) = 4.18, p = .041, φ_c = -.21; and the mean number of years that they had lived in Australia, t (119.08)= -3.00, p = .003, Cohen's d = 0.52. These variables were included as covariates in the *efficacy* analyses.

Students' prior screening for cancer.

The student sample comprised 18 students who were aged 50 years or over. Around half of these (8 / 18, 44.4%) reported having had a screening test for bowel cancer. Ten of the students aged 50 or over were female. Nearly all the female students aged 50 years or over (9 / 10, 90%) reported having had a screening test for breast cancer. Around half of the 61 women aged 25 and over (27 / 61, 44.3%) reported having had a screening test for cervical cancer. There was no information gathered about where they had had the test (in Australia or abroad). Screening for cancer was not included as a secondary outcome variable in this trial

because the screening services of interest (free bowel, breast and cervical cancer screening in Australia) did not apply to all students in the sample.

Results: Evaluation of the Impact of ACCESS on Key Measures of Translation Impact – Individual Level Analysis

Efficacy

The investigation used data from the Baseline and Time 2 surveys, that is, before and after the students in the Intervention group had received the ACCESS curriculum. Students in the Wait-list Control group received "usual care", that is, regular AMEP curricula.

Primary outcome variables.

Aim 1: To investigate change on four categories of primary outcome variables spanning knowledge, behavioural intentions to prevent cancer, health literacy and English language skills between Intervention and Wait-list Control groups over time.

Primary outcome variables: (1) Knowledge: Cancer Prevention – Primary, Cancer Symptoms, Cancer Prevention – Secondary, General Cancer Knowledge; (2) Behavioural Intentions to prevent cancer: Increase Fruit & Vegetables, Increase Physical Activity, Increase Sun Protection, Reduce Alcohol, Stop Smoking, Screen for Cancer; (3) Health Literacy: Functional Health Literacy, Communicative Health Literacy, Critical Health Literacy; (4) English Language Skills: Cancer Vocabulary.

Hypothesis 1: Students' scores on each of these primary outcome variables improve more in the Intervention group than in the Wait-list Control group following completion of lessons from the ACCESS curriculum.

Table 6.3 presents descriptive statistics for these primary outcome variables among the sample of Intervention and Wait-list Control group students who completed Baseline and Time 2 surveys.

Table 6.3

Means and standard deviations of primary outcome variables from Intervention and Wait-list Control groups over time (Baseline and Time 2)

	Baseline Mean (SD)		Time 2 Mean (SD)	
Primary outcome variable	Intervention	Wait-list Control	Intervention	Wait-list Control
Knowledge				
Cancer Prevention – Primary (range 0 – 7)	3.77 (1.48)	3.61 (1.54)	4.91 (1.19)	3.45 (1.75)
Cancer Symptoms (range 0 – 7)	3.05 (1.59)	3.06 (1.59)	4.50 (1.71)	3.26 (2.00)
Cancer Prevention – Secondary (range 0 – 5)	1.45 (1.14)	1.65 (1.31)	2.09 (1.57)	1.81 (1.42)
General Cancer Knowledge (range 0 – 7)	4.91 (1.63)	5.13 (1.38)	5.91 (1.07)	5.58 (0.99)
Behavioural intentions to prevent cancer[a]				
Increase Fruit and Vegetables	6.63 (0.81)	6.63 (0.79)	6.87 (0.35)	6.81 (0.40)
Increase Physical Activity	6.40 (0.89)	6.42 (0.98)	6.47 (0.86)	6.53 (0.80)
Increase Sun Protection	5.93 (1.44)	6.00 (1.43)	6.57 (0.94)	6.18 (1.39)
Reduce Alcohol[b]	5.00 (2.37)	5.31 (1.78)	5.50 (1.29)	5.33 (1.78)
Stop Smoking[b]	4.50 (0.71)	6.00 (0)	-	7.00 (0)
Screen for Cancer	5.63 (1.30)	6.33 (1.58)	6.40 (1.04)	6.44 (0.96)
Health Literacy (AAHLS)[c]				
Functional Health Literacy (range 0 – 12)	8.04 (2.26)	6.63 (1.99)	7.79 (2.08)	7.06 (2.22)
Communicative Health Literacy (range 0 - 12)	9.63 (2.10)	9.43 (2.54)	9.93 (2.09)	9.31 (2.37)
Critical Health Literacy (range 0 - 16)	12.07 (2.50)	12.09 (2.84)	12.96 (2.24)	11.96 (2.59)

Table 6.3 (continued).

	Baseline Mean (SD)		Time 2 Mean (SD)	
Primary outcome variable	Intervention	Wait-list Control	Intervention	Wait-list Control
English language Skills				
Cancer Vocabulary (range 0 – 15)	10.86 (3.41)	11.26 (3.50)	12.27 (3.65)	12.06 (3.67)

Note. [a]Each intention measured on 7-point Likert measure ranging from 1 *(strongly disagree)* to 7 (s*trongly agree)*; [b]Intentions measured for participants who indicated that they drank alcohol (*n*=11) or smoked (*n*=2); [c]All Aspects of Health Literacy Scale (Chen et al., 2018; Chinn & McCarthy, 2013): Cronbach's α calculated for each measure: Functional Health Literacy (α=.38), Communicative Health Literacy (α=.76), Critical Health Literacy (α=.57).

Baseline mean scores on the Knowledge variables Cancer Prevention – Primary and Cancer Symptoms were just under half-way on their respective 7-point scales, indicating an average level of knowledge. In contrast, the Baseline mean score on the Knowledge variable Cancer Prevention – Secondary showed that most participants only achieved a score of 1 or 2 out of the maximum score of 5, and the mean score on the General Cancer Knowledge variable indicated that most participants achieved above average at Baseline. The mean scores on four of the Baseline Behavioural intentions to prevent cancer variables (Increase Fruit and Vegetables, Increase Physical Activity, Increase Sun Protection and Screen for Cancer) were all relatively high on the 7-point scales, indicating that some degree of agreement, or intention, to engage in each cancer prevention behaviour in the future. The Behavioural intentions variables Reduce Alcohol and Stop Smoking were removed from future analyses due to the very small number of students in the sample who reported that they drank alcohol (n = 11) or smoked (n = 2).

For each of the Health literacy measures (Functional Health Literacy, Communicative Health Literacy and Critical Health Literacy), Cronbach's alphas (α) were calculated to determine internal consistency. Results showed that the Cronbach's α for the second measure, Communicative Health Literacy, was good (α = .76), however the Cronbach's α for the first measure, Functional Health literacy (α = .38) was unacceptable. Inspection of the corrections between items showed a low mean inter-item correlation of .17 (range .06 to .33). Removal of one item ("I need help to fill in any forms in Australia") only improved the overall Cronbach's α to .50, which was also deemed unacceptable. Therefore, this measure (Functional Health Literacy) was removed from further analyses. The Cronbach's α for the measure Critical Health Literacy (α = .57) was also low. Inspection of the correlations between items showed a trivial to small mean inter-item correlation of .25 (range .06 to .36), according to classification by Cohen (1988). Removal of any of the four items did not

improve the overall Cronbach's α level, so all four items were kept in. The Baseline mean scores on the Health Literacy measures Communicative Health Literacy and Critical Health Literacy were around three quarters of the respective scales, indicating moderately high functional, communicative and critical health literacy. The mean Baseline Cancer Vocabulary scores were around two thirds of the maximum 15-point scores, indicating a moderately high grasp of the vocabulary to be covered in the curriculum.

A repeated measures MANCOVA was conducted to test time x condition interaction effects of the ACCESS curriculum on the primary outcome variables listed in Table 6.3. Preliminary assumption testing was conducted to check for normality, linearity and outliers. There were no serious violations noted. Preliminary testing was also conducted to determine multicollinearity (correlations around .8 or .9) as MANOVA procedures are most effective with moderately correlated variables (Salkind, 2010). Results of correlations between the dependent variables revealed no multicollinearity. Moderate correlations (correlations up to .5) were found between the four knowledge variables and vocabulary; between the five behavioural intentions variables; and between the three health literacy variables. As a result, three separate repeated measures MANCOVA analyses were conducted; (1) "Knowledge and Vocabulary" comprising variables Cancer Prevention – Primary, Cancer Symptoms, Cancer Prevention -Secondary, General Cancer Knowledge and Cancer Vocabulary; (2) "Behavioural intentions" comprising variables Increase Fruit & Vegetables, Increase Physical Activity, Increase Sun Protection, Screen for Cancer; (3) "Health literacy" comprising variables Communicative Health Literacy and Critical Health Literacy. Covariate variables included were language level, education and years living in Australia. Statistical significance was determined by $p \leq .05$, and effect size by partial Eta^2 (denoted as η_p^2), where .01 = small, .06 = medium and .138 = large (Cohen, 1988).

The results showed that there was a significant difference between Intervention and Wait-list Control groups over time on (1) "Knowledge and Vocabulary", F (5,44) = 2.54, p = .042, Wilks' Lambda = .78, η_p^2 = .22. Univariate tests of the individual variables further revealed that there was a time x condition interaction effect for the variable Cancer Prevention – Primary, F (1,48) = 7.74, p = .008, η_p^2 = .14, and a time x condition interaction effect approaching significance for the variable Cancer Symptoms, F (1,48) = 3.62, p = .063, η_p^2 = .07. An inspection of the mean scores indicated that the Intervention group improved significantly over time (Cancer Prevention – Primary) or approached significance over time (Cancer Symptoms), compared to the Wait-list Control group. Univariate tests also indicated that there were no time x condition interaction effects on Cancer Prevention – Secondary, F (1,48) =1.96, p = .168, η_p^2 = .04; General Cancer Knowledge, F (1,48) = 2.06, p = .158, η_p^2 = .04; or Cancer Vocabulary, F (1,48) = 1.35, p = .252, η_p^2 = .03.

The results showed that there was no difference between Intervention and Wait-list Control groups over time on (2) "Behavioural intentions", F (4,79) = 1.39, p= .245, Wilks' Lambda = .93, η_p^2 = .07. Univariate tests revealed that there was a time x condition interaction effect approaching significance for the variable intentions to Screen for Cancer, F (1, 82) = 3.86, p = .053, η_p^2 = .05. An inspection of the mean scores indicated that the Intervention group improved significantly over time, compared to the Wait-list Control group on both variables. Univariate tests also indicated that there were no time x condition interaction effects on intentions to Increase Fruit and Vegetables, F (1, 82) = .62, p = .433, η_p^2 = .01; to Increase Physical Activity, F (1, 82) = 2.11, p = .150, η_p^2 = .03; to Increase Sun Protection, F (1, 82) = 1.00, p = .321, η_p^2 = .01.

The results showed that there was no difference between Intervention and Wait-list Control groups over time on (3) "Health literacy", F (2, 75) = 1.93, p = .153, Wilks' Lambda

= 1.93, η_p^2 = .05. Univariate tests also indicated that there were no time x condition interaction effects on Communicative Health Literacy, F (1, 76) = 2.44, p = .123, η_p^2 = .03 or Critical Health Literacy, F (1, 76) = 3.19, p = .078, η_p^2 = .04. The results indicate that Hypothesis 1 was only partially supported.

Secondary outcome variables.

Aim 2: To investigate change on four categories of secondary outcome variables: current cancer prevention and risk behaviours, attitudes towards cancer prevention behaviours as important for health, self-efficacy to participate in cancer prevention behaviours, and English communication between Intervention and Wait-list Control groups over time.

Secondary outcome variables: (1) Current cancer prevention & risk behaviours: Current Fruit Intake, Current Vegetable Intake, Current Physical Activity, Current Sun Protection, Current Alcohol Consumption, Current Smoking; (2) Attitudes towards cancer prevention behaviours as important for health: Fruit & Vegetable Intake Attitude, Physical Activity Attitude, Sun Protection Attitude, Alcohol Consumption Attitude, Stop Smoking Attitude; (3) Self-efficacy towards cancer prevention behaviours: Increasing Fruit & Vegetables, Increasing Physical Activity, Increasing Sun Protection, Reducing Alcohol, Stopping Smoking, Having a Screening Test; (4) English Communication: Making a GP Appointment, Doctor Conversation.

Hypothesis 2: Students' scores on each of the secondary outcome variables will improve more in the Intervention group than in the Wait-list Control group following completion of lessons from the ACCESS curriculum.

Baseline continuous measures.

Baseline measures of the continuous variables Current Fruit Intake, Current Vegetable Intake and Current Physical Activity were investigated for outliers. There was one extreme outlier for the variable Current Fruit Intake, two for Current Vegetable Intake and two for Current Physical Activity. These outliers were removed from future analyses involving these variables.

Table 6.4 presents descriptive statistics for these secondary outcome variables among the sample of Intervention and Wait-list Control group students who completed Baseline and Time 2 surveys.

Table 6.4

Means and standard deviations of secondary outcome variables from Intervention and Wait-list Control groups over time (Baseline and Time 2)

	Baseline Mean (SD)		Time 2 Mean (SD)	
Secondary outcome variable	Intervention	Wait-list Control	Intervention	Wait-list Control
Current cancer prevention & risk behaviours				
Current Fruit Intake (serves / day)	1.30 (0.70)	2.20 (1.11)	1.74 (0.92)	2.19 (1.54)
Current Vegetable Intake (serves / day)	1.35 (0.65)	2.04 (1.174)	1.74 (1.10)	1.96 (1.48)
Current Physical Activity (mins / week)	98.37 (100.77)	168.55 (139.55)	121.80 (86.03)	163.88 (128.87)
Current Sun Protection (range 5 - 25)	17.00 (3.15)	17.28 (3.85)	17.22 (3.85)	18.05 (3.71)
Current Alcohol Consumption	3.40 (3.20)	4.12 (3.54)	1.00 (0)	4.64 (4.54)
Current Smoking	0	0	0	4 (0)
Attitudes towards cancer prevention behaviours[a]				
Fruit & Vegetable Intake Attitude	6.90 (0.40)	6.88 (0.56)	7.00 (0.00)	6.88 (0.33)
Physical Activity Attitude	6.87 (0.72)	6.86 (0.71)	6.97 (0.18)	6.93 (0.25)
Sun Protection Attitude	6.19 (1.40)	6.41 (1.12)	6.81 (0.65)	6.51 (1.18)

Table 6.4 (continued).

	Baseline Mean (SD)		Time 2 Mean (SD)	
Secondary outcome variable	Intervention	Wait-list Control	Intervention	Wait-list Control
Alcohol Consumption Attitude	5.19 (2.43)	5.50 (2.30)	5.90 (2.11)	5.59 (2.38)
Stop Smoking Attitude	6.52 (1.12)	6.58 (1.50)	6.97 (0.19)	6.50 (1.60)
Self-efficacy towards cancer prevention behaviours[a]				
Increasing Fruit and Vegetables	6.35 (0.92)	6.30 (1.12)	6.61 (0.56)	6.44 (0.71)
Increasing Physical Activity	5.29 (1.58)	5.88 (1.15)	6.13 (1.02)	6.00 (1.04)
Increasing Sun Protection	5.23 (1.50)	5.54 (1.56)	6.13 (0.89)	5.88 (1.40)
Reducing Alcohol[b]	5.09 (1.92)	4.88 (2.00)	6.75 (0.50)	5.25 (1.66)
Stopping Smoking[b]	5.00 (1.40)	7.00 (0)	-	7.00 (0)
Having a Screening Test	4.90 (1.89)	5.93 (1.49)	5.90 (1.08)	5.74 (1.13)
English Communication				
Making a GP Appointment (range 0 – 6)	5.6 (1.01)	5.72 (0.90)	5.82 (0.58)	5.74 (0.64)
Doctor Conversation (range 0 – 6)	3.33 (0.87)	3.16 (0.93)	3.48 (0.71)	3.48 (0.71)

Note. [a]Each intention measured on 7-point Likert measure ranging from 1 *(strongly disagree)* to 7 (*strongly agree)*; [b]This variable was calculated for the number of participants who reported that they drank alcohol (*n*=11) or smoked (*n*=2).

The Australian national guidelines recommend that each adult consumes two serves of fruit and five serves of vegetables each day. The Baseline mean scores showed that the students ate, or almost ate, the recommended number of fruit servings per day (Current Fruit Intake), but much less than the recommended number of servings of vegetables each day (Current Vegetable Intake). There was considerable variability in Baseline reported minutes of physical activity (Current Physical Activity), with some students achieving the recommended 2.5 to 5 hours of physical activity per week and some students not achieving this. The mean Baseline Current Sun Protection scores showed that students engaged in a moderate amount of sun protection behaviours (including wearing sunscreen, sunglasses long sleeves, a hat and seeking shade).

The mean scores on the five Baseline Attitudes towards cancer prevention behaviours variables were all high on the 7-point scales, indicating a high degree of agreement, that engaging in each cancer prevention behaviour (eating fruit and vegetables, doing physical activity, engaging in sun protection, reducing alcohol and stopping smoking) are important for health. Similarly, the mean scores on the Baseline Self-efficacy towards cancer prevention behaviours variables were also all relatively high on the 7-point scales, indicating some degree of agreement, or confidence, that they could engage in more of each cancer prevention behaviour (eat more fruit and vegetables, do more physical activity, engage in more sun protection and have a screening test for cancer) in the future.

The Current cancer prevention and risk behaviours Current Alcohol Consumption and Current Smoking, as well as the Attitude variables Alcohol Consumption Attitude and Stop Smoking Attitude, and the Self-efficacy variables Reducing Alcohol and Stopping Smoking were all removed from future analyses due to the very small number of students in the sample who reported that they drank alcohol (n = 11) or smoked (n = 2). Mean Baseline scores on the

two English Communication variables Making a GP Appointment and Doctor Conversation showed ceiling effects. These variables were removed from further analyses.

A repeated measures MANCOVA was conducted to test intervention effects of the ACCESS curriculum on the secondary outcome variables listed in Table 6.4 that were remaining: four Current cancer prevention and risk behaviour variables, three Attitude variables and four Self-efficacy variables. Preliminary assumption testing was conducted to check for normality, linearity and outliers. There were no serious violations noted. Results of correlations between the dependent variables revealed no multicollinearity. Moderate correlations (correlations up to .5) were found between the four Current cancer prevention and risk behaviour; between the three Attitudes towards cancer prevention behaviour variables; and between the three Self-efficacy towards cancer prevention behaviour variables. As a result, three separate repeated measures MANCOVA analyses were conducted; (1) "Current behaviours" comprising variables Current Fruit Intake, Current Vegetable Intake, Current Physical Activity and Current Sun Protection; (2) "Attitudes" comprising variables Fruit and Vegetable Intake Attitude, Physical Activity Attitude and Sun Protection Attitude; (3) "Self-efficacy" comprising variables Increasing Fruit and Vegetables, Increasing Physical Activity, Increasing Sun Protection and Having a Screening Test. Covariate variables included were language level, education and years living in Australia. Statistical significance was determined by $p \leq .05$, and effect size by partial Eta^2 (denoted as η_p^2), where .01 = small, .06 = medium and .138 = large (Cohen, 1988).

The results of the MANCOVA showed that there was no differences between Intervention and Wait-list Control groups over time on (1) "Current behaviours", F (4,55) = 1.27, p= .294, Wilks' Lambda = .92, η_p^2 = .08. Univariate tests also showed no time x condition interaction effects for the variables Current Fruit Intake, F (1,58) = .95, p = .334,

η_p^2 = .02; Current Vegetable Intake, F (1,58) = .33, p = .570, η_p^2 = .01; Current Physical Activity, F (1,58) = .57, p = .454, η_p^2 = .01; or Current Sun Protection, F (1,58) = 1.59, p = .212, η_p^2 = .03.

Results showed that there was no difference between Intervention and Wait-list Control groups over time on (2) "Attitudes", F (3, 83) = 1.51, p = .22, Wilks' Lambda = .95, η_p^2 = .05. Univariate tests showed that there was a time x condition interaction effect for the attitude variable Sun Protection Attitude, F (1,85) = 4.25, p = .042, η_p^2 = .05. An inspection of the mean scores indicated that the Intervention group improved significantly over time, compared to the Wait-list Control group on both variables. Univariate tests further revealed that there were no time x condition interactions for each of the variables Fruit & Vegetable Intake Attitude, F (1,85) = .66, p = .421, η_p^2 = .01; or Physical Activity Attitude, F (1,85) = 1.48, p = .227, η_p^2 = .02.

The results showed that there was a significant difference between Intervention and Wait-list Control groups over time on (3) "Self-efficacy", F (4,80) = 3.52, p = .011, Wilks' Lambda = .85, η_p^2 = .15. Univariate tests revealed that there was a time x condition interaction effect for the self-efficacy variable Increasing Physical Activity, F (1,83) = 8.67, p = .004, η_p^2 = .10; and the self-efficacy variable Having a Screening Test, F (1,83) = 7.79, p = .007, η_p^2 = .09. An inspection of the mean scores indicated that the Intervention group improved significantly over time, compared to the Wait-list Control group on both variables. Univariate tests also indicated there were no time x condition interaction effects for the self-efficacy variables Increasing Fruit and vegetables, F (1,83) = 2.14, p = .147, η_p^2 = .03; or Increasing Sun Protection, F (1,83) = 2.02, p = .159, η_p^2 = .02. The results indicate that Hypothesis 2 was also only partially supported.

Maintenance

The investigation of *maintenance* used data from the Intervention group from the Time 2 and Time 4 surveys, that is, immediately post-intervention (Time 2) and approximately three months later (Time 4). The investigation could not use the Wait-list Control group for this investigation because they had received the ACCESS curriculum by this time.

Aim: To determine if any changes to individual level primary and secondary outcomes achieved by exposure to the ACCESS curriculum were maintained over time (3 months later).

Hypothesis: Improvements in primary and secondary outcome measures noted immediately after the intervention are maintained three months later.

Only outcomes that had shown a statistically significant score increase (or approaching significance) in the previous evaluation of *efficacy* were analysed using t-tests. Repeated measures Multivariate Analysis of Variance (MANOVA). Table 6.5 provides the means and standard deviations of four variables. These comprise two Knowledge variables: Cancer Prevention – Primary and Cancer Symptoms; and two Self-efficacy towards cancer prevention behaviours variables: Increasing Physical Activity and Having a Screening Test. This analysis is repeated measures, therefore it only included the number of participants who responded to the survey items across each of the time-points. Statistical significance was determined by $p \leq .05$, and effect size by partial Cohen's *d*, where 0.2 = small, 0.5 = medium and 0.8 = large (Cohen, 1988).

Table 6.5

Investigation of maintenance on significant outcome variables over time

Variable	n	Time 2 *Mean (SD)*	Time 4 *Mean (SD)*
Knowledge:			
Cancer Prevention – Primary (range 0 – 7)	20	5.00 (0.86)	4.95 (1.00)
Cancer Symptoms (range (0 – 7)	21	4.00 (1.79)	4.24 (1.84)
Behavioural intentions to prevent cancer:			
Screen for Cancer	24	6.5 (0.98)	6.04 (1.33)
Attitudes towards cancer prevention behaviours:			
Sun Protection Attitude	23	6.52 (1.41)	6.52 (0.95)
Self-efficacy towards cancer prevention behaviours:			
Increasing Physical Activity[a]	24	6.21 (0.88)	6.25 (0.99)
Having a Screening Test[a]	24	5.83 (1.17)	5.92 (1.41)

Note. [a]Measured on 7 - point Likert scale ranging from 1 *(strongly disagree)* to 7 *(strongly agree).*

There were no significant differences between scores at Time 2 and at Time 4, Knowledge variables: Cancer Prevention – Primary, t (19) = 0.20, p = .841, d = 0.04; Cancer Symptoms, t (20) = -0.84, p = .411, d = 0.09; Behavioural intentions to prevent cancer variable: Screen for Cancer, t (23) = 1.91, p = .069, d = 0.28; Attitudes towards cancer prevention behaviours variable Sun Protection Attitude, t (22) = 0, p = 1.00, d = 0; Self-efficacy variables: Increasing Physical Activity, t (23) = -0.18, p = .857, d = 0.03; and Having a Screening Test, t (23) = -0.22, p = .828, d = 0.05. These results indicate that improvements in these four variables immediately post-intervention had been maintained three months later. These results support the hypothesis.

Discussion

This chapter describes the investigation of the internal validity of the intervention to establish the curriculum's *efficacy* at the student level. It was hypothesised that ACCESS could increase cancer-related Knowledge, Behavioural intentions to prevent cancer, Health literacy and English language skills compared to students not receiving ACCESS. Results show partial support for this hypothesis; students exposed to the ACCESS curriculum demonstrated an improved knowledge of Cancer Prevention - Primary and there was a trend towards significance for improvements in knowledge of Cancer Symptoms and in intentions to Screen for Cancer. The improvement in knowledge variables corroborates previous research that suggests that blending health education into an ESL format is an appropriate way to improve aspects of health knowledge in immigrants (Coronado et al., 2008; Duncan et al., 2012; Elder et al., 1998; Elder et al., 2000; Taylor et al., 2011; Taylor et al., 2009). The current results confirm that cancer prevention strategies can be taught via ESL and taught to classes comprising people from different cultures and both genders, and knowledge of these strategies is *maintained* three months later. Future research should investigate *maintenance* over a longer period if this is possible with the fluid movement of students through the AMEP.

Although students' intentions to engage in cancer prevention behaviours (Increase Fruit and Vegetables, Increase Physical Activity, Increase Sun Protection and Screen for Cancer) were high at Baseline, the current trial found that intentions to Screen for Cancer in the future showed a trend towards significantly improving further among students after studying the ACCESS curriculum.

Results of secondary outcome analyses showed that the participating students ate the recommended two serves of fruit per day but less than the recommended five serves of vegetables per day, and that this did not change as a result of exposure to the curriculum.

There was also no change in the amount of physical activity reported by the participants, and their reported levels were less than recommended in the Australian national guidelines. However, students' attitudes towards sun protection as important for health strengthened as a result of the curriculum. Furthermore, results revealed that studying the curriculum was associated with an increase in Self-efficacy towards Increasing Physical Activity and Having a Screening Test in the future.

According to the Health Action Process Approach (HAPA) (Schwarzer, 2008), self-efficacy is a significant predictor of both intention to engage in a health behaviour and is key in facilitating actual engagement in health behaviours. The curriculum included communicative activities designed to help students to develop their action and coping planning skills, with actors modelling this behaviour as well, on the videos. The change in self-efficacy may reflect improvements in participants' health planning skills and confidence to undertake positive change in future. Duncan and colleagues (Duncan et al., 2012) did not assess self-efficacy for change but did find that action and coping planning skills improved as a result of studying the HE4L curriculum, based on the HAPA (Schwarzer, 2008).

It is worth noting that the participant cohort's responses on the survey items already indicated a high level of agreement with items measuring behavioural intentions, attitudes and self-efficacy. Notwithstanding this, participating in lessons using the ACCESS curriculum strengthened some of these variables, which is promising for potential future behaviour change (such as actually having a screening test). The results of the *efficacy* trial showed that no improvements or changes were found regarding actual cancer prevention behaviour change. Perhaps the short timeframe of the study did not enable enough curriculum to be taught to effect change to actual behaviour. Time spent on the curriculum will be discussed in more depth in Chapter 8.

Results from the current trial provide additional evidence that aspects of behaviour change theory can be successfully integrated into ESL curricula for immigrants. This finding is promising because it suggests that cancer prevention health education, when integrated into regular ESL programs, may be a way of helping immigrants become more confident to engage in behaviours such as increasing physical activity or attending to have cancer screening test. There is evidence in the literature of the predictive ability of self-efficacy for physical activity and actual engagement in physical activity (Tang, Smith, Mc Sharry, Hann, & French, 2019). Evidence in the literature also demonstrates a positive relationship between self-efficacy for having a screening test for cancer, and actual screening behaviour. For example, in a systematic review of 77 papers, Wools, Dapper and Leeuw (2015) found that self-efficacy was a facilitating factor associated with men and women engaging in colorectal cancer screening. In a longitudinal study of mammogram adherence in a sample of 1,493 women in the US, Gierisch, Earp, Brewer and Rimer (2010) found that self-efficacy was a predictor of mammogram adherence. In another study, self-efficacy was found to be a significant predictor of cervical cancer screening in a sample of 205 Hispanic women in a study in the US (De Peralta, Holaday, & McDonell, 2015).

The use of a controlled study design can be problematic in an education trial because of the risk of contamination between groups (Mills et al., 2009). In the published ESL health education trials, Elder et al. (2000) reported contamination. Members of their control group attended other classes with those in the intervention arm during the trial. In the current study, entry of teachers from different sites into the study and allocation to intervention group meant that there was likely very little contamination. This is because few sites contained both Intervention and Wait-list Control groups within the same language level, and, although not ruled out, a teacher described very little interaction between students of different language levels at the AMEP.

Students' increased knowledge about cancer prevention strategies, cancer symptoms, intentions to screen, as well as attitude towards sun protection as important for health, their reported self-efficacy to engage in more physical activity and participate in a future cancer screening, were maintained over time (three months post-intervention). Recommendations in the literature for the evaluation of maintenance (Allen et al., 2011; Glasgow & Estabrooks, 2018) recommend assessment six months or more after the intervention. Unfortunately, this was not possible in the current trial period; future researchers should factor in a longer maintenance period.

In contrast to the only ESL health education curriculum evaluated that included language outcomes (Duncan et al., 2012) the results of the current intervention did not show any impact on the primary outcome measure Cancer Vocabulary. The students showed a moderate knowledge of these vocabulary words at Baseline and did not improve significantly as a result of engaging with the ACCESS curriculum. Unfortunately, the two English language secondary outcome measures, designed to measure English Communication: Making a GP Appointment and Doctor Conversation, showed ceiling effects at Baseline. Future testing items should be developed with ESL teachers to create relevant items that are more testable.

In contrast to Soto Mas and colleagues (Soto Mas, Ji, et al., 2015) the current intervention trial did not impact scores on the Communicative and Critical Health Literacy measures from the AAHLS. The AAHLS measures provide an estimate of general functional, communicative and critical health literacy, not cancer literacy, and the amount of time spent on the curriculum during the four-week trial may not have been adequate coverage to impact these competency items covered in the scale. Implementing the curriculum into classes and evaluating after a longer period, such as a term or longer, may show different results. Future research should also investigate alternate measures of functional health

literacy, because the Functional Health Literacy measure of the AAHLS was unable to be used in the current study due to poor internal consistency.

The Next Step

The evaluation of the impact of ACCESS at the individual level continues in Chapter 7, with an investigation to explore whether health messages learned in the classroom were shared outside of class, to determine *reach*. These results are discussed in Chapter 7.

Chapter Seven: Using RE-AIM to Evaluate the Impact of the ACCESS Cancer Literacy Curriculum: An Investigation of Reach Beyond the Classroom

Overview

A total of 125 immigrant students from 36 different countries participated in the intervention trial described in Chapter 5 and evaluated for *efficacy* in Chapter 6. Guided by the evaluation framework RE-AIM, the current chapter aims to extend the evaluation of the *reach* of the ACCESS cancer literacy curriculum at the individual (student) level to investigate the potential spread of health messages learned in class to people not present in the classroom. Classes in the AMEP comprise adult students from many countries, both genders and any age, and the evaluation reported in this Chapter investigated the potential of engaging this diverse student sample in the dissemination of health messages to immigrant communities outside the classroom. It investigated Research Question 2 of the dissertation: Will cancer prevention messages learned in the classroom be shared with students' families and friends?

Introduction

The literature review in Chapter 2 described past research focused on the incorporation of health information in literacy training. The potential for this approach to leverage outcomes in the wider immigrant communities via exploitation of social networks was also discussed. Prior research has demonstrated the influence of messages promulgated through social networks. These are defined as including groups of linked people; family, church, community and friendship groups, who may share patterns of engagement in health-promoting and health-hindering behaviours. For example, in a study of 455 adult-child dyads, reciprocal encouragement between parents and children was associated with co-engagement in physical activity (De La Haye, de Heer, Wilkinson, & Koehly, 2014). In another study of

1,899 couples, an individual's readiness to change dietary behaviour, and physical activity, was positively associated with that of their partner's (Franks et al., 2012).

The impact of friendship networks on health behaviours has also been studied. Results of a recent systematic review of eight cross-sectional and longitudinal studies of friendship networks in the US and Australia (Zhang, de la Haye, Ji, & An, 2018) found that people with similar body weight were more likely to share a social network tie. Similar conclusions were made for a range of weight-related activities, such as dietary choices, eating behaviours, and physical activity. In addition, the characteristics of people's social networks (such as friendship ties, and similar gender) were found to influence changes to body weight and weight-related activities within individuals over time. The influence of social networks has also been observed in the uptake of disease prevention services by General Practitioners, medical specialists and dentists (Deri, 2005). Smith and Christakis (2008) propose that the mechanisms underlying the "contagion" of behaviour are social influence and support.

Supportive social networks within a new country of residence may help to expand the range of trusted information sources for newly arrived immigrants. In a study of 135 Korean immigrants to the United States, Kim, Kreps and Shin (2015) found that family, friends and church networks were listed as important sources of health information about disease preventive care, and as sources to turn to for recommendations to navigate an unfamiliar medical system. The ESL classroom setting is a socially supportive environment for immigrants in which to learn and discuss new information (Freedman et al., 2011). As mentioned in Chapter 4 (Stage 2: curriculum development), one published ESL health literacy evaluation trial reported anecdotally that two thirds of their class had shared diabetes knowledge learned in ESL class with others outside (Santos et al., 2014). However, it is unclear exactly what information was shared and whether the information was shared with

family, friends or both. In addition, no information was provided about the characteristics of those who shared, compared with those who did not share, information.

The teachers participating in the Stage 1 (scoping) study discussed in Chapter 3 confirmed the importance of students' families in supporting student learning. This relationship is likely to be reciprocal; families support student learning and students share lessons learned with their families. Consistent with this, one teacher suggested that students may be more proactive in acting on health information taught in the classes if they are made aware that the information could also benefit their children. The propensity to share information learned while studying English highlights a potential mechanism for enhancing cancer literacy in the wider community of immigrants, including those not attending ESL classes. To exploit this family influence, and to encourage the spread of health messaging outside of class, the ACCESS ESL cancer literacy curriculum was designed to incorporate communicative exercises in each module for students to practice telling self-identified "significant others" what they had learned about cancer prevention. In addition, the recommended homework exercise for each worksheet of the curriculum was to share knowledge learned in class with others, and teachers were instructed to set this exercise for homework after each lesson based on ACCESS. Examples of these exercises appear in Figure 4.3 in Chapter 4 (page 101) and in Figure 7.1.

3. Do you know someone who is the right age for a screening test? Write their names here:

_____

How can you encourage them to have the screening test? In your group, plan what you will say.

Figure 7.1. Practising sharing information with others outside class.

The post-intervention surveys investigated whether the students had shared information learned in class, with whom, and which aspects. This survey is in Appendix H and the pertinent survey items appear on pages 2-3.

Some factors may predict the likelihood that information will be shared. In a (non-immigrant) health study in the US, females were significantly more likely to disseminate information with immediate family than males, and older members were more likely to gather health information than younger (Koehly et al., 2009), suggesting that both gender and age are key factors in sharing behaviours. Length of time living in Australia may also influence sharing of information with family and friends. It is possible that immigrants who have lived in Australia for a longer time have had more opportunity to learn about Australian screening opportunities or have participated in them themselves. In addition, people who have lived in Australia for a longer time may have established larger friendship networks with whom to share information. In a recent systematic review of 24 studies into the influencers of immigrant cancer screening (Chan & So, 2017), acculturation (comprising length of time in

the new country) and sharing of information among social networks were factors found to be associated with uptake of screening.

Other predictors of sharing cancer prevention-related information may include a person's own cancer-related behaviours and intentions. For example, the research on cognitive dissonance suggests that people who are more likely to encourage others to change behaviour are those people who are changing their own behaviour (Latkin & Knowlton, 2015).

Aims

The investigation outlined in this chapter had three aims.

Aim 1: To investigate the extent to which students shared information about primary or secondary cancer prevention learned in the course with both their family and their friends outside the classroom.

Aim 2: To explore which of the 7 primary cancer prevention messages (increase fruit and vegetable consumption; reduce red meat consumption; increase physical activity; maintain a healthy body weight; be "sun smart"; reduce alcohol consumption; stop smoking) and 3 secondary cancer prevention messages (screening for bowel, breast and cervical cancer in Australia) were shared more readily with family and with friends.

Aim 3. To investigate predictors of students' sharing of information about primary and secondary cancer prevention behaviours with family and friends. Based on previous literature, it was hypothesised that:

Hypothesis 1: Gender (being female), Age (being older), and Time in Australia (for a greater number of years) predicts a higher frequency of general information sharing with family and with friends. These three predictors were also tested on an additional four specific

information sharing outcomes (Eating less red meat; Maintaining a healthy body weight; Stopping smoking, and Reducing alcohol), with the same hypothesis.

Hypothesis 2: Information sharing related to three specific primary (Fruit and Vegetables; Physical Activity and Sun protection) and three secondary prevention behaviours (Bowel, Breast and Cervical Screening) are each predicted by: Gender; Age; Time in Australia; Current engagement with the corresponding cancer prevention behaviour; and Behavioural Intentions to engage in the corresponding cancer prevention behaviour. Information sharing related to the choice of these three primary and three secondary behaviours were selected for Hypothesis 2 because the corresponding behaviour, behavioural intention, or both, were measured for these cancer prevention-related messages.

Methods

Participants.

To address the three aims, data from the whole sample of student participants who completed the survey items were analysed (n = 96).

Measures.

Survey responses about sharing were taken from the post-course survey time-points (see Appendix H, pp 422-423). For students assigned to the Intervention group, responses to the survey items about sharing were taken from the Time 2 survey, and from those in the Wait-list Control group, responses were taken from the Time 3 survey. Figure 5.2 on page 144 depicts the data collection time points. Data from both groups were pooled for analysis.

Survey questions.

Questions to probe perceived enjoyment and usefulness of ACCESS.

Students responded to the statement (1) "I enjoyed the course" to indicate their perceived enjoyment of the ACCESS course. In addition, they responded to the statement (2) "The information I learned in the course was useful to me and my family" to indicate their perceived usefulness of the course materials to themselves and their family. For each statement, students selected their response on a 7-point Likert scale ranging from 1 *(strongly disagree)* to 7 *(strongly agree)*. Space was also provided for students to elaborate on their responses in writing, if desired. Qualitative data from the open-ended items were considered separately in analysis.

Questions to probe sharing with family and friends.

Students were asked if they had shared any information learned in the course with their family and with their friends. Specifically, students were given a sentence prompt: "Did you share information with family about…" and a list of primary prevention and secondary prevention behaviours. There were 10 items in total. Seven primary prevention behaviours included in worksheets throughout the ACCESS curriculum were listed (eating more fruit and vegetables, eating less red meat, being more physically active, maintaining a healthy body weight, being sun smart, reducing alcohol, stopping smoking). Three secondary prevention behaviours included in the ACCESS curriculum were also listed (bowel cancer screening in Australia, breast cancer screening in Australia, cervical cancer screening in Australia). For each of the seven primary and three secondary cancer prevention behaviours, students were asked to indicate "Yes" if they had shared the information or "No" if they had not shared the information. The students completed each list of 10 cancer prevention behaviours separately for family and for friends. There were 20 items in total (10 each for sharing with family and for sharing with friends).

