Maldivian School Teachers' Perceived Understanding and Planned use of Differentiated Instruction

By

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ABSTRACT

Each student possesses unique learning characteristics. Differentiated instruction (DI) considers each individual's unique characteristics and uses these distinctions to shape the learning process rather than viewing them as obstacles. The philosophy of DI addresses the diverse needs of all students. Teachers need adequate knowledge and understanding of the various skills required to implement this strategy. Despite the significance of this method, primary teachers in the Maldives have limited knowledge regarding the comprehension and use of DI. This study, informed by Tomlinson's (2014) DI framework and Tomlinson's (2017) flow of the differentiated classroom, explored Maldivian primary school teachers' perceived knowledge and understanding of DI, their planned use of DI, and the barriers and enablers they experienced in its implementation.

Method: A qualitative collective case study design was utilised, incorporating semi-structured web-based interviews and lesson plan documents from four primary school teachers. Data from these sources were analysed using reflexive thematic analysis.

Results: The findings indicated that the teachers may have interpreted DI as effectively meeting students' educational demands by considering individual ability levels. Teachers perceived DI as a collection of strategies rather than a philosophy, planning to implement DI by tailoring classroom activities to students' ability levels in heterogeneous grouping. Lesson duration and student-to-teacher ratio were perceived constraints hindering effective implementation of DI. Teachers reported having collaborative meetings supported their planning for DI.

Conclusion: The results highlighted teachers' views that DI is essential to catering to the learning needs of diverse students. Four key areas of the theoretical framework—differentiating by product, environment, use of formative assessment, and heterogeneous grouping—were evident from the results. This confirmed that teachers reported and planned to implement DI to some extent. Therefore, professional development programs should focus on the elements of the DI frameworks. School leaders should revise the lesson plan format to avoid a focus on fixed ability grouping.

DECLARATION

I certify that this thesis:

1. does not incorporate without acknowledgment any material previously submitted for a degree or diploma in any university

2. and the research within will not be submitted for any other future degree or diploma without the permission of Flinders University; and

3. 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.

Signed.....Muna Adam.....

Date.....August 2024.....

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LIST OF ABBREVIATIONS

CRPD	Convention on the Rights of Persons with Disabilities
DI	Differentiated Instruction
MOE	Ministry of Education
NALO	National Assessment of Learning Outcomes
NCF	National Curriculum Framework
NGO	Non-Government Organisation
NIE	National Institute of Education
SEN	Students with Special Educational Needs
UDL	Universal Design for Learning

Note: Learning Disabilities, Students with Disabilities, Students with Additional Learning Needs, and Students Under Special Circumstances; these terms are used interchangeably in this thesis.

CHAPTER 1: INTRODUCTION

This chapter provides an overview of the researcher's perspective as well as the aims and objectives of the study. Following this, the chapter will briefly introduce the research context and focus on schooling and inclusive education in the Maldives. Subsequently, to give a clear understanding of the terms used in the research, this study will further highlight how inclusion, inclusive education, differentiation, differentiated instruction, and diversity are depicted in the literature. Finally, this chapter will outline the adopted theoretical framework guiding the researcher's decisions, and an outline of the significance of the study.

1.0 Note from The Researcher: Coming to The Inquiry

The 2015 National Curriculum Framework (NCF) of the Maldives prioritises a comprehensive and inclusive approach to education, aiming to address diverse student needs and promote equitable learning environments (Di Biase et al., 2021; National Institute of Education [NIE], 2015). During the implementation of the NCF, the researcher, a senior management teacher, noticed considerable difficulties in attaining inclusive education. These difficulties were mainly caused by the transition from a teacher-centred approach to a student-centred approach in pedagogy. This observation implies that certain educators may find it challenging to manage the variation among students.

To achieve the goal of the NCF, "every student is prepared for life" (NIE, 2015, p. 8), teachers need to teach the skills students require to be successful adults. According to the NCF (NIE, 2015) and the Maldives Ministry of Education (MOE) Inclusive Education Policy (2013), the necessary skills and knowledge can be obtained by promoting an inclusive learning environment and adopting instructional strategies. These strategies include Universal Design for Learning (UDL), utilising assistive technology, co-teaching strategies, and Differentiated Instruction (DI) (NIE, 2015). Hence, while there are a variety of pedagogical approaches teachers can take to be inclusive, this research focuses on DI.

Despite the recent introduction of the new Maldives curriculum a few years ago, classroom observations indicate that teachers still have challenges in meeting the requirements of students with various learning abilities, especially those with learning disabilities (Di Biase et al., 2021; Shiyama, 2020). Furthermore, it has been noted that some students make the transition to secondary school without attaining sufficient proficiency in literacy and numeracy skills. Moreover, the current educational structure and practices, such as the large teacher-student ratio (1:32), small classrooms, distinct subject divisions, fixed timetables, reliance on textbooks, and established culture of traditional approaches to teaching and discipline, double-session schools, and one-size-fits-all lesson plans, have made it difficult for teachers to implement the NCF and the suggested pedagogy (Di Biase et al., 2021; Shiyama, 2020). According to the National Assessment of Learning Outcomes (NALO), student performance in literacy and numeracy is significantly below average at all cognitive levels compared to international benchmarks regarding international assessment questions (MOE, 2022a). This performance raises concerns about the teachers' ability to meet the needs of all the students and deliver inclusive education, regardless of training programs and professional development programs being conducted to implement the reformed curriculum.

The researcher's experience as a lead teacher monitoring other teachers determined that fellow teachers frequently expressed concerns about creating an inclusive learning environment and meeting NCF goals. Therefore, to sustainably address this issue, the researcher aims to explore teachers' perceived understanding and use of DI as DI is a research-based, successful approach to creating an inclusive learning environment (Gheyssens et al., 2022; Tomlinson, 2022) and implementing DI effectively may help the students improve their learning (Dixon et al., 2014; Tomlinson, 2017).

1.1 Schooling and Inclusive Education in Maldives

The Republic of the Maldives, a small nation in the Indian Ocean consisting of 188 widely spaced inhabited islands, is home to 515,132 people (Maldives Bureau of Statistics, 2022). The geographical dispersion of the Maldives presents difficulties for national educators (Di Biase et al., 2021). For example, services are concentrated mainly in the capital due to the dispersed nature of

the islands, which makes equal resource distribution challenging (Di Biase, 2015). The people of Maldives practice Islam as a religion and speak Dhivehi, a language exclusive to the nation. The education system in the Maldives has progressed from a simple and informal structure called *Edhuruge* where education was delivered in private residences, to a complete government-operated school system accessible on all populated islands.

The Maldives educational system currently practises inclusive education as a significant and essential component. Implementing the first inclusive education policy in 2013 opened more opportunities for students with disabilities. This system has made significant progress in ensuring equal access to public education services from kindergarten to 12th grade (MOE, 2018). The reformed curriculum is outlined to provide two years of preschool (foundation stage), six years of primary education, four years of lower secondary education, and two years of higher secondary.

The reformed curriculum incorporates eight educational principles that serve as the foundation for decisions regarding the creation and implementation of the curriculum (NIE, 2015). Among the eight principles, inclusivity is stressed in the NCF to guarantee that every student can learn and succeed, and it guarantees that each student's unique needs regarding aptitudes and abilities are met in addition to their learning needs. Moreover, the eight key competencies; Practicing Islam, Understanding and Managing Self, Thinking Critically and Creatively, Relating to People, Making Meaning, Living a Healthy Life, Using Sustainable Practices and Using Technology and Media outlined in the NCF are necessary for individuals to be active members of the national and global community. These competencies demand that teaching and learning be approached comprehensively by employing the pedagogical approaches outlined in the NCF (NIE, 2015). Figure 1.1 shows the pedagogical approaches summarised in the NCF.

Figure 1.1

Maldives Education Curriculum Pedagogical Dimensions (NIE, 2015, p. 62)

Figure removed due to copyright restriction

The NCF prioritises inclusive education, which aligns with DI by advocating for adaptable teaching approaches that cater to the diverse needs of each student's capacities and learning preferences (NIE, 2015). The pedagogical approaches addressed in the NCF are supported by DI framework principles. The teachers are required to engage in collaborative planning sessions with their peers and leading teachers (head teachers) on a weekly basis. Weekly coordination sessions facilitate the synchronisation of teaching strategies, the sharing of resources, and the resolution of challenges, thereby promoting a cohesive teaching approach. These sessions offer organised occasions for reviewing lesson plans, evaluating student achievement, and improving teaching techniques under the leadership of qualified educators, guaranteeing compliance with educational standards and goals.

The 2013 Maldives Inclusive Education Policy was updated and approved in 2020 as it received criticism for its foundation in deficit thinking (Carrington et al., 2019; UNICEF, 2021). Carrington et al. (2019) proposed that the education system should cater to the learning and social requirements of all students by incorporating inclusive education into mainstream schooling after

analysing the inclusive education policy and its principles. According to the Inclusive Education Policy of Maldives, students with complex learning profiles fall into three general categories: Students with Disabilities, Students with Additional Learning Needs, and Students Under Special Circumstances (MOE, 2021). The following section outlines how inclusion and inclusive education are posited in Maldivian schools.

1.2 Inclusion and Inclusive Education

Inclusion is a systematic approach that addresses and overcomes barriers to ensure all students can be present, participating and achieving, regardless of individual differences (Allen et al., 2023). Presence refers to the location of the child's education, their consistent attendance, and ensuring they are physically present in the classroom and receive the necessary assistance to access the curriculum. The Maldives promotes schools to offer inclusive education, which mandates an inclusive approach for all students to guarantee that all students can receive an equal education (MOE, 2013). Furthermore, inclusion is a systemic reform process that entails adjustments to curriculum, instructional techniques, frameworks, and strategies. These modifications remove barriers to give all students in the target age group an equitable and participatory learning environment that best suits students' needs and preferences (Committee on the Rights of Persons with Disabilities [CRPD], (2016).

Halder et al. (2023) stated that inclusion extends beyond accommodating all students in regular and mainstream classrooms without considering their distinct characteristics. Inclusion is a method and process that removes barriers preventing students from being present, participating, and achieving (Ainscow, 2020). Presence refers to the location of the child's education and how consistently and timely they attend classes. For students to be considered present, they must be physically attending in the classroom and receive the assistance each individual requires to access the curriculum. Ainscow (2020) further outlines that participation refers to the nature of their learning experiences and, thus, must consider the learners' opinions, enabling the students to engage in the lesson meaningfully. Furthermore, achievement refers to the learning outcomes across the curriculum rather than just test or exam results. Thus, it is imperative for teachers to

develop an environment where students would feel a sense of belonging. In order to support inclusive education, the inclusive education policy guides teachers in the organisation and creation of lessons that can accommodate the learning and environmental needs of every student.

According to the Inclusive Education Policy of Maldives, it is dedicated to guaranteeing fair and equal access to high-quality education for all students, including those with disabilities or special needs (MOE, 2021). The promotion of a supportive learning environment is achieved by the adaptation of instructional techniques and materials to cater to varied requirements while also placing emphasis on professional development for educators. The policy also promotes cooperation among educators, parents and the community and incorporates methods for monitoring and assessing the efficiency of inclusive strategies.

Inclusive education can be conceptualised using diverse methods and approaches from multiple angles. Originally focused on children with disabilities, it is now an educational framework designed to assist the varied learning requirements of all students irrespective of their physical, intellectual, social or language background. The concept of inclusive education now encompasses the provision of education for all students (Boyle & Sharma, 2015). Attaining a highly inclusive education standard necessitates implementing efficient pedagogical techniques and cultivating healthy peer and teacher social relationships to meet all students' requirements (Graham, 2023). In its most basic form, inclusive education is about giving every student the best possible learning opportunity, regardless of the setting in which learning takes place (Nilholm, 2021). However, describing something as seemingly straightforward as giving students the best possible learning environment has proven to be more difficult. Consequently, despite considerable scholarly research and advocacy, inclusive education lacks a universally recognised definition (Boyle & Anderson, 2020). Several pedagogical frameworks, such as UDL and explicit instruction, can foster inclusive education (Galkiene & Monkeviciene, 2021; King-Sears et al., 2023). Hence, while many pedagogical frameworks can promote inclusive education, this research focuses on DI as it caters to all learners according to their level. The following section connects student diversity to inclusive education, highlighting that addressing student diversity can lead to greater inclusive education.

1.3 Student Diversity

Diversity in education is a reality, and student differences are inevitable in classroom settings. These differences could impact student learning achievement if they are not considered (Coubergs et al., 2017). Diversity refers to more than just linguistic, socioeconomic, cultural, and ethnic distinctions. Along with variations in interests, preferences, and learning styles, it also encompasses distinctions based on gender and sexual orientation. The term *diversity* appropriately encompasses a wide range of factors from the variations in students' abilities to the facilities and accommodations available in educational environments. It is important to take into account the varied learning styles and preferences of students, the impact that intellectual ability, motivation, and cognitive load have on them, and how they contribute to the diversity of any learning community (Abawi et al., 2019).

The Maldives Inclusive Education Policy (MOE, 2021) states that to foster an inclusive learning environment, student diversity must be respected and appreciated. Therefore, to ensure that education is accessible to everyone, teachers must actively address the various forms of diversity within inclusive education. Inclusive teaching entails the establishment of fair and hospitable educational settings that cater to the diverse range of learners in the classrooms (MOE, 2022b). Hence, to assist students in reaching their full potential and adhere to educational equity, teachers must embrace diversity and effectively address each student's unique set of skills.

Since implementing the inclusive education policy, Maldivian schools have sought to provide a high-quality, equitable education that supports student development to the best extent possible. To do this, teachers need to recognise student diversity and that not all students learn in the same manner. Therefore, it is necessary to employ inclusive teaching methods to cater to students' individual needs, improve their educational encounters, and include them in participatory learning. To cultivate an inclusive classroom environment and offer a holistic approach, it is important to tailor educational experiences to accommodate the specific requirements of students.

1.4 Differentiation and Differentiated Instruction

Differentiated Instruction is an evidence-based approach to teaching that aims to help teachers create curricula and instruction that effectively meet the needs of diverse learners (Pozas et al., 2020; Tomlinson & Borland, 2022; Tomlinson & Moon, 2013). Hence, DI is one way to address student diversity and achieve inclusive education. DI supports teachers in proactively planning and executing various approaches to content, process, and product (Tomlinson, 2014, 2017) to enhance the process of acquiring knowledge and skills by students (Pozas et al., 2020). Similarly, DI considers individual differences, comprehending students' readiness, discovering their interests, enabling them to interact with the subject matter, and adjusting to their preferences to enhance motivation and engagement (Tomlinson, 2017). Hence, teachers are required to employ differentiation strategies (Whitley et al., 2019) and to take responsibility for enhancing learning by addressing students' learning needs. Tomlinson (2014) argues that for DI to be effective, teachers must exhibit a positive and enthusiastic attitude towards its implementation.

Similarly, teachers in the Maldives are obligated to utilise DI, as outlined in the NCF, to modify their teaching methods and materials. This is done to ensure that all the students receive tailored support in order to address their individual requirements. Therefore, distinguishing between differentiation and DI is crucial in enhancing teachers' implementation and resolving their concerns. Although the terms *differentiation* and *differentiated instruction* are sometimes used interchangeably, Letzel-Alt and Pozas (2023) argue that there is a difference between them. Differentiation is centred around maximising the effectiveness of learning and the conditions under which learning occurs, whereas DI is concerned with the teaching approach that tailors instruction according to the diversity of student needs (Gheyssens et al., 2021).

According to the Maldives Inclusive Education Guideline (NIE, 2021), differentiation is an instructional method that caters to students' diverse needs, preferences, and existing skill levels to facilitate learning. Teachers in the Maldives are required to employ scaffolding techniques to facilitate the acquisition of complex new knowledge, promote self-reliance, and uphold the concept that all students are capable of meeting curricular standards. Therefore, DI is a form of instruction

that is responsive and effective (Letzel-Alt & Pozas, 2023). Given that teachers' knowledge and planning for DI is the main focus of this research, the following section outlines the theoretical framework that guided this research.

1.5 Theoretical Frameworks

This research utilised the DI framework adopted by Tomlinson (2014) and the Flow of Differentiated Lessons (Tomlinson, 2017) to guide the structure and analysis of the research (see Figure 1.2. The theoretical frameworks guided the researcher in the inquiry to determine teachers' perceived knowledge and understanding of using DI. According to the framework shown in Figure 1.2, DI is based on five established concepts in every classroom: (1) an environment that encourages and supports learning, (2) a quality curriculum, (3) an assessment that informs teaching and learning, (4) instruction that responds to student's variance, and (5) leading students and managing routines (Tomlinson, 2014). A teacher lays the groundwork for effective DI by looking at present practices and applying the five concepts; then, they can differentiate through content, process, product, and effective environment.

According to Tomlinson (2014), a teacher in a differentiated classroom will consistently try to meet the requirements of the students. When supporting learning, the teacher is guided by the input from the students and students' responses during the lesson are used to adjust the instruction. To accomplish this, the teachers must be adaptable throughout the learning process and be prepared to change their instruction and curriculum to meet each student's readiness, interests, and learning preferences (Tomlinson, 2014). DI can only be implemented successfully when a teacher possesses a variety of teaching and management techniques (Langelaan et al., 2024). This focuses on variations based on a student's learning position about the learning objectives that must be met within a specific subject at a specific moment, denoting a readiness level.

Differences in students' learning profiles are referred to as students' preferred learning methods, which can vary depending on several variables, including preference, gender, culture, and context (Sousa & Tomlinson, 2018). Moreover, variations in students' areas of interest allow

them to select their assignments, course material, or teaching styles. Content differentiation encompasses the fundamental information, comprehension, and abilities that need to be taught. Teachers modify how they present information to students based on their level of readiness, areas of interest, and preferred learning methods. Content differentiation involves modifying the educational material to align with the specific learning preferences of individual students, as well as employing various teaching strategies to convey knowledge and skills effectively (Sousa & Tomlinson, 2018). Although the material remains consistent, the methods of acquiring knowledge can differ, such as through readings, videos, or field trips (Porta, 2024).

In contrast, process differentiation emphasises how students comprehend the content by engaging in activities such as group discussions, practice sessions, and utilising graphic organisers (Porta, 2024). This frequently entails employing adaptable grouping tactics that are determined by the student's readiness, interests, or learning preferences (Tomlinson, 2014). Likewise, product differentiation pertains to how students exhibit their understanding, typically through varied assessments. These assessments are usually conducted at the end of a learning period and incorporate various formats and paces to accommodate each student's specific learning needs (Tomlinson, 2022). Implementing effective differentiation in content, process, and product facilitates more efficient learning for students by supporting a wide range of learning styles and preferences. DI offers a range of methods for students to absorb knowledge and comprehend the ideas being examined, ensuring that each student will learn effectively (Tomlinson, 2014). Moreover, the classroom setting significantly influences differentiation since teachers cultivate an inclusive and secure atmosphere where students can acquire knowledge and develop.

According to the framework, Tomlinson (2014) states that teachers differentiate content-process products based on students' readiness, interests, and learning profiles. However, the framework has been reviewed further, and has evolved since its conception, Tomlinson and Borland (2022) updated the framework by incorporating learner preferences instead of learner profiles. The phrase "learner profile" implies that students have a specific manner of learning that remains consistent, but "learner preferences" acknowledge that students may exhibit their learning in preferred ways and that these preferences can evolve over time (Porta, 2024). Readiness refers

to a student's initial level of knowledge, comprehension, or skills in a specific area (Tomlinson, 2014). Teachers must thoroughly understand students' readiness, preferences, and learning styles to differentiate successfully and adequately.

To address effective differentiation, it is vital for teachers to have a clear understanding of the students' characteristics (readiness, interests, learning profile) to ensure they effectively differentiate the curriculum components (content, process, product) (Gheyssens et al., 2022). To achieve this objective, specific instructional strategies are suggested (Tomlinson, 2024, 2017) to support differentiation: using learning centres, scaffolding, learning aids, learning contracts, small-group interaction, organisers, and tiering.

In a differentiated classroom, there is a consistent pattern of whole-class instruction, review, and discussion, followed by opportunities for students to work independently or in small groups to explore, expand upon, and create their own work. This rhythmic pattern guarantees a harmonious combination of communal learning and tailored guidance, promoting a feeling of togetherness and personal development (Tomlinson, 2017). Thus, to address this aspect of DI, Tomlinson (2017) explains how the instruction flow in a differentiated classroom is utilised to determine how teachers engage with DI in their lesson planning (see Figure 1,3).

1.6 Aims and Objectives of The Research

The main aim of this study is to evaluate Maldivian Primary school teachers' perceived knowledge and understanding of the planned use of DI. The aims include:

1. To explore teachers' perceived understanding and use of DI.
2. To identify how teachers plan for DI in their lesson plans.
3. To discover teachers' barriers and enablers in implementing DI in their classrooms.

1.7 Significance of The Study

Creating a learning environment suitable for all learners to succeed is one significant challenge faced by teachers (Gheyssens et al., 2022). Before implementing the new reformed curriculum, the Maldives education system relied heavily on teacher-centred practices that encouraged rote learning. Teachers used strategies they thought would help the students perform well on tests (Shiuna & Sodiq, 2013). Teacher-centred approaches may result in a prevalent pedagogy that depends on rote memorisation, makes students passive consumers of knowledge, and prioritises test results over learning and comprehension rather than catering to the needs of the individual learners.

With the adoption of a competency-based reformed curriculum, teachers are required to reduce the gap between students' acquired knowledge and applied skills by catering accordingly for their needs. DI is one strategy where teachers take the initiative and focus on a shared goal for all the students in the classroom by providing them with options response to students' differences in readiness, interest, and learning requirements (Tomlinson, 2017). Focusing on embedded DI to promote more inclusive teaching practices is a major, long-term organisational learning process that calls for multilevel leadership assistance to plan for differentiation (Sharp et al., 2020).