For data analysis purposes (to test Aim 3, Hypothesis 1), two continuous variables were created: (1) Sharing with Family, and (2) Sharing with Friends. To create Sharing with Family, each "Yes" response for each of the 10 behaviours was summed (range 0 – 10), with higher scores indicating sharing of information about more topics. The same method applied to the creation of Sharing with Friends; each "Yes" response was summed (range 0 – 10), with higher scores indicating sharing of more topics.

Data analysis.

To address Aims 1 and 2, frequency analyses were conducted and compared to determine the proportion of respondents who had shared information with family and friends, and which cancer prevention messages were most frequently shared.

Regression analyses were performed to address Aim 3, as follows. To test Hypothesis 1, two multiple regression analyses were performed separately with the continuous outcome variables: (1) Sharing with Family score, and (2) Sharing with Friends score. Predictor variables for each model were: Gender (male / female); Age (in years), and Time in Australia (in years). Four further logistic regression analyses were performed separately with the same predictors and dichotomous outcome variables: (1) shared information about Eating Less Red Meat (Y/N); (2) shared information about Maintaining a Healthy Body Weight (Y/N); (3) shared information about Stopping Smoking, and (4) shared information about Reducing Alcohol.

To test Hypothesis 2, six logistic regression analyses were performed separately, with Shared Information (Y/N) relating to three specific primary and three secondary prevention behaviours as outcome variables. Predictor variables for each model were: (1) Gender (male / female); (2) Age (in years), (3) Time in Australia (in years); (4) current engagement in the corresponding behaviour (Current Fruit Intake and Current Vegetable Intake, Current

Physical Activity and Current Sun Protection), (5) intention to engage in the corresponding behaviour (Behavioural intentions to Increase Fruit and Vegetables, Increase Physical Activity, Increase Sun Protection and Screen for Cancer).

Results

Results of quantitative analyses of survey items are provided in this Results section, as well as comments written by the students to support their choice of rating on Likert scales. The students' written comments are re-printed accurately, as provided by them. The use of [*sic*] to indicate grammatical or punctuation errors has not been deployed because of the repetitive nature it would cause, detracting from the students' words.

Perceived enjoyment and usefulness of ACCESS.

All participants completed the survey item to indicate enjoyment of the course. Ninety-three participants (93 / 96: 96.9%) agreed that they had enjoyed the course (indicated by the selection of scale responses 5 *(slightly agree)*, 6 *(moderately agree)* or 7 *(strongly agree)*). All but one participant responded to the item "The information I learned in the course was useful to me and my family". Ninety-three participants (93 / 95: 97.9%) agreed with this statement (i.e., selected response options 5 *(slightly agree)*, 6 *(moderately agree)* or 7 *(strongly agree)*).

Almost half of the participants (47 / 96: 49%) provided a written comment to support their responses. Many of these comments indicated that the students had learned something new. Thirteen of the 47 comments came from students in the Intervention group, and the comments support the *efficacy* results outlined in Chapter 6. Specifically, students reported that they had learned something new about cancer prevention behaviours or symptoms: "The course is very informative. I got to much information how to prevent cancer." (ID025, female, 24 years, Pakistan, higher language level student); "I have learned about not all lump

are cancer." (ID116, female, 32 years, Afghanistan, higher language level student). Students also indicated in their written comments that they were not the only recipients of this new knowledge: "I can improve my knowledge and I can teach for my kids." (ID141, female, 31 years, Sri Lanka, higher language level student).

Sharing with family and friends.

What did students share?

The following results correspond to Aim 1 (to investigate the extent to which students shared information about primary or secondary cancer prevention learned in the course with their family and friends outside the classroom) and Aim 2 (to explore which primary and secondary cancer prevention messages were shared more readily with family and with friends).

Table 7.1 lists the primary and secondary cancer prevention behaviours covered in the curriculum, and students' reported sharing of each message. The primary and secondary cancer prevention behaviours are listed in order from most shared to least shared.

Table 7.1

Sharing information with family and friends: listed in order from most to least shared

Did you share information with family /friends about…	reported sharing information with family n /N^a (%)	reported sharing information with friends n /N^a (%)
Eating more fruit and vegetables	93 / 95 (97.9)	81 / 94 (86.2)
Being more physically active	88 / 94 (93.6)	80 / 93 (86.0)
Maintaining a healthy BMI	83 / 92 (90.2)	79 / 92 (85.9)
Being SunSmart	82 / 91 (90.1)	76 / 92 (82.6)
Stopping smoking	76 / 91 (83.5)	69 / 91 (75.8)
Reducing alcohol	72 / 89 (80.9)	68 / 91 (74.7)
Eating less red meat	74 / 93 (79.6)	67 / 90 (74.4)

Table 7.1 (continued).

Did you share information with family /friends about…	reported sharing information with family *n* /*N*[a] (%)	reported sharing information with friends *n* /*N*[a] (%)
Breast cancer screening in Australia	68 / 91 (74.7)	62 / 90 (68.9)
Bowel cancer screening in Australia	67 / 90 (74.4)	58 / 91 (63.7)
Cervical cancer screening in Australia	62 / 90 (68.9)	56 / 90 (62.2)

Note: [a] *n* refers to the number of participants who responded *Yes* to each statement, *N* refers to the total number of participants who responded (either *Yes* or *No*) to each statement.

The results show that all topics were shared with both family and friends. Ninety-five students reported sharing information about a cancer prevention behaviour from the course (95 / 96: 98.9%). Information about the primary prevention behaviours "eating more fruit and vegetables" and "being more physically active" were shared most readily. Over 94% of participants reported sharing information about these two primary prevention behaviours with family, and 86% reported sharing with friends. Sharing information about secondary cancer prevention behaviours of bowel, breast and cervical cancer screening in Australia was reported the least; nonetheless, 69 - 75% of participants reporting sharing this information with family, and 62 - 69% with friends.

Some participants added written comments to indicate with whom they had shared information. These comments were mostly associated with sharing with family; "…share with husband and in-laws." (ID97, female, 32 years, Peru, higher language level student); "Since I heard about this. We can prevent the cancer I gotten more knowledge about the prevent cancer and I told to my wife about this course, this is very good for our Australian society." (ID155, male, 31 years, Myanmar, lower language level student).

One participant reported that he had shared information from Module 2 ("Going to the GP") with his community as well: "If any symptoms appears in our body, go to the doctor

and seek medical advice immediately. I shared these important message to my family and community." (ID146, male, 36years, Bhutan, higher language level student).

Other participants mentioned the usefulness of the prevention messages to others, as illustrated in the following quotes: "I am very happy because the information helped me and my family to know how to prevent cancer." (ID85, female, 39 years, Vietnam, lower language level student); "The information is very important to let more people know about this, which will helps them to keep healthy and prevent cancer." (ID51, female, 56 years, China, lower language level student).

After establishing that information learned from lessons using the ACCESS curriculum were shared by students with their families and friends, the investigation continued to identify possible predictors of sharing.

What predicts sharing?

Aim 3. To investigate predictors of sharing information about primary and secondary cancer prevention behaviours with family and friends.

Hypothesis 1: Gender (being female), Age (being older), and Time in Australia (for a greater number of years) predicts a higher frequency of general information sharing with family and with friends. These three predictors were also tested on an additional four specific information sharing outcomes (Eating less red meat; Maintaining a healthy body weight; Stopping smoking, and Reducing alcohol), with the same hypothesis.

Multiple regression analyses were conducted to test the first part of this hypothesis, relating to the general sharing of information. Two continuous composite scores were calculated as described on page 202. The score Sharing with Family was found to have a range of 0 to 10 (Mean = 7.92, SD = 2.63)). The score Sharing with Friends also had a range of 0 to 10 (Mean = 7.32, SD = 3.25).

Using the enter method, only 3.8% of the total variance was explained by gender, age and time spent living in Australia on Sharing with Family, which was not significant, F (3, 86) = 1.15, p= .335, R^2= .04, $R^2_{Adjusted}$ = .01. For the variable Sharing with Friends, the result was also non-significant, with only 2.6% of the total variance explained by gender and age, F (3, 84) = .75, p = .523, R^2= .03, $R^2_{Adjuste\ d}$= -.01.

Direct logistic regression analyses were then conducted to assess the impact of gender, age and time in Australia on sharing of information (Y/N) about Eating less red meat; Maintaining a healthy body weight; Stopping smoking, and Reducing alcohol with family and with friends. The results for sharing of information about the four primary prevention behaviours with family are shown in Table 7.2, and for sharing with friends in Table 7.3.

Table 7.2

Logistic regression predicting sharing of information with family about four primary prevention behaviours).

	Shared Eating less red meat (Y/N)		Shared Maintaining a healthy body weight (Y/N)		Shared Stopping smoking (Y/N)		Shared Reducing alcohol (Y/N)	
Predictor	*B*	Odds Ratio	*B*	Odds Ratio	*B*	Odds Ratio	*B*	Odds Ratio
Gender	-1.47**	.23	-1.25	.29	-.10	.90	-.73	.48
Age	-.02	.98	-.01	.99	-.01	1.00	-.02	.99
Time in Australia	-.03	.97	-.10	.91	-.16	.86	-.01	.99
Nagelkerke r^2	12.8%		8.6%		4.1%		3.6%	
χ^2 (df, *N*)	χ^2 (3,87) = 7.44		χ^2 (3,86) = 3.69		χ^2 (3,86) = 2.17		χ^2 (3,84) = 1.92	
p	*p* = .059[a]		*p* = .297		*p* = .538		*p* = .589	

Note: [a] trend towards significance; ** $p < .01$

Table 7.3

Logistic regression predicting sharing of information with friends about four primary prevention behaviours.

	Shared Eating less red meat (Y/N)		Shared Maintaining a healthy body weight (Y/N)		Shared Stopping smoking (Y/N)		Shared Reducing alcohol (Y/N)	
Predictor	*B*	Odds Ratio	*B*	Odds Ratio	*B*	Odds Ratio	*B*	Odds Ratio
Gender	-1.49**	.23	.01	1.01	.25	1.29	-.09	.92
Age	-.03	.97	-.01	.99	.00	1.00	-.01	.99
Time in Australia	.07	1.07	-.21	.81	-.13	.88	-.03	.97
Nagelkerke r^2	15%		5.5%		3.3%		.8%	
χ^2 (df, *N*)	χ^2 (3,84) = 9.08		χ^2 (3,73) = 2.73		χ^2 (3,85) = 1.94		χ^2 (3,85) = .45	
p	*p* = .028*		*p* = .435		*p* = .585		*p* = .929	

Note. * $p < .05$; ** $p < .01$.

The results of the logistic regression analyses shown in Tables 7.2 and Table 7.3 indicated that there was an association between Gender, Age and Time spent living in Australia with sharing of information about Eating less red meat. For sharing this information with family, this association showed a trend towards significance, χ^2 (3,87) = 7.44, p = .059, with the predictor variables accounting for 12.8% of the variance (Table 7.2). For sharing this information with friends, this association was statistically significant, χ^2 (3,84) = 9.08, p = .028, with the predictors accounting for 15% of the variance (Table 7.3). In both models, only one of the variables (gender) made a unique statistically significant contribution to the model, recording an odds ratio of .23. The results indicated that women were .23 times more likely to share information with family and friends about Eating less red meat than were men, controlling for other factors in the model. The results of the logistic regression analyses

showed no statistically significant associations between gender, age and time spent living in Australia for sharing of information about any of the remaining three primary prevention behaviours with family or with friends. In general, these three predictor variables accounted for very little variance in each model. The hypothesis that sharing information is predicted by age, gender and time spent living in Australia was therefore only partially supported.

Hypothesis 2: Information sharing related to three specific primary (Fruit and Vegetables; Physical Activity and Sun protection) and three secondary prevention behaviours (Bowel, Breast and Cervical Screening) are each predicted by: Gender; Age; Time in Australia; Current engagement with the corresponding cancer prevention behaviour; and Behavioural intention to Have a Screening test for cancer in the future.

Direct logistic regression analyses were conducted to assess the impact of a number of factors on sharing of information about six specific cancer prevention behaviours with family and with friends. Where measured, the corresponding behaviour(s) and behavioural intention variables were added to the earlier predictors. Specifically, in addition to Gender (M/F), Age (in years) and Time in Australia (in years), analyses were conducted to assess the ability of: (1) Current Fruit Intake (number of portions), Current Vegetable Intake (number of portions) and Intention to Increase Fruit and Vegetables to predict shared information about eating more fruit and vegetables (Y/N); (2) Current Physical Activity (minutes per week) and Intention to Increase Physical Activity to predict shared information about being more active (Y/N); (3) Current Sun Protection behaviour (range 5 – 25) and Intention to Increase Sun Protection to predict shared information about being sun smart (Y/N); (4) Behavioural intention to Screen for Cancer to predict shared information about bowel cancer screening in Australia (Y/N); (5) Behavioural intention to Screen for Cancer to predict shared information about breast cancer screening, and (6) Behavioural intention to Screen for Cancer to predict shared information about cervical cancer screening (Y/N). This Behavioural Intention

variable - Screen for Cancer - was a generic item, not related to intentions to screen for any particular cancer.

(1) Sharing information with family and friends about eating more fruit and vegetables. A regression analysis could not be performed for sharing with family as there was little variance in responses (98% of participants shared this information). The full model containing all six predictors (Gender, Age, Time in Australia, Current Fruit Intake, Current Vegetable Intake and intentions to Increase Fruit and Vegetables) was not statistically significant for sharing information with friends, χ^2 (6, N = 77) = 9.34, p = .156, with 20.4% of the variance accounted for by these predictor variables.

(2) Sharing information with family and friends about being more physically active. The full model containing all five predictors (gender, age, time spent living in Australia, Current Physical Activity and intentions to Increase Physical Activity) was not statistically significant for sharing information with family, χ^2 (5, N = 85) = 8.31, p = .140, with 23.3% of the variance accounted for; or with friends, χ^2 (5, N = 84) = 7.17, p = .209, with 14.2% of the variance accounted for by the predictor variables.

(3) Sharing information with family and with friends about being more “sun smart” (engaging in more sun protection behaviours). Results are shown in Table 7.4.

Table 7.4

Logistic regression predicting sharing of information with family and friends about being more "sun smart"

	Shared information with family (Y/N)		Shared information with friends (Y/N)	
Predictor	B	Odds Ratio	B	Odds Ratio
Gender	.62	1.86	.32	1.37
Age	.03	1.03	.01	1.01
Time in Australia	.12	1.12	.02	1.02
Current Sun Protection	-.39**	.68	-.19*	.83
Intentions to Increase Sun Protection	-.40	.67	-.35	.70
Nagelkerke r^2	38.5%		18.7%	
χ^2 (df, *N*)	χ^2 (5,79) = 16.17		χ^2 (5,80) = 9.87	
p	*p* = .006*		*p* = .079	

Note. * $p < .05$; $p < .01$.

The full model containing all five predictors (gender, age, time spent living in Australia, Current Sun Protection and intentions to Increase Sun Protection) was statistically significant for sharing of information with family, χ^2 (5, N = 79) = 16.17, p = .006, with 38.5% of the variance accounted for by the predictor variables. Only one of the variables made a unique statistically significant contribution to the model (Current Sun Protection behaviour), recording an odds ratio of .68. This indicated that for every additional score point on the Current Sun Protection variable (composite score ranging between 5 and 25, with a higher score indicating more sun protection behaviour) participants were .68 times more likely to share information about being more sun smart with family. The model was not statistically significant for sharing of information with friends, χ^2 (5, N = 80) = 9.87, p = .079,

accounting for 18.7% of the variance. However, one of the variables (Current Sun Protection) again made a unique statistically significant contribution to the model, recording an odds ratio of .83. The results indicated that for every additional score point on the Current Sun Protection variable, participants were .83 times more likely to share information about being more sun smart with friends.

(4) Sharing information with family and friends about bowel cancer screening in Australia. The full model containing all four predictors (gender, age, time spent living in Australia, intentions to Screen for Cancer) was not statistically significant for sharing information with family, χ^2 (4, N = 85) = 3.97, p = .411, with 6.7% of the variance accounted for; or with friends, χ^2 (4, N = 85) = 3.72, p = .446, with 5.8% of the variance accounted for by the predictor variables.

(5) Sharing information with family and friends about breast cancer screening in Australia. The full model containing all four predictors (gender, age, time spent living in Australia, intentions to Screen for Cancer) was not statistically significant for sharing information with family, χ^2 (4, N = 85) = 3.68, p = .452, with 6.1% of the variance accounted for, or with friends, χ^2 (4, N = 84) = 5.52, p = .238, with 8.8% of the variance accounted for by these predictor variables.

(6) Sharing information with family and friends about cervical cancer screening in Australia. The full model containing all four predictors (gender, age, time spent living in Australia, intentions to Screen for Cancer) was not statistically significant for sharing with family, χ^2 (4, N = 84) = 5.27, p = .261,with 8.4% of the variance accounted for, or with friends, χ^2 (4, N = 84) = 6.91, p = .141, with 10.7% of the variance accounted for by these variables.

In summary, results from direct logistic regression analyses showed that sharing of information about sun protection with family members was predicted by participants' engagement in sun protection behaviour. Aside from this, the results showed that sharing of information about other cancer prevention behaviours and screening services was not predicted by gender, age, time in Australia, engaging in, or intending to engage in, the respective behaviour, and the models only predicted a small portion of the variance in each case. The hypothesis therefore was only very partially supported.

Discussion

Students in the current study were explicitly encouraged to share information about cancer prevention with people in their family and friendship groups. Communicative activities throughout each module invited students to prepare and practice for sharing of information with people they identified outside of class. In addition, they were instructed to share information as a homework exercise that accompanied each worksheet. In the post-trial survey, all but one student (98.9%) reported sharing something from the course, which shows considerable promise and is higher than the 63.6% sharing rate reported previously by Santos et al. (2014), who informally captured information sharing after a diabetes course. The encouragement of sharing in the current trial may help explain the high percentage of students who reported having shared something from the curriculum outside of class. Future developers of health curricula could exploit this finding by including communicative activities to practice information sharing within and outside class.

The results of the study described in Chapter 4 (Stage 2: Curriculum development) indicated that people who may miss out on receiving information about primary and secondary cancer prevention behaviours comprised in the ACCESS curriculum are those who have low levels of English or who are older. A positive implication of the high rate of

information sharing observed within the current study is that ACCESS cancer prevention messages may *reach* these people via social connections with those undertaking the class. Future research studies could usefully conduct a detailed social network analysis to first identify students' close network members by relationship and age, and then investigate what information is shared, with whom. An example of this method of data collection and analysis is described by Ashida and Schafer (2015) who investigated health sharing within families, with a particular focus on older family members.

The results of the current Chapter showed that the extent of sharing differed depending on the cancer prevention information. Information about primary prevention behaviours was shared more readily than was information about secondary prevention bowel, breast and cervical cancer screening services. Furthermore, the primary prevention behavioural strategies of increasing fruit and vegetable intake, physical activity, maintaining a healthy weight and being sun smart were the topics of greatest reported sharing. This finding may be because these messages were focussed on the most during the trial, meaning that they were more salient to the students as they headed out of class. Indeed, the results of the Stage 2 (curriculum development) study showed that teachers were likely to select these topics to cover in class as they felt the topics would be acceptable and relatable to all students. The investigation of the impact of ACCESS at the organisation level (covered in Chapter 8) will examine this possibility. Alternatively, cultural taboos or discomfort with cancer-related topics may have held students back from sharing information about screening for cancer. The primary prevention behavioural strategies, although regarding cancer prevention, are also related to prevention of other lifestyle related diseases such as diabetes or heart disease. It may be more acceptable to discuss these topics within family and friendship groups and avoid specific discussion of cancer. Future research with larger samples of ESL students could examine any impact of their cultural background on sharing of different health messages.

Another possibility for the more predominant sharing of primary prevention messages may be associated with participants' current family roles. As the median age of the sample (36 years) would suggest that many are likely to be parents with children, their focus may be on helping children to make healthy lifestyle choices. The free bowel and breast cancer screening tests available in Australia are for people aged 50 years and over. The participants in the study may or may not have had family members and friends within this category to share information with, at this stage in their lives. A detailed future social network analysis of sharing specific topics could examine whether people who list family members older than 50 years are more likely to share bowel and breast cancer screening health messages than those who do not list these family members.

Interestingly, the order of frequency of sharing specific topics with family or with friends was the same. Once again, this could reflect the amount of time spent in class on the different topics or it could reflect the close bonds that the participants may have with friends, perceiving them as family. To shed light on this, future research could unpack participants' reasons for sharing health information with different members of their close social networks.

Gender predicted sharing of information about reducing red meat consumption. More women than men reported sharing this information. There is evidence in the literature that men's attitudes towards eating meat are more favourable than those of women (Love & Sulikowski, 2018) and as a result, perhaps the women in the present study attended more readily to the health messages in the curriculum regarding reducing red meat than the male students.

Higher levels of personal engagement in sun protection behaviours significantly predicted the sharing of information about sun protection with family. This could reflect the importance of the topic of sun protection to new immigrants. The ESL teachers in the Stage 2

(curriculum development) trial discussed in Chapter 4 mentioned that many of their students arrive to Australia with an awareness of the harshness of Australia's sun. These results could also reflect the success of multiple sun protection awareness campaigns in Australia increasing salience of messages about sun protection among new immigrants. For example, new immigrants who are parents may have learned of sun protection through the ESL lesson but may also have learned about it via their children engaging in the SunSmart programs that increase awareness in schools. Health messages about the dangers of sun exposure in Australia and the need for sun protection are widespread in Australia and have been over the past three to four decades, delivered via a variety of media including print, television and online (Koch et al., 2017). In addition, a focus on sun avoidance may be culturally motivated because people from some cultures demonstrate a preference for lighter skin tones, and thus may be more likely to cover their skin or avoid the sun (Jang et al., 2013). Future research investigating cultural differences in sharing of different cancer prevention messages could help identify any cultural groups that engage in less sun protection behaviours and may benefit from culturally targeted awareness campaigns.

Contrary to previous literature, most of the results of the regression analyses were not in the expected direction. It is possible that this particular study sample was motivated to share information, irrespective of gender, age, length of time in Australia, current behaviour or behavioural intentions. A recent qualitative study by Sandbulte, Beck, Choe and Carroll (2019) found that motivating factors behind adults' decisions to share health information with family members included a desire to enhance the collective health of the family unit and having experienced health "turning points" such as a health scare. Future research could investigate additional variables likely to predict sharing.

In addition, sharing information (or not sharing it) may also be impacted by cultural background. Sharing of cancer prevention health messages may be less likely to occur

between members of cultures in which cancer-related topics are "taboo", such as within West African communities (Ehiwe, McGee, Filby, & Thomson, 2012). Future research could also investigate the influence of culture on sharing (or not sharing). In the present study, cultural background could not be included due to the large number of countries of origin of the participants and small sample size from each country.

Conclusions

Results from these analyses indicated that health messages from the ACCESS curriculum were shared with family and friends by all but one student. These results are encouraging and provide evidence for the inclusion of communicative classroom and homework activities in ESL health literacy curricula. The results supported teachers' comments in the scoping study (outlined in Chapter 3) that their students consider others in their networks when they learn new things about life in Australia. In addition, the results support participants' reports that messages from each module would be likely shared amongst family and friends (see Chapter 4 for these results). Therefore, it is possible that people with very low English, or those who are older (who were identified as potentially out of *reach* of the key curriculum health messages in the Stage 2 (curriculum development) study outlined in Chapter 4), may gain access to these messages if a family member or friend attends the course. Bringing cancer literacy information into the ESL classroom may help to introduce these important topics earlier into new immigrants' settlement experience.

Future research should include a more detailed social network analysis to investigate the characteristics of those outside of class with whom the cancer prevention information is shared. Future research into any cultural aspects of sharing (or not sharing) particular cancer prevention behaviours would also help inform culturally targeted prevention campaigns. Nonetheless, on the basis of current results it can be concluded that ESL curricula would

benefit from including more communicative activities to encourage and practise the sharing of information regarding screening in particular, and teachers should be instructed to be particularly mindful to encourage their students to share this information with their family and friends for homework.

The Next Step

The impact of ACCESS on outcomes at the individual (student) level has been discussed in Chapters 6 and 7. The evaluation continues into Chapter 8, using RE-AIM to assess the influence of ACCESS on outcomes at the organisational level.

Chapter Eight: Using RE-AIM to evaluate the Impact of the ACCESS Cancer Literacy Curriculum. Results at the Organisational Level

Overview

The previous two chapters examined the impact of ACCESS on student individual-level outcomes and sharing behaviours. Chapter 6 presented results confirming that studying the curriculum influenced knowledge of cancer prevention strategies, symptoms of cancer, increased self-efficacy to engage in physical activity and screening for cancer, and strengthened intentions to have a screening test for cancer and attitudes towards sun protection. Chapter 7 presented the results of the investigation into students' reported sharing of health information outside of class. The results suggested that health messages about cancer prevention behaviours were shared with family and friends, especially the primary cancer prevention behaviours of eating more fruit and vegetables, doing more physical activity and participating in sun protective behaviours, the latter of which was associated with greater participation in sun protection activities such as wearing sunscreen or a hat in the sun.

The current chapter will now broaden the evaluation of ACCESS by examining the impact of the curriculum on organisational level variables. Using RE-AIM, this evaluation will comment on the representativeness of the study sample compared to the wider AMEP population of teachers and students and will investigate success of *adoption* and *implementation* of the curriculum into existing programming. The focus of this evaluation is the external validity of the intervention.

Results: Evaluation of the Impact of ACCESS on Key Measures of Translation Impact – Organisational Level Analysis

Reach.

In the current context, *reach* refers to the representativeness of the participating students. By inviting all students of participating Certificates 2 and 3 teachers, the recruitment activities aimed to enrol a study sample that was representative of the demographic of staff and students attending AMEP training in South Australia. Doing so would permit the generalisation of results from the study to the wider Certificates 2 and 3 sample within the AMEP.

Aim: To compare the characteristics of student study sample against the wider population of Certificates 2 and 3 students.

In Term 1, 2019, 262 adult immigrant students were enrolled in Certificates 2 and 3 of the AMEP in South Australia. Of these, 182 (182 / 262, 69.47%) were enrolled in Certificate 2 classes (lower language level) and 80 (80 / 262, 30.53%) were enrolled in Certificate 3 classes (higher language level). In the trial, 125 students completed Baseline testing; just under 50% of the enrolled student population (125 / 262: 47.71%). Of these 125, 68 were lower language level students, representing 37.36% of total lower language level students (68 / 182), and 57 were higher language level students, representing 71.25% (57 / 80) of the higher language level student population in Term 1.

A chi-square goodness-of-fit test indicated that there was a statistically significant difference in the proportion of Certificate 2 to Certificate 3 students in the study sample compared with the total group of enrolled Certificates 2 and 3 students in Term 1, 2019, χ^2 (1,125) = 10.52, p = .001. Although around half of the AMEP Certificate 2 and 3 students participated in the intervention trial, the study sample was skewed; with proportionally fewer

Certificate 2 and proportionally more Certificate 3 students represented in the study sample. A specific age breakdown of the AMEP population of Certificates 2 and 3 students was not made available, however the majority of the population of Certificates 2 and 3 students were in the age bracket 26 to 44 years (55.29%). The study sample had 125 students, of which 67 were in the age bracket 26 to 44 years (53.6%). A chi-square goodness-of-fit test indicated that there was no significant difference in the proportion of students in the study sample aged 26 to 44 years, compared with the total population enrolled in Term 1, 2019, χ^2 (1,125) = .04, p = .841. Sixty percent of the AMEP population of students in Certificates 2 and 3 in Term 1 were female; the study sample of 125 students comprised 70% female. This difference was statistically significant (χ^2 (1,125) = 4.17, p = .04).

Overall, these results show that the study sample was only representative of the age of the population of AMEP students enrolled in Certificates 2 and 3 in Term 1. The study sample had proportionally more females and Certificate 3 students than the total population enrolled in the AMEP Certificates 2 and 3 in Term 1, 2019.

Trial completers and non-completers.

During the data collection period, and in total over both Certificate levels and group allocation,74 students completed the trial from Baseline through to the Time 4 (*maintenance*) survey (74 / 125, 59.2%), and a further seven did not withdraw participation but were absent from class during one or more of the data collection phases.

The remaining 44 students were non-completers; they withdrew their participation and did not complete the trial (44 / 125, 35.2%). The non-completers comprised 21 from the Intervention group and 23 from the Wait-list Control group. Roughly half of the non-completers were in Certificate 2 (20 / 44: 45.5%), the other half in Certificate 3, and almost three-quarters (32 / 44: 72.7%) were female. Those who did not complete after Baseline were

compared with those who stayed in using independent samples t-tests and chi-square tests as appropriate. Time in Australia between those who stayed in to complete the trial (M = 3.00 years, SD = 4.04) and those who did not complete the trial (M = 5.19 years, SD = 4.97) was significantly different between the two groups (t (121) = 2.64, p = .010). There were no differences between groups on age (completers: M = 34.88 years, SD = 12.15; non-completers: M = 38.80 years, SD = 10.78; t (121) = 1.75, p = .082); gender (χ^2 (1, n = 125) = .13, p= .72) or education (greater or lower than Year 12) (χ^2 (1, 116) = .40, p = .53).

Examining reasons for not completing the study revealed that most left the study because they had completed their number of allocated language hours through the AMEP (22 / 44: 50%). This likely explains why the non-completers were more likely to have lived in Australia for a longer period. The TAFE privacy rules did not permit access to students' contact details outside of class so the students who finished their language course hours could not be followed-up. A further 11 students did not complete the Time 4 survey because they were absent from class during data collection (11 / 44: 25%), and another did not wish to complete it. Four students left to go on maternity leave, one got a job, one went back to their home country, one withdrew from the AMEP due to health reasons, one changed campus and two were lost to follow-up.

Adoption.

Adoption has been defined as "the absolute number, proportion and representativeness of settings and interventions agents who are willing to initiate a program." ("RE-AIM.org", n.d.).

Aim 1: To examine the characteristics of the sites and to compare the characteristics of the teaching staff and settings that adopted (trialled) the ACCESS cancer prevention curriculum.

Sites.

ACCESS achieved excellent *adoption* by South Australian institutions delivering adult immigrant ESL education. Seven sites in South Australia offer the AMEP to immigrants, two country sites and five metropolitan Adelaide sites. The AMEP Managers sent the trial invitation letter to all Certificate 2 and 3 teachers across the seven sites. Teachers from all five of the metropolitan sites responded and elected to participate in the trial (5/7 sites: 71.4%) but neither of the rural sites indicated willingness. This result confirms **urban** *adoption* but raises potential issues blocking *adoption* in rural areas. The metropolitan sites were in the city centre, as well as in the wider suburbs in the north, south and west of Adelaide, the capital of South Australia. Notwithstanding the failure to recruit rural sites, it is important to note that 83% of overseas-born people living in Australia live in a capital city (Australian Bureau of Statistics, 2017c), so it is likely that most immigrants participating in the AMEP English classes would attend a metropolitan site. Thus, a*doption* was excellent although further research is required in other states, with a particular focus on overcoming barriers to participation by programs in rural locations.

Teachers who adopted ACCESS for the trial.

The ACCESS curriculum was designed to be taught at each of the three Certificate levels offered by the AMEP. Nonetheless, only classes of the upper two Certificate levels (Certificates 2 and 3) were able to participate in the trial because of the language demands of the student surveys associated with the evaluation of the program; these were too advanced for Certificate 1 level students. Across the participating sites, six classes each of Certificates 2 and 3 participated in the trial, as depicted in the teacher recruitment diagram, Figure 8.1.

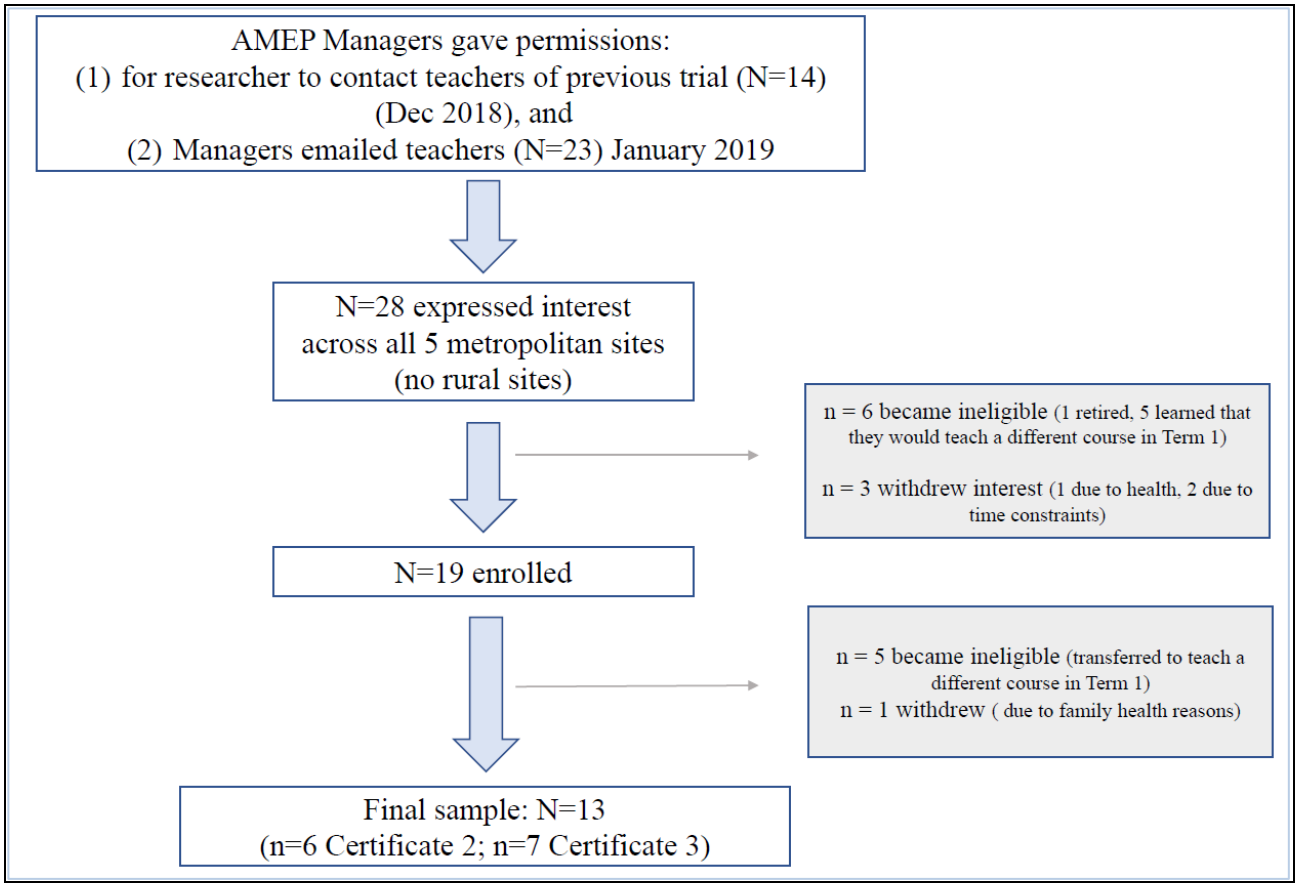

Figure 8.1. Teacher recruitment.

Across the whole AMEP, there were 23 teachers of Certificates 2 and 3 in Term 1, 2019 in South Australia. Seventeen of the 23 teachers were female (17 / 23: 74%), and 16 (16 / 23: 70%) taught part-time. In the trial, 13 teachers participated, therefore the rate of *adoption* by staff of the ACCESS curriculum during the trial was 56.5% (13 / 23). Eight of these 13 teachers were female (8 / 13: 61.5%). The sample gender was significantly different from the population; χ^2 (1,13) = 7.84, p = .006, having fewer females. Nine of the 13 teacher trial participants were employed to teach part-time in Term 1 (9 / 13: 69.2%), a proportion that did not differ significantly from the Term 1 teacher population; χ^2 (1,13) = .05, p = .827. Overall, these results show that the study's teacher sample was representative of the wider population of Certificates 2 and 3 teachers in terms of employment status (full or part-time) but not of gender.

Table 8.1 shows the characteristics of the 13 participating teachers.

Table 8.1

Characteristics of the teachers who participated in the trial

Variables	Intervention *n* = 7	Wait-list Control *n* = 6	Total *N* = 13
Language level taught			
Certificate 2 *n*	3	3	6
Certificate 3 *n*	4	3	7
Age range (Mean range from a list of age ranges)	50 - 59	50-59	50-59
Gender			
Male *n*	5	0	5
Female *n*	2	6	8
Number years ESL teaching experience *(Median (IQR))*	20.0 (11-31 years)	15.5 (11.75-22.5 years)	16.0 (11.5-27.5 years)
During trial:			
Taught full-time *n*	1	3	4
Taught part-time *n*	6	3	9
Co-taught class *n*	7	2	9
Did not co-teach class *n*	0	4	4

There were differences in gender, full-time working and co-teaching status between teachers who taught in the Intervention and the Wait-list Control groups. The Intervention group comprised 71% (5 / 7) male and the Wait-list Control group comprised no male teachers. Six of the seven (85.7%) Intervention teachers taught part-time, compared to only 50% of the Wait-list Control group. All Intervention teachers co-taught their class alongside another teacher, while only one third of Wait-list Control teachers co-taught. Teachers

reported that they had been teaching for a median of 16 years. Years of experience varied widely, ranging from 6 to 34 years. An independent samples *t*-test showed that there was no significant difference in the mean number of years teaching between teachers in the Intervention group (M = 19.86, SD = 10.67) and teachers in the Wait-list Control group (M = 17.33, SD = 6.98), t (11) = 0.49, p = .63.

Adoption of ACCESS during the trial: Weekly surveys.

Aim 2: To explore teachers' use of the ACCESS curriculum during the trial.

The extent to which the ACCESS curriculum was used (*adopted*) by teachers was explored. The curriculum was designed to be flexible, in addition to the curriculum components that teachers were asked to use (use each Module, use the Listening worksheets and videos first – this is described more in the section in this Chapter on *implementation*). Consequently, teachers' choices of worksheets and topics were investigated. This investigation looked at uptake of curriculum components by teachers teaching across both arms of the trial (in the Intervention group and those teachers in the Wait-list Control group who taught after the trial period). Data were pooled from surveys from all teachers.

Each teacher completed a weekly checklist (see Appendix I). Survey items covered: identification of each worksheet used during the week; length of each lesson involving an ACCESS worksheet; lesson preparation time and a rating of teachers' likelihood to re-use the ACCESS worksheet taught.

Time spent using ACCESS.

The amount of time teachers spent using worksheets and materials from ACCESS was calculated by adding up the lesson times reported across the weekly surveys. Teachers reported using the ACCESS curriculum in class in each of the four-weeks of the trial period.

The minutes per week by teachers varied widely, as shown in Table 8.2. Due to the weekly variation, time is shown in median minutes (inter-quartile range, IQR).

Table 8.2

Median minutes (IQR) of class time spent on the ACCESS curriculum

Week number	Intervention (n = 7) (time taught in the intervention period)	Wait-list Control (n = 6) (time taught in the post-intervention, period)	Total time
Week 1	45.0 (25-50)	60.0 (37.5-88.75)	45.0 (35-60)
Week 2	50.0 (40-53)	52.5 (35-63.75)	50.0 (37.5-60)
Week 3	60.0 (35-70)	61.0 (47.5-81.25)	60.0 (45-70)
Week 4	65.0 (35-68.75)	80.0 (33.75-180)	65.0 (35-100)

Teachers spent around an hour each week on the curriculum, but there was considerable variation between teachers as shown in the large IQR in some weeks. Some teachers spent about the same time on the curriculum each week, but others varied their use of the resource. For example, one Wait-list Control teacher spent almost two hours on the curriculum in Weeks 1 and 3, but only 35 minutes on it in Weeks 2 and 4. Two more teachers spent just under an hour teaching from ACCESS in Weeks 1 to 3, and then three hours in Week 4. This varied pattern of *adoption* may reflect the variability of lesson planning enacted by each teacher within the AMEP (and highlighted by them in the scoping study of Stage 1 of this research, described in Chapter 3). Independent samples t-tests were used to detect any significant differences between Intervention and Wait-list Control classes for time (mean minutes) spent each week on the ACCESS curriculum.

Despite the differences between Intervention and Wait-list Control groups in part-time and co-teaching status, as noted in Table 8.1, there were no significant differences between groups on the amount of time spent on the curriculum components: Week 1 (Intervention M = 39.71, SD = 14.10, Wait-list Control M = 65.83 mins, SD = 43.28) t (11) = -1.52, p = .158; Week 2 (Intervention M = 47.57 mins, SD = 8.34, Wait-list Control M = 51.67 mins, SD = 16.02) t (7.27) = -0.56, p = .59; Week 3 (Intervention M = 77.93 mins, SD = 73.69, Wait-list Control M = 66.17 mins, SD = 26.08) t (11) = 0.37, p = .719; Week 4 (Intervention M = 54.50 mins, SD = 18.23, Wait-list Control M = 97.50 mins, SD = 68.54) t (5.83) = -1.48, p = .192.

ACCESS Worksheets trialled: Lesson times, likelihood of re-use.

Table 8.3 lists each worksheet from the ACCESS curriculum. For each worksheet, the frequency of its use was calculated, as well as mean lesson and preparation time, and likelihood of re-use. Teachers responded to the question "How likely are you to re-use this worksheet again in the future?" on a 5-point Likert scale ranging from 1 *(very unlikely)* to 5 *(very likely)*. Column 5 shows the frequency of respondents who indicated 4 *(likely)* or 5 *(very likely).* Space was also provided for teachers to describe in writing the types of preparation activities that they undertook, and any modifications or supplementations that they had made.

Table 8.3

Extent of adoption of each ACCESS worksheet, from teachers' weekly surveys (N = 12)[a]

ACCESS Worksheet used	Teachers' Weekly Surveys: completed at the end of each week			
	Frequency of use (n/12:%)	Mean lesson time (mins)[b]	Preparation time (mins)[b]	Likelihood of re-use[c]
Module 1: What is cancer?				
Listening Worksheet 1: What is cancer?	11 (91.7)	37.27 (16.64)	10.10 (5.51)	10/11 (90.1)
Reading Worksheet 1: Different ways we think about cancer.	6 (50)	25.83 (19.85)	10.00 (9.13)	3/6 (50)
Speaking Worksheet 1: What do people think about cancer?	7 (58.3)	25.83 (11.58)	8.00 (7.07)	6/7 (85.7)
Module 2: Going to the GP				
Listening Worksheet 2: Going to the GP to check symptoms	7 (58.3)	27.14 (11.85)	14.83 (22.23)	4/7 (57.1)
Reading Worksheet 2: Emergency departments are for emergencies only.	10 (83.3)	23.89 (17.81)	16.67 (17.14)	7/10 (70)
Speaking Worksheet 2: Going to the GP	7 (58.3)	25.00 (17.73)	11.67 (15.06)	6/7 (85.7)
Module 3: Primary prevention				
Listening Worksheet 3: Things we can all do to prevent cancer.	9 (75)	26.11 (8.54)	17.17 (21.87)	9/9 (100)
Reading Worksheet 3: Giving advice.	2 (16.7)	17.50 (10.61)	20.00 (0)	2/2 (100)
Reading Worksheet 4: Eating fruit and vegetables help prevent cancer.	6 (50)	24.17 (10.68)	15.00 (8.66)	5/6 (83.7)
Reading Worksheet 5: Reduce red and processed meat.	5 (41.7)	27.00 (19.87)	20.00 (10.00)	3/5 (60)
Reading Worksheet 6: Maintain a healthy weight.	3 (25)	18.33 (12.58)	10.00 (0)	3/3 (100)
Reading Worksheet 7: Being active helps prevent cancer.	8 (66.7)	29.00 (23.50)	12.17 (16.56)	7/8 (85.7)

Table 8.3 (continued).

ACCESS Worksheet used	Teachers' Weekly Surveys: completed at the end of each week			
	Frequency of use (n/12:%)	Mean lesson time (mins)[b]	Preparation time (mins)[b]	Likelihood of re-use[c]
Reading Worksheet 8: What is moderate activity? What is vigorous activity?	8 (66.7)	18.13 (9.23)	14.17 (18.76)	5/8 (62.5)
Reading Worksheet 9: What happens when you stop smoking?	3 (25)	25.00 (7.07)	20.00 (0)	3/3 (100)
Reading Worksheet 10: Being sun smart in Australia.	3 (25)	18.33 (10.41)	10.00 (0)	3/3 (100)
Reading Worksheet 11: How much alcohol is too much?	1 (8.3)	30	20	1/1 (100)
Speaking Worksheet 3: Planning for health.	1 (8.3)	20	10	1/1 (100)
Module 4: Secondary prevention				
Listening Worksheet 4: Screening tests to find cancers early.	6/12 (50)	34.17 (22.23)	11.10 (7.89)	6/6 (100)
Reading Worksheet 12: Cancer screening tests in Australia.	5 (41.7)	58.00 (71.20)	13.25 (11.64)	3/5 (60)
Speaking Worksheet 4: Screening for health.	2 (16.7)	37.50 (31.82)	7.50 (3.54)	2/2 (100)
Extension worksheet	1 (8.3)	25	10	1/1 (100)
Additional resources: Flash cards	1 (8.3)	20	15	1/1 (100)
Additional resources: Glossary	0	-	-	-
Additional resources: Video scripts	0	-	-	-

Note. [a] There were 13 teachers, but two teachers co-taught a class - results are combined for the co-teachers; [b]Mean minutes (SD); [c] participant indicated 4 *(likely)* or 5 *(very likely)* to reuse the curriculum component in the future/number of teachers who responded to the item (%).

Referring to Table 8.3, across the sample, all ACCESS worksheets were used at least once. In Modules 1 (“What is cancer?”), 3 (“Cancer prevention in Australia: Primary prevention”) and 4 (“Cancer prevention in Australia: Secondary prevention”), the Listening worksheets were used most frequently. In particular, the Listening worksheet to Module 1 was used by all but one teacher. This worksheet, with accompanying video introduces: (1) the key cancer health messages in the curriculum (everyone is at risk of developing cancer; many common cancers in Australia can be prevented; we can help prevent many cancers by engaging in healthy lifestyle behaviours; many cancers can be treated if found early; in Australia, people can go to their GP to discuss symptoms and to arrange cancer screening tests); (2) cancer symptoms covered in the curriculum (unexplained lump, pain, bleeding, fatigue, weight loss, change in body or skin, a cough that does not go away); (3) primary prevention behaviours (eat fruit and vegetables, be physically active, maintain a healthy body weight, engage in sun protection, reduce alcohol, stop smoking) and secondary prevention measures (screen to find cancer early).

In Module 2 (“Going to the GP”), the Reading Worksheet 2 (“Emergency departments are for emergencies only”) was most frequently used, in 10 of the 12 classes. The topic of this worksheet was to inform new immigrants about going to their GP to discuss symptoms, rather than present at the Emergency department of a major hospital.

The worksheets least used through Modules 1 to 4 were the Speaking worksheets of Modules 3 and 4 (used by one to two teachers), and the Reading worksheet about alcohol consumption in Module 3 (used by one teacher). From the “Additional Resources” section, only the flash cards were used during the trial.

The mean duration of a lesson using an ACCESS worksheet was approximately 34.5 minutes. There was considerable variability in reported lesson lengths (see column 3 in Table 8.3). The lesson using Reading Worksheet 3 (“Giving advice”) took the least amount of time

(*M* = 17.50 mins, *SD* = 20) and the lesson using Reading Worksheet 12 ("Cancer screening tests in Australia") took the most amount of time for some classes (*M* = 58 mins, *SD* = 71.2). As noted in Chapter 3 (Stage 1: scoping study), the teachers reported that the AMEP permitted a great deal of flexibility in lesson planning and delivery potential, and that they did not have specific rules to follow other than covering a curriculum. This may explain the large variations in lesson times found in the current study.

On average, teachers spent 13.5 minutes preparing for a lesson using an ACCESS worksheet. Many teachers reported in the written comments that there was little to prepare, as one teacher explained: "Almost no preparation required, just setting up the computer" (ID002, higher language level teacher). Preparation activities reported by teachers included familiarising themselves with the materials, watching the video, photocopying and preparing audio-visual equipment. Some teachers listed preparation of supplementary materials, such as finding additional pictures to support the lesson, or preparing additional activities: "…watching the video, thinking about introduction of the topic and extension activities" (ID006, lower language level teacher).

Between 50 - 100% of teachers reported they were likely to re-use each worksheet, with commitment varying with worksheet and teacher. Worksheets that were most likely to be re-used were Listening Worksheets for Modules 1, 3 and 4, the Speaking Worksheets and Reading Worksheets 3, 4, 7, 9, 10 and 11 in Module 3 ("Cancer prevention in Australia: Primary prevention"). The worksheets reported as less likely to be re-used were Reading Worksheet 1 ("Different ways we think about cancer", 3 / 6: 50%) and Listening Worksheet 2 ("Going to the GP to discuss symptoms" 4 / 7: 57.1%).

ACCESS worksheets trialled: Teachers' overall impression.

Teachers completed another online survey immediately following their four-week trial of the ACCESS curriculum (see Appendix J). Survey items were: their impressions of their students' interest in the curriculum, on a 5-point Likert scale ranging from 1 *(very disinterested)* to 5 *(very interested)*; identification of each worksheet used, and questions to probe their opinion on five factors. Specifically, they were asked to rate the extent to which each worksheet was easy to use, matched students' language level, improved students' vocabulary, encouraged student conversation and improved students' knowledge, on a 5-point Likert measure: 1 *(not at all),* 2 *(to a small extent),* 3 *(to some extent),* 4 *(to a moderate extent)* or 5 *(to a great extent).* The results showed that all teachers rated a score between 2 *(to a small extent)* and 5 *(to a great extent)* for each worksheet on each factor. There were two exceptions; one teacher rated the Listening 1 worksheet ("What is cancer?") as 1 *(not at all)* encouraging of student conversation; another teacher rated the Reading 9 worksheet ("What happens when you stop smoking?") as 1 *(not at all)* matching students' language level. Due to the overall positive ratings from teachers, the results depicted in Table 8.4 show teachers' ratings of 4 *(to a moderate extent)* and 5 *(to a great extent)* summed together.

Teachers were also asked how well the ACCESS worksheets addressed the CSWE competencies on a 5-point Likert measure ranging from 1 *(very poorly)* to 5 *(very well)*; and finally one question to ask teachers about their likelihood of using anything from ACCESS again with future classes, on a 5-point Likert scale ranging from 1 (*very unlikely*) to 5 (*very likely*). Teachers were also provided with space to elaborate on their responses in writing.

Teachers' ratings and written comments highlight facilitating factors and barriers to future *adoption*. They may provide clues as to why worksheets such as the Listening Worksheets for Modules 1, 3 and 4, Speaking Worksheets and many of Module 3's Reading Worksheets (numbers 3, 4, 7, 9, 10 and 11) were highlighted as likely to be re-used in the

future on the weekly surveys, and why worksheets such as Reading Worksheet 1 and Listening Worksheet 2 were marked as least likely to be re-used.

Table 8.4
Teachers' ratings of the extent to which each worksheet was easy to use, matched level, improved vocabulary, conversation and knowledge (N=12)[a]

ACCESS Worksheet used	Teachers' Final Survey: completed after the 4-week trial				
	Ease of use[b]	Level match[b]	Improve vocab[b]	Encourage conversation[b]	Improve knowledge[b]
Module 1: What is cancer?					
Listening Worksheet 1: What is cancer?	10/10 (100)	6/10 (60)	4/9 (44.4)	7/10 (70)	9/10 (90)
Reading Worksheet 1: Different ways we think about cancer.	3/3 (100)	2/3 (66.7)	1/3 (33.3)	2/3 (66.7)	1/3 (33.3)
Speaking Worksheet 1: What do people think about cancer?	5/6 (83.3)	5/6 (83.3)	2/5 (40)	6/6 (100)	4/6 (66.7)
Module 2: Going to the GP					
Listening Worksheet 2: Going to the GP to check symptoms	4/6 (66.7)	4/6 (66.7)	2/6 (33.3)	3/6 (50)	4/6 (66.7)
Reading Worksheet 2: Emergency departments are for emergencies only.	6/7 (85.7)	3/7 (42.9)	2/6 (33.3)	3/6 (50)	5/7 (57.1)
Speaking Worksheet 2: Going to the GP	3/3 (100)	2/3 (66.7)	1/2 (50)	2/2 (100)	2/3 (66.7)
Module 3: Primary prevention					
Listening Worksheet 3: Things we can all do to prevent cancer.	7/8 (85.7)	5/8 (62.5)	5/8 (62.5)	4/8 (50)	8/8 (100)
Reading Worksheet 3: Giving advice.	0/1 (0)	0/1 (0)	1/1 (100)	2/2 (100)	1/1 (100)
Reading Worksheet 4: Eating fruit and vegetables help prevent cancer.	5/5 (100)	2/5 (40)	3/4 (75)	4/5 (80)	4/5 (80)
Reading Worksheet 5: Reduce red and processed meat.	3/5 (60)	3/5 (60)	3/4 (75)	4/5 (80)	4/5 (80)
Reading Worksheet 6: Maintain a healthy weight.	3/3 (100)	2/3 (66.7)	0/2 (0)	1/3 (33.3)	2/3 (66.7)
Reading Worksheet 7: Being active helps prevent cancer.	5/6 (83.3)	2/6(33.3)	2/4 (50)	3/6 (50)	3/6 (50)
Reading Worksheet 8: What is moderate activity? What is vigorous activity?	4/7 (57.1)	2/6 (33.3)	3/6 (50)	4/7 (57.1)	3/6 (50)

Table 8.4 (continued).

ACCESS Worksheet used	Teachers' Final Survey: completed after the 4-week trial				
	Ease of use[b]	Level match[b]	Improve vocab[b]	Encourage conversation[b]	Improve knowledge[b]
Reading Worksheet 9: What happens when you stop smoking?	2/3 (66.7)	1/3 (33.3)	1/2 (50)	2/3 (66.7)	1/3 (33.3)
Reading Worksheet 10: Being sun smart in Australia.	3/3 (100)	1/2 (50)	1/2 (50)	1/2 (50)	3/3 (100)
Reading Worksheet 11: How much alcohol is too much?	1/1 (100)	1/1 (100)	1/1 (100)	1/1 (100)	1/1 (100)
Speaking Worksheet 3: Planning for health.	0/1 (0)	1/1 (100)	0/1 (0)	1/1 (100)	0/1 (0)
Module 4: Secondary prevention					
Listening Worksheet 4: Screening tests to find cancers early.	6/6 (100)	4/5 (80)	4/5 (80)	5/6 (83.3)	6/6 (100)
Reading Worksheet 12: Cancer screening tests in Australia.	3/3 (100)	1/2 (50)	1/2 (50)	2/3 (66.7)	3/3 (100)
Speaking Worksheet 4: Screening for health.	1/1 (100)	0/1 (0)	0/1 (0)	1/1 (100)	1/1 (100)
Extension worksheet	-	-	-	-	-
Additional resources: Flash cards	1/1 (100)	0/1 (100)	1/1 (100)	1/1 (100)	1/1 (100)
Additional resources: Glossary	-	-	-	-	-
Additional resources: Video scripts	-	-	-	-	-

Note. [a] There were 13 teachers, but two teachers co-taught a class - results are combined for the co-teachers; [b]Participants who indicated 4 *(to a moderate extent)* or 5 *(to a great extent)* to each item (%) on a 5-point Likert scale ranging from 1 *(not at all)* to 5 *(to a great extent)*.

Teachers' ratings: Facilitators of adoption.

Student interest.

Adoption was facilitated by student interest. Teachers responded to the question "On the whole, how interested were your students in the ACCESS curriculum worksheets and activities?" on a 5-point Likert scale ranging from 1 *(very disinterested)* to 5 *(very interested*). All teachers responded that their students were 4 *(interested)* or 5 *(very interested)* in the materials.

Ease of use.

For many teachers, *adoption* was also facilitated by finding the ACCESS materials easy to use. Referring to Table 8.4, all ACCESS worksheets and materials were reported as "easy to use" to some degree. Furthermore, teachers reported that the materials were "easy to use" *to a moderate extent* or *to a great extent* by between 57% - 100% of the time. Many teachers provided written comments to support their ratings. Some commented on aspects of the videos and Listening worksheets: "I think the [Listening] worksheet was easy to use and the students in particular could relate to the video." (ID006, lower language level teacher); "Several students commented on how easy the video was to understand. They appreciated the clear and measured delivery. In my opinion, this significantly helped to make the topic accessible to students." (ID017, lower language level teacher); "It depends on the classes I get, but the material is easy to use and useful. It is also easy to plan around and make relevant with other class materials." (ID006, lower language level teacher).

Improved vocabulary.

All teachers reported that the worksheets improved vocabulary *to a small extent* through *to a great extent*. One teacher explained in the written comments that lack of vocabulary improvement was not a barrier in her case due to the importance of the topic, hence teacher interest was perhaps another factor facilitating uptake of the worksheets:

> "Even if the language gained was not significant, the knowledge gained was substantial. I tried to ensure activities were well supported but I think the most positive aspect for students were the discussions, sharing of ideas and most importantly knowledge." (ID006, lower language level teacher).

Encouraged conversation.

There was (with one exception) unanimous reporting that the materials encouraged conversation to some extent. In general, there was moderate to unanimous agreement that the worksheets encouraged conversation among students *to a moderate extent* or *to a great extent* (rated by 50-100% of teachers across the worksheets). Some teachers supplemented their ratings with written comments that the topic generated a lot of discussion, including cross-cultural discussion: "Students engaged quite readily in discussion around the topic, particularly when talking about experiences in their home countries." (ID014, lower language level); "Apart from finding them a bit simple, the students were incredibly interested in the topic and sharing their own experiences as well." (ID015, higher language level teacher).

Some teachers wrote that the Speaking activities designed to foster cross-cultural discussion were well received: "The questions in the speaking section were good. Interestingly, students spoke about socio-economic differences in their counties resulting in different mindsets and outcomes, and differences between their mindsets and those of older generations." (ID004, lower language level). "Students enjoyed discussing the differences in health care between their country and Australia." (ID018, higher language level teacher).

> "My group of students are from many different countries, and generally seem well informed about cancer prevention. They are quite engaged when discussing differences between different countries (e.g., smoking laws in Africa, Asia, Europe), approach of governments towards educating (or not) their citizens, and practical realities of cancer

prevention in their different regions. I think they are finding the topic worthwhile." (ID014, lower language level teacher).

The communicative activities encouraging sharing of information outside of class also appeared to be very well accepted by teachers and students. One teacher wrote: "Found it interesting to explore ways of sharing awareness and knowledge about screening with family and friends. Finished up with a sense of responsibility towards others who may not have had the opportunity of participating in this trial." (ID012, higher language level teacher).

Improved knowledge.

The value of new information learned was an asset confirmed by some teachers. Results indicated unanimous ratings that knowledge had improved from *to a small extent* through *to a great extent*. In addition, the results, as depicted in Table 8.4, showed that teachers almost unanimously indicated that the worksheets with video improved their students' knowledge *to a moderate extent* or *to a great extent* (90% of teachers on Listening Worksheet 1, and 100% of teachers on Listening Worksheets 3 and 4, referring to Modules 1, 3 and 4 respectively). One provided this written comment: "Students found the worksheets engaging and thought-provoking. They were especially interested in learning the vocabulary surrounding cancer e.g., metastasis, tumour and benign." (ID017, lower language level teacher).

Additional factors mentioned by teachers as likely to facilitate adoption.

A further facilitating factor for *adoption* was that teachers agreed that most ACCESS components were applicable to multicultural classes:

"I would consider using the video with future classes – the video was really good with its production values and the content covered was interesting and relevant. Also the

> ethnic diversity of the participants was refreshing and reflected to some extent the diversity of the class." (ID011, higher language level teacher).

Being able to use materials flexibly within the classroom was highlighted in the scoping study (Stage 1, described in Chapter 3) as a drawcard for teachers, so that they could respond to classroom needs. Some teachers highlighted this flexibility as a facilitating factor for them as teacher practitioners. As one remarked in writing: "I didn't just rely on the source material but on extra materials I developed or newspaper articles, YouTube clips online etc to embellish the material." (ID013, higher language level).

Teachers listed and described their adaptations. For example: "I noted that the students really enjoyed watching the video and between each viewing, we noted all the new vocabulary on the whiteboard and jotted all the points we remembered from the first viewing. After the second viewing, we were able to add more points. The whiteboard gave us a thorough overview of all that we learnt from the video." (ID005, lower language level teacher). In another example, a teacher wrote:

> "The 'Being active helps to prevent cancer' [Reading Worksheet 7] & 'What is moderate activity? What is vigorous activity?' [Reading Worksheet 8] proved to be very useful. They helped to highlight just how inactive most of us are and how much moderate and vigorous activity we should aim to do each day. To demonstrate the difference, I asked my students to walk down and up the nearby flight of stairs whilst chatting to their partner. I then asked them to do the same thing but faster, to highlight not being able to chat, thereby showing the difference between moderate & vigorous activity." (ID017, lower language level teacher).

Teacher ratings: Barriers to adoption.

Language mismatch.

A possible barrier to *adoption* could be the lower overall ratings of the magnitude of extent to which the worksheets matched their students' language abilities or taught them new vocabulary or knowledge, as depicted in Table 8.4. There was not the same level of response of *to a moderate extent* or *to a great extent* about the worksheets' ability to improve vocabulary (44.4% Listening 1; 62.5% Listening 3, 80% Listening 4) or their match to students' language abilities (60% Listening 1, 62.5% Listening 3, 80% Listening 4) as there was in ratings for ease of use. Some teachers provided written comments that Reading Worksheet 1 was too easy, which may discourage likely future use.: "The reading was far too easy for this level…The students were interested in the topic and appreciated the value of learning about cancer and I think that they would have benefitted from a more challenging text." (ID011, higher language level teacher).

In general, one third of teachers suggested that the Reading Worksheets did not match their students' abilities, nor did it teach them new vocabulary or knowledge. These findings were supported by written comments from teachers of the higher language level classes: "Some of the materials were not challenging for students at Cert III [Certificate 3] level and hence I had to supplement them with other more complex material. The Listening scripts were more challenging than the Reading or Speaking activities." (ID013, higher language level teacher).

In contrast, teachers of the lower level classes found the materials to be suitable:

"The resources are useful to have. I particularly liked the video that supported the worksheets. The information was conveyed clearly and was at an appropriate level for

my students. The visual support contributed to student interest in the topic/s being studied." (ID017, lower language level teacher).

Teacher or student discomfort.

Reading Worksheet 1 was focussed on identifying and discussing different cultural beliefs about cancer, and teacher discomfort or perceived student discomfort with this topic could be a reason behind its lower usage. One teacher's written comment eluded to students' fatalistic beliefs: "Most students tended to agree with the negative comments about cancer. Most agreed that cancer is not a topic that is discussed in their culture and that it's typically associated with a death sentence." (ID017, lower language level teacher). This teacher further reported that she was undecided about using this worksheet again in the future.

Other barriers to adoption.

One teacher wrote that the worksheet presented: "… too much photocopying for not much time to be spent on it." (ID004, lower language level teacher). A further barrier to *adoption* that arose during the trial included comments that the links to online resources supplied on the worksheets were too long and cumbersome for students to enter correctly on a tablet or smartphone: "The website URL for BMI was impossible to use but students could find a BMI calculate quite easily by doing a search." (ID011, higher language level teacher).

Other teachers found the short-term nature of the trial itself a barrier to *adoption*: "…as I was given the time-frame I had to teach it, I couldn't align the units of ACCESS with the appropriate units of CSWE [competencies outlined in the Certificates of Spoken and Written English]. In normal teaching circumstances, I could" (ID015, higher language level); "Unfortunately, time prevented me from using the resources to their fullest, but in the future I would like to incorporate more of them into my lessons." (ID017, lower language level teacher).

Overall impression: Likelihood of using ACCESS again with future classes.

Overall, when asked in the post-intervention survey about likelihood of ever using anything from ACCESS again with future classes, 11 of the 13 teachers (11 / 13: 85%) indicated that they were *likely* or *very likely* to use something again. Written comments supporting this included: “These topics are really useful and presented well to use with every class I teach so I will incorporate some of the lessons every term with each new class.” (ID005, lower language level). Another teacher was positive about future use but commented on its frequency within a curriculum: “If [cancer prevention topic] was built into the curriculum I’m not sure I would want to teach it every week / class, but it could be spread over a term, perhaps having classes every fortnight or so.” (ID014, lower language level teacher).

Two teachers (2 / 13: 15.4%) indicated that they were not likely to use anything from ACCESS again the future. They elaborated in writing and gave different reasons for their decision. One commented on the nature of the cancer prevention topic: “Some of my students liked the information they’ve got during this time about cancer prevention, but at the same time they were not so willing to work on it more than one or two sessions during a term”. (ID002, higher language level teacher). The other teacher commented on the nature of the worksheets: “Although they are very attractive, I feel that a lot of the worksheets don’t have enough info and don’t take long enough to complete to justify all the photocopying.” (ID004, lower language level teacher).

Implementation.

The evaluation of *implementation* aimed to determine the fidelity of the intervention. “At the setting level, implementation refers to the intervention agents’ [teachers’] fidelity to the various elements of an intervention’s [ACCESS] protocol. This includes consistency of delivery as intended and the time and cost of the intervention.” ("RE-AIM.org", n.d.). This

evaluation aimed to address the broad Research Question 3 of the dissertation: Will intervention fidelity be maintained when the curriculum is utilised in actual classes?

Aim: To determine the degree to which the course was delivered as intended.

The evaluation of *implementation* involved examining the extent to which the ACCESS curriculum was delivered in accordance with the manualised instructions. This evaluation was completed using quantitative measures in the form of teachers' weekly surveys, and both quantitatively and qualitatively using direct classroom observations.

Weekly surveys.

All teachers returned weekly surveys for their four-week trial of ACCESS. All teachers had used at least one worksheet from each of Modules 1 ("What is cancer?), 2 ("Going to the GP") and 3 ("Cancer prevention in Australia: Primary prevention"). Only half of the teachers taught from Module 4 ("Cancer prevention in Australia: Secondary prevention").

Prior to the intervention trial, at their pre-trial meeting, teachers were given some instruction on how to use the ACCESS curriculum during the trial.

Teachers' instructions.

A one-to-one instruction session was held with each teacher one week prior to their teaching period, during which they were taken through the resource and provided with guidelines for using the materials during the teaching period. Specifically, they were instructed to read the introductory information "Introduction to this resource" and "Introduction to cancer prevention for teachers" (pp i-ii, see the ACCESS curriculum in the Supplementary File, also shown in Appendix E, pp 381-382) and the "Overview for Teachers" page accompanying each worksheet chosen. Teachers were instructed to teach across the four modules during the four-week trial. They were instructed to use the videos with accompanying Listening worksheets first in each module because they introduced the

key health messages and vocabulary for the module. In addition, the teachers were asked to tell students to share what they had learned in class with their significant others for homework. Aside from these guidelines, teachers were given flexibility to select other worksheets pertaining to their students' needs. In addition, on enrolment to the trial, teachers were also asked not to teach health topics related to cancer prior to Week 3 (Intervention teachers) or Week 8 (Wait-list Control teachers) in an effort to keep the topic contained to the intervention period only.

Table 8.5 summarises teachers' use of the Listening worksheets during the trial.

Table 8.5

Use of the Listening worksheets during the four-week trial (N = 12)[a]

Listening Worksheet	Intervention (*n* = 6) *n* (% used)	Post-Intervention (*n* = 6) *n* (% used)	Total *n* (% used)
Module 1	5/6 (83.3)	6/6 (100)	11/12 (91.7)
Module 2	4/6 (66.7)	3/6 (50)	7/12 (58.3)
Module 3	5/6 (83.3)	4/6 (66.7)	9/12 (75)
Module 4	2/6 (33.3)	4/6 (66.7)	6/12 (50)

Note. [a] There were 13 teachers, but two teachers co-taught a class - results are combined for the co-teachers.

All but one class used the Listening worksheet for Module 1 ("What is cancer?"). The next most frequently used Listening worksheet was from Module 3 ("Cancer prevention in Australia: Primary prevention") with around three quarters of the classes receiving it. The Module with the least used Listening worksheet was Module 4 ("Cancer prevention in Australia: Secondary prevention") with only half of the classes receiving this (only two of the Intervention classes). This reduced use of Module 4 may have been due to lack of time or a

lack of interest by teacher or students to study the screening topics of Module 4. However, student interest in the screening topics was reported to be high by one teacher: “From the feedback, the topic that was of most interest was the bowel screen and mammogram checks.” (ID018, higher language level teacher), and teachers who did use the worksheet reported a high likelihood to re-use it again in the future (shown earlier in Table 8.4).

Several teachers complained about the short trial period, providing further support that it may have been lack of time, not lack of interest, behind less time spent on Module 4. It may have also been due to student interest to continue with focussing on primary prevention topics. It was noted on the weekly surveys, that some teachers still taught from Module 3 in the fourth and final week of the trial period. The under-use of Module 4 (“Cancer prevention in Australia: secondary prevention”) may help explain the lower frequency with which the students reported sharing information with family and friends about bowel, breast or cervical cancer screening in Australia, as discussed in Chapter 7.

Observations.

During the 11-week term, eight teachers (8 / 13: 62%, four each from the Intervention and Wait-list Control groups) consented to be observed whilst teaching one or more worksheets from the ACCESS curriculum. The aim of the observations was to note the extent to which material was utilised in the form presented, as well as noting comments made by teachers or students during the lessons. Specifically, quantifiable items noted during the observation were the worksheet number(s) covered and length of lesson; the number of items on the worksheet and number of items actually taught; and identification of which activities were taught / not taught; materials used from ACCESS and materials supplemented; and modifications made. In addition, qualitative elements such as: student-to-student interactions; student-to-teacher interactions were noted. The observations were conducted by the PhD

student who was introduced to the class as she entered the room. She sat at the back of the room and did not interact with the students during the lesson.

The observation checklist is provided in Appendix K. Table 8.6 lists the worksheets observed, and quantifiable results.

Table 8.6

Fidelity of observed lessons

Worksheet	Length of lesson observed (mins)	Multicultural class?	Used materials provided?	No. activities completed/No. activities provided	Used additional materials or activities
Intervention group					
Lower level					
Listening Worksheet 3	35	yes	yes	7/7	yes
Reading Worksheet 4	25	yes	yes	6/6	yes
Listening Worksheet 4	60	yes	yes	6/6	no
Higher level					
Reading Worksheets 4-11	60	yes	yes	all for each sheet	yes
Listening Worksheet 4	30	yes	yes	5/6	no
Reading Worksheet 12	10	yes	yes	3/3	yes
Speaking Worksheet 4	35	yes	yes	1/4	no
Reading 12: Extension Work	20	yes	yes	3/5	no
Wait-list Control group					
Lower level					
Listening Worksheet 3	30	yes	yes	7/7	no

Table 8.6 (continued).

Worksheet	Length of lesson observed (mins)	Multicultural class?	Used materials provided?	No. activities completed/No. activities provided	Used additional materials or activities
Higher level					
Reading Worksheet 5	55	yes	yes	3/3	yes
Listening Worksheet 4	60	yes	yes	6/6	no
Reading 12: Extension Work	120	yes	yes	5/5	no

Teachers scheduled their observations during the second half of their four-week trials, so only worksheets from Modules 3 and 4 were observed. All classes observed were multicultural, as intended. Teachers used the materials provided in the curriculum. Specifically, the accompanying videos provided on USB were used, worksheets were photocopied as needed and the online links were accessed. In general, teachers (especially of the lower language level classes) worked through all the activities on the worksheets, however, deviations from the activities on the worksheets were observed as well.

For example, example, one teacher of a higher language level class covered three worksheets in one lesson. She omitted one activity on the Listening Worksheet 4 (“Screening tests to find cancer early”). The activity omitted was one that invited students to consider the free screening tests listed (screening tests to detect bowel, breast and cervical cancer) and first identify if they themselves or others they know are eligible, and then talk to others about what they can do about it. The activity was designed to encourage students to help develop an action plan about screening tests for themselves or for informing their significant others. By omitting this activity, these students missed developing these action plans. In the class, it was observed that the students had difficulty completing the preceding Listening exercise, which

asked them to watch the video and list the age ranges for which free bowel, breast and cervical cancer screening tests are provided. Instead of listening again to the video to find the answers, the teacher moved the class on to the Reading Worksheet 4 (“Cancer screening in Australia”) to find the answers, and then the lesson did not return students back to the activity in which they could personalise the information learned. Instead, the teacher moved the class on to cover the conversation topics in the Speaking Worksheet 4 (“Planning for health”), omitting the two speaking activities that invited students to practice making a phone call or speaking to their doctor about screening for cancer. These two activities were designed to help students develop self-efficacy for making a phone call or speaking to their doctor about symptoms or screening. It was unclear why all three worksheets were covered in one lesson, or why the adaptations were made. However, it is possible that the (part-time) teacher intended to cover the whole module in the lesson, and selected activities that highlighted the facts, practiced some listening, reading and speaking in a more general sense without personalising the information.

Consistent with teachers’ reports in the scoping study (Chapter 3), the observations highlighted that some teachers supplemented the materials to suit their class types and needs. Around half of the observed worksheet activities were supplemented with additional activities during the lesson, which were developed at the discretion of individual teachers. These activities varied in nature. For example, one teacher used a small-group survey about exercise and health as a warm-up activity prior to teaching Listening Worksheet 3 (“Things we can all do to prevent cancer”) and Reading Worksheet 4 (“Eating fruit and vegetables help prevent cancer”). This personalised activity appeared to be enjoyed by the class, which is perhaps why the teacher elected to use it to engage the students to tackle the cancer prevention topic.

Another teacher, after completing Reading Worksheet 5 (“Reduce red and processed meat”) created a whole-class survey to determine who ate the most red meat. This activity was personalised, and the students appeared engaged. One teacher did a brainstorming activity in class to see what students could remember from previous lessons. Another, from a higher language level class, used the link in the Reading worksheet and brought the website up on a projector screen. Students then read additional information about the topic and prepared facts to tell others. It is possible that this teacher of a higher language level class supplemented the materials provided in this way in order to extend the language level of the more advanced students.

Adaptations to worksheets were also observed. One teacher used all of the Reading Worksheets from Module 3 in a novel way for her higher language level class. Students were placed in small groups and given one of the Reading worksheets. They worked through the worksheets together, reading and speaking. Then, they moved to another group and continued until all worksheets were completed. At the end of the morning class, students as a whole class spoke about which topics had interested them the most, which had most personal relevance, and which had taught them the most. These modifications appeared to extend the activities covered in ACCESS in a way that ensured the curriculum complemented the needs of the specific advanced level language class.

Perceived salience and relevance of material incorporated within the ACCESS curriculum.

The observation sessions provided the opportunity to view student interaction with the ACCESS materials and with each other and the teacher. Across all observations, it was noted that the materials, whether designed for “listening”, “reading” or “speaking”, all lent themselves to student-to-student interaction and discussion. Students appeared interested and motivated and were able to complete the activities on the worksheets. Engagement in the

topics was illustrated in different ways. For example, during the discussions, students mentioned new knowledge gained from participation, as indicated by the following spoken quotes: “I didn’t know screening tests were free. In my country, you must pay a lot, so no-one does it until you get symptoms” (female student, Middle Eastern country, higher language level class); “I didn’t know red meat can cause cancer” (female student, Middle Eastern country, higher language level class); and in the same class “I didn’t know about sausages. I like to eat sausages” (female student, European country, higher language level class).

One of the higher language level classes directly observed included only women students. The teacher was female as well. The class comprised six students, each from a different country, who were working on the “Extension work” exercise in Reading Worksheet 12. They worked in pairs to prepare and deliver a presentation about either bowel, breast or cervical cancer screening. After the presentations, the class as a whole discussed the topics very openly, including discussion of female body parts and what breast self-examination and cervical screening involves. All students participated in the discussion. At the end of the class, the teacher said: “This topic and the topic of cancer prevention fits perfectly within the AMEP. If you want to target migrants with this type of knowledge, then you need to go to the AMEP.” (ID015, higher language level teacher).

It was also possible to observe students from different genders and cultures discussing the topics together. In one higher language level class, a group of students discussed norms surrounding the drinking of alcohol in their culture and compared them with those evident in Australia. A student from China said: “My uncle – if he didn’t drink wine every day, he would feel unnatural” and another said: “maybe if you drink, you become Australian”.

In summary, the observation sessions attested to the perceived salience and relevance of the curriculum content and confirmed the use of the communicative language approach to

encourage student-to-student interaction and communication during all activities. However, the observations also afforded the opportunity to note wide variations to fidelity of intervention delivery.

Barriers to, and facilitators of, implementation.

Barriers to implementation.

The weekly surveys provided teachers with the opportunity to list modifications and supplementations made to the ACCESS materials. Many teachers mentioned in writing comments that achieving alignment with the Certificates of Spoken and Written English (CSWE) competencies was an important goal. These comments confirmed recommendations made by teachers in the Stage 1 scoping study (described and discussed in Chapter 3). Unfortunately, just prior to the intervention trial, the CSWE standards changed from the 2013 version (which underpins the ACCESS curriculum) to the 2018 framework. Teachers reported that the 2018 competencies shared similarities to the 2013 competencies, but overall were at a higher level of difficulty for the Certificate 3 level. Therefore, many higher language level teachers reported that the curriculum materials were not sufficiently challenging for the students. This may explain the decision by teachers to omit certain activities when using a worksheet, or to modify or supplement: "…we have changed to CSWE 2018 which is pitched at a higher level and with quite a few changes to the modules." (ID015, higher language level teacher).

These results highlight a major dilemma in the development and delivery of a translation-focussed cancer literacy curriculum for delivery within an existing system. Systems continually evolve and a truly translational intervention needs to be robust to such changes. Although ACCESS continued to be useful, system level changes did appear to have an impact on utilisation and fidelity. Because of changes to competencies prescribed within different Certificate levels, some teachers reported that they supplemented the worksheets

with their own materials, which contained language that was more challenging. The time required to do this could be a barrier to future usage. Another factor that could pose a potential barrier to the successful widespread implementation of the curriculum was the cost of printing the resource and its distribution. Each book for the trial cost approximately AUD $60 and weighed around one kilogram.