Teachers in the Maldives encounter difficulties in establishing inclusive learning environments because of the long-standing dependence on teacher-centred, memorisation-based methods that prioritise grades over authentic learning (Gheyssens et al., 2022; Shiuna & Sodiq, 2013). Implementing the new competency-based curriculum necessitates that teachers facilitate the connection between knowledge and abilities, utilising DI as a crucial approach to catering to the students' varying needs. Nevertheless, implementing DI necessitates substantial and enduring organisational backing and guidance (Sharp et al., 2020; Tomlinson, 2017).

This study explores Maldivian schoolteachers’ perceived understanding and use of DI, how teachers are planning for DI, and barriers and enablers that affect the implementation of DI in a primary school. In this way, a greater sense of how DI is being implemented will be gained, informing future practices and professional development. This research may assist educational

stakeholders in understanding how DI has been understood and planned in primary school classrooms and how to help teachers implement DI more effectively. Few studies in the Maldives have focused on DI, teachers' knowledge, perception of DI, and use of DI in multigrade teaching. Moreover, a review of the current literature has failed to identify any research that has been conducted in the selected Maldives primary school setting regarding teachers' understanding and planning for DI. Hence, this research is significant in several ways.

Gaining insights into the educators' planning for differentiation is essential as it illuminates their perspectives and thought processes when it comes to accommodating diverse students' needs. Examining the implementation of the teacher's lesson plans offers a valuable understanding of how they cater for learners' needs within the classroom context. This research aims to enhance the comprehension of teachers' perceived understanding and use of DI in the selected school, hence increasing awareness among school leaders on effective techniques for providing support. Thus, the knowledge gained from this research inform the development of a framework and plan for implementing teacher professional development initiatives for further advancements.

The significance of this study lies in its capacity to make meaningful contributions to the field of education in several ways. Firstly, this research addresses the existing gap in the research literature regarding teachers' understanding and planned use of DI in the Maldives. This research is crucial as it provides actual data based on the current condition of DI techniques in elementary school, revealing insights that are currently not accessible.

In the context of the Maldives, understanding teachers' strategies and how they implement DI is of utmost importance for a number of reasons. The efficient implementation of DI is crucial for addressing the varied learning requirements of students, which is a core component in the Inclusive Education Policy as well as the NCF of the Maldives. Furthermore, the result of this study provides valuable insights to schoolteachers, administrators, and policymakers regarding the tangible obstacles and limitations that instructors encounter when implementing DI. Understanding this knowledge is crucial for designing focused professional development programs and

establishing supportive policies that enable the successful incorporation of DI into regular teaching methods. By identifying the factors that facilitate the implementation of DI, the research can emphasise exemplary methods that can be expanded and adjusted to the successful incorporation of DI into teaching methods and lesson planning for use in other schools in the Maldives. This result can be handy in creating more efficient planning tools and resources that assist teachers in crafting lessons that are adaptable to the diverse needs of their students and to meet the pedagogical outcomes of the inclusive policy and NCF of the Maldives.

Additionally, through this study, educational researchers can significantly enhance their understanding of DI, fostering classroom equality and inclusivity. The study emphasises the importance of teaching methods that go beyond rote learning and standardised testing, and instead, a greater focus is given to bridging the gap between the students' learning and information and applied abilities.

1.8 Summary

In summary, this research aimed to explore a Maldivian primary school teacher's perceived knowledge and understanding of DI and determine how they plan to use DI to address the students' learning needs. Moreover, the research sought to discover barriers and enablers faced by teachers when implementing DI in their classrooms. DI is considered an effective strategy for catering to the learning needs of all students to promote inclusivity.

CHAPTER 2: LITERATURE REVIEW

This chapter explores previous research on DI and its effectiveness in addressing the diverse needs of students. Reviewing previous research aims to analyse and discuss the existing literature that has informed this study. The literature review provides an overview of the following themes: teacher beliefs, knowledge, skills, and attitude towards Differentiated Instruction, DI for inclusive classrooms, DI effectiveness, and challenges and enablers of DI.

2.0 Effectiveness of Differentiated Instruction

Teaching effectiveness depends on many factors, including teaching styles, organisational structures, and instructional tools (Gheyssens et al., 2023; Scherer et al., 2020). DI is a comprehensive pedagogical method aimed at optimising the educational outcomes of all students in the classroom while reducing the disparity in achievement levels (Gheyssens et al., 2020; Griful-Freixenet et al., 2020). Research (e.g., Gheyssens et al., 2023; Langelaan et al., 2024) has found that DI positively affects students' academic performance. The results of a quasi-experimental study conducted in Cyprus by Valiandes (2015) evaluated the impact of DI on student learning in classrooms with students of varying abilities. The study included 24 teachers and 479 grade-four primary students as participants. The findings demonstrated that classrooms consistently implementing DI methods resulted in greater academic improvement among students than classrooms that did not. Additionally, the study found the effectiveness of differentiated teaching had a direct impact on students' academic performance. The Cyprus study did not explore factors that may have influenced this improvement in academic achievement for students, such as teachers' planning and understanding of DI, which was a missed opportunity to gain further knowledge about aspects and circumstances that may have contributed to the outcomes. Hence, the current study on Maldivian primary school teachers' understanding of and planning for DI may assist in filling this gap in knowledge about causal factors. Similarly, ability grouping was a common practice of DI identified in studies, according to Hu (2024), but other authors (e.g., Deunk et al., 2018; Smale-Jacobse et al., 2019) have suggested that grouping alone is insufficient to achieve suitable outcomes. This is another example of a gap in knowledge or conflict in views,

which the current study may help to resolve, since it there has been no research on teachers' understanding and planning around ability grouping in Maldives.

Multiple studies have investigated the influence of DI on academic performance and associated factors. Bal (2023) employed a mixed method of enquiry to evaluate the impact of DI on both mathematical achievement and attitudes among high school students in Turkey. The study revealed that implementing DI enhanced math achievement without impacting students' attitudes towards the subject. Wong et al. (2023) examined the impact of DI on students' intrinsic motivation and perceived competence, considering their level of readiness and interest. Their quasi-experimental study involving elementary students demonstrated increased motivation and perceived proficiency among high and low-readiness groups. Smit and Humpert (2012) analysed the adoption of DI among 162 instructors in Switzerland, revealing that primary teachers utilised DI more frequently compared to secondary teachers. This highlights the importance of standardised integration of DI in all levels of education and developing DI strategies focusing on students' readiness levels and interests to enhance students' engagement and effectiveness.

Deunk et al. (2018) discovered a small but favourable influence of DI on academic achievement at the primary level. Smale-Jacobse et al.'s (2019) systematic review of the literature revealed that DI has been implemented in various ways. The selected studies of the review comprise research on general teacher training for differentiated teaching, ability grouping and tiering, individualisation, and mastery learning. Their analysis of the research suggested that DI has a small to moderate positive impact on student outcomes (Smale-Jacobse et al., 2019). A meta-analysis by Steenbergen-Hu et al. (2016), investigated how ability grouping and acceleration affected the academic achievement of students from kindergarten to 12th grade levels. The findings revealed that organising students within the same class, grouping students from different grades based on subject, and creating separate groups for gifted students were advantageous approaches. Moreover, Steenbergen-Hu et al.'s (2016) study revealed that student learning achievements were improved by implementing within-class ability grouping; however, putting students from different classes together did not yield any benefits. Gaitas et al. (2022) and Pozas

et al. (2020) both found that DI could also impact students' social and emotional development and academic achievement for all students in classrooms with diverse abilities and backgrounds.

Hu (2024), who undertook an extensive analysis of 61 empirical studies conducted between 2000 and 2022, found that DI is predominantly employed in primary school settings for teaching mathematics and language. These studies generally utilised large groups of students and conducted research over long periods of time. Ability grouping and grouping based on academic achievement were the most derived themes. Shareefa (2021) determined that a significant amount of DI occurred in the multigrade classroom. It was found to have several advantages directly linked to students' academic advancement and the psychological growth of the students. Hence, finding teachers' knowledge and understanding, planning, and the challenges they face in implementing DI would assist in identifying strategies for their enhancement. Nevertheless, the effectiveness of DI and grouping has been a subject of debate and may be impacted by other factors, such as instructional approaches.

From this analysis, it can be seen that the existing literature provides evidence of the benefits of DI in terms of academic performance, social and emotional growth, and ability grouping approaches in classrooms. In addition, it is clear that DI is widely practised by teachers and has been implemented with varying level of success in many differing classroom contexts. Nevertheless, a significant disparity exists in comprehending Maldivian teachers' perspectives regarding their perception and intended utilisation of DI. Moreover, the findings of previous research may not be generalisable to the Maldivian educators and country-specific context due to variations in educational environments and cultural influences that affect teaching methods and attitudes toward DI in the Maldives. Therefore, the current study may provide valuable insights for constructing customised professional development and support systems specifically designed for the educational context in the Maldives.

2.2 Teacher’s Knowledge and Skills

Implementing DI is a complex process involving integrating several types of knowledge, skills, and attitudes (Langelaan et al., 2024; Van Geel et al., 2019). Teachers acquire the necessary skills for delivering DI gradually, and require several years of experience to develop both the skill and confidence needed (Sousa & Tomlinson, 2018). However, in practice, not all teachers effectively tailor their instruction to accommodate students' varying needs, even after several years of teaching (Hove, 2022). To implement a teacher's proficiency in DI, it is necessary to incorporate a full blend of knowledge, abilities, and attitudes. Thus, developing teacher competency for DI requires considering teachers' knowledge, abilities, and attitudes (Letzel et al., 2023). Implementing DI necessitates teachers to comprehensively understand when and how to effectively teach certain topics and be proficient in employing ways that facilitate effective instruction for students (Smets & Struyven, 2018). Integrating information about DI into teachers' existing teaching and learning frameworks helps enhance the implementation of DI. Smets and Struyven (2018) argue that the concept of DI should be understood as a comprehensive and interconnected system rather than as an isolated concept. The study emphasises the necessity for research approaches that effectively capture the relationships among different components of the educational environment.

These adaptations are specifically tailored to accommodate learners' unique qualities and optimise their time spent in school (Dixon et al., 2014). This includes the understanding that the teacher must design flexible instruction and assessment methods that cater to their students' varying readiness, interests, and preferences. A study conducted by Van Geel et al. (2019) to gain a deeper understanding of how primary school teachers modify their mathematics instruction to accommodate the varying needs and abilities of their students found that teachers require several important skills (e.g., goal setting, lesson planning, enacting lesson, evaluating lesson). The study also revealed that in addition to possessing differentiation skills, teachers are required to differentiate effectively through two crucial forms of knowledge: knowledge about the students and subject-matter knowledge. Based on the initial analysis of the classroom observations and

interviews, the study revealed that the process of DI during a lesson cannot be separated from the stages of lesson planning and assessment.

The attributes of a teacher for DI go beyond their knowledge and practical skills, as attitudes also have a critical impact (Langelaan et al., 2024). These expectations profoundly impact the way teachers interact with their students, which is then observed by students and influences their behaviour and academic achievement (Maulana et al., 2020). Smets and Struyven (2020) in their research in Belgium on teachers' professional development programs to implement DI revealed that to engage in teaching effectively, teachers must possess a comprehensive understanding of instructional methodologies, the ability to assess and respond to diverse student populations, and a strong awareness of their own beliefs towards DI.