Facilitators of implementation.

ACCESS was developed to be delivered flexibly to suit teacher recommendations from the first, scoping, study. Ultimately, flexibility can be a threat to intervention fidelity if teachers omit activities that have been carefully designed to focus on different theoretical aspects of behaviour change. On the other hand, from the teachers' perspective, flexibility was regarded as a factor facilitating *implementation*. Even though the key health messages and vocabulary were concentrated in the Listening videos and worksheets (recommended for first use, to teachers), they also appeared throughout the resource in the other worksheets and each sheet could stand alone as a topic or be used in combination with other worksheets. In addition, results revealed that some teachers who co-taught classes in the AMEP were employed to concentrate on a particular skill during their employment contract, such as reading or conversation. Therefore the flexibility afforded by ACCESS meant that all teachers, regardless of their teaching brief, were able to find something to use from the curriculum: "The [AMEP] module I have been teaching this term is listening/speaking, and the listening activities are good for this (with a worthwhile set of underlying messages)". (ID014, lower language level teacher); "Very easy materials to adapt and work with." (ID006, lower language level teacher).

In summary, ACCESS was largely implemented as planned, with most fidelity shown in the lower level language classes. Most teachers used the Listening worksheets and videos for each topic and the curriculum permitted flexible delivery so that teachers could select

topics of interest for their students or adapt worksheets to suit the language level of their students. The worksheets generated discussion among students and permitted cross-cultural debate. Observations supported the teachers' weekly reports and enabled student interactions to be noted. The short-term nature of the four-week trial may not have provided some teachers, many of whom were part-time, with enough time to cover all modules.

Maintenance – continued use of ACCESS.

Maintenance at the teacher and organisation level refers to sustainability of the intervention into the future. The evaluation of maintenance aimed to address the broad Research Question 4 in this dissertation: Will the intervention be used after the trial is completed?

Aim: To investigate longer-term (6-month) use of the curriculum by teachers.

Teachers completed a short survey asking about their ongoing use of ACCESS six months after the trial ended (see Appendix L). Survey items probed: whether teachers had used anything from ACCESS since participating in the trial in Term 1, 2019. If any worksheets were used, teachers were asked to identify which worksheets were used; how many times each was used; the nature of any modifications and supplementations made; and likelihood of re-use in the future on Likert scale ranging from 1 *(not at all likely)* to 5 *(extremely likely)*.

Twelve of the 13 teachers (12 / 13: 92.3%) who participated in the trial completed the six-month follow-up survey. The 13th teacher had left the AMEP and was lost to follow-up. Two teachers (2 / 12: 16.7%), both teaching the lower language level, Certificate 2, reported that they had used the curriculum since the trial. One had taught it with each of the two new classes she had taught since the trial. Components used were: the videos and the Listening worksheets for each of Modules 1, 2 and 3 the Reading worksheet for Module 4, and the

Reading worksheets for Modules 2 and 3. The other teacher had had the same class but was focussing on a different skill (in Term 1, he had been assigned "listening" and in Term 2 "reading"). He taught using all of the Reading Worksheets from Module 3. Neither teacher had made modifications and had used the worksheets and materials as provided. Both teachers indicated their intention to re-use these materials in the future.

> "I have used the worksheets and videos with each new class because I think the information they contain is really important. I have a responsibility to share everything I know about keeping healthy with the students I teach. Donna's videos and worksheets are the best way to not only inform students, but to start conversations with the students, who are then likely to share it in their communities." (ID005, lower language level teacher).

Reasons for not using ACCESS in the 6 months following the trial.

Nine of the 12 teachers (9 / 12: 75%) reported that they had not had the opportunity to use the curriculum since the trial but intended to in the future. Of these nine, three teachers reported that they had not been allocated a new class since the trial and had been teaching the same students that were involved in the trial: "I haven't used the resources since as I have been teaching mostly students who were part of the trial. I anticipate using it with the next group of students who won't have used the resource previously." (ID018, higher language level teacher); "As I was working with the same class, I could not repeat materials. I will use them again in future as they are really useful for health topics." (ID006, lower language level teacher).

Another four teachers from these nine reported that they had intentions to use the curriculum again but had come across competing curriculum demands over the past two terms that had made it difficult to teach from the resource: "It's a great resource, which I will

use soon in the future after finishing assessments and resulting grades." (ID010, lower language level teacher). Another teacher said:

> "No I haven't [used it again], as we teach health in the first semester of our program and this semester, I am *teaching* a class in its second semester which has a curriculum that is already very full of content. In thinking about using the course in the future, I liked your course, but I don't think I could commit as much time to the content as I did in the trial, so a way to dip in and out without covering it all would be user friendly." (ID004, lower language level teacher).

This teacher also emphasized the importance of curriculum flexibility as a factor that would encourage her use of the ACCESS resources in the future.

Another teacher from the nine reported that she had not used the materials because she was now teaching students at a level of English proficiency too high for the resource. She indicated, she would consider using the materials again in the future if teaching a lower level: "If I were teaching a lower level, I would likely use them again, but they are too easy for my students as they are now." (ID015, higher language level teacher).

The final teacher from the group of nine who indicated that they intended to use it again in the future, reported that, since the trial, he had been deployed to teach a different type of ESL course and therefore had not taught from the ACCESS curriculum.

Only one teacher indicated that she had deliberately chosen not to use ACCESS. This teacher had also reported at the end of the intervention trial that she was "*slightly unlikely*" to re-use the materials in the future. At the end of the intervention trial, she had provided a written comment to support her response: "Some of my students liked the information they've got during this time about cancer prevention, but at the same time they were not so

willing to work on it more than one or two sessions during the term." (ID002, higher language level teacher). As seen above, all other teachers (11 / 12: 91.7%) reported that they intended to use the materials with future classes, with the predominant facilitating factor being teacher interest and their belief in the usefulness and importance of the topic of cancer prevention for their students.

Based on the written feedback received, a number of barriers to *maintenance* were identified. These included being allocated classes with set curricula that did not feature health topics and ACCESS unsuitability for higher language level classes. Additionally, teachers identified barriers to the use of specific components of the ACCESS curriculum; unwillingness to type out long online links, and the requirement for audio-visual equipment to show videos.

Discussion

This chapter outlined the assessment of the external validity of the intervention. This assessment, guided by the RE-AIM elements of *reach*, *adoption*, *implementation* and *maintenance*, adds to the investigation of *efficacy* (outlined in Chapter 6) by permitting exploration of the generalisability of the key outcomes and likelihood that the curriculum could be implemented into AMEP programs into the future as a means to inform new immigrants about Australia's cancer prevention guidelines.

In the current Chapter, the representativeness of student and teacher samples to the wider population of students and teachers was investigated. Despite over half of the student cohort taking part, and three-quarters of the teachers taking part, the trial sample were not entirely representative of the wider cohort. The student sample was representative of the age of the population of Certificate 2 and 3 students, but not of gender or language level. The teacher sample was representative of the full or part-time work status of the population, but

not gender. In addition, AMEP sites that participated were representative of the metropolitan sites, but not necessarily the rural ones, which were not involved. However, considering that 83% of immigrants reside in the metropolitan area (Australian Bureau of Statistics, 2017c), the teacher sample of the trial could be said to be representative of the general AMEP situation and staff and students at Certificate 2 and 3 levels.

The teachers of the current trial only taught from the curriculum for around 60 minutes a week. Therefore, across the four-week intervention trial, most students were only exposed to around four hours of tuition from ACCESS, or around eight half-hour lessons. Even so, this was enough to increase knowledge of the cancer primary prevention strategies recommended in the Australian guidelines and cancer symptoms, and to strengthen students' intentions to have a screening test as well as their self-efficacy to have a screening test. This was also enough to increase self-efficacy to engage in physical activity and strengthen attitudes towards sun protection as an important factor for health. This is a promising outcome to feed back to teachers, and they could be encouraged to dip in and out of the curriculum throughout the school term. In fact, the short four-week trial period proved to be a constraint for many teachers in the trial due to competing curriculum demands. Implementing ACCESS over a term could encourage teachers to utilise more of the curriculum, providing more students with more exposure to the curriculum content.

It was anticipated that ACCESS would be *implemented* as intended. Although designed to be flexible to accommodate teachers' and students' needs, teachers were asked during the trial to use the Listening worksheets with accompanying videos, and to teach from each module. Results from teachers' weekly reports and direct observations showed that the ACCESS curriculum was largely *implemented* as intended within Certificate 2 (lower-language level classes) across all metropolitan sites offering the AMEP. Teacher reports were supported by the direct observations. The inclusion of observation added to the evaluation of

implementation in the ESL health education setting because student and teacher interactions with the materials and the topics could be viewed directly. The teachers of higher language levels made the most adaptations and modifications to the worksheets provided, most likely due to the perception that the materials were too low level for the more advanced students.

The worksheets were modified, at the development stage, to minimise wordiness based on teacher feedback and advice reported in the Stage 2 (curriculum development) study outlined in Chapter 4. Around the same time, in 2018, the AMEP changed their CSWE reporting standards to correspond with an overall increase in difficulty, as mentioned earlier. This impacted the Reading worksheets at the higher language level and most likely contributed to the lower fidelity and lower perceived utility for these higher language level teachers. Although some of the higher language level teachers reported that they did not mind supplementing materials to match the new standards (and indeed, the curriculum was praised for its ability to be flexible), for others, the simplicity of some Reading worksheets was a barrier to using the resource. Teachers are often reported as being "time-poor" (Miller, 2011) and the curriculum would benefit from inclusion of more challenging materials, to improve its *adoption* potential. Nonetheless, the video resources and Listening worksheets were appropriate for both levels in the trial, so teachers should be encouraged to use these especially, if time is limited.

The flexibility permitted by the curriculum may have helped sustain the teachers' motivation to use the resource because the time spent teaching from it did not wane as the trial went on. Flexibility was incorporated in several ways. The cancer prevention key health messages appeared in worksheets designed to focus on different language skills (listening, reading, speaking) so that teachers who were given a brief to focus on a particular language skill would not miss out in accessing materials. In addition, the worksheets were designed to stand alone, or be used in combination, and each could be used in a single lesson. Similarly,

Martinez et al. (2017) sought to discover whether their HE4L curriculum could be taught solely, on its own. They reported that adherence to the HE4L curriculum waned as the trial went on, and as a result, only a half of the intended curriculum was taught during the trial period and was able to be reported on. Similar to Martinez et al.'s results, the ESL teachers in the current trial reported that they were not able to teach solely from the ACCESS curriculum during the trial, due to competing curriculum demands. Martinez et al.'s conclusions pointed towards increasing flexibility for successful implementation of future curricula. This advice was heeded in the current trial and results demonstrated that promoting curriculum flexibility maintained a stable level of teacher involvement during the four-week trial.

The current trial is the first of ESL health education trials to investigate *maintenance* over time from a staff perspective. Almost all teachers indicated their intention to use the ACCESS resource in the future, when questioned at the end of their trial period. Six months later, only two teachers had used the resource since the trial. However, all, except one, indicated intentions to use it in the future and provided a reason for non-use since the trial. Future research would benefit from a longer follow-up period in order to monitor ongoing use of the resource and changes made. A physical activity intervention in a non-ESL facility in the US used RE-AIM to aid program planning and reported ongoing use of the intervention for 12 months after the trial. Given the input that staff had in the development of the conceptual and planning phase (Stage 1: scoping study outlined in Chapter 3) and the development of the ACCESS resource curriculum (Stage 2: curriculum development study, described in Chapter 4), there are strong grounds for optimism that the curriculum would still be in use a year or more later.

The Next Step

The results from the intervention trial, introduced in Chapter 5 and described in Chapters 6 to 8 addressed the broad Research Questions 1 to 4 outlined in Chapter 2. Chapter

9 offers a general discussion and will bring all results together to address the broad Research Question 5: Is the RE-AIM framework useful as a planning and evaluation tool?

Chapter Nine: General Discussion

Preamble

This dissertation examined the potential of utilising immigrant ESL classes to provide education about cancer literacy and prevention to recently arrived immigrants to Australia. The importance of this education is evident in reports of disparities in cancer prevalence within immigrant communities (Supramaniam et al., 2006), and differences in the uptake of cancer prevention behaviours (Aminisani et al., 2012). These disparities have led to a national call for new methods of health education for immigrant groups who may be at risk of missing out on mainstream public health messaging due to cultural, linguistic or other factors (Australian Commission on Safety and Quality in Health Care, n.d.; Cancer Australia, 2014; National Health Priority Action Council, 2006). Four trials in North America have reported promising results. Three of these have been in the immigrant education settings (Coronado et al., 2008; Elder et al., 1998; Elder et al., 2000; Soto Mas, Cordova, et al., 2015; Soto Mas, Ji, et al., 2015; Taylor et al., 2011; Taylor et al., 2009) and one in a domestic English language literacy setting (Duncan et al., 2012).

Despite the promise of this preliminary evidence, limitations in this research are evident. First, behaviour change theory was not fully utilised in the development or evaluation of curricula. Without this, the mechanism underlying any observed behaviour change cannot not be determined. Second, the extent to which lessons learned were shared with the wider community of immigrants was not determined. Third, past research has tended to focus on interventions targeted at a specific immigrant group rather than the diverse groups that characterise ESL instruction in the Australian context. In addition, most of the past research has focussed exclusively on efficacy outcomes, and the one study (Duncan et al., 2012) that did report implementation outcomes using the RE-AIM framework (Martinez et

al., 2017) did not use a control group. A control design is essential to examine the impact of the intervention by comparing people who have received the intervention with matched people who have not (Spence et al., 2018)

In response to these gaps in the literature, a theory-driven evaluation of a purpose-designed ESL curriculum, focused on improving cancer literacy in the Australian context, was developed. It was then assessed for both internal and external validity using the RE-AIM framework. Five broad research questions were addressed:

Research Question 1.

Can a theory-driven, culturally sensitive, ESL cancer-literacy curriculum, developed with stakeholder input, improve psychological, behavioural and language outcomes linked to cancer morbidity?

Research Question 2.

Will cancer prevention messages learned in the classroom be shared with students' families and friends?

Research Question 3.

Will intervention fidelity be maintained when the curriculum is utilised in actual classes?

Research Question 4.

Will the intervention be used after the trial is completed?

Research Question 5.

Is the RE-AIM framework useful as a planning and evaluation tool?

The work outlined in this dissertation aimed to conduct its inquiry across each of four research stages according to "best practice" recommendations from the literature for using RE-AIM. Consequently, the study conformed to the following key requirements (Allen et al., 2011): (1) Key community stakeholders were involved in each stage of the research process (Shaw et al., 2019); (2) All components of data collection for the trial were designed to address specific RE-AIM components, with some using multiple indicators of each RE-AIM elements (Gaglio et al., 2013; Shaw et al., 2019); (3) Data on intervention fidelity were captured (Whittemore, 2011), together with qualitative evaluation of outcomes (Gaglio et al., 2013). The most critical characteristic of the current trial was that: (4) outcomes were collected at both the level of the individual receiving the intervention, and from those delivering the intervention (Shaw et al., 2019). Collectively, these data provide a full picture of the public health potential of the intervention. The use of RE-AIM was not without its challenges and the results highlighted new issues and difficulties in applying the framework in a real-world setting.

This concluding chapter summarises the findings of the four research stages outlined in this dissertation and describes how they contribute knowledge to the field. After the summary and commentary on the limitations and strengths of the research, the implications of these findings are discussed, followed by reflection on the difficulties in conducting translational research within community settings. The chapter concludes by providing suggestions for future researchers.

Summary of Work undertaken: Contributions to Knowledge

Stage 1: Scoping study (Chapter 3).

The purpose of the scoping study was to identify barriers to successful implementation of a cancer literacy ESL curriculum within an existing immigrant education setting, as well as

factors likely to facilitate implementation. RE-AIM was used to guide focus group questions and the analyses. Results indicated that, within the national, government-sponsored Adult Migrant English Program (AMEP) (Adult Migrant English Services, 2013), a culturally-sensitive cancer literacy curriculum for new immigrants would be valued by teaching staff. Additionally, interviews suggested implementation would be enhanced if the curriculum was designed for a multi-cultural, multi-gendered audience, and developed using a communicative approach to language learning. In order to be widely applied, it was important to conform with national curricula guidelines and include varied communicative activity types and media. Results also revealed that providing teachers with flexibility in timing of delivery of a potentially sensitive topic like cancer, and providing materials aimed at different language levels, would further help with teacher adoption of the cancer literacy curriculum. Furthermore, the scoping study suggested potential for cancer health messages, embedded within the curriculum, to be shared with students' family and friends.

Implications.

Important information, critical to curriculum development, was obtained in this scoping stage. Despite overseas research describing the implementation of curricula suitable for mono-cultural delivery (e.g., Coronado et al., 2008; Elder et al., 1998), the Australian context required a curriculum that could be used with many cultural groups simultaneously.

Opportunities for expanding *reach* were also identified as this stage. Australian ESL teachers reported that they encouraged their students to share information learned in class with others outside of class, opening up the possibility that the health messages conveyed in class might be disseminated in the immigrant communities. Previous anecdotal evidence confirms that students share information with others (Santos et al., 2014) and the results of the scoping study highlighted the importance of capturing information about this in the

current body of work. Consequently, the curriculum was developed to include homework tasks that included communicative activities outside the class.

In summary, using a translational framework such as RE-AIM as a guide in this scoping study, combined with a community-based participatory research approach, enabled the early identification of likely specific barriers, such as the requirement for sensitive, multi-cultural curricula. It also enabled recognition of a list of factors to help facilitate development of curricula appropriate for AMEP teachers and students. These included learning that the AMEP is Australia-wide, that teachers have autonomy over topics, and that curricula likely to be selected for use by teachers are those that are developed with the national competency framework in mind. Therefore, using RE-AIM at this early stage encouraged focus on wider implementation, even before the curriculum had been prepared.

Stage 2: Curriculum development and investigation of reach (Chapter 4).

A draft curriculum (ACCESS) was developed based on the information obtained in the Stage 1 scoping study. ACCESS was underpinned by the communicative approach used by all teachers of the AMEP (Freeman & Freeman, 1998). It included varied media (videos, print) to accompany worksheets designed to equip students with knowledge as well as language (vocabulary, phrases) to aid discussion with medical and health workers. The worksheets focussed on communicative activities that aimed to improve listening, reading and speaking skills. ACCESS was developed for the three levels of language education offered by the AMEP, and each worksheet was designed to address specific language competencies highlighted in the national curricula framework. Homework suggestions to share new knowledge with family and friends accompanied each worksheet, along with communicative activities to practice sharing.

Following development, the purpose of the study in Stage 2 (outlined in Chapter 4) was to seek feedback from stakeholders about the potential of the draft curriculum and its materials to *reach* all students, regardless of cultural background or gender. Stakeholders involved in this determination included AMEP teachers and students. Results from teacher surveys highlighted that the materials, as prepared, would be utilised by teachers of classes comprising any nationality and gender but not for classes with students from the lowest language levels. Results from student surveys further highlighted that the health messages contained within the curriculum would likely resonate with, and be shared among, younger and middle-aged adults, although they were less likely to be shared with older adults in their communities.

Results from this study guided changes to the draft curriculum to make it more acceptable to the ESL teachers of the AMEP, and therefore in the best form possible for use in class. These changes comprised; compilation of three language levels into one spiral-bound book, the inclusion of more pictures and more space, the simplification of the more challenging activities for the Certificate 3 (higher language level) students, and provision of simpler activities for the Certificate 1 (lower language level) students. The final version of the curriculum was then printed for trial and evaluation with teachers and students in Certificates 2 and 3.

Stages 3 and 4: Intervention trial (Chapters 5 to 8).

The final stages comprised an intervention, designed to assess the internal and external validity of the ACCESS curriculum and address broad Research Questions 1 to 4. The research design chosen for the intervention trial extended existing work, by using a randomised controlled design, to enable a rigorous assessment of *efficacy*. It was also guided by RE-AIM, which permitted outcomes at the organisational level of enquiry to be planned

for and explored at depth, permitting a greater understanding of the *implementation* of the curriculum and its impact on staff, as well as its *efficacy*, *maintenance* and *reach* among students.

Individual (student) level outcomes.

Students received about four hours of tuition from the curriculum over the four-week trial. The internal validity of the ACCESS curriculum was assessed, at the student level, by measuring *efficacy* and *maintenance*. Four categories of primary outcomes were assessed: (1) Knowledge: Cancer Prevention – Primary, Cancer Symptoms, Cancer Prevention – Secondary, General Cancer Knowledge; (2) Behavioural Intentions to prevent cancer: Increase Fruit & Vegetables, Increase Physical Activity, Increase Sun Protection, Reduce Alcohol, Stop Smoking, Screen for Cancer; (3) Health Literacy: Functional Health Literacy, Communicative Health Literacy, Critical Health Literacy; (4) English Language Skills: Cancer Vocabulary. It was hypothesized that students' scores on each of these primary outcome variables will improve more in the Intervention group than in the Wait-list Control group following completion of lessons from the ACCESS curriculum. The hypothesis was partially supported. The students in the Intervention group improved scores on the Knowledge measure of Cancer Prevention – Primary over time, compared with the Wait-list Control group, and there was a trend towards significance on the variable Cancer Symptoms and the Behavioural intentions variable Screen for Cancer. Further analyses confirmed *maintenance* of these outcomes three months later.

Four categories of secondary outcome variables were assessed as well: (1) Current cancer prevention & risk behaviours: Current Fruit Intake, Current Vegetable Intake, Current Physical Activity, Current Sun Protection, Current Alcohol Consumption, Current Smoking; (2) Attitudes towards cancer prevention behaviours as important for health: Fruit &

Vegetable Intake Attitude, Physical Activity Attitude, Sun Protection Attitude, Alcohol Consumption Attitude, Stop Smoking Attitude; (3) Self-efficacy to participate in cancer prevention behaviours: Increasing Fruit & Vegetables, Increasing Physical Activity, Increasing Sun Protection, Reducing Alcohol, Stopping Smoking, Having a Screening Test; (4) English Communication: Making a GP Appointment, Doctor Conversation. It was hypothesised that students' scores on each of these secondary outcome variables will improve more in the Intervention group than in the Wait-list Control group following completion of lessons from the ACCESS curriculum. This hypothesis was also only partially supported. Results showed that self-efficacy to participate in two cancer prevention behaviours, Increasing Physical Activity and Having a Screening Test, were strengthened after exposure to the curriculum for the month, as was the Attitudes variable Sun Protection Attitude. Further analyses also confirmed *maintenance* of these outcomes three months later.

The results confirmed the *efficacy* of ESL instruction for improving cancer-related knowledge among a diverse group of immigrants and strengthening intentions to screen for cancer. The additional finding that self-efficacy to engage in physical activity and screening could also be improved was promising because theory, for example HAPA (Schwarzer, 2008) suggests self-efficacy is critical to behaviour change. Improvements in reported self-efficacy were maintained three months later. This is also important because, although change in actual cancer prevention behaviours was not noted in the current three-month data collection period, these lasting improvements to self-efficacy along with strengthened behavioural intentions may help to encourage behaviour change or confidence to try these behaviours in the future.

In addition to aspects of internal validity assessed at the student level of investigation, the external validity of the ACCESS curriculum was assessed for the potential spread of its health messages about cancer prevention to students' family and friends, operationalised by

the RE-AIM element of *reach*. The results confirmed previously published anecdotal reports of students sharing with others outside of class in two ways. It is the first investigation of sharing to be tested by survey. Results showed that students found the health content of the ACCESS curriculum useful and reported sharing the messages contained within with both family and friends. The health messages that focused on primary prevention, especially healthy eating, physical activity and sun protection, were shared more frequently than were those focused on secondary prevention. This may reflect the amount of time spent in class on the former topics compared with the latter. In addition, women were more likely than men to share information about eating less red meat with family and friends. Furthermore, sharing information about sun protection with family and friends was significantly associated with increased engagement in sun protective behaviours. These findings support bringing cancer literacy into immigrant language programs as a way to inform a wide spread of people, and to inform them about topics such as primary prevention behaviours that they can engage in and encourage others to engage in, and about screening, earlier in their settlement journey. These findings also support the recommendation of teachers to encourage sharing of information outside of class.

Organisation level outcomes.

At the organisation level, the external validity of the ACCESS curriculum was assessed, operationalised by the RE-AIM elements of *reach, adoption, implementation* and *maintenance*. Results revealed that the curriculum was acceptable to teachers, particularly the videos and the speaking activities. At the end of the intervention trial, the majority of teachers indicated their intention to teach from the curriculum in the future and this intention was maintained six months later. These results are not surprising because the teachers were involved in the early discussions and inspection of the draft curriculum, so it was developed

to be relevant to them. Taken together, these results of the evaluation of *efficacy, maintenance* and *reach* at the individual level of analysis, and *adoption* and *maintenance* at the organisation level suggest that embedding cancer literacy into existing ESL programs could be an efficacious and feasible approach for optimising cancer prevention in immigrant communities.

Implementation was assessed in several ways. In addition to quantitative and qualitative reports from teachers each week, where teachers' adaptations were noted, direct observations were conducted in order to evaluate intervention fidelity. This extended work in other studies that relied on retrospective teacher reports (Martinez et al., 2017). The results supported the teachers' weekly reports that the worksheets were not fully used as intended in class. In some instances, activities were omitted; in others, activities were modified. Activities, carefully written to incorporate elements of behaviour change theory in order to increase action planning, for example, or designed to encourage cross-cultural discussion and awareness, were left out. From the teachers' point of view, the flexibility in topic and activity-type made the curriculum attractive and applicable for use in classes of differing cultural backgrounds, genders and levels. Indeed, flexibility was requested by teachers in the Stage 1 scoping study and was commented on in the Stages 3 and 4 post-intervention surveys as critical to ongoing use. From a research point of view, however, flexibility is a key barrier to intervention fidelity. Martinez et al.'s (2017) evaluation of the "Healthy Eating 4 Life" curriculum, also reported gaps in implementation fidelity. This is a critical area for further research and highlights a major problem in using RE-AIM to guide the content and evaluation of a complex and dynamic intervention such as an educational curriculum in a real-world setting.

Summary.

In sum, the evidence in the current trial suggests that an ESL curriculum may help improve cancer literacy among immigrants, but it is unclear whether improving knowledge or self-efficacy, strengthening intentions or attitudes, or even information sharing, will lead to future changes in outcomes in a way as to reduce overall cancer prevalence. In the current trial, there were no significant changes to self-reported behaviours in the students exposed to the intervention, and the follow-up period was only three months. In addition, the intervention was short in duration, and delivered to immigrant students at a time when they may be juggling other aspects of settlement into their new country.

The literature to date is limited in its reporting of follow-up behavioural outcomes to determine any likely public health impact from the ESL health education interventions. Taylor et al. (2011) reported an improvement in knowledge of Hepatitis B in Northern Asian immigrants attending ESL classes in Canada but found that this had very little impact on actual screening for Hepatitis B when students were followed up six months later. They also reported difficulty in accessing follow-up data. Furthermore, in the current trial, despite the high acceptability of ACCESS among teachers, future use of the curriculum and specific components remains unclear. Although, it was designed to be flexible, to fit other curriculum demands, part-time teaching and different language skills foci, as well as the impact of piecemeal application of the curriculum all requires further investigation. Inevitably, its future use in ESL instruction will depend on support from management as well as teachers, and whether they are prepared to incorporate it to be taught regularly within a crowded curriculum. Moreover, the current results, taken together with observations of Martinez et al.'s (2017) implementation journey raise important issues about conducting research in the ESL setting. Further work is required to determine whether this setting can be a reliable

means to disseminate public health information to new immigrants in a way that will effect change in cancer incidence and prevalence.

Limitations and Strengths

Before addressing the wider implications of this research, its limitations as well as strengths should be acknowledged.

Limitations.

The teachers and students who participated were self-selected, and a small population. Although mostly representative of the wider teacher and student body in terms of age, it is possible that the teachers who chose to participate were those who were more open-minded to the selection of cancer-related topics for inclusion in the ESL classroom. Similarly, the students who participated may have been those who were more invested in learning more about health for themselves and their families. Indeed, the students at Baseline reported high levels of intentions to engage in cancer prevention behaviours, attitudes towards cancer prevention behaviours as important for health and self-efficacy to participate in cancer prevention behaviours. Consequently, self-selection bias may limit the generalisability of the findings to some degree. However, the response of students during the classroom observations (which included participating and non-participating students) demonstrated whole-class interest, conversation and engagement in the topic.

When the draft ACCESS curriculum was presented for stakeholder feedback in Stage 2 (curriculum development, outlined in Chapter 4), the videos had already been produced. As a result, while stakeholders' feedback could be incorporated into the finalised ACCESS curriculum (worksheets), the video scripts could not be changed. The value of the scripts to inform future teachers and students about cancer prevention in Australia would have been enhanced by having had them "member checked" by teachers and students, especially by

students with experience of Australian cancer prevention procedures (such as screening) or direct personal experience with cancer, before production.

In addition, when the draft curriculum was presented to stakeholders in Stage 2, the student participants were only those from Certificate 3, the highest language level, because the language demands required to explore the curriculum required the achievement of an upper-intermediate level of English. Similarly, the student participants in the intervention trial included those with at least pre-intermediate English proficiency. Therefore, across the project, the results may not be representative of immigrants attending the AMEP with minimal English or of the teachers who teach these students. Nonetheless, the student participants of the intervention were from 36 countries, and there was overwhelming acceptance of the topic and course, with all but one sharing information with family and friends. Furthermore, although ineligible, there was a good deal of interest in participating from teachers of classes at the lowest English level (Certificate 1), and the inclusion of worksheets in the curriculum aimed at these students may promote future use of the ACCESS curriculum by these teachers.

As noted above, the student participants in the study came from 36 different countries and because of small numbers from each country, the impact of cultural background on outcomes was not investigated. The curriculum was well accepted, at face value, by students in class but whether the key cancer prevention health messages resonated and challenged students' cultural beliefs or practices remains unknown. As pointed out in the review by Shaw et al. (2009), cultural beliefs around health and illness contribute to people's ability to understand and act on healthcare providers' recommendations. Extending this to the ESL setting, cultural "filters" could play an important role in whether a health message is internalised within the classroom. As noted in Chapter 8, one teacher in the intervention trial

eluded to this in a written comment after observing her class engage with Reading Worksheet 1 ("Different ways we think about cancer"): "Most students tended to agree with the negative comments about cancer. Most agreed that cancer is not a topic that is discussed in their culture and that it's typically associated with a death sentence." [ID017, lower language level]. It is not clear whether these beliefs were challenged or altered by taking part in the lesson. This is a gap to be investigated in the future.

Another limitation of the intervention trial is that, apart from measures of behavioural intentions, attitudes, self-efficacy and health literacy, well established or validated measures were not available to assess change across all primary or secondary outcome variables. The primary outcome Knowledge variables Cancer Prevention – Primary and Cancer Symptoms were adapted for the trial from the Awareness and Beliefs about Cancer scale (Simon et al., 2012) but the variables measuring English language skills were developed specifically for the trial. The English Communication variables (Making a GP Appointment and Doctor Communication) were limited in two ways. They were assessed in the current trial by writing, which is not indicative of actual spoken language, and results showed ceiling and floor effects. With hindsight, the development and assessment of these variables would have benefitted from greater teacher input.

A limitation of the trial at the organisation level was that, although teachers were instructed to deliver particular aspects of the curriculum (Listening Worksheets, homework activities to share information with family and friends), quantifiable checklists of completion of these activities were omitted. This data would have strengthened the evaluation of *implementation*. Future research would benefit from the inclusion of more rigorous measures, i.e., "manipulation checks". Furthermore, direct observations were included in the Stage 3 (intervention) trial to supplement teacher reports of fidelity, however there were two

limitations arising from this. First, the observer merely "observed" classes, noting everything that occurred within the lessons. Therefore, it was unclear as to teacher motives for selection of some exercises and omission of others. More information about *implementation* would have been gained if the observer had been able to interview teachers at the end of the lesson to determine their motives. Second, the person who developed the materials conducted the observations (the PhD student). In future, observations conducted by people not affiliated with the development of the ESL resource would add objective depth to the appraisal of *implementation* via observation and thus minimise potential bias.

In generalising the results of this study to other states of Australia, it needs to be kept in mind that only the metropolitan sites offering the AMEP participated in the intervention trial, and trial numbers were low. Consequently, results may not be generalisable to sites situated in rural regions. There may be additional barriers to successful implementation of a cancer literacy curriculum pertinent to rural settings, teachers and immigrants. For example, a barrier to accessing cancer screening services, often cited by rural dwellers, is the long distance and associated higher costs and effort required to travel to the nearest service (Fennell et al., 2017). Teachers in these settings may find that they need to supplement the worksheets on cancer screening, for example, with locally relevant examples.

Strengths.

Despite its limitations, this research project utilised a methodologically sound research approach to investigate a novel method of health message delivery to a growing segment of the Australian community, who may be missing mainstream messaging because of language or cultural barriers. A strength of this research is that it was conducted within the Adult Migrant English Program, the largest national provider of free language tuition to immigrants to Australia, with stakeholders themselves assisting with development and trialling the

curriculum. In addition, by adopting a community-based participatory research approach, key stakeholders were involved from program inception, potentially enhancing their trust and ownership of the ACCESS curriculum, ensuring that it was culturally acceptable and applicable to health information and language needs (Wallerstein & Duran, 2010).

Another strength of this research is that it identified and addressed gaps in the published literature. The resultant curriculum comprised activities that merged elements of behaviour change theory with the communicative approach favoured by teachers. The activities were culturally sensitive and designed to capitalise on the multi-cultural nature of the classroom in Australia and to encourage cross-cultural communication. This has the potential benefit of helping students identify, explore and potentially challenge their own culture's traditional health beliefs and practices by comparing them with others. The classes encouraged sharing of knowledge about cancer prevention, and the results indicated that almost every student shared something with others. The communicative activities in class were acceptable, and communication continued outside, providing evidence that the approach has broad *reach* in the immigrant community.

A key strength of the current project is that a translational research framework was used throughout the research process. This required ongoing consideration of all aspects of external validity, a focus which had been overlooked in previous studies. The research used best practice guidelines of RE-AIM, including mixed methods, multiple measures and a controlled, intervention trial, in an attempt to gain the most insight into the potential of ESL classes as a process for health education of immigrant communities. This permitted the breadth and depth of research findings through the qualitative aspects of each study to complement the quantitative survey data analysed in Stages 2 (curriculum development), 3

(intervention trial) and 4 (longer term). It also permitted commentary on the utility of RE-AIM to inform practice.

Implications for practice arising from this research

Benefits of conducting translational research.

There were multiple benefits derived from conducting translational research within a community setting. Community stakeholders were involved in every research step and there was a focus on implementation and dissemination throughout, giving it a "real-world" emphasis and meaning not always present in traditional laboratory-based research (Wallerstein & Duran, 2010). Furthermore, employing mixed methods enabled explanatory insights to emerge to support quantifiable results. Stakeholders were also engaged in a way that was collaborative rather than top-down. However, in practice, using RE-AIM throughout this research process highlighted challenges that need to be considered and overcome in future studies before it can be clear whether conducting translational research in this area can truly inform public health.

Challenges associated with conducting translational research.

"Messiness".

Conducting research in the community has been described as inherently "messy" (Lazarus et al., 2012) because the researcher loses some degree of control over the research process. An example of this arose in the Stage 3 Intervention trial. Every worksheet in the ACCESS curriculum was aligned with skill competencies from the Certificates of Spoken and Written English (CSWE). The student survey contained items to measure students' self-reported competence on these CSWE competencies. In the absence of state-wide language testing with which to compare language outcomes, as done by Duncan et al. (2012), it was planned to use the self-rated CSWE competencies pre- and post-intervention to determine if

the worksheets had incorporated competency-building in a way as to improve skills. For example, students were given a competency statement such as “I can participate in a short interview” and asked to indicate their agreement to the statement on a 7-point Likert scale ranging from 1 *(strongly disagree)* to 5 *(strongly agree)*. The competencies differed for students in Certificates 2 and 3. There were 18 competencies listed for students in Certificate 2, and 13 for students in Certificate 3.

The teachers were provided with the surveys to hand out in class. The surveys were identical for students in Certificates 2 and 3, except for the CSWE competency listings. Unfortunately, at two different sites (and unbeknownst to the PhD student), a teacher of a class misplaced their surveys and borrowed from another teacher to re-photocopy them prior to handing out. In both instances, the “borrowed” survey was from a different Certificate level. This meant that for many students, their Baseline survey had competencies rated from one Certificate level, and their Time 2 survey had competencies from the other Certificate level, and pre-post comparisons could not be made. In addition, the Time 2 competencies that students had responded to were not necessarily the correct competencies aligned with the worksheets that their class had studied. These variables therefore had to be excluded from any analyses.

Competing agendas.

Using a translational research approach, and RE-AIM to oversee each stage of this work, highlighted that partnership with, and support from, community stakeholders were critical components in the development and ongoing delivery of a community-based intervention. However, challenges associated with a community-based participatory research approach are well documented in the literature. For example, Mikesell, Bromley and Khodyakov (2013) conducted a comprehensive literature review of 57 articles describing

community-based research. They noted that researchers face an ethical challenge to balance meeting community needs with the need to maintain research integrity. More recently, Wilson, Kenny and Dickson-Swift (2018) conducted a scoping review of 48 articles and noted further challenges in form of practical issues such as time delays and associated cost blowouts.

Minkler's (2004) commentary article on challenges inherent in community-based research further raises the importance of context and mutually understood language. They cite a study in which researchers worked with the Hmong community in a city in the United States and asked the participants to define "community". They reported that the word varied depending on the background and circumstances of the person with whom they spoke. In the current work outlined in this dissertation, the preparatory work with the ESL teachers helped to establish a solid understanding of the teaching context and language. However, the contexts of the ESL students in the multicultural classes in Australia are varied, and it is likely that better understanding of these contexts is required to make health messages resonate with the student and their wider communities.

Although the current trial did not experience time delays and there were no tensions between stakeholders and researchers, the preliminary scoping study (Study 1) highlighted discrepancies in recommendations between stakeholders. The multicultural community centre personnel reported that an ideal curriculum would cater for one specific culture only, whereas ESL teachers reported that any curriculum designed for their purposes needed to be suitable for use with people from any cultural background. Also, many teachers in the intervention trial reported that they would have preferred a longer trial period to utilise the curriculum more, and not all teachers followed the recommendations for use of the curriculum during the trial.

Intervention fidelity.

Fidelity refers to the extent that an intervention program is delivered as planned (Breitenstein et al., 2010). An intervention delivered with fidelity provides researchers with improved understanding about the how and why an intervention works or not, and better information about how it can be improved (Carroll et al., 2007). Therefore, fidelity is important in community-based translational research where programs are being implemented in different settings by different stakeholders (Breitenstein et al., 2010). If we view fidelity as a combination of *efficacy* (internal validity) and *implementation* (external validity), some important points are raised for future researchers to consider.

Currently, it is unclear from the findings of the current trial whether the ACCESS curriculum, implemented into the AMEP, can be wholly implemented to be considered as a reliable alternative point of entry to deliver cancer health education in a way that improves cancer health outcomes among vulnerable immigrant groups. Similarly, at present it is also unclear whether any of the curricula developed abroad could also lead to improved health outcomes. To date, therefore, evidence is not fully established about whether health messages delivered via ESL really resonates with immigrants from different cultural groups in a way to effect actual behaviour change that reduces disparities, and whether students' sharing of information leads to any change in others outside of the class.

Threats to fidelity in community interventions are challenges not unique to this ESL setting. In a systematic review of 16 studies aiming to translate the US Diabetes Prevention Program across varied community settings, Whittemore (2011) found that different settings adapted the program to suit setting requirements. In addition, Shaw et al. (2019) reviewed the provision of peer mentoring services within nine organisations offering mentorship programs for spinal cord injury and found that evaluation indicators differed between organisations. It

appears that the challenge of fidelity is inherent to community-based interventions and that this leads to a "tug-of-war" that involves the researcher involved in choosing between adapting to local needs and maintaining fidelity (Bopp, Saunders, & Lattimore, 2013). Shaw et al.'s (2019) review concluded by recommending that future researchers report on multiple outcome indicators in order to provide a more transparent, broader evaluation.

Choosing flexibility of a curriculum over fidelity can lead to a weakening of the ability to identify and exploit those critical elements that will resonate enough with recipients to cause real change within immigrant communities. In the current context, the critical components of ACCESS that lead to the observed improvements in knowledge and self-efficacy are unclear. It is also unclear whether these improvements will influence future change in cancer health outcomes. Employing multiple indicators of each RE-AIM element to evaluate programs in the community as recommended (Shaw et al., 2019) is not necessarily enough to address this in a way that enable conclusions to be made from these interventions about their impact on health at the public health level.

Expecting teachers to deliver a course within the ESL context, exactly as intended, may be difficult to undertake. Indeed, principles of effective teaching encourage flexibility and responsiveness to student needs (Parsons et al., 2018). This was illustrated in the Stage 1 scoping study (described in Chapter 3) where teachers commented that flexibility is the very nature of the ESL environment within the AMEP. The broad ESL curriculum is purposely context free (Adult Migrant English Services, 2013). In addition, teachers are juggling competing agendas by needing to respond to student needs and fulfill language competency requirements. Furthermore, the nature of ESL in countries like Australia is that classes change and are multi-cultural and multi-gendered. New immigrants arrive with varying agendas that impact on how and what the teachers teach. Therefore, perhaps the best that can

be achieved when combining health literacy with ESL is to first work out what aspects are critical to efficacy; educate stakeholders about delivery, and then strive for a balance between the two.

Overcoming translational research challenges: RE-AIM into the future.

In sum, conducting translational research is challenging, but the results of the present research work demonstrated that using RE-AIM and its broad evaluation helped extend knowledge. However, conducting a translational research project following "best practice" recommendations for the use of RE-AIM was still not able to provide conclusions that could be used confidently to direct public health. This is a topic of current debate (e.g., Glasgow 2019).

In a recently published paper, Glasgow et al. (2019) suggest that improving the way that RE-AIM is used may help to further intervention evaluation and reporting. For example, conducting an initial "laboratory-based" efficacy trial prior to a full implementation trial could help to identify intervention components that are essential to change in outcomes such as knowledge, self-efficacy, cancer prevention behavioural intentions, vocabulary. It would be useful to trial, prescriptively, a specific cancer prevention behavioural health message (for example, "be more physically active") delivered in different ways, using different communicative activities, under controlled conditions, to determine what resonates most effectively and with which students. Then, in the development of subsequent curricula, a critical phase would be to work with the teachers on the best ways to inform future teachers about those aspects of the curriculum that must be delivered as intended, and those aspects with which they can be more flexible. All of this would require time, adequate funding and cooperation from teachers and availability of participant students. Carroll et al. (2007) outline a framework that could be useful here to guide researchers to address both *efficacy* and

implementation by oscillating between the "laboratory" and the community setting. Figure 9.1 reproduces this framework.

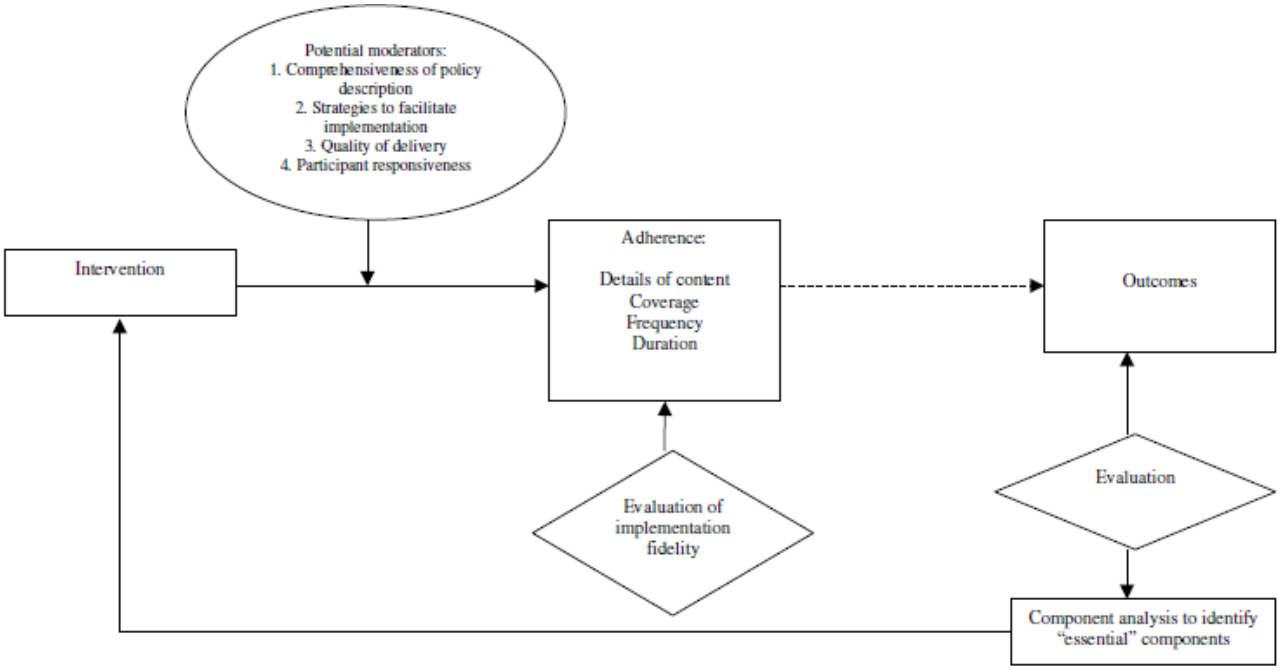

Figure 9.1. Framework to enhance community-based intervention fidelity (reproduced from (Carroll et al., 2007), p. 4 of 9.

For example, after scoping aspects of the future intervention with key stakeholders in the community, the potential intervention elements could be taken back into the laboratory to determine the key aspects that may resonate most strongly and contribute to change in primary and secondary outcome measures. Then, these aspects could be trialled back in community locations.

Another way to use RE-AIM for evaluation could be to expand reporting of RE-AIM elements. For example, trial-specific outcomes could be added to the recommended RE-AIM evaluation activities. In one recent report, additional measures of *efficacy* and *adoption* were included in the evaluation of the Clean Cooking Implementation Science Network project, which operated across four countries Quinn et al. (2019). These additional measures helped

to focus attention on trial-specific outcomes for evaluation that were more particular to the topic of cooking with cleaner fuels.

In addition, RE-AIM could be combined with other models to help expand intervention planning and evaluation (Glasgow et al., 2019). For example, PRISM (Practical, Robust, Implementation and Sustainability Model) is another translational research framework, which focuses on identifying key factors that mediate the relationship between implementation strategies and outcomes (Lewis et al., 2018). Combining elements of PRISM with RE-AIM could help expand the planning and evaluation of the element of *implementation* by focussing in on more contextual aspects. This extra attention could therefore improve reporting on setting-specific maintenance issues.

Suggestions for future researchers

Investigation of key intervention components.

Future research to identify the key components of ACCESS that could best resonate with teachers and with students in a way to effect change in outcome measures such as knowledge, behavioural intentions, vocabulary, cancer prevention behaviours and self-efficacy would be most useful at this point. This could be achieved by trialling specific health messages about cancer risks and prevention behaviours delivered using different communicative activities under controlled conditions, and working with ESL professionals to prepare instructions that will inform future teachers about the components of the curriculum that must be taught as described. Additionally, the components of the curriculum that can be adapted or modified by teachers would also be highlighted. Researchers could use the framework outlined in Figure 9.1 to guide research steps.

Impact of cultural health beliefs.

Research should also seek to investigate the impact of cultural health beliefs on perceptions of cancer, on comprehension of new health information in the classroom, and on health decision making among new immigrants. For example, Wei, Wilson & Knott (2013) found that engagement in physical activity and healthy eating behaviours differed significantly between samples of Australians with or without Chinese cultural background. In addition, health beliefs about cancer differed. In another study with immigrants from Turkey, Iran and Saudi Arabia, Gholizadeh, Salamonson, Worrall-Carter, DiGiacomo & Davidson (2009) found that people's cultural beliefs about different diseases were significantly associated with their perceptions of personal risk and therefore impacted decisions to seek help.

Studies that identify ways to encourage teachers to have discussions about cultural health beliefs linked to cancer prevention; methods to incorporate this into classroom activities that resonate with students; and ways to encourage students to explore their culture's traditional health beliefs whilst in a multicultural class would also be valuable. The ACCESS curriculum contained a communicative worksheet designed to do this, but it was only used by half of the teachers, and reports of likely re-use were mixed.

Although ACCESS has been prepared in a format that enables teachers to teach classes comprising students from different countries, a larger trial could enable the capture of these cultural-specific factors that might impact on an immigrant's comprehension of health-related messages raised in the classroom and subsequent use of that information. This could help in the provision of additional information or resources for teachers in the future event that they teach students from specific countries.

Sharing of information about cancer prevention within social networks.

It was an encouraging finding in the trial that students shared health messages about primary and secondary cancer prevention behaviours learned in class with family and friends. It was also encouraging that the communicative activities to practice sharing were well accepted by teachers and students. Sharing should be explored further to determine precisely with whom these health messages are shared. For example, a study could determine whether health messages about screening for bowel cancer are shared with family members aged over 50 (the minimum age for free bowel screening in Australia) or with other family members. This could be achieved through detailed social network analyses. This would help determine any differences in the focus of message sharing among people of different cultural backgrounds and identify groups that may miss out and benefit from additional targeted information. For example, results showed that some students reported that they would not share health messages with older people in their cultures. This information could be used to develop interventions specifically targeted at older people, or at encouraging younger people to share health information respectfully with their elders.

Investigation of the nature of information sharing is also important. As Minkler (2004) noted, terms may be understood differently by different groups. Being encouraged to “share” knowledge learned in class may be interpreted or enacted in different ways based on the gender, status or the cultural background of the person initiating the share. Specialised information could be provided to teachers on the best ways to encourage students to share information when faced with classes comprising students from these different groups if they have a better understanding of the context and nature of sharing within different immigrant groups.

Measures.

Language evaluation tools should be developed in collaboration with teachers to aid more meaningful assessment of English language outcomes. In addition, assessment of students' ability to communicate with healthcare providers would benefit from a test of speaking skills by means of a structured role-play scenario, conducted before and after exposure to the curriculum in class.

Future research could also benefit from investigating cultural impacts on the different types of health literacy described by Nutbeam (2000); communicative, critical, and functional. The work in the current trial extended that of Soto Mas et al. (Soto Mas, Cordova, et al., 2015; Soto Mas, Ji, et al., 2015). However, both the trial of Soto Mas et al. and the current trial were not able to investigate the social and cultural context that may impact on new immigrants' ability to access and communicate within the health system of a new country (Simich, 2009). The current trial's small but highly varied cultural population did not permit this. However, future research may help to identify groups who may experience more difficulty in contacting and utilising health resources, which could enable culturally targeted information to be provided for teachers to use, if needed.

Wider application.

No teachers from the two rural AMEP sites elected to participate in the current trial. Future research, conducted with rural stakeholders (teachers and students), could investigate factors especially salient to them that could be incorporated into a curriculum or its implementation. In addition, the process of development and trial of ACCESS could be adapted to meet the cancer prevention health promotion needs of language providers in other "immigrant nations".

Assuming *efficacy* of ACCESS can be further established, the potential of adapting ACCESS for use as an online tool may be worthy of consideration. The potential benefits of an online tool would include reduced cost as well as expedited updates (e.g., to worksheets and website links), and additional resources for specific populations such as groups differing by cultural background or rural / urban dwelling. Students with internet access could also access online resources and share them without the requirement of carrying a large book or photocopying.

Final Comments

The research reported in this dissertation tested a novel approach for health message delivery to new immigrants to Australia attending government-sponsored, free, English language classes. With input from stakeholders, ACCESS, a cancer literacy curriculum unique to the Australian immigrant population, was developed and evaluated using best practice guidelines and recommendations for conducting translational research in accordance with RE-AIM. The results indicated that a cancer literacy curriculum could be implemented alongside other curricula in multicultural classes. It was accepted by both teachers and students and showed some efficacy. It improved knowledge of the Australian recommended cancer prevention strategies, cancer symptoms, and increased self-efficacy to engage in physical activity and screening. It strengthened intentions to have a screening test for cancer, and attitudes towards sun protection as important for health. The evaluation also showed that immigrants attending ESL classes shared the cancer prevention and early detection information that they had learned with their family and friends. Despite this, the comprehensive evaluation raised several key issues to consider when conducting community-based translational research, the most pertinent being threats to intervention fidelity. Thus, although it is possible to blend cancer literacy into existing ESL courses, whether this novel

delivery mechanism produces outcomes that lead to decreased cancer prevalence remains to be determined.

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List of Appendices

APPENDIX A

Stage 1 (scoping study) Participant Information Sheet and Consent Form

Contents:

Prof Carlene Wilson
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INFORMATION SHEET
(for participation in a focus group)

Title: Optimising disease prevention knowledge, attitude and behavioural intention among recently arrived immigrants to Australia attending English as a Second Language (ESL) classes.

Researchers:
Professor Carlene Wilson: ph: 7221 8473
Ms Donna Hughes: ph: 7221 8436; email: donna.hughes@flinders.edu.au
Dr Ingrid Flight: ph: 7221 8471
Dr Janine Chapman: ph: 7221 8472
Dr Kate Fennell ph: 7221 9953

Why are we doing this project?
We are concerned that many people who have recently arrived to live in Australia know little about Australia's chronic disease risks, optimal disease prevention strategies or available disease screening resources. Therefore, engagement in preventive health behaviours and access to resources is low amongst some groups. In addition, many people who have recently arrived in Australia may require additional lessons in the English language in order to fully participate in health-related opportunities and services.

We wish to consult with key community and health personnel, as well as ESL educators, regarding the nature, content and feasibility of developing a culturally tailored education program that targets chronic disease prevention, to be delivered in an ESL format. The information obtained from this consultation will aid in the future development of a curriculum for people attending ESL classes. This curriculum will be tailored to the needs of people who have recently arrived to live in Australia. It will provide information about chronic diseases such as cancer and diabetes, approaches to reducing the risk for chronic disease (e.g., healthy eating, physical activity, reducing sun exposure, screening for disease), as well as teach key vocabulary and phrases. The curriculum will focus on improving English language speaking, listening and reading skills, at the same time providing 'teachable moments' for health promotion.

What are the project's goals?
The goal of this project is to consult with professionals and experts with knowledge of the community and ESL, in order to gather knowledge to inform the future development of an ESL education program based on chronic disease prevention.

What will I be asked to do?
As a teacher of English to adult ESL students who have recently arrived in Australia, we would like to ask you some questions that will inform the development of a curriculum, specifically tailored to this group. You are invited to take part in a focus group discussion with other ESL teachers, led by a researcher. The focus group will take between 60 - 90 minutes and can be held at the workplace at a mutually convenient time. It will be recorded with your permission, to aid in transcription.

What benefit will I gain from being involved in this study?
You may not benefit directly from your involvement however the sharing of your experiences and opinions will help us to develop the best curriculum that we can, respectfully tailored to the needs of newly arrived immigrants. We are committed to the development and delivery of interventions that are as useful as possible to people.

Will I be identifiable by being involved in this study?
No. If you choose to participate, you will be allocated an ID number. Once recorded, the focus group discussion will be transcribed. In the transcription, individuals will not be identifiable. The transcribed file will be stored on a password protected computer that only the research team will be able to access. Your comments will be added to the comments of other ESL professionals and will not be linked directly to you or your organisation.

Are there any risks or discomforts if I am involved?
The researchers anticipate very few risks from your involvement in this study. However, if you have any concerns regarding anticipated or actual risks or discomforts, please do not hesitate to raise them with the researchers. Alternatively, Cancer Council 13 11 20 can be contacted regarding any cancer-related question, ph: 13 11 20.

How do I agree to participate?
Participation is voluntary. You may refuse to respond to any topic or question during the focus group, and you are free to withdraw your participation at any time without effect or consequences. A consent form accompanies this information sheet. If you agree to participate, please read and sign the form and email it to Donna Hughes: donna.hughes@flinders.edu.au

If you have any queries, please do not hesitate to contact one of the researchers.

How will I receive feedback?
Outcomes from the project will be summarised and you will receive a copy if requested.

Thank you for taking the time to read this information sheet and we hope that you will accept our invitation to be involved.

This research project has been approved by the Flinders University Social and Behavioural Research Ethics Committee (Project number 7076). 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

Flinders
UNIVERSITY

CONSENT FORM FOR PARTICIPATION IN RESEARCH

(for participation in a focus group)

Optimising disease prevention knowledge, attitude and behavioural intention among recently arrived immigrants to Australia attending English as a Second Language (ESL) classes.

I ….....

being over the age of 18 years hereby consent to participate as requested in the Letter of Introduction and Information Sheet for the research project on *Optimising disease prevention knowledge, attitude and behavioural intention among recently arrived immigrants to Australia attending English as a Second Language (ESL) classes.*

1. I have read the information provided.
2. Details of procedures and any risks have been explained to my satisfaction.
3. I agree to audio recording of my information and participation.
4. I am aware that I should retain a copy of the Information Sheet and Consent Form for future reference.
5. I understand that:
   - I may not directly benefit from taking part in this research.
   - I am free to withdraw from the project at any time and am free to decline to answer particular questions.
   - While the information gained in this study will be published as explained, I will not be identified, and individual information will remain confidential.
   - I may ask that the recording be stopped at any time, and that I may withdraw at any time from the session or the research without disadvantage.
6. I have had the opportunity to discuss taking part in this research with a family member or friend.

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 name…….....

Researcher's signature……..Date…….

NB: Two signed copies should be obtained.

Prof Carlene Wilson
CCSA Chair in Cancer Prevention (Behavioural Science)
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INFORMATION SHEET
(for participation in an interview)

Title: Optimising disease prevention knowledge, attitude and behavioural intention among recently arrived immigrants to Australia attending English as a Second Language (ESL) classes.

Researchers:

Professor Carlene Wilson: ph: 7221 8473
Ms Donna Hughes: ph: 7221 8436; email: donna.hughes@flinders.edu.au
Dr Ingrid Flight: ph: 7221 8471
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Dr Kate Fennell ph: 7221 9953

Why are we doing this project?

Many people who come to live in Australia from non-English speaking countries know little about Australia's chronic disease risks, optimal disease prevention strategies or available disease screening resources. Therefore, engagement in preventive health behaviours and access to resources is low amongst some groups. In addition, many people who have recently arrived in Australia may require additional lessons in the English language in order to fully participate in health-related opportunities and services.

We wish to consult with key community and health personnel, as well as ESL educators, regarding the nature, content and feasibility of developing a culturally tailored education program that targets chronic disease prevention, to be delivered in an ESL format. The information obtained from this consultation will aid in the future development of a curriculum for people attending ESL classes. This curriculum will be tailored to the needs of people who have recently arrived to live in Australia. It will provide information about chronic diseases such as cancer and diabetes, approaches to reducing the risk for chronic disease (e.g., healthy eating, physical activity, reducing sun exposure, screening for disease), as well as teach key vocabulary and phrases. The lesson will focus on improving English language speaking, listening and reading skills, at the same time providing 'teachable moments' for health promotion.

What are the project's goals?

The goal of this project is to consult with professionals and experts with knowledge of the community and ESL, in order to gather knowledge to inform the future development of an ESL education program based on chronic disease prevention.

What will I be asked to do?
You work with people who have recently arrived in Australia, and we seek your advice. We would like to ask you some questions that will inform the development of a curriculum, specifically tailored to this group. You are invited to take part in an interview with a researcher. The interview could take up to 60 minutes and can be held at any time and place that is convenient to you. It will be audio-taped with your permission, to aid in note-taking. No prior preparation is required.

What benefit will I gain from being involved in this study?
You may not benefit directly from your involvement however the sharing of your experiences and opinions will help us to develop the very best curriculum that we can, respectfully tailored to the needs of newly arrived immigrants. We are committed to the development and delivery of interventions that are as useful as possible to people.

Will I be identifiable by being involved in this study?
No. If you choose to participate, you will be allocated an ID number. Once recorded, the interview discussion will be transcribed and your name will not be used. The transcribed file will be stored by ID number, on a password protected computer that only the research team will have access to. Your comments will be added to the comments of others who are interviewed, and will not be linked directly to you.

Are there any risks or discomforts if I am involved?
The researchers anticipate very few risks from your involvement in this study. However, if you have any concerns regarding anticipated or actual risks or discomforts, please do not hesitate to raise these with the researchers. Alternatively, Cancer Council 13 11 20 can be contacted regarding any cancer-related question, ph: 13 11 20.

How do I agree to participate?
Participation is always voluntary. You may refuse to respond to any topic or question during the interview, and you are free to withdraw your participation at any time without effect or consequences. A consent form accompanies this information sheet. If you agree to participate, please read and sign the form and email it back to Donna Hughes: donna.hughes@flinders.edu.au

If you have any queries, please do not hesitate to contact one of the researchers.

How will I receive feedback?
Outcomes from the project will be summarised and you will receive a copy if requested.

Thank you for taking the time to read this information sheet and we hope that you will accept our invitation to be involved.

This research project has been approved by the Flinders University Social and Behavioural Research Ethics Committee (Project number 7076). 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

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CONSENT FORM FOR PARTICIPATION IN RESEARCH

(for participation in an interview)

Optimising disease prevention knowledge, attitude and behavioural intention among recently arrived immigrants to Australia attending English as a Second Language (ESL) classes.

I ….....

being over the age of 18 years hereby consent to participate as requested in the Letter of Introduction and Information Sheet for the research project on *Optimising disease prevention knowledge, attitude and behavioural intention among recently arrived immigrants to Australia attending English as a Second Language (ESL) classes.*

1. I have read the information provided.
2. Details of procedures and any risks have been explained to my satisfaction.
3. I agree to audio recording of my information and participation.
4. I am aware that I should retain a copy of the Information Sheet and Consent Form for future reference.
5. I understand that:
   - I may not directly benefit from taking part in this research.
   - I am free to withdraw from the project at any time and am free to decline to answer particular questions.
   - While the information gained in this study will be published as explained, I will not be identified, and individual information will remain confidential.
   - I may ask that the recording be stopped at any time, and that I may withdraw at any time from the session or the research without disadvantage.
6. I have had the opportunity to discuss taking part in this research with a family member or friend.

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 name…….....

Researcher's signature……..Date…….

NB: Two signed copies should be obtained.

APPENDIX B

ACCESS video scripts showing key health messages, target language and theoretical elements

Key:

Key health messages are highlighted in yellow

Target language is bolded and underlined

Elements from the Health Behaviour Framework are highlighted in green

Elements from the Health Action Process Approach are highlighted in blue

Social networks are highlighted in pink

Appendix B: Video Scripts

Key: key health messages Health Behavior Framework Health Action Process Approach Social networks **vocabulary**

Characters:

S1: Chun-Hwee; **S2:** Mei; **S3:** Hasan; **S4:** Yasmiin; **S5:** Xiaoli; Lecturer; Kate (Receptionist); Yuusuf (father of Yasmiin); Dr Taylor; Dr Atkins

Script Module 1: What is Cancer?

S1: Hi guys! Are you going to the lunchtime lecture?

S3: Oh! What's it about?

S1: It's a health lecture today, about cancer.

S3: No! Why would we do that? It's a nice day out here!

S2: What actually is cancer?

S3: Something depressing!

S2: Cancer means you die?

S5: No! Not true! These days, many people do not die from cancer. My husband is a doctor, and he said that doctors can treat some cancers, and we can prevent some cancers too. He also said that there is a bigger risk of some cancers in Australia. But – there are things we can all do here in Australia to prevent these cancers from starting.

S4: Really? If I learn how to prevent cancer here in Australia, I can help my parents. They are getting older, and I always worry about them. But it's not a topic we talk about in my culture.

S1: True. Same with my culture. But how can we prevent cancer? In my culture, many people think there is nothing we can do.

S5: In my culture too. Also, in my culture many people think that if you talk about cancer, you might get sick. But if there's something we can do, we should learn more.

Cultural factors and health beliefs

S1: Yes, you know it can't hurt us to learn more. Then we can make up our own minds about the topic.

S4: I would like to learn about cancer risks here in Australia and I'd like to learn health vocabulary, so I can help my parents when we go to the doctor.

Social support

S2: But what actually is cancer?

S3: Oh… You know, maybe we should go and find out. It will still be a nice day out here when we come back!

Lecturer: Hello everyone. Thank you for coming here today. Today's lecture is about a disease called **cancer**. It's a topic that some people don't want to talk about, so why are we talking about it? Because it's important to us all. Cancer is something that any of us can get. BUT – cancer does not

mean you will die. It is something that all of us can help **prevent**, or **treat**, and it's important that everyone in Australia knows this.

But first: What is cancer?

Well, every part of our body is made of cells. Most cells are normal. But sometimes things go wrong with cells, and they grow in a wrong way. They can then cause tumours, which you might see or feel, like a **lump**.

There are two types of **tumour**. One type is **benign**. It means that the cells are not normal, but not cancer. The other type of tumour is **malignant**, and this is cancer. If we find tumours early, doctors can remove them. Most cancers start in one place, like in the bowel. This is called the primary site. If we find malignant tumours early, at the primary site, doctors can remove them. If we don't find them early, the cancer cells may move to other parts of the body – this is called **metastasis**.

Why is this important for you to know?

Well, many things people do here in Australia may help cause cancer cells to grow. Like not eating enough healthy food like fruit and vegetables, smoking, not exercising enough, not having a health weight, staying in the sun too long and drinking too much alcohol. These things increase your cancer risk. Now you are in Australia, it is important to know this.

But there is good news! Did you know that we can help prevent 1 in 3 cancers can be prevented by changing the things we do? We can eat healthy food, we can stop smoking, get more exercise, and keep our bodies at a healthy weight. We can protect our skin from the sun and make sure we are not drinking too much alcohol.

It is also important to know that many cancers can be treated. If we find it early, doctors can treat cancer at the primary site and prevent it from moving, metastasizing, to other parts of the body.

If you have any symptoms that might be cancer, you should go to your doctor. Your doctor is also called your GP, or General Practitioner.

A **symptom** that might be cancer is a strange lump, unusual bleeding, unusual weight loss, feeling very tired or feeling pain. Other symptoms could be coughing that does not go away, or a change in your body or skin.

So, in Australia, we can talk to our doctor, our GP, about symptoms. We can also talk to our doctor about preventing cancer. We can talk to your doctor about preventing cancer of the skin, lung, liver, breast, bowel and cervix. We can do things every day to help prevent getting these cancers, and doctors can treat many cancers if they find it early.

S2: Well, I learned what cancer is. It's a disease where cells in a part of the body grow in the wrong way. Anyone can get cancer. And there are things people do that can make cancer cells to grow wrong.

S5: Yes, like smoking. I must tell my father!

S3: And I learned that we can do things to stop some cancers from starting, to prevent some cancers growing. Like eating healthy food. More fruit and vegetables? I can do this! That's easy! So maybe it's not such a depressing topic…

S4: That's true. And I learned that doctors can treat some cancers if it is found early. Yes, this is important. I want my parents to live long, healthy lives, so I want to know how to help them.

S1: Yes, I want to help my children to be healthy while they are still young. And stay healthy.

S5: We have more to learn! Now we know what cancer is, and vocabulary that we might hear, let's find out more about what we can do to prevent it.

Script Module 2: Going to the GP

S1: Oh we worked hard this morning!

S4: [nods]

S2: Yes, I need a break.

S5: I'm hungry!

S3: Hi everyone! I sat in class all morning. I need to move! This afternoon, after class, shall we go for a walk?

S2, S1, S5: Yeah. Yes. Good idea…

S4: I can't. I worry about my father. He coughs and he lost weight. He is very tired. He might have a cold, or he might have something else. What if he has a disease like cancer! I'm worried. Remember that lecture we went to? About cancer? I learned that if a cancer is found early, doctors can treat it. So I must do something. I must take him to the hospital today. He doesn't speak English so I will go with him.

S3: No, not the hospital. In Australia we don't go to the hospital for symptoms like that.

S4: No? But he is sick. He coughs all the time. He is tired too. And he lost weight. These can be symptoms of cancer. So we must go to the hospital.

S1: I understand… in my country too, we always go to the hospital if we have symptoms like that. But here in Australia, it's different. Here you should go to the GP. The "GP" is a family doctor. You can see a GP for a lot of health things. You should only go to the hospital in an emergency.

S4: Really? Things are different here in Australia… But… how do I find a GP?

S3: You make an appointment to go and see a GP.

S5: Yes, the GP will see your father, and ask questions. You can go with him. If your father has a cold, the GP will help him. If your father has a disease like cancer, the GP will help him too. We know now that if a cancer is found early, doctors can treat it.

S4: OK. How do I make an appointment?

S2: You can find a medical centre near your home and phone them. Or you can see the GP on campus. You can just say "**I would like to make an appointment to see a GP**" or "**I would like to make an appointment to see a doctor**"

Health care setting, Provider characteristics, Communication with provider

S4: Oh thank you, I will make an appointment now. I want to see a GP with my father this week. I'll look for a medical centre near me. Let's see…

S4: Here is one, the GP's phone number is: 07758 4031.

Kate, Reception: Good morning, Sunset Park Medical Centre, this is Kate.

S4: Good morning. I would like to make an appointment to see a GP. It's for my father.

Kate: Yes, of course. Has your father been here before?

S4: No.

Kate: That's ok. When would you like to come in?

S4: Can we come in, this week? I will come with my father.

Kate: Ah… yes, you can see Dr Taylor on Thursday at 3pm. Is that ok?

S4: Yes thanks.

Kate: Great. I'll book you in for 3pm. What is your name please, and your father's?

S4: My name is Yasmiin and my father is Yuusuf

Kate: Can you spell that please?

S4: My name is spelled Y – A – S – M – I – I – N. My father's name is spelled Y – U – U – S – U – F [spells]

Kate: Thank you. And your phone number please?

S4: My phone number is 0503 258 997

Kate: Great. Thanks. See you at 3pm on Thursday. Bye.

Dr Taylor: Yuusuf and Yasmiiin?

S4: Yes?

Dr Taylor: Hello, I'm Dr Taylor. Please come with me…… Please have a seat. Now, Yuusuf and Yasmiin, how can I help you?

S4: My father coughs, he coughs… up... brown phlegm, he lost weight, he is tired. I worry about him. Can you help him?

Dr Taylor: Yes of course. Hello Yuusuf, I can help you. May I listen to your chest please? Let me see…

Action planning

Communication with provider

Script Module 3: Primary prevention

S2: Hi Yasmiin, how is your father?

S4: Oh – we went to the GP yesterday. He was kind. He asked my father questions, he listened to his breathing, and he helped us to make appointments for some special tests. I will know more next week.

S3: Ah, we wish him all the best.

S2: Yes.

S4: Thanks.

S1: My daughter went to the GP yesterday too, but she does not have symptoms. She went to the GP to be immunised for a virus called HPV that can cause cancer when she is older. All the boys and girls at her school have this vaccination. Did you know it's free for young people up to the age of 19 years. It prevents cervical cancer in girls when they are older, and some cancers in boys too.

S2: That's interesting. So, here in Australia we can have vaccinations for some cancers... I must talk to my doctor about this. [offers container of fruit] Does anyone want some? Remember that lecture? Eating healthy food like fruit and vegetables can help prevent cancer.

S5: Oh that's right… fruit and vegetables…..You know, in my country it was easy to eat fruit and vegetables. But here – it is harder! The cafe here at school doesn't really sell healthy food. Unhealthy food seems cheaper at the supermarket - the kids always want to eat it!

S4: That's true! Kids want to eat chips here when they have lunch at school. In my country, kids eat more fruit.

S1: Yes! You know, I heard that we should try to eat 2 serves of fruit and 5 serves of vegetables a day. This can help prevent cancer.

S5: What's a serve?

S1: A medium size piece of fruit like an apple, or a ½ cup of cooked vegetables is a serve [indicates roughly ½ cup on mug].

S5: Not hard in my country, but more difficult here!

S2, S3, S4: Yes!

S3: But you know, the most difficult thing for me here in Australia is to get exercise. In my country, I walked much more, and my job was more active. People are less physically active here – and me too. Here, I am at school, I don't do much exercise – I sit all day! Everything is far away here, and people drive more here in Australia. I weigh more here in Australia than in my country!

S1: We should try to get more exercise. You know, we heard that physical activity can help prevent cancer. I heard we should try to do 2½ to 5 hours of physical activity a week.

S3: So… maybe a 20 to 40-minute walk every day?

S4: That's not hard! We can do that at lunchtime! Let's walk together!

S1: Yes! Good idea. Every day we can be more active, and eat healthy food, like fruit and vegetables.

S3: That's true, we can do this! It could help us have a healthy weight, and we learned that helps prevent cancer too.

S2: Yes! And young people can have a vaccination to help prevent cancers like cervical cancer, when they are older – like your daughter did. What else can we do to prevent cancer?

S1: Well – protecting our skin from the sun helps prevent sunburn, and skin cancer. Australian sun is very hot! It's important to wear sunscreen, and it's important to tell the kids to wear it too, so they are protected when they get older.

S5: And stopping smoking… that will help prevent lung cancer. I need to talk to my father about this!

S2: My brothers too…

Social norms, past health behaviours, barriers

Action planning

S3: Also, I heard that if we drink alcohol, we shouldn't drink too much because it can cause some cancers. They say no more than 1 drink for women and 2 drinks a day for men.

S1: So… this is a good conversation! What can we do to be healthy in Australia? We know there are vaccinations that can prevent some cancers… what else?

S4: Eat healthy food – like more fruit and vegetables!

S3: Be active!

S5: Wear sunscreen in the sun!

S2: Don't smoke!

S3: And drink less alcohol! Doing all this can help to protect our health.

S5: You know, I can do this! I want to eat more fruit and vegetables.

S1: We could bring a piece of fruit to school each day, instead of biscuits!

S3: Good idea! We can eat fruit in our break – like this. Easy!

S4: I can encourage the kids to be active – and I can be active with them! Hmmm… we will go for a walk after dinner tonight.

S5: I will encourage my father to stop smoking. I will speak to him tonight.

S2: Yes, and I'll talk to my brothers at our family lunch on Saturday.

S1: I'll make sure the kids protect their skin before going into the sun this weekend.

S3: Well everyone, we have half an hour until our next class – let's all go for a walk now!

S1, S2, S4, S5: Good idea/Yes/Let's go!

Action planning

Script Module 4: Secondary prevention

S4: Hi everyone! Last night after dinner, my family went for a walk together! It was good exercise, it was fun – and… as we know… being active helps prevent cancer.

S5: Eating fruit and vegetables too – look, I brought fruit for my break today [holds up a banana/grapes etc]

S3: Me too! [holds up fruit] and I use the stairs now, I don't use the lift.

S2: Well done! Guess what? My brother made an appointment to see the GP to help him stop smoking.

S3: Ah, good on him. And good on us! You know, I didn't know we could do so many things easily to help prevent cancer.

S5: Is there anything else we can do to help prevent cancer?

S1: Well, yes. Check your body. If you see something unusual like a lump, you should tell your GP. Here in Australia, if they find a cancer early, doctors can treat it. Remember – we learned this. Last year, I had a big, red lump on my face you know.

S4: Oh! Tell us what happened…

S1: The GP said that I should see a skin specialist – a special doctor of the skin. I saw the specialist. He did a test called a **biopsy** – he took a piece of the lump and tested it.

S2: Ooooh, did it hurt?

S1: Not really. But – it was an important test. It showed a small skin cancer.

S4, S5, S3, S2: Oh!

S1: But don't worry! It's good news. Because I went to the doctor early, they could remove it. I'm fine now. In Australia, we should check our skin regularly, and if we find something unusual, we should go to the GP. It's important that we all check our skin regularly.

S5: OK – good advice. I will do that, and I will tell my parents to check their skin too.

S1: Also, here in Australia we can have tests – your GP can help you to learn about them. These tests are called '**screening tests**' and they check that we are healthy. They don't hurt! The screening tests also help to find cancers very early- so doctors can treat it.

S2: Screening test? You mean a blood test?

S1: Well, a blood test is one type of screening test. A blood test tells us if our body is healthy.

S2: What other types of screening tests are there?

S1: Tests for different cancers, like bowel cancer, breast cancer and cervical cancer. The screening tests are free in Australia. It's good to do these tests regularly, especially as we get older. The GP can give you information about how to do these tests.

S3: The test for bowel cancer – you know your parents can do the test at home. The GP will give them a test that they take home to do.

S5: And the test for breast cancer is done at a clinic, it's called a '**mammogram'**.

S4: The test for cervical cancer is done at the GP. It has a name too, it's called the '**Cervical Screening test**'.

S2: Oh thanks, this is good information for me – and for my parents too – they are getting older. My brother and I worry about their health. Maybe we could get some information from the GP. But… you know… they don't have any symptoms – no lumps, or coughs, or feeling tired, no weight loss, no bleeding, no pain, or anything else. So… maybe they don't need to have a screening test?

S1: You can have a screening test without any symptoms. Remember - if they find a cancer early – before any symptoms - the doctors can treat it.

S2: Ah true… but how do I ask the GP for these screening tests?

S4: Well, you could say "**I would like to know more about bowel cancer screening for my parents please**"

S3: Or you could ask: "**Can my parents have a screening test for bowel cancer?**"

S1: Yes, if they between 50 and 74 years old, a test for bowel cancer is free for men and women.

S5: And breast screening (a mammogram) is free for women aged between 50 and 74 years old.

S4: And women aged between 25 and 74 years old can have a screening test for cervical cancer too. This test, the 'Cervical Screening' test, is a test every woman should have every five years.

S3: These tests are free in Australia! This is important to know.

S5: I guess you can also ask the GP '**Can you check my skin please?**'

Communication with provider

S1: Yes - or: '**Can you check this lump please?**' The GP is the person to see if you have any unusual symptoms.

S2: Oh, you have all encouraged me. I will ask the GP about screening tests for myself and my parents.

Dr Atkins: Hello, how can I help you today?

S2: Hello, I have a few questions. I am 25 years old. Can you tell me about the Cervical Screening test for me please? And, I would like to know more about bowel cancer screening for my parents. Also, can you check this small lump on my face please? It is a bit itchy.