In contrast, Coubergs et al. (2017) reported that teachers must steer the practice of DI based on their development mindset and ethical compass. This implies that DI relies on teachers' belief in the potential of all their students to make significant advancements. Another study conducted by Porta et al. (2022) in senior secondary schools of Australia found that the interrelation between teacher knowledge, attitude, and self-efficacy significantly influenced the implementation of DI in the senior secondary classroom. As a result, DI employs a diverse range of teaching tactics and is rooted in using assessment data to address students' varying needs. DI also hinges on teachers' attitudes, which are focused on optimising student learning outcomes (Smets & Struyven, 2020).

Moosa and Shareefa (2019) explored the influence of Maldivian teachers' perspective and understanding of DI in the Maldives and their confidence as teachers on the application of DI strategies. Their findings demonstrated a significant correlation between teachers' understanding of DI and its execution and between teacher confidence and the implementation of DI. The regression analysis revealed that teachers' expertise significantly impacted their execution of DI. Hence, it is essential to find out how teachers are currently planning for DI. Another study Shareefa et al. (2019) conducted in Maldives explored how teachers define DI, and the challenges they face in implementing DI. The data for the study was collected using survey and classroom

observations. The findings indicated that the definition of DI may be elucidated by considering three key aspects: the utilisation of various methods, the inclusion of student diversity, and the advancement of student learning. While these studies have been useful in revealing how the teachers understood and implemented DI in their classrooms, no studies have been conducted in the Maldives to explore how Maldivian teachers plan for DI in their lessons.

2.4 Challenges and Enablers of Differentiated Instruction

The literature on DI offers a wide range of instructional methods for teachers to handle diversity within a classroom effectively. Nevertheless, the way teachers incorporate DI into their everyday teaching remains crucial (Suprayogi et al., 2017). DI is widely supported by experts (Suprayogi et al., 2017), however, implementing DI can be a challenging change process (Gaitas & Alves Martins, 2017). Bondie et al. (2019); Wan (2017) identified various barriers that hinder teachers in implementing differentiation. Teachers often express their primary concern while trying to differentiate instruction, which pertains to organisational matters, such as time management (Nadheem & Waheeda, 2022) and classroom control. An essential aspect of successful differentiation involves using diverse instructional materials tailored to meet the specific needs of different instructional groups. Many teachers, however, have little time to attend to each student personally or in small groups. They struggle to arrange and feel uneasy about assigning tasks that vary in content or difficulty level owing to time constraints and high student to teacher ratios.

Moreover, varying instruction requires a comprehension of the specific instructional, resource, and feedback requirements of students with varying levels of ability, together with the expertise to effectively implement this understanding in the classroom. Many teachers lack knowledge regarding the specific needs of students who are below or above the typical teaching levels, according to Gaitas and Alves Martins (2017). They are unsure about the appropriate materials to employ, the degree of support required for students to utilise those resources effectively, and how to foster reasoning and critical thinking skills at different levels (Eysink et al., 2017).

Gaitas and Alves Martins (2017) conducted a survey among primary teachers in Portugal. They discovered that the most difficult component of DI for these instructors was the differentiation of activities and materials. Challenges followed this in evaluation, management, planning, and creating an appropriate classroom atmosphere. Teachers faced significant challenges in adapting curricular components to address the unique needs of each student. To employ effective differentiation, teachers must accurately ascertain students' interests, assess their readiness level, and consider their individual characteristics to tailor the material, methods, outcomes, and learning environment accordingly (Kaur et al., 2019; Tomlinson, 2022). While these studies show the challenges for DI, especially in modifying the curriculum elements in different contexts, this finding may not be applicable to Maldivian primary teachers. Hence, the current study will contribute to the literature by identifying how teachers plan for DI in content, process, and product, as well as by students' readiness and interest, according to learning profile.

Similarly, a case study by Shareefa (2021) was conducted in a Maldivian multigrade teaching classroom to examine teachers' experience and benefits and challenges faced in implementing DI. The study revealed that teachers face significant obstacles in implementing DI due to their inadequate proficiency, limited time to handle heavy workloads, and difficulties in assessing student learning. Shareefa et al. (2019) also found that teachers face additional barriers due to excessive class sizes, lack of resources, and inadequate support.

Additionally, Goddard and Kim (2018) discovered that a robust collaborative culture, where individuals work together to plan curriculum, instruction, school improvement, and professional learning, positively and significantly impacted teachers' implementation of DI. Shareefa et al. (2023) also found this to be the case. This, in turn, influenced teacher confidence and effectiveness in teaching all students. Similarly, Jarvis et al. (2016) stated that school leaders' vision and actions significantly impacted the implementation of DI among teachers. School leaders who effectively communicated a distinct dedication and vision for DI, successfully fostered a collective commitment among the teachers. These findings emphasise the significance of fostering a collaborative work environment and the importance of the leadership role in implementing DI as a whole school approach. Nevertheless, there is a scarcity of research about the precise impact of

these elements on implementing DI in Maldivian schools. The gap exists in how Maldivian school teachers are being supported in utilising DI. Hence, the current research will help fill the gap by identifying the barriers and enablers they face in planning and implementing DI in their classrooms.

2.5 Research Questions

The study sought answers to the following questions:

1. What are teachers' perceived understanding and planned use of Differentiated Instruction in a Maldivian primary school?
2. How are Maldivian primary school teachers currently planning for Differentiated Instruction in their lesson plans?
3. What are the barriers and enablers for these teachers in implementing Differentiated Instruction in their classrooms?

2.6 Summary

DI is considered a highly effective instructional strategy for addressing the diverse needs of students in an inclusive classroom. To implement DI effectively, teachers need a proper understanding of the knowledge and skills and a growth mindset to adopt those skills within their teaching. Even though there are several benefits of DI, teachers face several challenges to implementing it effectively. Therefore, tackling the difficulties encountered in implementing suitable professional development programs that target specific talents is crucial. The literature has a significant amount of research that has been undertaken on the efficacy of DI as well as on teachers' level of expertise and comprehension of this instructional approach. However, the research in the Maldives context lacks investigations into how teachers plan and implement DI in classrooms.

CHAPTER 3 METHODOLOGY

3.0 Introduction

Through a qualitative research approach, four teachers were studied as a collective case study to determine their perceived knowledge, understanding, and planned use of Differentiated Instruction in their Maldivian classrooms. Furthermore, the case studies were utilised to determine the enablers and barriers teachers face when implementing DI. This chapter presents the rationale for using the social constructionist paradigm in the research and discusses the case study approach, data collection, and data analysis procedures employed in the research.

3.1 Social Constructionism

The study seeks to find teachers' perceived understanding and use of DI, therefore describing subjective experiences, an ontology that reality is subjective; hence, the researcher adopted a social constructionist approach to understanding the phenomenon. This research is based on the ontological position of social constructionism, which holds that interactions and cultural customs shape reality rather than it being an objective entity (Kivunja & Kuyini, 2017; Pfadenhauer & Knoblauch, 2019). This suggests that rather than being outside of perceptions, the phenomena under study are regarded to be contextually produced. Hence, social constructionism is highly suitable for comprehending the intricacies of how Maldivian primary school teachers perceive and understand the planned use of DI in their classrooms.

3.2 Case Study Methodology

This study utilised a qualitative collective case study design so that the participants, four Maldivian school primary teachers, could effectively convey their viewpoints on their perceived understanding and planned use of DI. The focus was on a particular Maldivian school where the implementation of DI involves four teachers who are directly engaged in the process. This emphasis enables a thorough exploration of DI strategies within the specific setting of a single school, offering a comprehensive understanding of the experiences and difficulties encountered by the individuals involved. The study focuses on these four teachers to encompass various

viewpoints and methods, thoroughly comprehending how DI is planned, understood, implemented and encountered in this specific educational environment.

The main aim of using a qualitative approach is to understand the significant phenomenon of perceived understanding of current DI practices and the barriers teachers face in implementing DI (Creswell, 2018; Marshall & Rossman, 2014). Qualitative research centres on the process by which individuals interpret their experiences and develop their reality through social interactions. The main objective is to comprehend how individuals get significance from their lives, offering profound insights through working closely with participants (Creswell, 2018). The aim of this paper is to investigate a significant phenomenon and the importance of focusing on individual experience.

Using a case study approach, the researcher can uncover specific issues in detail and thoroughly understand the prominent phenomenon (Creswell, 2013). The case study also helps comprehend phenomena unfolding in particular contexts (Silverman, 2005; Young & Diem, 2023). A qualitative collective case study technique was chosen to address the research issue, and two research methods (i.e., semi-structured interviews and document analyses) were employed (Creswell, 2013). These two methods were selected because of their ability to offer a thorough and intricate comprehension of the execution teachers perceived understanding of DI. This study considered each of the four participants as a single case from the selected school. By analysing each teacher participant, the researcher acquired a more comprehensive and refined comprehension of the phenomenon, encompassing a wide range of viewpoints and experiences and increasing the complexity and focusing on individual experience of the study (Cohen et al., 2018; Creswell, 2013; Silverman, 2005). Hence, the four cases from the chosen school will help to determine to what extent DI is being practised in the chosen school.

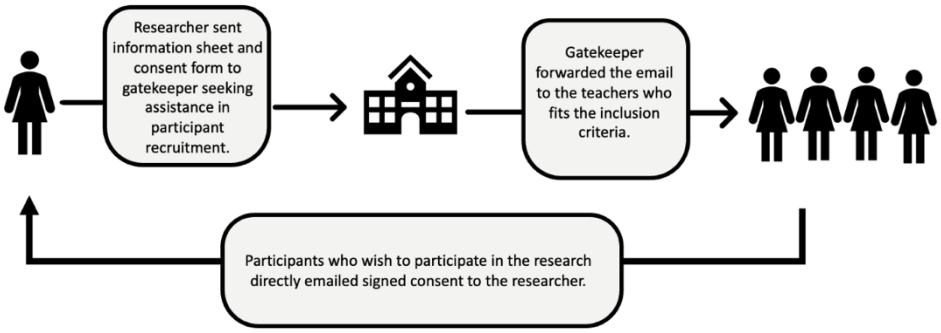
3.3 Population and Sampling

The careful selection of participants was essential as they were expected to provide clear responses to each research question to develop a thorough understanding of the problem being investigated (Bryman, 2016). A primary school from the southern region of Maldives was conveniently selected due to its strategic location on the researcher's home island, facilitating

easier access to the participants and guaranteeing a more extensive interpretation of the local context. Ethics approval was gained from the Human Research Ethics Committee at Flinders University (HREC approval number: 6734) and the Ministry of Education (Appendix 1: Ministry approval letter) in the Maldives. Purposive sampling was utilised to recruit participants based on teachers who met the inclusion criteria (see Figure 3.1) to obtain the answers to the study questions. This enabled more significant understanding of each teacher's perspective and participation in the activities (Young & Diem, 2023). Purposive sampling allowed the researcher to select participants with at least five years of relevant experience and knowledge (Creswell, 2018).