Dr Atkins: Yes, of course. So, I will check your skin first, and then give you some information about the screening tests…

Communication with provider

APPENDIX C

Stage 2 (curriculum development) Participant Information Sheet and Consent Form

Contents:

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Flinders UNIVERSITY
College of Medicine & Public Health

INFORMATION SHEET
(for ESL teachers)

Title: Improving cancer risk and prevention health literacy in recent immigrants to Australia via an English as a Second Language curriculum: Curriculum development

Researchers:

Dr Ingrid Flight:	ph: 7221 8471
Ms Donna Hughes:	ph: 7221 8436; email: donna.hughes@flinders.edu.au
Dr Janine Chapman:	ph: 7221 8472
Professor Carlene Wilson:	ph: 7221 8473

Why are we doing this project?

Many people who come to live in Australia from non-English speaking countries know little about Australia's cancer risks, optimal cancer prevention strategies or available cancer screening resources. Therefore, engagement in cancer preventive health behaviours and access to resources is low amongst some groups. In addition, many people who have recently arrived in Australia may require additional lessons in the English language in order to fully participate in health-related opportunities and services.

We are in the process of developing an ESL curriculum that has two aims: (1) to inform new immigrants about cancer risks in Australia, prevention strategies and available resources; and (2) to improve English language skills. We conducted a preliminary study in 2016 where we consulted with ESL lecturers and migrant resource personnel to learn of potential barriers as well as facilitating factors to aid in the curriculum development. The results from this study gave us very valuable information about the structure and content of a potential curriculum. With this information in tow, we have developed a draft curriculum module to introduce the topic of cancer prevention. Topics to be covered in the module include information on different types of cancer, and discussion of how we can take action to prevent many forms of cancer, within the Australian context. At the same time, learners will practice English speaking, reading, listening and writing skills as well as vocabulary and grammar. The module will be aimed at adult ESL students attending Adult Migrant English programs throughout Australia.

In this current study, we seek the opinion of ESL educators and advanced-level adult ESL students of the draft module. The results obtained from the study will inform the final version of the curriculum, prior to testing in the classroom.

What are the project's goals?

The goal of this project is to obtain ESL professionals' and advanced-level students' opinion of a draft ESL cancer literacy module in order to gather information that will inform the finalisation of an ESL cancer literacy curriculum.

What will I be asked to do?
If you chose to participate in this study, we would send you a copy of the draft ESL cancer literacy curriculum and a survey. We can send it online to your email address, or in the post, according to your preference. You are then invited to look through the materials and activities, and survey. You are not required to complete the survey at this time. After you have familiarised yourself with the documents, you are invited to participate in an interview during which a researcher will guide you through the survey. The interview could be done by telephone, on Skype or in person, whichever is more suitable to you. We anticipate that participation would not take longer than two hours in total (up to an hour looking through the materials and up to an hour in the interview). In addition, it could be done at any time that is convenient to you. No prior preparation is required. As a thank you for your time, you will receive a $50 Coles Myer voucher.

What benefit will I gain from being involved in this study?
You may not benefit directly from your involvement however the sharing of your opinions will help us to develop the very best curriculum that we can, respectfully tailored to the needs of newly arrived immigrants. We are committed to the development and delivery of interventions that are as useful as possible to people.

Will I be identifiable by being involved in this study?
No. If you choose to participate, you will be allocated an ID number. All responses from all participants will be collated for statistical analyses, and you will not be re-identified. The interviews will be audio-recorded, with your permission, for note-taking purposes only, and recordings will be destroyed following note-taking after the interview. Notes taken during interviews will be pooled with responses from other participants, and no individual participant will be identified.

Are there any risks or discomforts if I am involved?
The researchers anticipate very few risks from your involvement in this study. However, if you have any concerns regarding anticipated or actual risks or discomforts, please do not hesitate to raise these with the researchers. Alternatively, Cancer Council 13 11 20 can be contacted regarding any cancer-related question, ph: 13 11 20.

How do I agree to participate?
Participation is always voluntary. You may refuse to respond to any topic or question on the survey, and you are free to withdraw your participation at any time without effect or consequences. A consent form accompanies this information sheet. If you agree to participate, please read and sign the form and email it back to Donna Hughes:
donna.hughes@flinders.edu.au

If you have any queries, please do not hesitate to contact one of the researchers.

How will I receive feedback?
Outcomes from the project will be summarised and you will receive a copy if requested.

Thank you for taking the time to read this information sheet and we hope that you will accept our invitation to be involved.

This research project has been approved by the Flinders University Social and Behavioural Research Ethics Committee (Project number 7898). 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

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CONSENT FORM FOR PARTICIPATION IN RESEARCH

(ESL Teachers)

Improving cancer risk and prevention health literacy in recent immigrants to Australia via an English as a Second Language curriculum: Curriculum development

I ….....

being over the age of 18 years hereby consent to participate as requested in the …… for the research project with the title listed above.

1. I have read the information provided.
2. Details of procedures and any risks have been explained to my satisfaction.
3. I agree to audio recording of my information and participation, for note-taking purposes only.
4. I am aware that I should retain a copy of the Information Sheet and Consent Form for future reference.
5. I understand that:
   - I may not directly benefit from taking part in this research.
   - Participation is entirely voluntary and I am free to withdraw from the project at any time; and can decline to answer particular questions.
   - The information gained in this study will be published as explained, and my participation will be anonymous and confidential.
   - I may ask that the recording be stopped at any time, and that I may withdraw at any time from the session or the research without disadvantage.
6. I have had the opportunity to discuss taking part in this research with a family member or friend.

Participant's name…….....

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 name…….....

Researcher's signature……....Date…….

NB: Two signed copies should be obtained.

This research project has been approved by the Flinders University Social and Behavioural Research Ethics Committee (Project number 7898). For more information regarding ethical approval of the project please contact the Executive Officer on (08) 8201-3116 or human.researchethics@flinders.edu.au

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Flinders UNIVERSITY
College of Medicine & Public Health

INFORMATION SHEET
(ESL Advanced level Students)

Title: Improving cancer risk and prevention health literacy in recent immigrants to Australia via an English as a Second Language curriculum: Curriculum development

Researchers:

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Ms Donna Hughes: ph: 7221 8436; email: donna.hughes@flinders.edu.au
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Why are we doing this project?

Many people who come to live in Australia from non-English speaking countries know little about Australia's cancer risks, optimal cancer prevention strategies or available cancer screening resources. Therefore, engagement in cancer preventive health behaviours and access to resources is low amongst some groups. In addition, many people who have recently arrived in Australia may require additional lessons in the English language in order to fully participate in health-related opportunities and services.

We are in the process of developing an ESL curriculum that has two aims: (1) to inform new immigrants about cancer risks in Australia, prevention strategies and available resources; and (2) to improve English language skills. We conducted a preliminary study in 2016 where we consulted with ESL lecturers and migrant resource personnel to learn of potential barriers as well as facilitating factors to aid in the curriculum development. The results from this study gave us very valuable information about the structure and content of a potential curriculum. With this information in tow, we have developed a draft curriculum module to introduce the topic of cancer prevention. Topics to be covered in the module include information on different types of cancer, and discussion of how we can take action to prevent many forms of cancer, within the Australian context. At the same time, learners will practice English speaking, reading, listening and writing skills as well as vocabulary and grammar. The module will be aimed at adult ESL students attending Adult Migrant English programs throughout Australia.

In this current study, we seek the opinion of ESL educators and advanced-level adult ESL students of the draft module. The results obtained from the study will inform the final version of the curriculum, prior to testing in the classroom.

What are the project's goals?

The goal of this project is to obtain ESL professionals' and advanced-level students' opinion of a draft ESL cancer literacy module in order to gather information that will inform the finalisation of an ESL cancer literacy curriculum.

What will I be asked to do?
If you chose to participate in this study, we would send you a copy of the draft ESL cancer literacy module. We can send it online to your email address, or in the post, according to your preference. You are then invited to look through the materials and activities, and to indicate your opinions of them via a survey. We anticipate that participation would not be time-consuming and would take no longer than two hours. In addition, it could be done at any time and place that is convenient to you. No prior preparation is required. As a thank you for your time, you will receive a $50 Coles Myer voucher.

What benefit will I gain from being involved in this study?
You may not benefit directly from your involvement however the sharing of your opinions will help us to develop the very best curriculum that we can, respectfully tailored to the needs of newly arrived immigrants. We are committed to the development and delivery of interventions that are as useful as possible to people.

Will I be identifiable by being involved in this study?
No. If you choose to participate, you will be allocated an ID number. All responses from all participants will be collated for statistical analyses, and you will not be re-identified.

Are there any risks or discomforts if I am involved?
The researchers anticipate very few risks from your involvement in this study. However, if you have any concerns regarding anticipated or actual risks or discomforts, please do not hesitate to raise these with the researchers. Alternatively, Cancer Council 13 11 20 can be contacted regarding any cancer-related question, ph: 13 11 20.

How do I agree to participate?
Participation is always voluntary. You may refuse to respond to any topic or question on the survey, and you are free to withdraw your participation at any time without effect or consequences. A consent form accompanies this information sheet. If you agree to participate, please read and sign the form and email it back to Donna Hughes: donna.hughes@flinders.edu.au

If you have any queries, please do not hesitate to contact one of the researchers.

How will I receive feedback?
Outcomes from the project will be summarised and you will receive a copy if requested.

Thank you for taking the time to read this information sheet and we hope that you will accept our invitation to be involved.

This research project has been approved by the Flinders University Social and Behavioural Research Ethics Committee (Project number 7898). 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

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UNIVERSITY

CONSENT FORM FOR PARTICIPATION IN RESEARCH

(ESL Students)

Improving cancer risk and prevention health literacy in recent immigrants to Australia via an English as a Second Language curriculum: Curriculum development

I ….....

being over the age of 18 years hereby consent to participate as requested in the …… for the research project with the title listed above.

1. I have read the information provided.
2. Details of procedures and any risks have been explained to my satisfaction.
3. I am aware that I should retain a copy of the Information Sheet and Consent Form for future reference.
4. I understand that:
   - I may not directly benefit from taking part in this research.
   - Participation is entirely voluntary and I am free to withdraw from the project at any time; and can decline to answer particular questions.
   - The information gained in this study will be published as explained, and my participation will be anonymous and confidential.
   - Whether I participate or not, or withdraw after participating, will have no effect on my progress in my course of study, or results gained.
5. I have had the opportunity to discuss taking part in this research with a family member or friend.

Participant's name…….....

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 name…….....

Researcher's signature……...Date…….

NB: Two signed copies should be obtained.

This research project has been approved by the Flinders University Social and Behavioural Research Ethics Committee (Project number 7898). For more information regarding ethical approval of the project please contact the Executive Officer on (08) 8201-3116 or human.researchethics@flinders.edu.au

APPENDIX D

Stage 1 (scoping study) Teachers' and Students' Surveys

Contents:

Survey instructions: ESL TEACHERS

Thank you very much for agreeing to participate in our study, we are very grateful for your time and feedback on the activities in this curriculum. We wish to create a curriculum that provides English language instruction while informing new immigrants about cancer risks and prevention strategies, within the Australian context. Evidence emerging from studies abroad suggests that this combination of health information and language instruction may be a way to improve health literacy in new immigrants while improving language proficiency. In Australia, there are disparities in cancer incidence and mortality, and variable uptake of cancer prevention services among many new immigrant groups. Delivering health information regarding cancer risks and prevention strategies within migrant language programs may be a timely and efficacious way to reach new immigrants to Australia, so that all Australians can have access to important public health information.

Your participation in this study should take no more than two hours of your time. We invite you to look through the curriculum, watch the videos and look over the survey (this should take no longer than one hour). **You do not need to actually complete the survey, but it would be helpful if you could familiarise yourself with it and gather your thoughts prior to your interview** with Donna Hughes. This interview can be conducted by telephone, on Skype or in person – whatever suits you best, and at a time convenient to you. We anticipate that the interview will last no longer than one hour. During the interview, you will be guided through the survey and invited to share your opinions. We invite your honest opinion - including negative thoughts about the curriculum's components – all feedback is extremely valuable to us, so that we can develop a curriculum that is capable of reaching as many new immigrants as possible.

Module 1: What is cancer?

Module 1 "What is cancer?" comprises one worksheet designed for CSWE I language learners, two worksheets (focussing on listening and reading skills) for CSWE II and III language learners, and a variety of speaking activities. The module is designed to be flexible – teachers may teach the whole module, or select individual worksheets or activities. Please look through the module and think about language learners that you are currently teaching, or have taught in the past. For each question, please indicate your agreement to the statements. If you have never taught groups of language learners described below, provide the response 'Not Applicable'

Please watch the **video for Module 1**: "What is cancer?"

	Strongly Disagree	Disagree	Neither agree or	Agree	Strongly Agree	Not Applicable
1. The video is presented at an appropriate level for language learners in						
a) CSWE 1	❒	❒	❒	❒	❒	❒
b) CSWE II	❒	❒	❒	❒	❒	❒
c) CSWE III	❒	❒	❒	❒	❒	❒
d) CSWE IV	❒	❒	❒	❒	❒	❒
2. The video could be selected to show to classes comprising:						
a) mixed genders	❒	❒	❒	❒	❒	❒
b) mostly male, or male-only language learners	❒	❒	❒	❒	❒	❒
c) mostly female or female-only language learners	❒	❒	❒	❒	❒	❒
3. The video could be selected to show to classes comprising						
a) language learners from African countries	❒	❒	❒	❒	❒	❒
b) language learners from Asian countries	❒	❒	❒	❒	❒	❒
c) language learners from European countries	❒	❒	❒	❒	❒	❒
d) language learners from Latin American countries	❒	❒	❒	❒	❒	❒
e) language learners from Middle Eastern countries	❒	❒	❒	❒	❒	❒
f) language learners from Oceanic countries	❒	❒	❒	❒	❒	❒
4. The video could be selected to show to classes comprising						
a) language learners who are Muslim	❒	❒	❒	❒	❒	❒
b) language learners who are Buddhist	❒	❒	❒	❒	❒	❒
c) language learners who are Christian	❒	❒	❒	❒	❒	❒
d) language learners of other religion _____	❒	❒	❒	❒	❒	❒

5. Now please look at the **Worksheets for Module 1**. If you were teaching classes with the following groups of language learners, which components of Module 1 would you select? Tick all that apply.

	CSWE 1 worksheet 1	**Listening Worksheet 1**	**Reading Worksheet 1**	**All worksheets**	**None of the Worksheets**	**Not sure / Not Applicable**
a) CSWE I	❒	❒	❒	❒	❒	❒
b) CSWE II	❒	❒	❒	❒	❒	❒
c) CSWE III	❒	❒	❒	❒	❒	❒
d) CSWE IV	❒	❒	❒	❒	❒	❒
e) mixed genders	❒	❒	❒	❒	❒	❒
f) mostly male, or male-only language learners	❒	❒	❒	❒	❒	❒
g) mostly female or female-only language learners	❒	❒	❒	❒	❒	❒
h) language learners from African countries	❒	❒	❒	❒	❒	❒
i) language learners from Asian countries	❒	❒	❒	❒	❒	❒
j) language learners from European countries	❒	❒	❒	❒	❒	❒
k) language learners from Latin American countries	❒	❒	❒	❒	❒	❒
l) language learners from Middle Eastern countries	❒	❒	❒	❒	❒	❒
m) language learners from Oceanic countries	❒	❒	❒	❒	❒	❒
n) language learners who are Muslim	❒	❒	❒	❒	❒	❒
o) language learners who are Buddhist	❒	❒	❒	❒	❒	❒
p) language learners who are Christian	❒	❒	❒	❒	❒	❒
q) language learners of other religion _____	❒	❒	❒	❒	❒	❒

If you have indicated ‘strongly disagree’ or disagree’ to any of the statements regarding **Module 1**, or if there are worksheets that you would not use, could you please briefly provide more information: (notes to be made here by researcher during interview – but you may jot down some thoughts here prior to the interview, if you would find this useful):

Module 2: Going to the GP

Module 2 "Going to the GP" comprises one worksheet designed for CSWE I language learners, two worksheets (focussing on listening and reading skills) for CSWE II and III language learners, and a variety of speaking activities. The module is designed to be flexible – teachers may teach the whole module, or select individual worksheets or activities. Please look through the module and think about language learners that you are currently teaching, or have taught in the past. For each question, please indicate your agreement to the statements. If you have never taught groups of language learners described below, provide the response 'Not Applicable'

Please watch the **video for Module 2:** "Going to the GP"

	Strongly Disagree	Disagree	Neither agree or	Agree	Strongly Agree	Not Applicable
6. The video is presented at an appropriate level for language learners in						
a) CSWE 1	❒	❒	❒	❒	❒	❒
b) CSWE II	❒	❒	❒	❒	❒	❒
c) CSWE III	❒	❒	❒	❒	❒	❒
d) CSWE IV	❒	❒	❒	❒	❒	❒
7. The video could be selected to show to classes comprising:						
a) mixed genders	❒	❒	❒	❒	❒	❒
b) mostly male, or male-only language learners	❒	❒	❒	❒	❒	❒
c) mostly female or female-only language learners	❒	❒	❒	❒	❒	❒
8. The video could be selected to show to classes comprising						
a) language learners from African countries	❒	❒	❒	❒	❒	❒
b) language learners from Asian countries	❒	❒	❒	❒	❒	❒
c) language learners from European countries	❒	❒	❒	❒	❒	❒
d) language learners from Latin American countries	❒	❒	❒	❒	❒	❒
e) language learners from Middle Eastern countries	❒	❒	❒	❒	❒	❒
f) language learners from Oceanic countries	❒	❒	❒	❒	❒	❒
9. The video could be selected to show to classes comprising						
a) language learners who are Muslim	❒	❒	❒	❒	❒	❒
b) language learners who are Buddhist	❒	❒	❒	❒	❒	❒
c) language learners who are Christian	❒	❒	❒	❒	❒	❒
d) language learners of other religion _____	❒	❒	❒	❒	❒	❒

10. Now please look at the **Worksheets for Module 2**. If you were teaching classes with the following groups of language learners, which components of Module 2 would you select? Tick all that apply.

	CSWE 1 worksheet 2	Listening Worksheet 2	Reading Worksheet 2	All worksheets	None of the Worksheets	Not sure / Not Applicable
a) CSWE I	❒	❒	❒	❒	❒	❒
b) CSWE II	❒	❒	❒	❒	❒	❒
c) CSWE III	❒	❒	❒	❒	❒	❒
d) CSWE IV	❒	❒	❒	❒	❒	❒
e) mixed genders	❒	❒	❒	❒	❒	❒
f) mostly male, or male-only language learners	❒	❒	❒	❒	❒	❒
g) mostly female or female-only language learners	❒	❒	❒	❒	❒	❒
h) language learners from African countries	❒	❒	❒	❒	❒	❒
i) language learners from Asian countries	❒	❒	❒	❒	❒	❒
j) language learners from European countries	❒	❒	❒	❒	❒	❒
k) language learners from Latin American countries	❒	❒	❒	❒	❒	❒
l) language learners from Middle Eastern countries	❒	❒	❒	❒	❒	❒
m) language learners from Oceanic countries	❒	❒	❒	❒	❒	❒
n) language learners who are Muslim	❒	❒	❒	❒	❒	❒
o) language learners who are Buddhist	❒	❒	❒	❒	❒	❒
p) language learners who are Christian	❒	❒	❒	❒	❒	❒
q) language learners of other religion _____	❒	❒	❒	❒	❒	❒

If you have indicated ‘strongly disagree’ or disagree’ to any of the statements regarding **Module 2**, or if there are worksheets that you would not use, could you please briefly provide more information: (notes to be made here by researcher during interview – but you may jot down some thoughts here prior to the interview, if you would find this useful):

Module 3: Primary prevention

Module 3 "Primary prevention" comprises one worksheet designed for CSWE I language learners, 10 worksheets (one focussing on listening and nine on reading skills) for CSWE II and III language learners, and a variety of speaking activities. The module is designed to be flexible – teachers may teach the whole module, or select individual worksheets or activities. Please look through the module and think about language learners that you are currently teaching, or have taught in the past. For each question, please indicate your agreement to the statements. If you have never taught groups of language learners described below, provide the response 'Not Applicable'

Please watch **the video for Module 3:** "Primary prevention"

	Strongly Disagree	Disagree	Neither agree or	Agree	Strongly Agree	Not Applicable
11. The video is presented at an appropriate level for language learners in						
a) CSWE 1	❒	❒	❒	❒	❒	❒
b) CSWE II	❒	❒	❒	❒	❒	❒
c) CSWE III	❒	❒	❒	❒	❒	❒
d) CSWE IV	❒	❒	❒	❒	❒	❒
12. The video could be selected to show to classes comprising:						
a) mixed genders	❒	❒	❒	❒	❒	❒
b) mostly male, or male-only language learners	❒	❒	❒	❒	❒	❒
c) mostly female or female-only language learners	❒	❒	❒	❒	❒	❒
13. The video could be selected to show to classes comprising						
a) language learners from African countries	❒	❒	❒	❒	❒	❒
b) language learners from Asian countries	❒	❒	❒	❒	❒	❒
c) language learners from European countries	❒	❒	❒	❒	❒	❒
d) language learners from Latin American countries	❒	❒	❒	❒	❒	❒
e) language learners from Middle Eastern countries	❒	❒	❒	❒	❒	❒
f) language learners from Oceanic countries	❒	❒	❒	❒	❒	❒
14. The video could be selected to show to classes comprising						
a) language learners who are Muslim	❒	❒	❒	❒	❒	❒
b) language learners who are Buddhist	❒	❒	❒	❒	❒	❒
c) language learners who are Christian	❒	❒	❒	❒	❒	❒
d) language learners of other religion _____	❒	❒	❒	❒	❒	❒

15. Now look at the **Worksheets for Module 3**. If you were teaching classes with the following groups of language learners, which components of **Module 3** would you select? Tick all that apply.

	CSWE 1 worksheet 3	Listening Worksheet 3	Reading Worksheet 3	Reading Worksheet 4	Reading Worksheet 5	Reading Worksheet 6	Reading Worksheet 7	Reading Worksheet 8	Reading Worksheet 9	Reading Worksheet 10	Reading Worksheet 11	All worksheets	None of the Worksheets	Not sure / Not Applicable
a) CSWE I	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒
b) CSWE II	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒
c) CSWE III	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒
d) CSWE IV	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒
e) mixed gender	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒
f) mostly male, or male-only language learners	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒
g) mostly female or female-only language learners	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒
h) language learners from African countries	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒
i) language learners from Asian countries	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒
j) language learners from European countries	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒
k) language learners from Latin American countries	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒
l) language learners from Middle Eastern countries	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒
m) language learners from Oceanic countries	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒
n) language learners who are Muslim	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒
o) language learners who are Buddhist	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒
p) language learners who are Christian	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒
q) language learners of other religion _____	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒

16. Now, please consider each line below, depicting different groups of language learners. Then, consider each of the **Reading Worksheets for Module 3**. For each line, please tick the box indicating the ONE worksheet that you would select to use, that would be most appropriate for that group of learners. If no worksheets in a section apply, please leave blank. If you have never taught a particular group of learners and are not sure which you would choose, give the response 'Not Applicable'.

	Reading Worksheet 3	**Reading Worksheet 4**	**Reading Worksheet 5**	**Reading Worksheet 6**	**Reading Worksheet 7**	**Reading Worksheet 8**	**Reading Worksheet 9**	**Reading Worksheet 10**	**Reading Worksheet 11**	**Not sure / Not Applicable**
a) CSWE I	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒
b) CSWE II	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒
c) CSWE III	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒
d) CSWE IV	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒
e) mixed gender	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒
f) mostly male, or male-only language learners	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒
g) mostly female or female-only language learners	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒
h) language learners from African countries	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒
i) language learners from Asian countries	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒
j) language learners from European countries	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒
k) language learners from Latin American countries	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒
l) language learners from Middle Eastern countries	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒
m) language learners from Oceanic countries	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒
n) language learners who are Muslim	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒
o) language learners who are Buddhist	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒
p) language learners who are Christian	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒
q) language learners of other religion _____	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒

If you have indicated ‘strongly disagree’ or disagree’ to any of the statements regarding **Module 3**, or if there are worksheets that you would not use, could you please briefly provide more information: (notes to be made here by researcher during interview – but you may jot down some thoughts here prior to the interview, if you would find this useful):

Module 4: Secondary prevention

Module 4 "Secondary prevention" comprises one worksheet designed for CSWE I language learners, two worksheets (focussing on listening and reading skills) for CSWE II and III language learners, and a variety of speaking activities. The module is designed to be flexible – teachers may teach the whole module, or select individual worksheets or activities. Please look through the module and think about language learners that you are currently teaching, or have taught in the past. For each question, please indicate your agreement to the statements. If you have never taught groups of language learners described below, provide the response 'Not Applicable'

Please watch **the video for Module 4:** "Secondary prevention"

	Strongly Disagree	Disagree	Neither agree or	Agree	Strongly Agree	Not Applicable
17. The video is presented at an appropriate level for language learners in						
a) CSWE 1	❒	❒	❒	❒	❒	❒
b) CSWE II	❒	❒	❒	❒	❒	❒
c) CSWE III	❒	❒	❒	❒	❒	❒
d) CSWE IV	❒	❒	❒	❒	❒	❒
18. The video could be selected to show to classes comprising:						
a) mixed genders	❒	❒	❒	❒	❒	❒
b) mostly male, or male-only language learners	❒	❒	❒	❒	❒	❒
c) mostly female or female-only language learners	❒	❒	❒	❒	❒	❒
19. The video could be selected to show to classes comprising						
a) language learners from African countries	❒	❒	❒	❒	❒	❒
b) language learners from Asian countries	❒	❒	❒	❒	❒	❒
c) language learners from European countries	❒	❒	❒	❒	❒	❒
d) language learners from Latin American countries	❒	❒	❒	❒	❒	❒
e) language learners from Middle Eastern countries	❒	❒	❒	❒	❒	❒
f) language learners from Oceanic countries	❒	❒	❒	❒	❒	❒
20. The video could be selected to show to classes comprising						
a) language learners who are Muslim	❒	❒	❒	❒	❒	❒
b) language learners who are Buddhist	❒	❒	❒	❒	❒	❒
c) language learners who are Christian	❒	❒	❒	❒	❒	❒
d) language learners of other religion _____	❒	❒	❒	❒	❒	❒

21. Now look at the **Worksheets for Module 4**. If you were teaching classes with the following groups of language learners, which components of Module 4 would you select? Tick all that apply.

	CSWE 1 worksheet	**Listening Worksheet 1**	**Reading Worksheet 1**	**All worksheets**	**None of the Worksheets**	**Not sure / Not Applicable**
a) CSWE I	❒	❒	❒	❒	❒	❒
b) CSWE II	❒	❒	❒	❒	❒	❒
c) CSWE III	❒	❒	❒	❒	❒	❒
d) CSWE IV	❒	❒	❒	❒	❒	❒
e) mixed genders	❒	❒	❒	❒	❒	❒
f) mostly male, or male-only language learners	❒	❒	❒	❒	❒	❒
g) mostly female or female-only language learners	❒	❒	❒	❒	❒	❒
h) language learners from African countries	❒	❒	❒	❒	❒	❒
i) language learners from Asian countries	❒	❒	❒	❒	❒	❒
j) language learners from European countries	❒	❒	❒	❒	❒	❒
k) language learners from Latin American countries	❒	❒	❒	❒	❒	❒
l) language learners from Middle Eastern countries	❒	❒	❒	❒	❒	❒
m) language learners from Oceanic countries	❒	❒	❒	❒	❒	❒
n) language learners who are Muslim	❒	❒	❒	❒	❒	❒
o) language learners who are Buddhist	❒	❒	❒	❒	❒	❒
p) language learners who are Christian	❒	❒	❒	❒	❒	❒
q) language learners of other religion _____	❒	❒	❒	❒	❒	❒

If you have indicated ‘strongly disagree’ or disagree’ to any of the statements regarding **Module 4**, or if there are worksheets that you would not use, could you please briefly provide more information: (notes to be made here by researcher during interview – but you may jot down some thoughts here prior to the interview, if you would find this useful):

Whole Curriculum

22. **The Speaking activities** in this curriculum comprise the following activity types. Which type(s) of activities would you select to use, for classes made up of the following language learners? Tick all that apply.

	Cross-cultural discussions	Role-plays	Student surveys	Planning own health behaviour change	Planning to tell others of topics learned	Jigsaw activities	Giving presentations	Conversation topics	All activity types	None	Not sure / Not Applicable
a) CSWE I	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒
b) CSWE II	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒
c) CSWE III	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒
d) CSWE IV	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒
e) mixed genders	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒
f) mostly male, or male-only language learners	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒
g) mostly female or female-only language learners	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒
h) language learners from African countries	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒
i) language learners from Asian countries	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒
j) language learners from European countries	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒
k) language learners from Latin American countries	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒
l) language learners from Middle Eastern countries	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒
m) language learners from Oceanic countries	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒
n) language learners who are Muslim	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒
o) language learners who are Buddhist	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒
p) language learners who are Christian	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒
q) language learners of other religion _____	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒

If you have indicated that you would not select certain types of **Speaking activities** for specific groups, could you please briefly provide more information: (notes to be made here by researcher during interview – but you may jot down some thoughts here prior to the interview, if you would find this useful):

23. Overall, in your opinion of the language learners that you have taught (current or in the past), and thinking about the parts of the curriculum that you would use, please indicate the extent to which you feel these *the average* language learners in these groups would *probably* benefit from curriculum. Please respond to every statement. If you have not taught language learners described by a particular trait listed, please tick N/A (Not Applicable).

Language learners who are:	**would not benefit at all**	**to a small extent**	**to a moderate extent**	**to a large extent**	**to a very large extent**	**N/A**
a) male	❒	❒	❒	❒	❒	❒
b) female	❒	❒	❒	❒	❒	❒
c) younger adults (18 – 45 years)	❒	❒	❒	❒	❒	❒
d) middle-aged adults (46-65 years)	❒	❒	❒	❒	❒	❒
e) older adults (over 66 years)	❒	❒	❒	❒	❒	❒
f) parents of children/adolescents	❒	❒	❒	❒	❒	❒
g) adults caring for older relatives	❒	❒	❒	❒	❒	❒
h) on humanitarian visas	❒	❒	❒	❒	❒	❒
i) on work / business / student visas	❒	❒	❒	❒	❒	❒
j) on family visas	❒	❒	❒	❒	❒	❒
k) on temporary visas	❒	❒	❒	❒	❒	❒
l) from countries in Africa	❒	❒	❒	❒	❒	❒
m) from countries in Asia	❒	❒	❒	❒	❒	❒
n) from countries in Europe	❒	❒	❒	❒	❒	❒
o) from countries in Latin America	❒	❒	❒	❒	❒	❒
p) from countries in the Middle East	❒	❒	❒	❒	❒	❒
q) from countries in Oceania	❒	❒	❒	❒	❒	❒
r) Beginner level language learners	❒	❒	❒	❒	❒	❒
s) Elementary level language learners	❒	❒	❒	❒	❒	❒
t) Pre-Intermediate level language learners	❒	❒	❒	❒	❒	❒
u) Intermediate level language learners	❒	❒	❒	❒	❒	❒
v) Upper-Intermediate level language learners	❒	❒	❒	❒	❒	❒
w) Advanced level language learners	❒	❒	❒	❒	❒	❒

If you have indicated that some groups would not benefit from aspects of the curriculum, could you please briefly provide more information: (notes to be made here by researcher during interview – but you may jot down some thoughts here prior to the interview, if you would find this useful):

24. If there are groups of language learners for whom you believe that this entire curriculum would NOT be relevant, please describe below. In addition, please indicate the extent to which you believe the curriculum would not be relevant.

If you believe that parts of the curriculum could be relevant to all groups of language learners that you have taught, please tick the box 'Not Applicable'.

❒ Not Applicable

	not at all	to a small extent	to a moderate extent	to a large extent	to a very large extent
1) Language learner group: _____. This curriculum would not be relevant for them because:					
a) the topic is too confronting	❒	❒	❒	❒	❒
b) the topic is inappropriate - gender	❒	❒	❒	❒	❒
c) the topic is inappropriate - culture	❒	❒	❒	❒	❒
d) the topic is inappropriate - religion	❒	❒	❒	❒	❒
e) the topic is inappropriate – family role	❒	❒	❒	❒	❒
f) the language level is too high	❒	❒	❒	❒	❒
g) the language level is too low	❒	❒	❒	❒	❒
h) Other: _____	❒	❒	❒	❒	❒
i) Other: _____	❒	❒	❒	❒	❒
2) Language learner group: _____. This curriculum would not be relevant for them because:					
a) the topic is too confronting	❒	❒	❒	❒	❒
b) the topic is inappropriate - gender	❒	❒	❒	❒	❒
c) the topic is inappropriate - culture	❒	❒	❒	❒	❒
d) the topic is inappropriate - religion	❒	❒	❒	❒	❒
e) the topic is inappropriate – family role	❒	❒	❒	❒	❒
f) the language level is too high	❒	❒	❒	❒	❒
g) the language level is too low	❒	❒	❒	❒	❒
h) Other: _____	❒	❒	❒	❒	❒
i) Other: _____	❒	❒	❒	❒	❒

Background questions

We would appreciate your time in completing this section, so that we can describe as a group the teachers and lecturers who took part in the study. Please be assured that your answers here, and throughout the survey, are confidential and you will never be personally identified.

25. Are you: Male: ❒ or Female: ❒

26. Age range:
- 20-29 ❒
- 30-39 ❒
- 40-49 ❒
- 50-59 ❒
- 60-69 ❒
- 70+ ❒

27. What is your ethnicity? Select all that apply:
- African ❒
- Asian ❒
- Caucasian ❒
- Indigenous Australian ❒
- Middle Eastern ❒
- Other (please specify) ❒ _____

28. Were you born in Australia? Yes ❒ (skip to Q.29) No ❒

28a. If 'No': For how many years have you lived in Australia? _____

28b. In which country were you born? _____

29. Do you speak a language other than English at home? Yes ❒ No ❒ (skip to Q.30)

29a. If 'Yes': What other language(s) do you speak at home? _____

30. What is the highest level of education that you have completed?

Primary school (Year 7)	❒	University Bachelor Degree	❒
High school (Year 12)	❒	Graduate Diploma / Certificate	❒
Diploma / Advanced Diploma	❒	University Postgraduate Degree	❒

31. For how many years have you taught English as a Second Language? _____

32. From what cultural background(s) are the Language learners you currently teach this term?

_____

33. What age groups do you currently teach this term? Tick as many as apply

Children ❒ Adolescents (to age 18) ❒ Adults ❒ Older people ❒

34. Do you teach: Full-time ❒ or Part-time ❒

35. Do you predominantly teach multicultural classes? Yes ❒ No ❒

36. Do you predominantly co-teach courses? Yes ❒ No ❒

37. Please think about your current language learners and their English language ability.

i) What is their English language level?

Beginner	❒	Upper-Intermediate	❒
Elementary	❒	Advanced	❒
Pre-Intermediate	❒	Other (please specify)	❒
Intermediate	❒	_____	

38. Date of survey completion: _____ / _____ / _____

dd mm yy

Thank you for your time

Survey instructions: Advanced level ESL LANGUAGE LEARNERS

Thank you very much for agreeing to participate in our study, we are very grateful for your time and feedback on this language course. We want to create a course that practises English while telling new immigrants about cancer risks and prevention strategies, in Australia. Some new immigrants to Australia may not know about available services for cancer prevention, and others may not have the vocabulary to use to access them. Providing health information to new immigrants while they learn English may be a useful way to let people know about cancer risks in Australia, and the prevention services available to them, soon after arriving to Australia. In this way, public health messages about cancer could reach everyone, and help to improve the health of all Australians.

Your participation in this study should take no more than two hours of your time. We invite you to look through the course, watch the videos with the survey by your side. In the survey, you will be asked some questions about your opinions of this course. In these questions, you will be asked to tick the box that best matches your opinion. There is some space provided for you as well, if you wish to give more details. We invite your honest opinions - including negative opinions about different worksheets – all feedback is extremely helpful to us, so that we can develop a course that can reach as many new immigrants as possible.

When you have completed the survey, please return this survey to Donna Hughes in the reply paid envelope. Alternatively if you prefer to work online, you may fill in your answers through this secure website: [web address here]

Module 1: What is cancer?

Think about students from your cultural background, studying this module. For each sentence below, please tick one box that how much you agree or disagree with each sentence. There are no right or wrong answers, we are just interested in your opinion.

1. Please watch the video for **Module 1**: "What is cancer?"

	Strongly Disagree	**Disagree**	**Neither agree or disagree**	**Agree**	**Strongly Agree**
The video would be suitable for viewing by					
a) younger men in my culture (aged 18 – 45 years)	❒	❒	❒	❒	❒
b) middle-aged men in my culture (46 – 65 years)	❒	❒	❒	❒	❒
c) older men in my culture (over 66 years)	❒	❒	❒	❒	❒
d) women in my culture (aged 18 – 45 years)	❒	❒	❒	❒	❒
e) middle-aged women in my culture (46 – 65 years)	❒	❒	❒	❒	❒
f) older women in my culture (over 66 years)	❒	❒	❒	❒	❒

2. Please look through the Worksheets in **Module 1**.

	Strongly Disagree	**Disagree**	**Neither agree or disagree**	**Agree**	**Strongly Agree**
The Worksheets are suitable for					
a) younger men in my culture (aged 18 – 45 years)	❒	❒	❒	❒	❒
b) middle-aged men in my culture (46 – 65 years)	❒	❒	❒	❒	❒
c) older men in my culture (over 66 years)	❒	❒	❒	❒	❒
d) women in my culture (aged 18 – 45 years)	❒	❒	❒	❒	❒
e) middle-aged women in my culture (46 – 65 years)	❒	❒	❒	❒	❒
f) older women in my culture (over 66 years)	❒	❒	❒	❒	❒

3. Think about students from your cultural background, studying **Module 1**. Would students share information learned in this course, with family and friends? Look at the list below. On each line, please tick one box that shows how likely you think that information would be shared with that person.

Language students from my cultural background are likely to share information from this course with their:	**Extremely unlikely**	**Unlikely**	**Neutral**	**Likely**	**Extremely likely**
a) husband	❒	❒	❒	❒	❒
b) wife	❒	❒	❒	❒	❒
c) son	❒	❒	❒	❒	❒
d) daughter	❒	❒	❒	❒	❒
e) father	❒	❒	❒	❒	❒
f) mother	❒	❒	❒	❒	❒
g) grandfather	❒	❒	❒	❒	❒
h) grandmother	❒	❒	❒	❒	❒
i) uncle	❒	❒	❒	❒	❒
j) aunt	❒	❒	❒	❒	❒
k) male friend	❒	❒	❒	❒	❒
l) female friend	❒	❒	❒	❒	❒
m) someone they work with (male)	❒	❒	❒	❒	❒
n) someone they work with (female)	❒	❒	❒	❒	❒
o) a classmate (male)	❒	❒	❒	❒	❒
p) a classmate (female)	❒	❒	❒	❒	❒
Other: _____	❒	❒	❒	❒	❒

Comments on Module 1

If you have ticked ‘strongly disagree’ or disagree’ to the sentences in Questions 1 and 2 about **Module 1**, or if you have ticked ‘extremely unlikely’, ‘unlikely’ or ‘neutral’ to any the lines in Question 3 about sharing information in **Module 1**, you are invited to write more information here:

Module 2: Going to the GP

Think about students from your cultural background, studying this module. For each sentence below, please tick one box that how much you agree or disagree with each sentence. There are no right or wrong answers, we are just interested in your opinion.

4. Please watch the video for **Module 2**: "Going to the GP

	Strongly Disagree	**Disagree**	**Neither agree or disagree**	**Agree**	**Strongly Agree**
The video would be suitable for viewing by					
a) younger men in my culture (aged 18 – 45 years)	❒	❒	❒	❒	❒
b) middle-aged men in my culture (46 – 65 years)	❒	❒	❒	❒	❒
c) older men in my culture (over 66 years)	❒	❒	❒	❒	❒
d) women in my culture (aged 18 – 45 years)	❒	❒	❒	❒	❒
e) middle-aged women in my culture (46 – 65 years)	❒	❒	❒	❒	❒
f) older women in my culture (over 66 years)	❒	❒	❒	❒	❒

5. Please look through the Worksheets in **Module 2**.

	Strongly Disagree	**Disagree**	**Neither agree or disagree**	**Agree**	**Strongly Agree**
The Worksheets are suitable for					
a) younger men in my culture (aged 18 – 45 years)	❒	❒	❒	❒	❒
b) middle-aged men in my culture (46 – 65 years)	❒	❒	❒	❒	❒
c) older men in my culture (over 66 years)	❒	❒	❒	❒	❒
d) women in my culture (aged 18 – 45 years)	❒	❒	❒	❒	❒
e) middle-aged women in my culture (46 – 65 years)	❒	❒	❒	❒	❒
f) older women in my culture (over 66 years)	❒	❒	❒	❒	❒

6. Think about students from your cultural background, studying **Module 2**. Would students share information learned in this course, with family and friends? Look at the list below. On each line, please tick one box that shows how likely you think that information would be shared with that person.

Language students from my cultural background are likely to share information from this course with their:	**Extremely unlikely**	**Unlikely**	**Neutral**	**Likely**	**Extremely likely**
a) husband	❒	❒	❒	❒	❒
b) wife	❒	❒	❒	❒	❒
c) son	❒	❒	❒	❒	❒
d) daughter	❒	❒	❒	❒	❒
e) father	❒	❒	❒	❒	❒
f) mother	❒	❒	❒	❒	❒
g) grandfather	❒	❒	❒	❒	❒
h) grandmother	❒	❒	❒	❒	❒
i) uncle	❒	❒	❒	❒	❒
j) aunt	❒	❒	❒	❒	❒
k) male friend	❒	❒	❒	❒	❒
l) female friend	❒	❒	❒	❒	❒
m) someone they work with (male)	❒	❒	❒	❒	❒
n) someone they work with (female)	❒	❒	❒	❒	❒
o) a classmate (male)	❒	❒	❒	❒	❒
p) a classmate (female)	❒	❒	❒	❒	❒
Other: _____	❒	❒	❒	❒	❒

Comments on Module 2

If you have ticked ‘strongly disagree’ or disagree’ to the sentences in Questions 4 and 5 about **Module 2**, or if you have ticked ‘extremely unlikely’, ‘unlikely’ or ‘neutral’ to any the lines in Question 6 about sharing information in **Module 2**, you are invited to write more information here:

Module 3: Primary prevention

Think about students from your cultural background, studying this module. For each sentence below, please tick one box that how much you agree or disagree with each sentence. There are no right or wrong answers, we are just interested in your opinion.

7. Please watch the video for **Module 3**: "Primary prevention"

	Strongly Disagree	**Disagree**	**Neither agree or disagree**	**Agree**	**Strongly Agree**
The video would be suitable for viewing by					
a) younger men in my culture (aged 18 – 45 years)	❒	❒	❒	❒	❒
b) middle-aged men in my culture (46 – 65 years)	❒	❒	❒	❒	❒
c) older men in my culture (over 66 years)	❒	❒	❒	❒	❒
d) women in my culture (aged 18 – 45 years)	❒	❒	❒	❒	❒
e) middle-aged women in my culture (46 – 65 years)	❒	❒	❒	❒	❒
f) older women in my culture (over 66 years)	❒	❒	❒	❒	❒

8. Please look through the Worksheets in **Module 3**.

	Strongly Disagree	**Disagree**	**Neither agree or disagree**	**Agree**	**Strongly Agree**
The Worksheets are suitable for					
a) younger men in my culture (aged 18 – 45 years)	❒	❒	❒	❒	❒
b) middle-aged men in my culture (46 – 65 years)	❒	❒	❒	❒	❒
c) older men in my culture (over 66 years)	❒	❒	❒	❒	❒
d) women in my culture (aged 18 – 45 years)	❒	❒	❒	❒	❒
e) middle-aged women in my culture (46 – 65 years)	❒	❒	❒	❒	❒
f) older women in my culture (over 66 years)	❒	❒	❒	❒	❒

9. Think about students from your cultural background, studying **Module 3**. Would students share information learned in this course, with family and friends? Look at the list below. On each line, please tick one box that shows how likely you think that information would be shared with that person.

Language students from my cultural background are likely to share information from this course with their:	**Extremely unlikely**	**Unlikely**	**Neutral**	**Likely**	**Extremely likely**
a) husband	❒	❒	❒	❒	❒
b) wife	❒	❒	❒	❒	❒
c) son	❒	❒	❒	❒	❒
d) daughter	❒	❒	❒	❒	❒
e) father	❒	❒	❒	❒	❒
f) mother	❒	❒	❒	❒	❒
g) grandfather	❒	❒	❒	❒	❒
h) grandmother	❒	❒	❒	❒	❒
i) uncle	❒	❒	❒	❒	❒
j) aunt	❒	❒	❒	❒	❒
k) male friend	❒	❒	❒	❒	❒
l) female friend	❒	❒	❒	❒	❒
m) someone they work with (male)	❒	❒	❒	❒	❒
n) someone they work with (female)	❒	❒	❒	❒	❒
o) a classmate (male)	❒	❒	❒	❒	❒
p) a classmate (female)	❒	❒	❒	❒	❒
Other: _____	❒	❒	❒	❒	❒

Comments on Module 3

If you have ticked ‘strongly disagree’ or disagree’ to the sentences in Questions 7 and 8 about **Module 3**, or if you have ticked ‘extremely unlikely’, ‘unlikely’ or ‘neutral’ to any the lines in Question 9 about sharing information in **Module 3**, you are invited to write more information here:

Module 4: Secondary prevention

Think about students from your cultural background, studying this module. For each sentence below, please tick one box that how much you agree or disagree with each sentence. There are no right or wrong answers, we are just interested in your opinion.

10. Please watch the video for **Module 4**: "Secondary prevention"

	Strongly Disagree	**Disagree**	**Neither agree or disagree**	**Agree**	**Strongly Agree**
The video would be suitable for viewing by					
a) younger men in my culture (aged 18 – 45 years)	❒	❒	❒	❒	❒
b) middle-aged men in my culture (46 – 65 years)	❒	❒	❒	❒	❒
c) older men in my culture (over 66 years)	❒	❒	❒	❒	❒
d) women in my culture (aged 18 – 45 years)	❒	❒	❒	❒	❒
e) middle-aged women in my culture (46 – 65 years)	❒	❒	❒	❒	❒
f) older women in my culture (over 66 years)	❒	❒	❒	❒	❒

11. Please look through the Worksheets in **Module 4**.

	Strongly Disagree	**Disagree**	**Neither agree or disagree**	**Agree**	**Strongly Agree**
The Worksheets are suitable for					
a) younger men in my culture (aged 18 – 45 years)	❒	❒	❒	❒	❒
b) middle-aged men in my culture (46 – 65 years)	❒	❒	❒	❒	❒
c) older men in my culture (over 66 years)	❒	❒	❒	❒	❒
d) women in my culture (aged 18 – 45 years)	❒	❒	❒	❒	❒
e) middle-aged women in my culture (46 – 65 years)	❒	❒	❒	❒	❒
f) older women in my culture (over 66 years)	❒	❒	❒	❒	❒

12. Think about students from your cultural background, studying **Module 4**. Would students share information learned in this course, with family and friends? Look at the list below. On each line, please tick one box that shows how likely you think that information would be shared with that person.

Language students from my cultural background are likely to share information from this course with their:	**Extremely unlikely**	**Unlikely**	**Neutral**	**Likely**	**Extremely likely**
a) husband	❒	❒	❒	❒	❒
b) wife	❒	❒	❒	❒	❒
c) son	❒	❒	❒	❒	❒
d) daughter	❒	❒	❒	❒	❒
e) father	❒	❒	❒	❒	❒
f) mother	❒	❒	❒	❒	❒
g) grandfather	❒	❒	❒	❒	❒
h) grandmother	❒	❒	❒	❒	❒
i) uncle	❒	❒	❒	❒	❒
j) aunt	❒	❒	❒	❒	❒
k) male friend	❒	❒	❒	❒	❒
l) female friend	❒	❒	❒	❒	❒
m) someone they work with (male)	❒	❒	❒	❒	❒
n) someone they work with (female)	❒	❒	❒	❒	❒
o) a classmate (male)	❒	❒	❒	❒	❒
p) a classmate (female)	❒	❒	❒	❒	❒
Other: _____	❒	❒	❒	❒	❒

Comments on Module 4

If you have ticked ‘strongly disagree’ or disagree’ to the sentences in Questions 10 and 11 about **Module 4**, or if you have ticked ‘extremely unlikely’, ‘unlikely’ or ‘neutral’ to any the lines in Question 12 about sharing information in **Module 4**, you are invited to write more information here:

The whole course

13. Please look at the following statements, and indicate how much you agree or disagree with them

	Strongly Disagree	Disagree	Neither agree or disagree	Agree	Strongly Agree
a) As a language student, I would like to have studied this course	❒	❒	❒	❒	❒
b) I learned something new about cancer or cancer prevention after looking at this course	❒	❒	❒	❒	❒
c) The way I think about cancer has changed after looking at this course	❒	❒	❒	❒	❒

If you have ticked 'strongly disagree' or disagree' to any sentences in Question 13, you are invited to write more information here:

Background questions

We would appreciate your time in completing this section, so that we can describe in general the advanced level students who took part in the study. Please note that your answers are confidential and you will not be identified.

14. Are you: Male: ❒ or Female: ❒

15. Age range:
20-29 ❒
30-39 ❒
40-49 ❒
50-59 ❒
60-69 ❒
70+ ❒

17a. For how many years have you lived in Australia? _____

17b. In which country were you born? _____

17c. There are many different ways in which people think of themselves (for example: Malaysian, Muslim and Australian). In which ways do you think of yourself? _____

18. Do you speak a language other than English at home? Yes ❒ No ❒ (skip to Q.19)

18a. If 'Yes': What other language(s) do you speak at home? _____

19. What is the highest level of education that you have completed?

Primary school (Year 7)	❒	University Bachelor Degree	❒
High school (Year 12)	❒	Graduate Diploma / Certificate	❒
Diploma / Advanced Diploma	❒	University Postgraduate Degree	❒

20. What is your employment status?

Full-time employed	❒	Retired	❒
Part-time employed	❒	Home duties / Home carer	❒
Unemployed	❒	Full-time Student	❒

20a. If you work full or part-time, what is your occupation? _____

21. Date of survey completion: _____ / _____ / _____

dd mm yy

Thank you for your time

APPENDIX E

ACCESS Cover, two introductory pages and Table of Contents

Contents:

ACCESS

Australian **C**urriculum of **C**ancer prevention **E**ducation to **S**peakers of other Language**S**

Flinders Centre for Innovation in Cancer

FLINDERS FOUNDATION

Flinders UNIVERSITY

Government of South Australia
SA Health

Flinders UNIVERSITY

Introduction to this resource

This resource is designed to inform adult immigrant ESL learners about the Australian national guidelines for cancer prevention and build upon their learning of health-related English. It is designed to equip new immigrants to Australia with the language and literacy skills needed to manage their own cancer preventive health and that of their family, as well as successfully negotiate making and attending medical appointments for cancer prevention activities.

About this resource

This ESL resource comprises four modules. Each introduces new vocabulary and practises listening, speaking and reading skills while presenting positive cancer prevention health messages.

Module 1 is a core module, describing what cancer is in general, and why it is of importance to immigrants
Module 2 informs language learners about going to their GP to discuss symptoms
Module 3 focusses on primary prevention of cancer, specifically modifiable lifestyle behaviours. Language learners are introduced to the Australian national guidelines for cancer preventive lifestyle behaviours
Module 4 focusses on secondary prevention of cancer, and introduces language learners to the Australian national guidelines for cancer screening

Pre-requisite knowledge

It is assumed that language learners studying this material will already have knowledge of the Australian medical system (e.g., Medicare).

Key learning outcomes

After studying this learning resource, language learners should have an understanding of the following key health messages:

- everyone is at risk of developing cancer
- many common cancers in Australia can be prevented
- we can help prevent many cancers by engaging in healthy lifestyle behaviours
- many cancers can be treated if found early
- in Australia, people can go to their GP to discuss symptoms and to arrange cancer screening tests

How to use this resource

- All activities in this resource are communicative and align to learning outcomes of the Certificates of Spoken and Written English. Each worksheet is prefaced by a table outlining the CSWE learning outcomes for that sheet. There is also a summary in the Appendix.
- The worksheets are presented by CSWE level.
- For CSWE I, there is one worksheet per module.
- For CSWE II and III there are a range of worksheets within each module:
    - a listening worksheet introducing the key health messages as well as pertinent vocabulary
    - reading worksheets introducing language learners to the national guidelines through cancer prevention posters and online tools used in Australian public health campaigns
    - speaking activities practising new vocabulary, phrases for making health appointments as well as engaging in cross-cultural communication.
- The resource is designed to be flexible, and individual modules or activities may be selected to suit language learners' needs. However, to ensure that the key health messages (above) are delivered, it is recommended that, for CSWE II & III learners, the listening worksheets are used for each module.
- The resource has positive health messages and can be used at any time. It can be especially useful at times of Australian national cancer awareness days, to draw learners' attention to community initiatives.
- A page of useful online links to the national guidelines, national cancer awareness days and cancer prevention resources are provided at the end of the curriculum.

Development of this curriculum resource

This ESL learning resource was developed by Donna Hughes, as part of her PhD work, supervised by Professor Carlene Wilson, Dr Ingrid Flight and Dr Janine Chapman. The accompanying videos were developed with support from a 2017 Flinders Foundation FCIC Small Research Grant, Flinders University of South Australia. We gratefully acknowledge the valuable contribution of lecturers & teachers of the Adult Migrant English Programs in Adelaide, South Australia, in the preparation of this curriculum.

Introduction to cancer and cancer prevention – for Teachers

What is cancer?

Cancer is a disease of any part of the body. It is characterised by abnormal and uncontrolled cell growth, which can damage or invade healthy tissues locally in one part of the body, or further away, by spreading to other parts of the body [1]. In Australia, cancer is a major cause of illness, and in 2011 was the leading cause of disease burden. Lifestyle behaviours such as smoking, poor diet, low activity levels, and exposure to harmful UV rays have been shown to place people at a greater risk of developing cancer [2].

Cancer prevention

Cancer prevention refers to behaviours that we can do to help reduce the likelihood of developing cancer by controlling particular risk factors. Primary preventive behaviours include increasing consumption of fruit and vegetables, maintaining a healthy body weight, being physically active, quitting smoking, being sun smart and reducing alcohol intake. Secondary preventive behaviours include engaging in regular screening practices [3].

Why is it important for immigrants to Australia to learn about cancer?

In Australia, and other Western countries, research indicates that there are disparities in cancer incidence and mortality in the population. A number of culturally and linguistically diverse (CALD) communities have a higher incidence of some forms of cancer, such as cancer of the lung and liver [4]. In addition, some CALD communities have a higher prevalence of lifestyle risk factors. For example, smoking prevalence in New South Wales, Australia, is 14.7% in the general community, in comparison to 20.3% in China-born men; 32% in Vietnam-born men, and 39.3% in Lebanon-born men [5].

In addition, data show variable uptake of cancer prevention services within some CALD communities [6]. For example, an Australian survey of adults aged over 45 found lower mammography and bowel screening rates in women from North African, Middle Eastern and some Asian countries, and bowel screening in men from all parts of Asia compared to the rest of the population [7]. New immigrants may not be aware of cancer risks pertinent to their new country, or prevention resources, or they may not have the vocabulary to successfully negotiate accessing resources. Traditional cancer prevention health messaging may not be accessible for cultural, language or literacy reasons. Alternative modes of health message delivery to immigrants are needed, and English as a Second Language classes may be a useful point of entry for health message delivery to vulnerable communities.

References:
[1] Cancer Australia: What is cancer? Available from: https://canceraustralia.gov.au/affected-cancer/what-cancer
[2] AIHW. Cancer in Australia 2017, Canberra Australia2017 [9 Jan 2018]. Available from: https://www.aihw.gov.au/reports/cancer/cancer-in-australia-2017/contents/table-of-contents.
[3] Cancer Australia. Primary prevention of cancer. Available from: https://canceraustralia.gov.au/publications-and-resources/position-statements/lifestyle-risk-factors-and-primary-prevention-cancer/primary-prevention-cancer
[4] Federation of Ethnic Communities' Council of Australia. Cancer and culturally and linguistically diverse communities. 2010 Available from: http://www.fecca.org.au/images/stories/pdfs/cancer_cald_communities_report2010.
[5] NSW Government, Cancer Institute NSW. (2016, October 31). Multicultural communities. Retrieved from: https://www.cancerinstitute.org.au/cancer-plan/Focus-areas/CALD-communities
[6] Singh M, de Looper M. Australian Health Inequalities: 1 Birthplace. Bulletin no. 2. AIHW Cat. No. AUS 27. 2002.
[7] Weber MF, Banks E, Smith DP, O'Connell D, Sitas F. Cancer screening among migrants in an Australian cohort; cross-sectional analyses from the 45 and Up Study. BMC Public Health. 2009;9(1

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APPENDIX F

Stage 3 (intervention) Participant Information Sheet and Consent Form

Contents:

Flinders Centre for Innovation in Cancer
Flinders University
GPO Box 2100
Adelaide SA 5001
Tel: 08 7221 8473
Carlene.wilson@flinders.edu.au
Web:
http://www.flinders.edu.au/people/carlene.wilson.

[Date]

LETTER OF INTRODUCTION
(for ESL lecturers/teachers)

Dear [Name]

I hold the position of Chair in Cancer Prevention and Support (Behavioural Science) in the School of Medicine, Flinders Centre for Innovation in Cancer, Flinders University.

This letter is to introduce Donna Hughes who is a PhD student in the School of Medicine, Flinders Centre for Innovation in Cancer, Flinders University

She is undertaking research leading to the production of a thesis or other publications on the subject of improving literacy regarding cancer risks and prevention strategies in Australia among newly arrived adult immigrants attending ESL classes. She has developed a curriculum with input from lecturers and teachers over the course of two previous projects. It is now in a form, ready to be trialled in the classroom.

She would like to invite you to assist with the classroom trial of the cancer prevention ESL curriculum during Term 1, 2019. This would involve selecting activities to teach from the curriculum for a four week period, completing a weekly checklist of curriculum components used (over the four weeks) and allowing Donna to observe a class during the four week period, so that she can see how a worksheet from the curriculum is implemented. Please see the attached Information Sheet for more information.

Be assured that any data obtained will be treated in the strictest confidence and none of the participating teachers or students will be individually identifiable in the resulting thesis, report or other publications.

Any enquiries you may have concerning this project should be directed to me at the address given above or by telephone on (03) 9496 9967, or e-mail: carlene.wilson@flinders.edu.au

Thank you for your attention and assistance.

Yours sincerely

Professor Carlene Wilson
Chair in Cancer Prevention and Support (Behavioural Science)
College of Medicine & Public Health
Flinders Centre for Innovation in Cancer
Flinders University

This research project has been approved by the Flinders University Social and Behavioural Research Ethics Committee (Project number 8127). 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

Ms Donna Hughes

PhD Student
Flinders Centre for Innovation in Cancer
Level 4, FCIC

GPO Box 2100
Adelaide SA 5001

Ph: 08 7221 8436
Email: donna.hughes@flinders.edu.au

Web:
http://www.flinders.edu.au/people/donna.hughes

Flinders UNIVERSITY
College of Medicine & Public Health

INFORMATION SHEET
(for ESL lecturers/teachers)

Title: Improving cancer risk and prevention health literacy in recent immigrants to Australia via an English as a second language (ESL) curriculum: Intervention trial

Researchers:

Ms Donna Hughes:	ph: 7221 8436; email: donna.hughes@flinders.edu.au
Professor Carlene Wilson:	ph: 7221 8473
Dr Ingrid Flight:	ph: 7221 8471
Dr Janine Chapman:	ph: 7221 8472

Why are we doing this project?

Many people who come to live in Australia from non-English speaking countries know little about Australia's cancer risks, optimal cancer prevention strategies or available cancer screening resources. Therefore, engagement in cancer preventive health behaviours and access to local cancer prevention resources is low amongst some groups. In addition, many people who have recently arrived in Australia may require additional lessons in the English language in order to fully participate in health-related opportunities and services.

With input from ESL experts gained over two previous studies, we have developed an ESL curriculum that has two aims: firstly to inform new immigrants about cancer risks in Australia, prevention strategies and available resources; and secondly, to improve English language skills. The curriculum has four modules: (1) What is cancer? (2) Going to the GP to discuss symptoms or learn about cancer prevention activities; (3) Primary preventive strategies such as healthy eating, being active, being sun smart, reducing alcohol and stopping smoking; and (4) Secondary prevention activities such as screening for bowel, breast and cervical cancers.

The curriculum comprises a variety of graded worksheets, designed to be suitable for learners who are pre-CSWE, CSWE I or CSWE II and III. Each worksheet focusses on communicative language and there are a variety of activities to practice speaking, reading and listening skills, vocabulary and grammar. There are activities that can be done in class, as well as for independent learning, project work and homework. The curriculum modules have Teacher Notes to introduce each module, and an indication of which CSWE competencies are targeted for each worksheet.

The curriculum is now ready to trial in the classroom to assess its potential to improve literacy and language skills in language learners. In this current study, we seek participation from teachers and lecturers to trial teaching the curriculum over a four-week period.

What will I be asked to do?
If you choose to participate in this study, we would send you a copy of the ESL cancer literacy curriculum and materials. You would be invited to teach from the curriculum for four weeks during Term 1, either earlier in the term (e.g., weeks 3-6), or later in the term (e.g., weeks 7-10). Each week of these four weeks, you would be invited to complete a 5-10 minute online survey to indicate the components of the curriculum you taught that week and indicate any modifications you made.

In addition, you would also be invited to allow a researcher to observe a lesson during the four week period to see how a worksheet from the curriculum is implemented in the classroom. As a reimbursement for your time and involvement, you would receive a $100 Coles Myer voucher at the end of the four-week period.

What benefit will I gain from being involved in this study?
You may not benefit directly from your involvement however trialling this curriculum will provide valuable information about its potential to improve new immigrants' understanding of cancer risks and prevention strategies in Australia and their language skills, as well as the implementation potential of the curriculum. We are committed to the development and delivery of interventions that are as useful as possible to people.

Will I be identifiable by being involved in this study?
No. Participation will not be anonymous, however no identifying information will be published. If you choose to participate, you will be allocated an ID number. All data collected during this study from all participants will be collated for statistical analyses, and you will not be re-identified.

Are there any risks or discomforts if I am involved?
The researchers anticipate very few risks from your involvement in this study. However, if you have any concerns regarding anticipated or actual risks or discomforts, please do not hesitate to raise these with the researchers. Alternatively, Cancer Council 13 11 20 can be contacted regarding any cancer-related question, ph: 13 11 20.

How do I agree to participate?
Participation is always voluntary. You are free to withdraw your participation at any time without effect or consequences. A consent form accompanies this information sheet. If you agree to participate, please read and sign the form and email it back to Donna Hughes: donna.hughes@flinders.edu.au

If you have any queries, please do not hesitate to contact one of the researchers.

How will I receive feedback?
Outcomes from the project will be summarised and you will receive a copy.

Thank you for taking the time to read this information sheet and we hope that you will accept our invitation to be involved.

This research project has been approved by the Flinders University Social and Behavioural Research Ethics Committee (Project number 8127). 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

Flinders
UNIVERSITY

CONSENT FORM FOR PARTICIPATION IN RESEARCH: ESL Lecturers/Teachers

(by weekly survey, observation)

Improving cancer risk and prevention health literacy in recent immigrants to Australia via an English as a second language curriculum: Intervention trial

I ….....

being over the age of 18 years hereby consent to participate as requested in the research project with the title listed above.

1. I have read the information provided.
2. Details of procedures and any risks have been explained to my satisfaction.
3. I am aware that I should retain a copy of the Information Sheet and Consent Form for future reference.
4. I understand that:
   - I may not directly benefit from taking part in this research.
   - Participation is entirely voluntary and I am free to withdraw from the project at any time; and can decline to answer particular questions.
   - The information gained in this study will be published as explained, and while no identifying information will be published, anonymity cannot be guaranteed.
5. I have had the opportunity to discuss taking part in this research with a family member or friend.

Participant's name…….....

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 name…….....

Researcher's signature……....Date……

NB: Two signed copies should be obtained.

This research project has been approved by the Flinders University Social and Behavioural Research Ethics Committee (Project number 8127). For more information regarding ethical approval of the project please contact the Executive Officer on (08) 8201-3116 or human.researchethics@flinders.edu.au

Flinders Centre for Innovation in Cancer

Flinders University

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http://www.flinders.edu.au/people/carlene.wilson.

January 2019

LETTER OF INTRODUCTION

(for students)

Dear Student,

I hold the position of Chair in Cancer Prevention and Support (Behavioural Science) in the School of Medicine, Flinders Centre for Innovation in Cancer, Flinders University.

This letter is to introduce Donna Hughes who is a PhD student in the School of Medicine, Flinders Centre for Innovation in Cancer, Flinders University.

She is doing research for a thesis. Her research subject is about helping new immigrants to learn about cancer risks and prevention in Australia. She has written a curriculum with help from teachers at TAFE and it is now ready to be trialled for 4 weeks in the classroom in Term 1, 2019.

She would like to invite you to help with the classroom trial of the cancer prevention ESL curriculum during Term 1, 2019. This would involve doing 4 surveys – one at the beginning of term, one in about Week 7 and one in about Week 11. A final survey would be sent to you in Term 2. The surveys can be done online or on paper and take about 20-30 minutes to do. Please see the attached Information Sheet for more information.

Be assured that, although participation is not anonymous, all of your answers to the survey are confidential and no students will be individually identified in the resulting thesis or other publications. You are, of course, free to decide not to participate at any time or not to answer particular questions if you wish.

Any questions you may have should be asked to me at the address given above or by telephone on (03) 9496 9967, or e-mail: carlene.wilson@flinders.edu.au

Thank you for your time.

Yours sincerely

Professor Carlene Wilson
Chair in Cancer Prevention and Support (Behavioural Science)
College of Medicine & Public Health
Flinders Centre for Innovation in Cancer
Flinders University

This research project has been approved by the Flinders University Social and Behavioural Research Ethics Committee (Project number 8127). 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

Ms Donna Hughes

PhD Student
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Web:
http://www.flinders.edu.au/people/donna.hughes

Flinders UNIVERSITY
College of Medicine & Public Health

INFORMATION SHEET
(for students)

Title: Improving cancer risk and prevention health literacy in recent immigrants to Australia via an English as a second language (ESL) curriculum: Intervention trial

Researchers:
Ms Donna Hughes: ph: 7221 8436; email: donna.hughes@flinders.edu.au
Professor Carlene Wilson: ph: 7221 8473
Dr Ingrid Flight: ph: 7221 8471
Dr Janine Chapman: ph: 7221 8472

Why are we doing this project?

We want to make a language course that helps new immigrants learn English as well as about cancer prevention in Australia. Some new immigrants may not know about services in Australia for cancer prevention, and others may not have the vocabulary to use these services. A language course may be a useful way to let people know about cancer prevention in Australia while they learn English.

We have worked with teachers at TAFE to develop a course. It is now ready to try in the classroom in Term 1, 2019. Your teacher will teach some things from the course during 4 weeks of Term 1.

We want to know if the course can help students learn about cancer prevention in Australia, and learn new, useful, vocabulary. We invite you to participate in the trial of this course.

What will I be asked to do?

If you want to participate, we will ask you to do 4 surveys. The first one will be early in Term 1. The second one will be in about Week 7, the third one in about Week 11 and the last one in Term 2. Each survey will take about 20-30 minutes to do.

You can do the surveys online or on paper. If you would like to do the survey online, we will send you a link in an email. If you would like to do the survey on paper, we will send them to you and give you an envelope to return them to us.

To thank you for your time and participation, we will give you a $10 Coles Myer voucher at the end of each of the first 3 surveys, and $20 after the final one (total $50).

Will the study help me?

Your participation in the study and the trial of this course might or might not help you to learn new vocabulary and about cancer prevention in Australia. At the end of the trial we will have valuable information about whether the course is useful to improve new immigrants' language skills as well

as understanding of cancer risks and prevention activities in Australia. We want to make the best and most useful course possible to help as many immigrants as we can.

Will I be identified by being involved in this study?
No. You won't be identified in any publications. If you choose to participate, you will be given an ID number. All survey answers collected during this study from all participants will be p for statistical analyses, and you will not be re-identified.

Are there any risks or discomforts if I am involved?
There are very few risks from your involvement in this study. However, if you have any worries about regarding potential risks or discomforts, please ask the researchers. Alternatively, Cancer Council 13 11 20 can be contacted regarding any cancer-related question, ph: 13 11 20.

How do I agree to participate?
Participation is always voluntary. You may refuse to answer any questions on the surveys and you are free to stop your participation at any time without any problem. Whether you participate or not, your studies will not be affected. If you agree to participate, please read and sign the Consent Form in your pack and email it back to Donna Hughes: donna.hughes@flinders.edu.au or send it back in the reply-paid envelope.

If you have any queries, please contact one of the researchers.

How will I receive feedback?
Results from the project will be summarised and you will receive a copy.

Thank you for taking the time to read this information sheet and we hope that you will accept our invitation to be involved.

This research project has been approved by the Flinders University Social and Behavioural Research Ethics Committee (Project number 8127). 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

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UNIVERSITY

CONSENT FORM FOR PARTICIPATION IN RESEARCH

(Non-Anonymous Surveys)

Improving cancer risk and prevention health literacy in recent immigrants to Australia via an English as a second language curriculum: Intervention trial

I ….....

being over the age of 18 years hereby consent to participate as requested in the …… for the research project with the title listed above.

1. I have read the information provided in the Information Sheet.
2. Details of procedures and any burdens / risks have been explained to my satisfaction.
3. I am aware that I should retain a copy of the Information Sheet and Consent Form for future reference.
4. I understand that:
   - I may not directly benefit from taking part in this research.
   - Participation is entirely voluntary and I am free to withdraw from the project at any time; and can decline to answer particular questions.
   - While the information gained in this study will be confidential and published as explained, anonymity cannot be guaranteed even though no identifying information will be published.
   - Whether I participate or not, or withdraw after participating, will have no effect on my progress in my course of study, or results gained.
7. I understand that only the researchers on this project will have access to my research data and raw results; unless I explicitly provide consent for it to be shared with other parties
8. I have had the opportunity to discuss taking part in this research with a family member or friend.

Participant's name…….....

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 name…….....

Researcher's signature……...Date……

NB: Two signed copies should be obtained.

This research project has been approved by the Flinders University Social and Behavioural Research Ethics Committee (Project number 8127). For more information regarding ethical approval of the project please contact the Executive Officer on (08) 8201-3116 or human.researchethics@flinders.edu.au

APPENDIX G

Student Baseline Survey

Contents:

ESL student Baseline survey

Flinders UNIVERSITY

Being Healthy in Australia!

This survey is about health and the things we do in Australia. Try to answer each question about what you do, and what you think about being healthy in Australia.

Study ID: _____

About me

My home country is _____

I have lived in Australia for _____ months / years

My date of birth: _____/_____/_____

The first letter of my first name: _____

The first letter of my family name: _____

Gender: ☐ male ☐ female ☐ non-binary ☐ I prefer not to say

The highest level of education I have (tick one)

Less than Year 7	❑	University Bachelor Degree	❑
Primary school (Year 7)	❑	Graduate Diploma / Certificate	❑
High school (Year 12)	❑	University Postgraduate Degree	❑
Diploma / Advanced Diploma	❑		

Look at this sentence. How much do you agree with it? Circle the best answer for you.

I know a lot about health.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree or Disagree	Agree	Strongly Agree

My English skills

Look at the English language skills on the left. For each sentence, tick one box to say how much you agree or disagree with it about your English skills now.

	Strongly Disagree	Moderately Disagree	Slightly Disagree	Neither Agree or Disagree	Slightly Agree	Moderately Agree	Strongly Agree
							
1. I can participate in class.	❑	❑	❑	❑	❑	❑	❑
2. I can learn on my own.	❑	❑	❑	❑	❑	❑	❑
3. I can understand a conversation.	❑	❑	❑	❑	❑	❑	❑
4. I can have a short conversation.	❑	❑	❑	❑	❑	❑	❑
5. I can understand spoken information.	❑	❑	❑	❑	❑	❑	❑
6. I can do a short presentation	❑	❑	❑	❑	❑	❑	❑
7. I can understand a telephone message.	❑	❑	❑	❑	❑	❑	❑
8. I can leave a telephone message.	❑	❑	❑	❑	❑	❑	❑
9. I can give instructions.	❑	❑	❑	❑	❑	❑	❑
10. I can understand a short interview.	❑	❑	❑	❑	❑	❑	❑
11. I can participate in a short interview.	❑	❑	❑	❑	❑	❑	❑

	Strongly Disagree	Moderately Disagree	Slightly Disagree	Neither Agree or Disagree	Slightly Agree	Moderately Agree	Strongly Agree
	☹			😐			☺
12. I can fill in a form.	❑	❑	❑	❑	❑	❑	❑
13. I can read and understand short text.	❑	❑	❑	❑	❑	❑	❑
14. I can understand short written instructions.	❑	❑	❑	❑	❑	❑	❑
15. I can write a message	❑	❑	❑	❑	❑	❑	❑
16. I can write a short report.	❑	❑	❑	❑	❑	❑	❑
17. I can calculate time.	❑	❑	❑	❑	❑	❑	❑
18. I can understand a simple table or graph.	❑	❑	❑	❑	❑	❑	❑

Things I did last week

1. Eat fruit and vegetables

Last week	I ate _____ serves of fruit each day. ☐ I didn't eat any fruit.	1 serve of fruit = 1 medium sized piece (e.g., apple, orange), 2 small pieces (e.g., apricots, kiwifruit, plums), 8 strawberries, or ½cup of fruit juice.
Last week	I ate_____ serves of vegetables each day. ☐ I didn't eat any vegetables.	1 serve of vegetables = 1 potato, ½ sweet potato, ½ cup of dark green vegetables (e.g., cabbage, spinach, broccoli) or 1 cup of other vegetables or salad (e.g., lettuce, beans, lentils, peas, zucchini, cucumber, mushrooms).

2. What I think about eating fruit and vegetables.

Look at the sentences on the left. For each sentence, tick one box to say how much you agree or disagree with it.

	Strongly Disagree	Moderately Disagree	Slightly Disagree	Neither Agree or Disagree	Slightly Agree	Moderately Agree	Strongly Agree
	☹			😐			☺
I think eating fruit and vegetables is important for health.	❑	❑	❑	❑	❑	❑	❑
I want to eat more fruit and vegetables this year.	❑	❑	❑	❑	❑	❑	❑
It will be easy for me to eat more fruit and vegetables this year.	❑	❑	❑	❑	❑	❑	❑
People I know want me to eat more fruit and vegetables.	❑	❑	❑	❑	❑	❑	❑

3. Exercise

Last week, I exercised	☐ on Monday for _____ minutes. ☐ on Tuesday for _____ minutes. ☐ on Wednesday for _____ minutes. ☐ on Thursday for _____ minutes. ☐ on Friday for _____ minutes. ☐ on Saturday for _____ minutes. ☐ on Sunday for _____ minutes.

If you didn't do any exercise last week, tick this box: ☐

4. What I think about exercise.

Look at the sentences on the left. For each sentence, tick one box to say how much you agree or disagree with it.

	Strongly Disagree	Moderately Disagree	Slightly Disagree	Neither Agree or Disagree	Slightly Agree	Moderately Agree	Strongly Agree
							
I think exercise is important for health.	❑	❑	❑	❑	❑	❑	❑
I want to do more exercise this year.	❑	❑	❑	❑	❑	❑	❑
It will be easy for me to do more exercise this year.	❑	❑	❑	❑	❑	❑	❑
People I know want me to do more exercise.	❑	❑	❑	❑	❑	❑	❑

5. Being sun smart.

Think of the last week that it was very hot in Australia. Tick one box on each line to show how often you did each sun smart thing,

This summer, how often did you	Never	Rarely	Sometimes	Often	Always
wear sunscreen outside?	❑	❑	❑	❑	❑
wear sunglasses outside?	❑	❑	❑	❑	❑
wear long sleeves outside?	❑	❑	❑	❑	❑
wear a hat outside?	❑	❑	❑	❑	❑
stay in the shade when outside?	❑	❑	❑	❑	❑

6. What I think about being sun smart.

Look at the sentences on the left. For each sentence, tick one box to say how much you agree or disagree with it.

	Strongly Disagree	Moderately Disagree	Slightly Disagree	Neither Agree or Disagree	Slightly Agree	Moderately Agree	Strongly Agree
							
I think being sun smart is important for health.	❑	❑	❑	❑	❑	❑	❑
I want to be more sun smart this year.	❑	❑	❑	❑	❑	❑	❑
It will be easy for me to be more sun smart this year.	❑	❑	❑	❑	❑	❑	❑
People I know want me to be more sun smart.	❑	❑	❑	❑	❑	❑	❑

7. Drink alcohol

☐ I don't drink alcohol (Go to Question 9) ☐ I do drink alcohol (Look at the box below)

Last week, I drank alcohol	☐ on Monday. I drank _____ drinks. ☐ on Tuesday. I drank _____ drinks. ☐ on Wednesday. I drank _____ drinks. ☐ on Thursday. I drank _____ drinks. ☐ on Friday. I drank _____ drinks. ☐ on Saturday. I drank _____ drinks. ☐ on Sunday. I drank _____ drinks.

8. Smoking

☐ I don't smoke (Go to Question 10) ☐ I do smoke (Look at the box below)

Last week, I smoked	_____ cigarettes / pipes / cigars each day.

9. What I think about drinking alcohol and smoking.

Look at the sentences on the left. For each sentence, tick one box to say how much you agree or disagree with it.

	Strongly Disagree	Moderately Disagree	Slightly Disagree	Neither Agree or Disagree	Slightly Agree	Moderately Agree	Strongly Agree
	☹			😐			☺
I think drinking less alcohol is important for health.	❑	❑	❑	❑	❑	❑	❑
I think not smoking is important for health.	❑	❑	❑	❑	❑	❑	❑

10. **If you drink alcohol**, look below. For each sentence, tick one box to say how much you agree or disagree with it. If you don't drink alcohol, go to Question 12.