Figure 3.1

Participant Recruitment Process



With the approval from the Ministry of Education of Maldives, the researcher contacted the gatekeeper (i.e., school principal). Information sheets and consent forms were emailed (Appendix 2: Email text to the principal) to the selected school participants by the principal (n≈15-20), and they were asked to share them with teachers with at least five years of teaching experience and teachers who had completed the new National Curriculum and inclusive educational training. The selection criteria (i.e., 1. Years of experience, 2. New national curriculum framework training, 3. Inclusive education training) made it possible for the participants to share their vast knowledge and expertise on the subject of the study. Teachers interested in participating in the study were asked to sign the consent form (Appendix 3: Information sheet and consent form) and return it directly to

the researcher to protect the participants' anonymity and maintain trustworthiness (Creswell, 2013).

To investigate the research questions, three teachers from Key Stage One (Year 1-3) and one teacher from Key Stage Two (Year 4-6) agreed to participate from the selected setting, and one-on-one web-based Microsoft Teams video call interviews were conducted to gather the answers for the research questions. The researcher contacted the participants to arrange a time for the interview. As the consent forms were received, the researcher requested the lesson plan and set up an interview date, and interviews were conducted after the teacher had conducted the lessons. Table 3.1 shows participant information.

Table 3.1

Participant Information

Participant (Pseudonyms)	Qualification	Years of experience	Grade
Shiuna	Master of Education	13	Key stage one: Grade 2
Malka	Master of Education	18	Key Stage Two: Grade 4
Liusha	Bachelor's Degree in Primary Education	15	Key stage one: Grade 1
Fazla	Bachelor's Degree in early Childhood Education	2	Key stage one: Grade 2

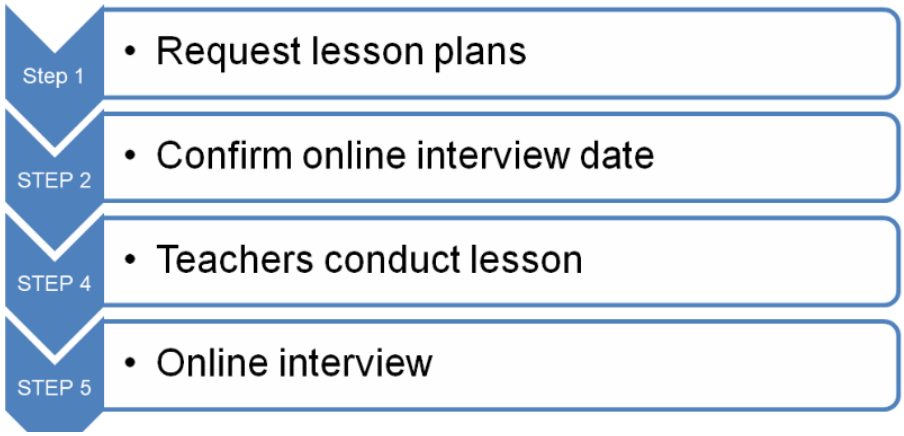
Note. Participants all completed NCF and Inclusive Education Professional Development.

3.4 Data Collection

For the purpose of this study, the required data were gathered using one-on-one semi-structured interviews and a document analysis (Creswell, 2013) of the lesson plans of the teachers who participated in the interviews. Document analysis of the lesson plans (Appendix 6) was conducted to gain insight into how teachers planned for DI and if they did what they said in the interview. This allowed the researcher to determine both the spoken data obtained from the interview and evidence from the lesson plans, offering a richer context and deeper understanding of participants' perceptions. Figure 3.2 shows the steps taken to collect data.

Figure 3.2

Steps of the Data Collection Process



3.4.1 Semi-Structured Interview

The data was collected through online one-on-one semi-structured (Appendix 4) interviews using Microsoft Teams, as it was not feasible for the researcher to conduct the interviews in person due to geographical constraints. The four participants' consents were obtained before recording the meeting. Using a semi-structured interview, the researcher can ensure the questions are relevant to research topics and are consistent with the theoretical and epistemological underpinnings. While there is a clear direction for the interview, there is also the possibility for the researcher to probe further during the interview to reveal more in-depth information (Young & Diem, 2023).

This interview approach enabled a greater comprehension of the teacher's perspective and participation in the activities (Cohen et al., 2018; Creswell, 2018). Hochschild (2009) emphasised that interviews have the unique ability to delve deeply into issues and understand the underlying reasons behind people's perspectives. Hence, the method allowed the researcher to examine how participants constructed their ideas and established links between the theoretical framework and flow-differentiated classroom. For example, teachers were asked to define DI, define instructional strategies, and explain how they plan for DI. Regarding the lesson plan and the enactment of the lesson plan (i.e., what went well and what did not go well), teachers were also asked to share where they differentiated in the lesson.

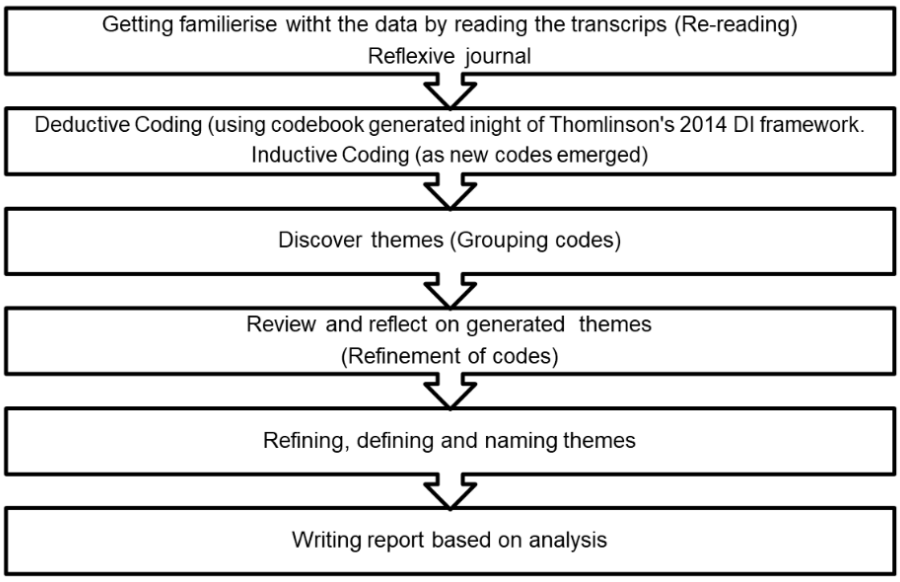
3.5 Data Analysis

3.5.1 Reflexive Thematic Analysis

Individual interviews and lesson plans were examined using Reflexive Thematic Analysis (RTA) steps of Braun and Clarke (2021), enabling the researcher to find recurring themes (Smith & Sparkes, 2017). Thematic analysis involves identifying patterns in the data and using these patterns as categories for analysis. The method entails a careful and concentrated re-examination and evaluation of the data (Fereday & Muir-Cochrane, 2006). RTA provides an avenue for engaging in qualitative research that instructs individuals on the systematic process of coding and analysing qualitative data (Braun & Clarke, 2012). These skills can subsequently be used in more comprehensive theoretical or conceptual matters. The data for this research were collected from four participants, and each case was evaluated using the six steps as shown in Figure 3.3 (Braun & Clarke, 2022).

Figure 3.3

Steps of Reflexive Thematic Analysis



Note. “Can I use TA? Should I use TA? Should I not use TA? Comparing reflexive thematic analysis and other pattern-based qualitative analytic approaches”. *Counselling and psychotherapy research*, *21*(1), by Braun, V., & Clarke, V. (2021).

Phase 1: Familiarising with the data

The data recorded from one-on-one interviews was viewed and transcribed using Microsoft Teams, and the researcher reviewed it several times by listening to the interview and comparing it with the transcription. Transcription was then analysed using the qualitative data analysis software NVivo 14 (Nowell et al., 2017). Yin (2009) stated that software can assist in coding and categorising a substantial text volume. Various codes were developed to label the pertinent data with the aim of establishing a pattern of emerging themes. For example, definition, perceived understanding, and work reduction, were identified themes. The transcribed data was read several times to familiarise the researcher with the content, and NVivo codes were generated using the elements of Tomlinson's (2014) DI framework and Tomlinson's (2017) the Flow of Instruction in a Differentiated Classroom.

At this phase, the researcher started a reflexive journal (Appendix 4) to facilitate discussions with supervisors. According to Braun and Clarke (2022), a reflexive journal is an essential step to carry out RTA. Reflexive journals served as a tool to critically examine and contemplate researchers' own biases during the coding process. During the process, notes were taken to absorb the literal meaning of the words. This helped the researcher begin perceiving the facts in an analytical manner rather than simply comprehending their superficial significance. The objective of this phase was to gain a deep understanding of the content of the research data set and to start identifying any elements that may have been pertinent to the research question.

Phase 2: Coding

The second stage initiated the systematic examination of the data using coding. Initially, the researcher planned to use deductive coding using Tomlinson's (2014) theoretical framework and Tomlinson's (2017) flow of instruction, allowing the researcher to remain receptive to novel and unforeseen discoveries. New codes, however, had to be created during this analysis phase, so the researcher used deductive and inductive coding for the data analysis. To best reflect the results, inductive coding was regularly carried out using an iterative process, going back and forth repeatedly on the data (Kekeya, 2016) at various times and in different settings for a better understanding of the result. An inductive analysis is a repetitive procedure for organising and

arranging qualitative data, such as interviews, observations, and documents, into meaningful units, categories, patterns, and themes (Merriam & Tisdell, 2016). These elements constituted collections of abstract information (Cohen et al., 2018; Creswell, 2013). Inductive analysis focuses on interpreting and analysing data from the participants' viewpoints, by utilising systematic and explicit norms.

Table 3.2

Examples of Deductive and Inductive Codes

Deductive codes	Inductive code
Defining DI	Current practices of DI
Application according to (content, process, product)	Planning for DI
Teacher Pre-assesses upcoming concepts or skills	Assumption of giftedness
	Work reduction

Coding is the process of closely discovering the data by reading it numerous times until the researcher becomes intimately familiar with it (Saldaña, 2021). Codes facilitate the grouping and linking of data, enabling it to be classified into a group where common qualities are visible (Rogers, 2018; Saldaña, 2021). Table 3.3 shows an example of initial coding in the study.

Table 3.3

Samples of Initial Codes Generated

<table>
<tr><th>Data from interview and lesson plan</th><th>Codes</th></tr>
<tr><td>Shiuna: Not like very good students in one group. I sometimes group based on the level.

Malka: Group works mostly. Work well if the group is with different levels of kids, so they will be working best, I mean. Working together. By helping each other, so I think different levels included in one group is better than same level.</td><td>Fixed grouping

Students work in heterogenous groups

Grouping based on level

Flexible grouping</td></tr>
<tr><td><table><tr><th colspan="3">Differentiated Learning</th></tr><tr><th>Gifted students</th><th>Grade level students</th><th>Students with learning difficulties</th></tr><tr><td>Write correct answers for all the questions without teacher assistance</td><td>Able to achieve the success criteria</td><td>-Able to complete correctly at least Q.1</td></tr></table></td><td>Levels of grouping</td></tr>
</table>

The employment of deductive coding enabled the researcher to prioritise the important themes from the theoretical framework during the coding process. This ensured that the initial codes remained pertinent to the research aims and DI framework. The deductive coding process determined the relevance of the data and identified which were relevant and which were not. The relevant codes were reviewed and categorised based on specific themes, while data that was not relevant to the framework were categorised into new codes. This phase of the process concluded as the data were completely coded and the data pertaining to each code were gathered together.

Phase 3: Initial Theme Generations

During this phase, analysis forms by transitioning from codes to themes. A theme is a significant aspect of the data related to the research question that reflects a patterned response or meaning within the dataset. The coded data were examined to determine similarities and overlaps between the codes. The researcher organised and reorganised comparable codes into clusters to investigate possible patterns of shared significance centred around a central theme (see Table 3.4). The researcher iteratively evaluated, developed or eliminated the themes to ensure they effectively captured significant patterns in relation to the coded collected data and the dataset as a whole.

Table 3.4

Examples of Developing Codes into Themes

Codes	Theme

• Fixed grouping
• Students work in heterogenous groups
• Grouping based on level
• Instructional strategies
• Assumption of giftedness
• Defining DI
	• Teachers understanding of DI
	  ○ Providing DI by ability grouping
	  ○ Grouping with multi-level
	  ○ Adjusting expectation for ability level
	  ○ Assumption for giftedness

• Barriers • Enablers • Constraints • Helping to differentiate • Challenges	• Teachers perceived barriers and enablers • System imposed constrains

Phase 4: Reviewing and Reflecting Themes

Thematic analysis is a systematic approach to uncovering, analysing, and reporting recurring patterns or themes within a data set. It provides a thorough and detailed organisation and description of the data set (Braun & Clarke, 2006). During the reviewing phase, all data were coded and subsequently arranged into themes, as shown in Table 3.5.

Table 3.5

Example of Reviewing Themes

Codes	Theme
• Fixed grouping • Students work in heterogenous groups • Grouping based on level • Instructional strategies • Assumption of giftedness • Defining DI	• Providing DI by ability level
• Barriers • Enablers • Constraints • Helping to differentiate • Challenges	• School and system perceived constraints

Phase 5: Refining, Defining and Naming Themes

In this phase, the researcher worked closely with the research supervisors to refine, define, and name the themes. Initially, the researcher had chosen to include sub-themes for theme one (Braun & Clarke, 2006). However, after discussing this with the supervisors, it became clear that these sub-themes primarily revolved around the ways in which teachers were implementing DI. Hence, it was decided to merge the sub-themes into one main theme.

Phase 6: Writing The Report

During the final phase, the researcher began writing the report by reflecting back to the reflexive journal to analyse the findings and employing a literature review to support the findings (Durkin, 2021). Additionally, the researcher crafted comprehensive data, highlighting the ways in which each theme contributed to the research questions and the connections between them. The following chapter discusses research findings arising from analysis of the interview data.

CHAPTER 4: FINDINGS

4.0 Introduction

This qualitative collective case study aimed to explore a Maldivian primary school teacher's perceived understanding and planned use of DI in their lessons and determine the barriers and enablers of implementing DI. The study addressed the concern of how teachers currently plan for DI and explored the extent to which they put their plans into practice. This chapter will elaborate on the findings of this study.

4.1 Descriptive Summary of Themes Identified from Data Through RTA

Three major themes were constructed through the reflexive thematic analysis of the data from interviews of the four participants. Table 4.1 shows the themes developed.

Table 4.1

Themes Developed by the Reflexive Thematic Analysis

Theme	Quote
Theme 1: Providing differentiated instruction by ability level	*"The task dividing it into simply into different levels …according to the student's level." (Malka)*
Theme 2: Proactive in lesson planning	*"First thing like I said that…. first we take the topic no… then objectives for that one. Then from that objectives we have to find out that …. success which how that success criteria we have to make …. that learning intention is that that topic and then we have to identify make the success criteria that also we divide into different levels." (Malka)*
Theme 3: School and system perceived constrains	*"Time and number of students…is the… two barriers that I usually face". (Shiuna)*

The first theme developed was providing DI by ability level; the second key theme was a proactive approach to lesson planning, which emphasised the need for comprehensive preparation

to address students' diverse needs. These were followed by the third theme, which was how the participants perceived school and system constraints. These themes illuminated the nature of teachers' perceived understanding and planned use of DI.

4.2 Theme 1: Providing Differentiated Instruction by Ability Level

The first theme highlights the participants' descriptions of their understanding of implementing DI by ability level, such as their approach to adjusting expectations for ability level, creating groups with multiple ability levels to support a positive learning environment, and discussing their assumptions about giftedness. This theme discusses how teachers expressed their understanding of DI and how they divided classroom tasks or adjusted instructions to cater to the needs of individual learners. Moreover, the theme further addresses how participants group students and their perceived understanding and belief of DI.

All four participants outlined that DI means dividing the classroom activities or the tasks according to a student's level. For example, Malka, who teaches grade four, defined DI "as dividing the tasks according to student level." The analysis of the interview data and lesson plans shows that students' levels are presented as "gifted, average, and students with learning difficulties or support students" (Malka, Liusha, Fazla). The enactment of Malka's lesson plan showed that gifted students were required to answer all six questions without help from the teacher; average students needed to complete at least four questions, while students with learning difficulties were asked to complete simpler questions. The teacher expected them to complete at least one question. Figure 4.1 and 4.2 shows an example of the lesson plan's enactment.

Figure 4.1

Questions Targeted to Gifted and Average Students

4. **Find the value of the following.**

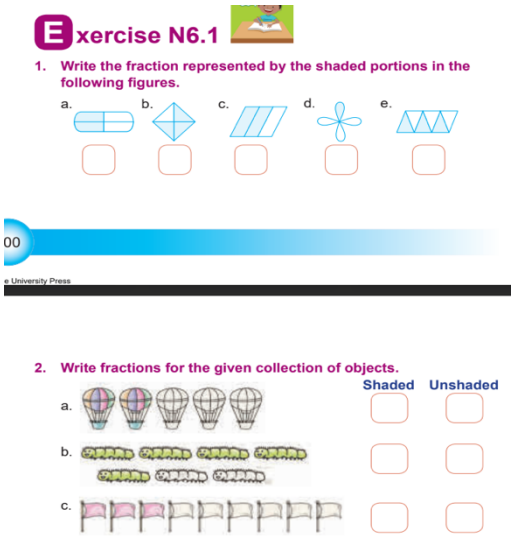
a. $\frac{1}{3}$ of 24 b. $\frac{1}{4}$ of MVR 28 c. $\frac{2}{3}$ of 21m

d. $\frac{1}{2}$ of 22ℓ e. $\frac{3}{4}$ of 32kg f. $\frac{1}{2}$ of MVR 34

Note. Excerpt from lesson plan provided by Malka

Figure 4.2

Questions Targeted to Students with Learning Difficulties



Malka further expressed that she makes sure students understand the concept being taught by her. Thus, she prepares different worksheets for low-level learners with fewer numbers or questions while planning and preparing for the lesson. “I make simple questions that the students can answer with the teacher's help. So that I can make sure that they also know the concept at the end of the lesson and that they are not left out.”

Furthermore, two participants, Fazla and Liusha, stated their definition of DI as giving different instructions to learners at different levels and reducing the number of questions to complete. For example, Liusha explained that she asked students to collect data to draw a bar graph during her math lesson. Students were required to ask ten friends about their favourite fruit. She outlined, “So, I minimised the number of students support students needed to ask; they had to ask around five students”. The lesson plan analysis reflected that the teacher gave different instructions to support students. The students were asked to complete fewer questions; however, during the interview she also outlined that a few students are not socialised in her class. Liusha, who teaches grade one, explained that she guided those students on how they can approach asking questions from classmates. She further allowed them to ask questions in the local language rather than asking the students to speak in English. Liusha expressed that sometimes students prefer to avoid the differentiated tasks the teacher assigns them as they know they are doing a

different task than others. Liusha stated, "Students know they are given simpler work, but they want to do the challenging task".

In contrast, grade two teacher Fazla also stated that for her English lessons, she prepares the reading comprehension worksheet questions "for average and below-average students more straightforwardly; direct questions will be given, whereas indirect questions will be provided for gifted students". She elaborated by saying, "Same reading, but the questions will be reduced". Therefore, Fazla reduces the number of questions for below-average students, providing them with more straightforward questions. The participants Malka, Liusha, and Fazla differentiated by dividing the learning tasks according to the student's level.

Shiuna defined DI as "teaching the same content to students while making a difference in the task or instruction based on the student's level and differentiating the activity a little bit for the lower-level students". For example, Shiuna expressed that at the beginning of the year, a diagnostic assessment is given to all students to check their reading and writing levels. For the students who cannot identify letters or if students have difficulty with phonics, she gives work based on the student's level. She outlined, "I will provide them with work based on that level; maybe they will explore letters and letter sounds in the first few weeks. After that, I will introduce phonics and help them read". Shiuna further added that if she feels the students might struggle to perform well in writing during lesson planning, she makes sure to ask those students questions orally. "I make the student answer orally, or I clarify if the student understood the concept by asking orally, rather than giving the student [setting a task] to write or making him or her do something uncomfortable". Shiuna further discussed how she uses other teaching materials, such as card games, to assess the students or make the students draw instead of writing:

> Students were asked to make a list of locally made products, and the good students made a list. I made them draw for those weak ones, and I asked them orally what that product was. Or could you name some of the local products? So, they were able to answer orally and draw a few items from what they had seen. (Shiuna)

As indicated from this discussion of the teachers, Shiuna differentiates by adjusting to the tasks given to the students by asking the lower-level students to answer orally or by making them

draw instead of writing. Moreover, it shows Malka, Liusha and Fazla reduce workload for the students who require additional support in their learning by giving less number of questions for them to complete. Finally, Shiuna used pre-assessment to inform lesson planning, although the assessment was completed once a year.

Similarly, Fazla explained that she used other teaching materials for the students who didn't understand the concept very well. For example, in her math lesson, she stated, “I gave them counters and some charts so the students could do it using the objects, and they accomplished that outcome”. The four participants emphasised that these teachers adjust their instruction by reducing the workload for the students who need additional support in learning. Or they bring modification to the final tasks students need to complete as evidence that the students have achieved the learning outcome.

The four participants asserted that implementing DI helps diverse learners. They outlined that implementing DI is essential as it helps different levels of students in their classrooms. As Shiuna stated, “It’s [DI] a very good thing. During the lesson if we can cater for different level students, based on their level, without making them sit or making them do harder tasks than their level”. Liusha described DI as “amazing because students engage more when differentiated learning is ongoing, and it helps to build confidence in their learning area”. Hence, Liusha sees DI as beneficial for students. Furthermore, Fazla stated, “It is good to implement DI as it caters to individual students' learning needs”.