	Strongly Disagree	Moderately Disagree	Slightly Disagree	Neither Agree or Disagree	Slightly Agree	Moderately Agree	Strongly Agree
							
I want to drink less alcohol this year.	❑	❑	❑	❑	❑	❑	❑
It will be easy for me to drink less alcohol this year.	❑	❑	❑	❑	❑	❑	❑
People I know want me to drink less alcohol.	❑	❑	❑	❑	❑	❑	❑

11. **If you smoke**, look below. For each sentence, tick one box to say how much you agree or disagree with it. If you don't smoke, go to Question 13.

	Strongly Disagree	Moderately Disagree	Slightly Disagree	Neither Agree or Disagree	Slightly Agree	Moderately Agree	Strongly Agree
							
I want to stop smoking this year.	❑	❑	❑	❑	❑	❑	❑
It will be easy for me to stop smoking this year.	❑	❑	❑	❑	❑	❑	❑
People I know want me to stop smoking.	❑	❑	❑	❑	❑	❑	❑

My health

12. Look at the sentences. There are no right or wrong answers. Tick one box for each sentence that is your opinion.

	Strongly Disagree	Moderately Disagree	Slightly Disagree	Neither Agree or Disagree	Slightly Agree	Moderately Agree	Strongly Agree
							
My health is good.	❑	❑	❑	❑	❑	❑	❑

13. Did you ever have a screening test? (In Australia or your home country).

For men and women:	**Yes**	**No**	**I don't know**
1) Bowel cancer screening	❑	❑	❑

For women only:

2) Breast cancer screening (mammogram)	❑	❑	❑
3) Cervical cancer screening test	❑	❑	❑

For men only:

4) Prostate cancer screening	❑	❑	❑

14. Look at the sentences below. For each sentence, tick one box to say how much you agree or disagree with it.

	Strongly Disagree	Moderately Disagree	Slightly Disagree	Neither Agree or Disagree	Slightly Agree	Moderately Agree	Strongly Agree
							
I want to have a screening test for cancer in the future.	❑	❑	❑	❑	❑	❑	❑
It will be easy for me to have a screening test in the future.	❑	❑	❑	❑	❑	❑	❑
People I know want me to have a screening test.	❑	❑	❑	❑	❑	❑	❑

Medical help in Australia

15. Some people delay getting medical help when they have a symptom that they think might be serious. Here are some reasons why some people delay getting medical help. For each one, might you say this?

	Yes	Maybe	No
1) I worry what the doctor may find.	❑	❑	❑
2) I don't know how to make an appointment in English.	❑	❑	❑
3) I don't know how to speak to a doctor in English.	❑	❑	❑

16. Look at these sentences. Tick one box for each sentence that is your opinion.

	Strongly Disagree	Moderately Disagree	Slightly Disagree	Neither Agree or Disagree	Slightly Agree	Moderately Agree	Strongly Agree
							
If I do the right things, I can stay healthy.	❑	❑	❑	❑	❑	❑	❑
It does not matter what I do – if I am going to get sick, I will get sick	❑	❑	❑	❑	❑	❑	❑
Whenever I get better from being sick, it's usually because other people (doctor, nurse, family, friends) took good care of me.	❑	❑	❑	❑	❑	❑	❑

Health for me in Australia

17. Look at the sentences. There are no right or wrong answers. Tick one box for each sentence that is your opinion.

Question	Never	Rarely	Sometimes	Often	Always
1. I need help in **Australia** to read information given to me by a doctor	❑	❑	❑	❑	❑
2. When I need help to read health information in **Australia**, I can easily find someone to help me	❑	❑	❑	❑	❑
3. I need help to fill in **English** forms in **Australia**	❑	❑	❑	❑	❑
4. When I talk to a doctor in **Australia**, I can tell them all the information they need to help me	❑	❑	❑	❑	❑
5. When I talk to a doctor in **Australia**, I can ask questions	❑	❑	❑	❑	❑
6. When I talk to a doctor in **Australia**, I can ask them to explain anything that I do not understand	❑	❑	❑	❑	❑
7. **In Australia**, I can find out lots of different information about my health	❑	❑	❑	❑	❑
8. I think carefully about whether health information in **Australia** makes sense in my or my family's situation	❑	❑	❑	❑	❑
9. In **Australia**, I can trust information about my or my family's health.	❑	❑	❑	❑	❑
10. **In Australia**, I can question my doctor's advice after doing my own research	❑	❑	❑	❑	❑
11. Within the last 12 months, I did something about a health issue that affects my family or community	Yes: ❑			No: ❑	
12. What do you think matters most for everyone's health? (tick one answer only)	Information and encouragement to lead healthy lifestyles			Good housing, education, decent jobs, and good local facilities	

Quiz!

The next questions are about health and cancer in Australia. Try to answer the questions. If you don't know an answer, have a guess, or leave the space blank.

18. **Do you know any symptoms (signs in the body) of cancer?**

Try to write 7 things. If you can't think of all 7 things, just write as many as you can. Don't worry about spelling.

1) _____

2) _____

3) _____

4) _____

5) _____

6) _____

7) _____

19. Do you know any things we can do so we don't get sick with a disease like cancer?

Try to write 7 things. If you can't think of all 7 things, just write as many as you can. Don't worry about spelling.

1) _____

2) _____

3) _____

4) _____

5) _____

6) _____

7) _____

20. **True or False?** Look at the sentences. Tick one answer for each sentence.

	True	False	I don't know
1) Many cancers can be treated.	❑	❑	❑
2) We can't do anything to prevent cancer.	❑	❑	❑
3) A person with cancer will die from cancer.	❑	❑	❑
4) Screening for cancer can save lives. For example, bowel cancer screening or breast cancer screening.	❑	❑	❑
5) If doctors find a cancer early, they can treat it.	❑	❑	❑
6) If you have a cough that does not go away, you should go to Emergency at the hospital.	❑	❑	❑
7) If you have a lump on your arm, you should go to a family doctor. You do not go to Emergency at the hospital.	❑	❑	❑

21. Health tests in Australia.

Fill in the gaps with a number. If you don't know, have a guess.

1) Bowel cancer screening: For men and women aged from _____ to _____ years.

2) Breast cancer screening: For women aged from _____ to _____ years.

3) Cervical cancer screening: For women aged from _____ to _____ years.

4) HPV vaccination: For boys and girls aged up to _____ years old.

5) These screening tests and the vaccination cost $_____ in Australia.

22. Match the words on the left to the meanings on the right.

1) refer	a) any test we can do to check for a cancer
2) benign	b) to stop something from starting
3) mammogram	c) if cells in the body grow wrong, they can move together to make this
4) prevent	d) a thick liquid made in the throat or nose
5) risk	e) to give medical care
6) cancer	f) a type of test – a small piece of skin is taken from the body to check for a cancer
7) treat	g) a screening test for breast cancer
8) tumour	h) to send someone somewhere for special medical help
9) screening test	i) something that may make something bad happen
10) lump	j) a change in the body meaning illness
11) metastasis	k) a tumour that is cancer
12) phlegm	l) a tumour that is not cancer
13) malignant	m) the name of a disease
14) symptom	n) cancer cells move to another part of the body
15) biopsy	o) 

23. Word stress! Put a line under the strong part of each word. Example: Healthy

metastasis	malignant	refer	emergency
prevent	vaccination	cancer	unusual
itchy	biopsy	benign	mammogram

24. Look at the verb infinitives in the box. Fill in the gaps with a verb from the box. You may need to change the tense.

to take up	to give up	to put on
to eat	to be	to walk

1) If he _____ smoking, he will feel healthier.

2) My brother and I are _____ a new sport this week.

3) _____ active! We should do more exercise every day.

4) In Australia, we should _____ sunscreen every time we go outside in summer.

5) If we _____ together at lunchtime, we might have more energy in the afternoon.

6) _____ more vegetables!

25. Put the words in order to make an appointment for a man named Yuusuf to see a doctor.

Receptionist: Good morning, Woollen Mountain Medical Clinic.

Yuusuf: **I would / an appointment / a GP / Hello. / like to / to see / make**

_____ .

Receptionist: Have you been here before?

Yuusuf: **I / No / haven't**

_____ .

Receptionist: Okay, you could see Dr May tomorrow morning.

Yuusuf: **tomorrow morning. / Can I come / I can't come / tomorrow afternoon / I will be / in class**

_____ ?

Receptionist: Yes, you could see Dr Marzzoli at 2:45pm tomorrow afternoon. Is that okay?

Yuusuf: **thank / Yes / you**

_____ .

Receptionist: What is your name please?

Yuusuf: **Yuusuf / name / Rahim / My / is**

_____ .

Receptionist: Thank you. What is your phone number please?

Yuusuf: **phone / Yes / is / my / number / 0604 003 837**

_____ .

Receptionist: Thank you. See you tomorrow afternoon.

26. **At the doctor's.**

Complete the gaps with your own words. The words in the brackets tell you what to do. Don't worry about spelling.

Doctor: Hello, come in and sit down.

You: [Greet the doctor]

_____

Doctor: Now, what can I do for you today?

You: [tell the doctor about a symptom you have, and ask for something about it]

_____

_____

_____

Doctor: Of course, let me have a look…

You: [now ask for information about a screening test for cancer]

_____

_____

_____

Doctor: Yes, I will give you some information about this screening test.

Things I do with my family

We would like to know who you consider <u>a member of your family</u>. When you think of "family," who do you think of? This could include your immediate family, extended family or friends that you think of as family.

Please write down the names of <u>all</u> the people you consider to be a part of your family. To help you remember, here is a list of some of the types of people that you might consider to be a family member:

- spouse / partner
- grandparents (father's parents, mother's parents)
- in-laws (parents of spouse, spouses of children, siblings, or other family)
- children
- siblings
- adopted family members
- parents
- aunts and uncles (mother's siblings, father's siblings)
- close friends

1. For each person that you list, please also indicate their relationship to you (e.g. friend, mother, cousin), their age, their gender, and whether or not they live with you.

First name	***Relationship to you (e.g., spouse, uncle, child, sister-in-law, close friend)***	***Age (in years)***	***Gender (M/F)***	***Does this person live with you? (Y/N)***

27. Think about the people you wrote down on page 20, and answer these questions about last week.

1) Last week, who did you eat fruit and vegetables with?

If you did not eat fruit and vegetables with anyone, tick this box: ☐

Name	Name
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

2) Last week, who encouraged you to eat fruit and vegetables?

If noone encouraged you to eat fruit and vegetables, tick this box: ☐

Name	Name
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

3) Last week, who did you encourage to eat fruit and vegetables?

If you did not encourage anyone to eat fruit and vegetables, tick this box: ☐

Name	Name
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

4) Last week, who made it hard for you to eat fruit and vegetables?

For example, if someone you eat with doesn't like vegetables, so you don't buy or cook them.

If noone made it hard for you to eat fruit and vegetables, tick this box: ☐

Name	Name
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

28. Think about the people you wrote down on page 20, and answer these questions about last week.

1) Last week, who did you exercise with?

If you did not exercise with anyone, tick this box: ☐

Name	Name
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

2) Last week, who encouraged you to exercise?

If noone encouraged you to exercise, tick this box: ☐

Name	Name
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

3) Last week, who did you encourage to exercise?

If you did not encourage anyone to exercise, tick this box: ☐

Name	Name
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

4) Last week, who made it hard for you to exercise?

If noone made it hard for you to exercise, tick this box: ☐

Name	Name
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

29. Think about the people you wrote down on page 20, and answer these questions.

1) Did anyone ever encourage you to have a screening test?

If noone encouraged you to have a screening test, tick this box: ☐

Name	Name
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

2). Did you ever encourage anyone to have a screening test?

If you did not encourage anyone to have a screening test, tick this box: ☐

Name	Name
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

3). Did anyone make it hard for you to have a screening test?

If noone made it hard for you to have a screening test, tick this box: ☐

Name	Name
_____	_____
_____	_____
_____	_____

APPENDIX H

Student Post-Intervention Survey

Contents:

Flinders UNIVERSITY

Being Healthy in Australia!

This survey is about health and the things we do in Australia. Try to answer each question about what you do, and what you think about being healthy in Australia.

Study ID: _____

About me

My home country is _____

I have lived in Australia for _____ months / years

My date of birth: _____/_____/_____

The first letter of my first name: _____

The first letter of my family name: _____

Gender: ☐ male ☐ female ☐ non-binary ☐ I prefer not to say

The highest level of education I have (tick one)

Less than Year 7	❑	University Bachelor Degree	❑
Primary school (Year 7)	❑	Graduate Diploma / Certificate	❑
High school (Year 12)	❑	University Postgraduate Degree	❑
Diploma / Advanced Diploma	❑		

Look at this sentence. How much do you agree with it? Circle the best answer for you.

I know a lot about health.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree or Disagree	Agree	Strongly Agree

This term, you have learned vocabulary and phrases about cancer, and things that people in Australia can do to help prevent, or treat, cancer.

Please read the statements about the course. Tick the box that shows how much you agree or disagree with each one.

	Strongly Disagree	Moderately Disagree	Slightly Disagree	Neither Agree or Disagree	Slightly Agree	Moderately Agree	Strongly Agree
							
1) I enjoyed the course.	❑	❑	❑	❑	❑	❑	❑
2) The information I learned in the course was useful to me and my family.	❑	❑	❑	❑	❑	❑	❑

Comments: _____

_____

Did you tell anyone about what you have learned? If so, who did you share the information with?

Did you share information with **family members**…	Yes	No
1) … about eating more fruit and vegetables?	❑	❑
2) … about eating less red meat?	❑	❑
3) … about being more active?	❑	❑
4) … about maintaining a healthy body weight?	❑	❑
5) … about being sun smart?	❑	❑
6) … about stopping smoking?	❑	❑
7) … about reducing alcohol?	❑	❑
8) … about bowel cancer screening in Australia?	❑	❑
9) … about breast cancer screening in Australia?	❑	❑
10) … about cervical cancer screening in Australia?	❑	❑

Did you share information with **friends**…	**Yes**	**No**
11) … about eating more fruit and vegetables?	❑	❑
12) … about eating less red meat?	❑	❑
13) … about being more active?	❑	❑
14) … about maintaining a healthy body weight?	❑	❑
15) … about being sun smart?	❑	❑
16) … about stopping smoking?	❑	❑
17) … about reducing alcohol?	❑	❑
18) … about bowel cancer screening in Australia?	❑	❑
19) … about breast cancer screening in Australia?	❑	❑
20) … about cervical cancer screening in Australia?	❑	❑

My English skills

Look at the English language skills on the left. For each sentence, tick one box to say how much you agree or disagree with it about your English skills now.

	Strongly Disagree	Moderately Disagree	Slightly Disagree	Neither Agree or Disagree	Slightly Agree	Moderately Agree	Strongly Agree
							
1. I can participate in class.	❑	❑	❑	❑	❑	❑	❑
2. I can learn on my own.	❑	❑	❑	❑	❑	❑	❑
3. I can understand a conversation.	❑	❑	❑	❑	❑	❑	❑
4. I can have a short conversation.	❑	❑	❑	❑	❑	❑	❑
5. I can understand spoken information.	❑	❑	❑	❑	❑	❑	❑
6. I can do a short presentation	❑	❑	❑	❑	❑	❑	❑
7. I can understand a telephone message.	❑	❑	❑	❑	❑	❑	❑
8. I can leave a telephone message.	❑	❑	❑	❑	❑	❑	❑
9. I can give instructions.	❑	❑	❑	❑	❑	❑	❑
10. I can understand a short interview.	❑	❑	❑	❑	❑	❑	❑
11. I can participate in a short interview.	❑	❑	❑	❑	❑	❑	❑

	Strongly Disagree	Moderately Disagree	Slightly Disagree	Neither Agree or Disagree	Slightly Agree	Moderately Agree	Strongly Agree
	☹			😐			☺
12. I can fill in a form.	❑	❑	❑	❑	❑	❑	❑
13. I can read and understand short text.	❑	❑	❑	❑	❑	❑	❑
14. I can understand short written instructions.	❑	❑	❑	❑	❑	❑	❑
15. I can write a message	❑	❑	❑	❑	❑	❑	❑
16. I can write a short report.	❑	❑	❑	❑	❑	❑	❑
17. I can calculate time.	❑	❑	❑	❑	❑	❑	❑
18. I can understand a simple table or graph.	❑	❑	❑	❑	❑	❑	❑

Things I did last week

1. Eat fruit and vegetables

Last week	I ate _____ serves of fruit each day. ☐ I didn't eat any fruit.	1 serve of fruit = 1 medium sized piece (e.g., apple, orange), 2 small pieces (e.g., apricots, kiwifruit, plums), 8 strawberries, or ½cup of fruit juice.
Last week	I ate_____ serves of vegetables each day. ☐ I didn't eat any vegetables.	1 serve of vegetables = 1 potato, ½ sweet potato, ½ cup of dark green vegetables (e.g., cabbage, spinach, broccoli) or 1 cup of other vegetables or salad (e.g., lettuce, beans, lentils, peas, zucchini, cucumber, mushrooms).

2. What I think about eating fruit and vegetables.

Look at the sentences on the left. For each sentence, tick one box to say how much you agree or disagree with it.

	Strongly Disagree	Moderately Disagree	Slightly Disagree	Neither Agree or Disagree	Slightly Agree	Moderately Agree	Strongly Agree
	☹			😐			☺
I think eating fruit and vegetables is important for health.	❑	❑	❑	❑	❑	❑	❑
I want to eat more fruit and vegetables this year.	❑	❑	❑	❑	❑	❑	❑
It will be easy for me to eat more fruit and vegetables this year.	❑	❑	❑	❑	❑	❑	❑
People I know want me to eat more fruit and vegetables.	❑	❑	❑	❑	❑	❑	❑

3. Exercise

Last week, I exercised	☐ on Monday for _____ minutes. ☐ on Tuesday for _____ minutes. ☐ on Wednesday for _____ minutes. ☐ on Thursday for _____ minutes. ☐ on Friday for _____ minutes. ☐ on Saturday for _____ minutes. ☐ on Sunday for _____ minutes.

If you didn't do any exercise last week, tick this box: ☐

4. What I think about exercise.

Look at the sentences on the left. For each sentence, tick one box to say how much you agree or disagree with it.

	Strongly Disagree	Moderately Disagree	Slightly Disagree	Neither Agree or Disagree	Slightly Agree	Moderately Agree	Strongly Agree
							
I think exercise is important for health.	❑	❑	❑	❑	❑	❑	❑
I want to do more exercise this year.	❑	❑	❑	❑	❑	❑	❑
It will be easy for me to do more exercise this year.	❑	❑	❑	❑	❑	❑	❑
People I know want me to do more exercise.	❑	❑	❑	❑	❑	❑	❑

5. Being sun smart.

Think of the last week that it was very hot in Australia. Tick one box on each line to show how often you did each sun smart thing,

This summer, how often did you	Never	Rarely	Sometimes	Often	Always
wear sunscreen outside?	❑	❑	❑	❑	❑
wear sunglasses outside?	❑	❑	❑	❑	❑
wear long sleeves outside?	❑	❑	❑	❑	❑
wear a hat outside?	❑	❑	❑	❑	❑
stay in the shade when outside?	❑	❑	❑	❑	❑

6. What I think about being sun smart.

Look at the sentences on the left. For each sentence, tick one box to say how much you agree or disagree with it.

	Strongly Disagree	Moderately Disagree	Slightly Disagree	Neither Agree or Disagree	Slightly Agree	Moderately Agree	Strongly Agree
							
I think being sun smart is important for health.	❑	❑	❑	❑	❑	❑	❑
I want to be more sun smart this year.	❑	❑	❑	❑	❑	❑	❑
It will be easy for me to be more sun smart this year.	❑	❑	❑	❑	❑	❑	❑
People I know want me to be more sun smart.	❑	❑	❑	❑	❑	❑	❑

7. Drink alcohol

☐ I don't drink alcohol (Go to Question 8) ☐ I do drink alcohol (Look at the box below)

Last week, I drank alcohol	☐ on Monday. I drank _____ drinks. ☐ on Tuesday. I drank _____ drinks. ☐ on Wednesday. I drank _____ drinks. ☐ on Thursday. I drank _____ drinks. ☐ on Friday. I drank _____ drinks. ☐ on Saturday. I drank _____ drinks. ☐ on Sunday. I drank _____ drinks.

8. Smoking

☐ I don't smoke (Go to Question 9) ☐ I do smoke (Look at the box below)

Last week, I smoked	_____ cigarettes / pipes / cigars each day.

9. What I think about drinking alcohol and smoking.

Look at the sentences on the left. For each sentence, tick one box to say how much you agree or disagree with it.

	Strongly Disagree	Moderately Disagree	Slightly Disagree	Neither Agree or Disagree	Slightly Agree	Moderately Agree	Strongly Agree
							
I think drinking less alcohol is important for health.	❑	❑	❑	❑	❑	❑	❑
I think not smoking is important for health.	❑	❑	❑	❑	❑	❑	❑

10. **If you drink alcohol**, look below. For each sentence, tick one box to say how much you agree or disagree with it. If you don't drink alcohol, go to Question 11.

	Strongly Disagree	Moderately Disagree	Slightly Disagree	Neither Agree or Disagree	Slightly Agree	Moderately Agree	Strongly Agree
							
I want to drink less alcohol this year.	❑	❑	❑	❑	❑	❑	❑
It will be easy for me to drink less alcohol this year.	❑	❑	❑	❑	❑	❑	❑
People I know want me to drink less alcohol.	❑	❑	❑	❑	❑	❑	❑

11. **If you smoke**, look below. For each sentence, tick one box to say how much you agree or disagree with it. If you don't smoke, go to Question 12.

	Strongly Disagree	Moderately Disagree	Slightly Disagree	Neither Agree or Disagree	Slightly Agree	Moderately Agree	Strongly Agree
							
I want to stop smoking this year.	❑	❑	❑	❑	❑	❑	❑
It will be easy for me to stop smoking this year.	❑	❑	❑	❑	❑	❑	❑
People I know want me to stop smoking.	❑	❑	❑	❑	❑	❑	❑

My health

12. Look at the sentences. There are no right or wrong answers. Tick one box for each sentence that is your opinion.

	Strongly Disagree	Moderately Disagree	Slightly Disagree	Neither Agree or Disagree	Slightly Agree	Moderately Agree	Strongly Agree
							
My health is good.	❑	❑	❑	❑	❑	❑	❑

13. Did you ever have a screening test? (In Australia or your home country).

For men and women:	**Yes**	**No**	**I don't know**
1) Bowel cancer screening	❑	❑	❑

For women only:

2) Breast cancer screening (mammogram)	❑	❑	❑
3) Cervical cancer screening test	❑	❑	❑

For men only:

4) Prostate cancer screening	❑	❑	❑

14. Look at the sentences below. For each sentence, tick one box to say how much you agree or disagree with it.

	Strongly Disagree	Moderately Disagree	Slightly Disagree	Neither Agree or Disagree	Slightly Agree	Moderately Agree	Strongly Agree
							
I want to have a screening test for cancer in the future.	❑	❑	❑	❑	❑	❑	❑
It will be easy for me to have a screening test in the future.	❑	❑	❑	❑	❑	❑	❑
People I know want me to have a screening test.	❑	❑	❑	❑	❑	❑	❑

Medical help in Australia

15. Some people delay getting medical help when they have a symptom that they think might be serious. Here are some reasons why some people delay getting medical help. For each one, might you say this?

	Yes	Maybe	No
1) I worry what the doctor may find.	❑	❑	❑
2) I don't know how to make an appointment in English.	❑	❑	❑
3) I don't know how to speak to a doctor in English.	❑	❑	❑

16. Look at these sentences. Tick one box for each sentence that is your opinion.

	Strongly Disagree	Moderately Disagree	Slightly Disagree	Neither Agree or Disagree	Slightly Agree	Moderately Agree	Strongly Agree
							
If I do the right things, I can stay healthy.	❑	❑	❑	❑	❑	❑	❑
It does not matter what I do – if I am going to get sick, I will get sick	❑	❑	❑	❑	❑	❑	❑
Whenever I get better from being sick, it's usually because other people (doctor, nurse, family, friends) took good care of me.	❑	❑	❑	❑	❑	❑	❑

Health for me in Australia

17. Look at the sentences. There are no right or wrong answers. Tick one box for each sentence that is your opinion.

Question	Never	Rarely	Sometimes	Often	Always
1. I need help in **Australia** to read information given to me by a doctor	❑	❑	❑	❑	❑
2. When I need help to read health information in **Australia**, I can easily find someone to help me	❑	❑	❑	❑	❑
3. I need help to fill in **English** forms in **Australia**	❑	❑	❑	❑	❑
4. When I talk to a doctor in **Australia**, I can tell them all the information they need to help me	❑	❑	❑	❑	❑
5. When I talk to a doctor in **Australia**, I can ask questions	❑	❑	❑	❑	❑
6. When I talk to a doctor in **Australia**, I can ask them to explain anything that I do not understand	❑	❑	❑	❑	❑
7. **In Australia**, I can find out lots of different information about my health	❑	❑	❑	❑	❑
8. I think carefully about whether health information in **Australia** makes sense in my or my family's situation	❑	❑	❑	❑	❑
9. In **Australia**, I can trust information about my or my family's health.	❑	❑	❑	❑	❑
10. **In Australia**, I can question my doctor's advice after doing my own research	❑	❑	❑	❑	❑
11. Within the last 12 months, I did something about a health issue that affects my family or community	Yes: ❑			No: ❑	
12. What do you think matters most for everyone's health? (tick one answer only)	Information and encouragement to lead healthy lifestyles			Good housing, education, decent jobs, and good local facilities	

Quiz!

The next questions are about health and cancer in Australia. Try to answer the questions. If you don't know an answer, have a guess, or leave the space blank.

18. **Do you know any symptoms (signs in the body) of cancer?**

Try to write 7 things. If you can't think of all 7 things, just write as many as you can. Don't worry about spelling.

1) _____

2) _____

3) _____

4) _____

5) _____

6) _____

7) _____

19. Do you know any things we can do so we don't get sick with a disease like cancer?

Try to write 7 things. If you can't think of all 7 things, just write as many as you can. Don't worry about spelling.

1) _____

2) _____

3) _____

4) _____

5) _____

6) _____

7) _____

20. **True or False?** Look at the sentences. Tick one answer for each sentence.

	True	False	I don't know
1) Many cancers can be treated.	❑	❑	❑
2) We can't do anything to prevent cancer.	❑	❑	❑
3) A person with cancer will die from cancer.	❑	❑	❑
4) Screening for cancer can save lives. For example, bowel cancer screening or breast cancer screening.	❑	❑	❑
5) If doctors find a cancer early, they can treat it.	❑	❑	❑
6) If you have a cough that does not go away, you should go to Emergency at the hospital.	❑	❑	❑
7) If you have a lump on your arm, you should go to a family doctor. You do not go to Emergency at the hospital.	❑	❑	❑

21. Health tests in Australia.

Fill in the gaps with a number. If you don't know, have a guess.

1) Bowel cancer screening: For men and women aged from _____ to _____ years.

2) Breast cancer screening: For women aged from _____ to _____ years.

3) Cervical cancer screening: For women aged from _____ to _____ years.

4) HPV vaccination: For boys and girls aged up to _____ years old.

5) These screening tests and the vaccination cost $_____ in Australia.

22. Match the words on the left to the meanings on the right.

1) refer	a) any test we can do to check for a cancer
2) benign	b) to stop something from starting
3) mammogram	c) if cells in the body grow wrong, they can move together to make this
4) prevent	d) a thick liquid made in the throat or nose
5) risk	e) to give medical care
6) cancer	f) a type of test – a small piece of skin is taken from the body to check for a cancer
7) treat	g) a screening test for breast cancer
8) tumour	h) to send someone somewhere for special medical help
9) screening test	i) something that may make something bad happen
10) lump	j) a change in the body meaning illness
11) metastasis	k) a tumour that is cancer
12) phlegm	l) a tumour that is not cancer
13) malignant	m) the name of a disease
14) symptom	n) cancer cells move to another part of the body
15) biopsy	o) 

23. Word stress! Put a line under the strong part of each word. Example: Healthy

metastasis	malignant	refer	emergency
prevent	vaccination	cancer	unusual
itchy	biopsy	benign	mammogram

24. Look at the verb infinitives in the box. Fill in the gaps with a verb from the box. You may need to change the tense.

to take up	to give up	to put on
to eat	to be	to walk

1) If he _____ smoking, he will feel healthier.

2) My brother and I are _____ a new sport this week.

3) _____ active! We should do more exercise every day.

4) In Australia, we should _____ sunscreen every time we go outside in summer.

5) If we _____ together at lunchtime, we might have more energy in the afternoon.

6) _____ more vegetables!

25. Put the words in order to make an appointment for a man named Yuusuf to see a doctor.

Receptionist: Good morning, Woollen Mountain Medical Clinic.

Yuusuf: **I would / an appointment / a GP / Hello. / like to / to see / make**

_____ .

Receptionist: Have you been here before?

Yuusuf: **I / No / haven't**

_____ .

Receptionist: Okay, you could see Dr May tomorrow morning.

Yuusuf: **tomorrow morning. / Can I come / I can't come / tomorrow afternoon / I will be / in class**

_____ ?

Receptionist: Yes, you could see Dr Marzzoli at 2:45pm tomorrow afternoon. Is that okay?

Yuusuf: **thank / Yes / you**

_____ .

Receptionist: What is your name please?

Yuusuf: **Yuusuf / name / Rahim / My / is**

_____ .

Receptionist: Thank you. What is your phone number please?

Yuusuf: **phone / Yes / is / my / number / 0604 003 837**

_____ .

Receptionist: Thank you. See you tomorrow afternoon.

26. **At the doctor's.**

Complete the gaps with your own words. The words in the brackets tell you what to do. Don't worry about spelling.

Doctor: Hello, come in and sit down.

You: [Greet the doctor]

_____

Doctor: Now, what can I do for you today?

You: [tell the doctor about a symptom you have, and ask for something about it]

_____

_____

_____

Doctor: Of course, let me have a look…

You: [now ask for information about a screening test for cancer]

_____

_____

_____

Doctor: Yes, I will give you some information about this screening test.

Things I do with my family

We would like to know who you consider <u>a member of your family</u>. When you think of "family," who do you think of? This could include your immediate family, extended family or friends that you think of as family.

Please write down the names of <u>all</u> the people you consider to be a part of your family. To help you remember, here is a list of some of the types of people that you might consider to be a family member:

- spouse / partner
- grandparents (father's parents, mother's parents)
- in-laws (parents of spouse, spouses of children, siblings, or other family)
- children
- siblings
- adopted family members
- parents
- aunts and uncles (mother's siblings, father's siblings)
- close friends

1. For each person that you list, please also indicate their relationship to you (e.g. friend, mother, cousin), their age, their gender, and whether or not they live with you.

First name	***Relationship to you (e.g., spouse, uncle, child, sister-in-law, close friend)***	***Age (in years)***	***Gender (M/F)***	***Does this person live with you? (Y/N)***

27. Think about the people you wrote down on page 20, and answer these questions about last week.

1) Last week, who did you eat fruit and vegetables with?

If you did not eat fruit and vegetables with anyone, tick this box: ☐

Name	Name
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

2) Last week, who encouraged you to eat fruit and vegetables?

If noone encouraged you to eat fruit and vegetables, tick this box: ☐

Name	Name
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

3) Last week, who did you encourage to eat fruit and vegetables?

If you did not encourage anyone to eat fruit and vegetables, tick this box: ☐

Name	Name
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

4) Last week, who made it hard for you to eat fruit and vegetables?

For example, if someone you eat with doesn't like vegetables, so you don't buy or cook them.

If noone made it hard for you to eat fruit and vegetables, tick this box: ☐

Name	Name
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

28. Think about the people you wrote down on page 20, and answer these questions about last week.

1) Last week, who did you exercise with?

If you did not exercise with anyone, tick this box: ☐

Name	Name
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

2) Last week, who encouraged you to exercise?

If noone encouraged you to exercise, tick this box: ☐

Name	Name
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

3) Last week, who did you encourage to exercise?

If you did not encourage anyone to exercise, tick this box: ☐

Name	Name
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

4) Last week, who made it hard for you to exercise?

If noone made it hard for you to exercise, tick this box: ☐

Name	Name
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

29. Think about the people you wrote down on page 20, and answer these questions.

1) Did anyone ever encourage you to have a screening test?

If noone encouraged you to have a screening test, tick this box: ☐

Name	Name
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

2). Did you ever encourage anyone to have a screening test?

If you did not encourage anyone to have a screening test, tick this box: ☐

Name	Name
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

3). Did anyone make it hard for you to have a screening test?

If noone made it hard for you to have a screening test, tick this box: ☐

Name	Name
_____	_____
_____	_____
_____	_____

APPENDIX I

Teachers' Weekly Survey

Contents:

Teachers' weekly survey sent once each week during their 4-week trial

Questions to be sent to each teacher in the intervention arm of the study. Survey to be sent weekly in an online form via Qualtrics.

Wording:

Dear Lecturer,

Thank you very much for participating in this four-week trial. As part of the trial, we are keen to receive lecturers' comments about worksheets trialled in the ACCESS cancer prevention ESL curriculum. This survey has a few questions about which parts of the curriculum you used this week, and should take only 5-10 minutes. We greatly appreciate your time.

If you have any queries, please contact Donna Hughes [email] or [phone].

1. Which worksheets (or parts of worksheets) or resources did you use in class this week? Tick all that apply [list provided of all ACCESS worksheets and components (videos, flash cards etc)]

[ticked worksheets then pop up as a separate list]

For each worksheet, please indicate:

2. the approximate length of the lesson in minutes.

3. What preparation work was required?

4. Approximately how long did preparation take?

5. Please indicate any changes to the worksheets that you made (e.g., omitted activities, modifications, supplemented activities).

5. How likely are you to use this worksheet (or parts of it) again in the future? (Answer on a 5-point Likert scale ranging from 1 "Very unlikely" to 5 "Very likely")

APPENDIX J

Teachers' Post-Course Survey

Contents:

Teachers' post-course survey, completed immediately following their 4-week trial.

Questions to be sent to each teacher in the intervention arm of the study at the end of the trial teaching period. Survey to be sent in an online form via Qualtrics.

Wording:

Thank you very much for taking part in the trial this term, your participation has been greatly appreciated.

This is the final survey of your role in the study. In it, we wish to ask a few questions about your overall impression of the curriculum. We anticipate that the survey will take about 15 minutes of your time.

If you have any queries, please do not hesitate to contact Donna Hughes: [email] or [phone].

1. Study ID: _____

2. During the trial, we asked you what worksheets you used, and some questions about your experience using them. We also observed one lesson to gauge how you implemented a worksheet in class, and we thank you for this opportunity. Now, we have a few final questions to ask you about your overall impressions.

In your opinion:

3. On the whole, how interested were your students in the ACCESS curriculum worksheets and activities? [5-point scale from 1 “Very disinterested” to 5 “Very interested”

4. Look at the list of worksheets below. Please click on the worksheets that you used something from during the course, and answer the questions.

[Each worksheet will be listed. Skip Logic will be applied so that the questions below will only be asked regarding the worksheets that have been clicked on]

Questions [responses invited on a 5-point scale from 1”Not at all” to 5 “To a great extent”:

1) To what extent was this worksheet easy to use?

2) To what extent did this worksheet match the language level of your students?

3) To what extent was this worksheet enjoyed by your students?

4) To what extent did the activities on this worksheet encourage student conversation?

5) To what extent did the activities on this worksheet improve students’ language?

6) To what extent did the activities on this worksheet improve students' knowledge?

5. Do you use the CSWE competencies in your teaching?

If yes, how well did the ACCESS worksheets address the CSWE competencies you assess your students against? [5-point scale from 1 "Very poorly" to 5 "Very well"

6. How likely are you to use the ACCESS curriculum components again with future classes? [5-point scale from 1 "Very unlikely" to 5 "Very likely"]

7. BACKGROUND QUESTIONS

We would appreciate your time in completing this section, so that we can describe as a group the teachers and lecturers who took part in the study. Please be assured that your answers here, and throughout the survey, are confidential and you will never be personally identified.

7. Are you: Male / Female / Non-binary / Prefer not to say

8. Age range:
20-29
30-39
40-49
50-59
60-69
70+

9. What is your ethnicity? Select all that apply:
African
Asian
Caucasian
Indigenous Australian
Middle Eastern
Other (please specify) _____

10. What is the highest level of education that you have completed?

Primary school (Year 7)
High school (Year 12)
Diploma / Advanced Diploma
University Bachelor Degree
Graduate Diploma / Certificate
University Postgraduate Degree

11. For how many years have you taught English as a Second Language? _____

12. From what cultural background(s) are the language learners with whom you used the ACCESS curriculum?

_____

13. From what age group(s) are the language learners with whom you used the ACCESS curriculum? Tick as many as apply

Children / Adolescents (to age 18) / Adults / Older people (over 65)

14. Do you teach: Full-time / Part-time

15. Do you predominantly teach multicultural classes? Yes / No

16. Do you predominantly co-teach courses? Yes / No

17. From what English language level(s) are the language learners with whom you used the ACCESS curriculum? Tick as many as apply.

Beginner / Elementary / Pre-Intermediate / Intermediate / Upper-Intermediate / Advanced

Other (please specify) _____

APPENDIX K

Classroom Observation Form

Contents:

Classroom Observation Form. Additional pages were used for detailed note-taking during the classroom observations.

ACCESS: IMPLEMENTATION OBSERVATION

Date: _____ / _____ / 2019

Teacher ID: _____

Language level: CSWE II ❑ CSWE III ❑

Number students present: _____

Worksheet Number: _____

Materials used – provided: _____

Materials used – additional: _____

Time commenced: _____

Time completed: _____

Number of activities on Worksheet provided: _____

Number of activities undertaken: _____

Additions / modifications made: _____

_____

_____

Other notes: _____

_____

_____

APPENDIX L

Teachers' 6-month Maintenance Survey

Contents:

Teachers' 6-month Maintenance Survey, sent 6 months after the intervention trial.

Questions to be sent to each teacher six months after completing the teaching intervention. Survey to be prepared online using Qualtrics and sent in an email via a link.

Dear Lecturer,

Thank you very much for participating in the four-week trial in Term 1 this year. This is a very short follow-up survey. In this survey, I would like to ask you if you have used anything from the ACCESS cancer prevention resource since you finished the trial, approximately 6 months ago. Please do not be concerned if you haven't used anything from the resource since you participated in the trial. Whether you have, or have not, used it will provide valuable information about the longer-term usefulness of the resource.

1. Since trialling the curriculum for 4 weeks in Term 1, have you taught lessons using any of the worksheets or videos from the ACCESS cancer prevention curriculum?

If yes:

2. Which worksheet(s) or videos have you used? Tick all that apply [worksheets will be listed]

For each worksheet, please indicate:

3. Approximately how many times did you use the worksheet?
4. Please indicate any modifications or supplementations you made.
5. How likely are you to use something from this worksheet again in the future? (Answer on a scale of 1 "Not at all likely" to 5 "Extremely likely"

Do you have any additional comments? Please write them here, and thank you very much for your time.