All four participants indicated that they used various instructional strategies, though three participants expressed confusion about the term. As one teacher, Malka, asked “different instructional strategies?....like you mean?....methods?”. Once clarified by the researcher, all participants consistently reported games, peer assessments, pair work, group work. Malka stated, "almost all the time, like asking questions, group work, peer assessing, and pair work”. The lesson plans of the three participants, Liusha, Fazla and Shiuna, shows that they have utilised group activities and questioning as the main strategies in the lesson that they have shared with the researcher. Hence, it shows that the participants perceive DI as an essential tool to cater to the

diverse needs of the students and teachers determined to implement DI by utilising groups works, peer assessments and by conducting various forms of games.

Moreover, all four participants expressed that their classroom is arranged with tables and chairs in clusters, and these groups are carefully planned by the teachers each week. And teachers conduct group work as students are seated. “Usually, to save time I give group work as they are sitting in their group” (Fazla). Malka explained that the class has five groups, as she has twenty-five students. In the five groups, there are mixed-ability students. “There are five groups in my class, so each group has five. I also make sure that there is one gifted and one low-level, according to their behaviour” (Malka). Malka stated that she cannot conduct group work in every lesson; however, she does in most of her math lessons. She outlines, “I cannot say all the lessons I conduct, but I use group activities in most of the lessons, especially in math”. Other participants reported that have similar approach to grouping in their classrooms. Shiuna asserted that she conducts group work in almost all the lessons. Shiuna stated, “all the levels of kids in one group, or maybe based on their motivation to learn if they have. Based on their interest also, sometimes”.

Liusha explained that sometimes she makes groups of two or three students, including students with Attention Deficit Disorder (ADHD), as she stated that these students could not perform well in larger groups. Keeping in small groups made it easy for the teacher to cater to the needs of all the learners. Liusha detailed that she has some students with cognitive developmental issues and some students with language delays, as well as some students who are from unstable families. She pointed out that such students require additional support and categorised them as students who require additional support. Thus, while forming groups, she also considers having different levels of students in one group so that the students can help each other. Therefore, students commonly work in groups alongside other students of different abilities.

Shiuna also expressed that she finds groups are effective when different levels of students are in the same group rather than having the same level of students in one group. Moreover, she discussed that students work together by helping each other in mixed-ability level groups. Liusha agrees with the Shiuna and stated that she keeps different levels of students in one group because

students who need help would get help from group members, and students get a chance to work with varying backgrounds of family students, which helps students develop their social skills. Hence, it is evident that teachers arrange students based on their abilities and prefer heterogeneous groups in their classrooms.

Results underscore that three teachers focus on creating a positive, healthy classroom learning environment. Three participants asserted that they try to make the lessons more engaging and fun for the students. The enacted lesson plans of the three participants demonstrated that as the main activity of their lessons, they utilised collaborative work. For example, Shiuna shared her experience and stated, during group activity, “I could see them talking to each other, happily roaming around in the class and engaging in activities, touching and experiencing different materials. It was a happy environment for them, so it was a good activity.” Similarly, Liusha stated that the students were very happy and engaging during the group activity she conducted, even those who were usually quiet in class. They also interacted with other students and asked the required questions. Thus, it is apparent that teachers try to promote a positive learning environment in their classrooms. The next subtheme focuses on teacher’s perceived understanding of giftedness.

Among the three participants, gifted students were another group they discussed. The participants agreed that considering the needs of gifted students is essential while planning and conducting classroom activities. Liusha defined gifted students:

> Gifted students as those who can do grade-level activities and much more challenging activities. It is very easy for gifted students to finish tasks within a minute or within the given time, but the average student might need more time to finish. (Liusha)

Liusha outlined that gifted students complete the given tasks quickly and they perform at grade level. The enacted lesson plans show that the three participants presented the categories "Gifted, Average, Support, or Students with learning difficulties” in their lessons. For example, the lesson plan of Liusha showed gifted students were expected to complete answering all the required questions and average and support students were expected to complete fewer questions. Hence,

while she creates groups in the class, she considers having gifted students and students who are average and below average in one group. When groups include gifted students, the gifted students help support average students or low-level learners when they finish their work. Sometimes, the gifted students themselves volunteer to help others. Liusha expressed, “Gifted students are very happy and enjoy doing it [volunteering to help] as they are just year one students”.

Moreover, Liusha stated that in some lessons, she provides challenging tasks to the gifted students because, sometimes, when they finish their work early, they are bored and disturb the class. For example, she provides challenging tasks like crossword puzzles or math tasks. “If they don't have any work, sometimes they feel bored and disturb the class. So, I give them different challenging work, such as crossword puzzles, colouring, and challenging mathematics tasks” (Liusha). Hence, for Liusha, providing extra work for gifted students may be as a way of combatting student boredom and class disruptions; however, the lesson plan does not show that in that particular lesson, the teacher utilising any of the mentioned challenging tasks focusing on gifted students, and it is unclear if the tasks are directly related to the learning outcomes/intentions.

Two participants, Malka and Fazla, stressed that gifted students understand the concept easily. Fazla stated, “gifted students understand the concept when I explain it 2-3 times, [but] usually [they get it] on the first try.” She also expressed that gifted students fully achieve all the learning outcomes. Therefore, it is evident that the three participants perceived gifted students as students who can understand the concepts easily and who can perform grade-level activities by achieving all the learning outcomes.

To conclude, the analysis revealed that the four participants perceived understanding of DI as tailoring instructions by ability level. The four participants provide DI by adjusting expectations by ability level. For example, they reduce the workload (i.e., number of questions) to be completed by the students who have additional learning needs. Moreover, teachers also adopt various teaching materials to adjust instruction or to help the students with additional learning needs to understand the concept. Additionally, the four participants expressed that they find it more effective to carry out the activities when they group the students by ability level. Hence, teachers prefer heterogeneous groups in their classrooms. The theme also highlights that teachers perceived DI

as a way to address individual students' needs, and they understood it as an effective way to address the learning needs of the individual students.

4.3 Theme 2: Proactive in Lesson Planning

This theme discusses how teachers plan to implement DI in their primary classrooms. The analysis of the interview and lesson plan reflected that teachers participate in a grade level coordination meeting and with their grade head teacher the activities to be carried out in the lessons. Moreover, they discuss how diverse learners will be catered for and what kind of activities will be given to them. In planning to implement DI after the coordination meetings, teachers write lesson plans before they conduct the lessons.

The four participants stated that they have a coordination meeting before preparing or writing the lesson plans. During coordination meetings, the teachers decide on learning outcomes and indicators to be taught and briefly discuss how the lesson will be carried out and how the teachers will cater to the diverse needs of the students. Fazla explained this process:

> We usually have a coordination meeting. We discussed with the grade-leading and other grade teachers how we can accommodate students with different learning abilities. By discussing it, other teachers also contribute ideas. So, we decided on the best way to teach. (Fazla)

After the coordination meetings, the teachers write the lesson plans to prepare for teaching. Malka explained that she writes the success criteria and learning intention(s). Then, she checks the available resources and plans the lesson by allocating time for different activities. Hence, it unveiled that to implement DI in their classrooms, teachers plan for it by having coordination meetings and having a shared discussion on how to address to needs of all the teachers. It also shows teachers decide the learning intention and write the success criteria and allocate time for different activities and check the available resources while preparing the lesson plan.

Similarly, Shiuna and Liusha mentioned that they also think about students' prior knowledge while they write the lesson plan. Shiuna added that she checked what the students

might have studied in the previous grade, for example, “Now I teach grade two students, so I try to get knowledge of what they have learned during grade one”. She also highlighted that she sometimes checks students' prior knowledge just before starting or at the end of the lesson before she prepares a new lesson. “As a whole class, I ask students questions during class time, during free time, to check how much the students know” (Shiuna). The other three participants asserted that they assess prior knowledge just before the beginning of their lesson. Therefore, it is apparent that teachers check students' prior knowledge after writing their lesson plans in their planning to implement DI; however, this was only evident from two participants' lesson plans.

The four participants emphasised that they write success criteria in their lesson plans. The lesson plans reflect the planned use of success criteria. Malka stated, “I divide the success criteria into three levels, focusing on gifted, average and below-average students”. Hence, for Malka, success criteria are different for students of different levels. This was also evident from Liusha’s lesson plan. Figure 4.3 shows enactment from the lesson plan of Malka.

Figure 4.3

Enactment of the Lesson Plan

<table>
<tr><td>Learning outcomes:

- N6.1 Recognise the equivalence between fractions and compare them in practical contexts, relate fraction as a part of a whole, form fraction word problems.</td><td rowspan="3">Focused indicator (s):

c. Begins to relate fractions to division. (Eg: understand that finding one half is equivalent to dividing by 2, so that 1⁄2 of 16 is equivalent to 16 ÷ 2; recognise that when 1 whole cake is divided equally into 4, each person gets one quarter, or 1 ÷ 4 = 1⁄4.)

d. Finds simple fractions of numbers or quantities. (Eg: 1⁄2 of 16, 3/4 of MVR 20.)</td></tr>
<tr><td>Learning Intentions:</td></tr>
<tr><td>- We are going to learn how to relate fractions to division.</td></tr>
<tr><td>Success Criteria:</td><td colspan="2">I will be successful if I can:
- Demonstrate how fraction is related to division by solving at least 4 questions correctly.</td></tr>
<tr><td>Prior Knowledge</td><td colspan="2">- know that a fraction is a part of a whole. Fractions play a very important role in our everyday life activities such as in calculating ingredients used in cooking and sharing various items.</td></tr>
</table>

Gifted students	Grade level students	Students with learning difficulties
write correct answers for all the questions without teacher assistance	Able to achieve the success criteria.	- able to complete correctly at least Q.1

Three participants stated that preparing for the lesson and planning well beforehand were important to them, on order to implement DI effectively. Shiuna stated, “Preparing in advance is the best way to carry out DI effectively. I might struggle in class if I do not prepare the activities in advance”. Fazla also claimed, “Modifying the lesson according to students’ levels is important”. The four participants believed that effective planning is essential for implementing DI. Malka asserted that having a helping teacher in class would be another added advantage for the teachers to cater to the needs of all the students.

Formative assessment, a method of checking student knowledge and understanding during the lesson, was reported by all four participants in their lesson plans and interviews. Participants discussed that they mainly assess the students during the lesson while students are on task. As a formative assessment, the four teachers reported that they used to observe students' work while on task, ask questions and give worksheets. Shiuna stated, "I observe their work and ask different levels of questions while the students work". Likewise, Malka noted, "I assess the students while they are doing the group work and while doing individual work, as well as by asking questions orally and giving pair works". The lesson plans also show that the participants have utilised observation as the common tool to assess the students. Thus, observation may be valued as an important formative assessment method for these teachers. Therefore, to implement DI effectively the four participants perceived planning-well for the lesson as important, and they plan for DI by engaging in coordination meetings and writing lesson plans.

4.4 Theme 3: School and System Perceived Constraints

This theme highlights teachers' perceptions of school and system limitations when implementing DI in their classrooms. The teachers reported several perceived constraints, mainly revolved around the allocation of time for classes and the ratio of students to teachers, both of which had a substantial impact on teachers' capacity to address learning needs of diverse students.

All four teachers stated that time allocation for each lesson period was the most significant constraint when implementing DI in their classrooms. The four teachers expressed that they find it challenging to address diverse needs of individual students during the allocated lesson time and students often struggle to complete the planned activities within the lesson time frame. Shiuna stated she has five below-average students at different levels in her class. She outlined that it is difficult for her to carry out DI within the allocated time. Similarly, Malka and Fazla claimed they needed more time to complete the lesson. Malka stated, "more than 35 minutes is needed for a lesson. 45 minutes will be OK". She added, "Conducting lessons is relatively easy, but students need more time to carry out activities like group work" (Malka). Similarly, Fazal also stated that she

has to focus more on completing the curriculum, so it is difficult to manage to focus on individual students within the given time. Hence, teachers may find it difficult to implement planned differentiated activities during their lessons.

Subsequently, all four teachers noted that the student-teacher ratio is another concern about effectively implementing DI in their classrooms. They stated that as there is no helping or support teacher in class, it is difficult for the class teacher to cater to the needs of all the students. Malka stated, “The first thing I would say is the number of students [to] teacher ratio”. Teachers claimed that they could not provide the support needed for individual students. Shiuna added, “Number of students; if it is with like four or five weak students, that also with different levels. Then, during the time allocated, it's a bit hard” to meet the needs of all the students. Therefore, the results reflect that teachers viewed differentiation as catering to individual need; however, they experienced challenges in delivering individual attention to students due primarily to high numbers of students in classrooms and limitations of time, together with lack of support from assistant teachers.

4.5 Summary

The findings suggest that the participants perceive DI as addressing students' needs based on students' individual ability levels. To implement DI, the participants plan the learning tasks according to each student's ability level. Moreover, the results show that heterogeneous grouping helps the teachers carry out DI effectively, as gifted students help other students with additional learning needs to complete their work. Furthermore, the findings show that limited time allocation for lesson periods and high student-to-teacher ratios are perceived as forming the major constraining barriers to effectively implementing DI in their classrooms.

CHAPTER FIVE: DISCUSSION AND CONCLUSION

5.0 Introduction

This qualitative multiple-case study aimed to explore Maldivian primary school teachers' perceived understanding and planned use of DI and uncover the barriers and enablers of implementing DI in their classrooms. The final themes that were constructed from the data, using a reflexive thematic analysis, were: 1) providing DI by ability level; 2) teachers are proactive in lesson planning; and 3) school and system perceived constraints. This chapter discusses the study's key findings pertaining to the data and these three main themes, in relation to the literature and research questions the study set out to answer. This discussion leads to the conclusions arising from the study and final recommendations.

As described in the method chapter, a pre-dominantly inductive approach was used due to limited data available for coding against the deductive framework (see section 3.5.2). The deductive approach was informed by Tomlinson's (2014) framework of DI and Tomlinson's (2017) flow of instruction in a differentiated classroom. The deductive findings aligning data to four elements of the framework (i.e., differentiating by the product, differentiating by the environment, use of formative assessment and students work in heterogeneous groupings) are discussed alongside the inductive themes.

5.1 RQ1. What are teachers' perceived understanding and use of differentiated instruction in a Maldivian primary school?

Comprehending and establishing a clear definition of DI and its associated terms is essential for teachers to enable them to use DI successfully in the classroom (Langelaan et al., 2024). The first research question explored teachers' perceived understandings of DI and how they practise or implement DI in their classrooms. The findings revealed that the four primary school teachers recognise that DI is essential to cater to the diverse needs of the students; however, they may not have a comprehensive or consistent understanding of DI as a concept.

The results show that all four teachers interpreted DI as a division of the classroom tasks according to students' level of capability. For example, Malka defined DI as "Dividing the classroom tasks or activities according to students' level" such as "Gifted", "Average", "Support Students". This observation aligns with the result of the action research conducted by Sharp et al. (2020), which showed that teachers lack consistency in comprehending the idea of differentiation. Sharp et al. (2020) also revealed that common misunderstandings included the notion that differentiation was a means of modifying the fundamental curriculum to cater to the specific requirements of individuals or groups of students and that differentiation solely entailed modifying learning tasks and materials. Similarly, Gheyssens et al. (2022) argued differentiation can be limited to the practice of categorising students based on their abilities. This finding supports the current study which found the four teachers planned to implement DI by categorising students into three different levels.

Furthermore, results highlighted that the teachers intended to cater to students according to their levels by making students who require additional support in learning to express their thinking by drawing (creating line images) instead of instructing them to express themselves in written language. Such flexibility in student output aligns with the DI framework by Tomlinson (2014), as teachers in this study appeared to be planning to differentiate by product. A quantitative study conducted by Magableh and Abdullah (2020) to determine teacher instruction effectiveness by differentiating content, process, and product showed that it improved the student's overall English achievement. Differentiating by product is one core element of a differentiated classroom (Tomlinson, 2014). Therefore, the teachers attempted to differentiate by product using Tomlinson's (2014) DI framework.

Research shows that although many teachers acknowledge that students have diverse learning needs, only a few teachers incorporate these variations into their teaching methodologies (O'Rourke, 2015). Findings from the current study support the research by O'Rourke (2015) as the findings show that the teachers recognised a diversity among the learning needs of the students. Teachers recognised diversity as identified by three distinct groups; however, diversity is an umbrella term (Porta, 2024). It includes individual identities, such as race, gender, ethnicity,

philosophical viewpoints, and physiological characteristics. Demographic variables that add to the student experiences and requirements include socioeconomic position, learning preferences, and a variety of intelligence and learning styles (Abawi et al., 2019). Hence, the study revealed that the extent to which students' needs are recognised by the teachers may be narrow, as there was evidence addressing only the four elements of the framework. Moosa and Shareefa (2019) found that the implementation of DI is influenced by various factors, including the complexity of the task, teachers' knowledge, understanding, and perception of DI, teachers' efficacy beliefs, and challenges in effectively implementing the strategies. Nedellec (2015) argued that a significant factor impacting teachers' use of DI methods is their need to understand those strategies better. Teachers must possess comprehensive knowledge and awareness of how to adapt the material, process, product, and learning environment to align with the individual learning profiles of their students. Therefore, this finding reflects the view that the teachers in this study are attempting to differentiate by product.

The findings of this study also revealed that the four teachers, according to their interviews and lesson plans, mainly used questioning, group work, pair work, peer assessment, and various games as instructional tools when differentiating. This provides insights to the teachers' existing knowledge and current instructional practices.

Mengistie's (2020) study was conducted to find out primary teachers' knowledge and practice of DI, planning for differentiation teachers requires various knowledge and skills. It revealed that teachers employed only a few strategies and lacked the knowledge and understanding of the range of differentiated strategies. Hence, the current study contradicts the findings of Mengistie (2020), as these teachers employed a range of instructional strategies, some of which could be considered differentiated approaches. In a differentiated classroom, the teacher uses diverse instructional strategies to specifically target individuals and small groups rather than solely addressing the entire class (Tomlinson, 2022). Teachers who consistently utilise a variety of tactics are more inclined to establish a connection between the material that needs to be learned and the diverse group of students who need to acquire it. This study analysis shows a range of strategies were reported; however, differentiation is more than just a series of strategies. Hence, DI

for these teachers may be understood as more of a series of strategies, not necessarily as a broader philosophy influencing their overall teaching methodology.

Even though results strongly emphasised differentiating by students' ability level, the findings indicated that teachers concurrently used mixed-ability groupings in their lessons, creating a positive classroom learning environment. The results illustrated that Liusha, Fazla and Malka categorised students' levels as "Gifted", "Average" "Support Students", or "Students with Learning Difficulties", and they preferred mixed-ability grouping, where students at different levels work together in one group. The findings did not provide any evidence of the formation of groups based on students' readiness, interests, or learning profiles to conduct a particular lesson. Instead, the teachers reported that mixed-ability groups were formed and enacted out once a week. Hence, it shows that teachers are attempting to differentiate by creating a dynamic and inclusive learning environment through mixed-ability grouping. This approach, though well-intentioned, may not include flexible grouping strategies. The study demonstrated that teachers employed mixed-ability groupings alongside ability-based differentiation to establish a positive learning atmosphere. Although attempts were made to establish an atmosphere that included all students, the approach did not fully align with the philosophy of DI. DI emphasises the use of adaptable and responsive strategies that consider students' readiness, interests, and learning profiles, rather than depending simply on fixed grouping approaches (Tomlinson, 2022).

However, the effectiveness of DI is based on a collection of interconnected, evidence-based principles and strategies, including the use of flexible grouping, that inform every aspect of classroom instruction (Gheyssens et al., 2023; Vantieghem et al., 2020). The essential components of DI include a well-designed curriculum focused on important concepts and specific learning goals, continuous assessment that guides individualised instruction, flexible grouping strategies, appropriate tasks for all students, and a supportive learning environment where teachers prioritise personal development and cultivate respectful relationships (Tomlinson, 2017). In contrast, the current study outcomes indicated that teachers used mixed-ability rather than flexible grouping. In contrast, Therefore, although teachers are attempting to differentiate by utilising mixed-ability grouping, they may not be planning to enact DI through flexible groupings.

The analysis demonstrated that teachers perceived mixed-ability grouping as beneficial for DI. However, their actual implementation of DI techniques primarily consisted of modifying the workload according to students' abilities rather than employing flexible DI approaches. Hove (2022) observed that achieving genuine inclusion in mixed-ability groups necessitates incorporating DI strategies, such as tailored materials and personalised instruction. This study is consistent with Hove's research, which demonstrates that even while teachers used mixed-ability grouping, their DI approaches lacked to adequately meet the unique learning needs of students.

The findings highlighted that group activities may help these teachers to create an engaging, positive learning environment. Three of the teachers' discussions indicated that students actively participated in group activities and liked exploring and interacting with their peers. This finding aligns with Tomlinson's (2014) framework of DI and Tomlinson's (2017) flow of instruction in a differentiated classroom. Differentiated classrooms are based on the principle that learning experiences are most efficient when they are captivating, useful, and engaging to students (Tomlinson, 2017). Hence, it is evident that teachers are attempting to implement DI in their classrooms by conducting group work to help students to engage in the lessons, interact socially, and to assist each other through peer support.

The study also revealed that teachers perceived DI as reducing students' workload depending on students' level (Gifted, Average, and support students). For example, Liusha stated, "I minimised the number of students [that] support students needed to ask; they had to ask around five students," while gifted and average students had to ask ten students. Pham (2012) identified three overarching concepts that direct the differentiation process: optimal learning occurs when students are engaged in appropriately complex tasks, striking a balance between being neither too basic nor too complex. This is connected to the zone of proximal development. The tasks that students can accomplish together now (or with help) will be accomplished on their own tomorrow. According to Tomlinson (2017), DI goes beyond just classifying students according to their abilities and giving them different activities at different levels. Instead, it employs flexible and dynamic grouping strategies to accomplish specific learning goals.

Therefore, this outcome is contrary to the framework (Tomlinson, 2014). According to Tomlinson (2022) teachers often differentiate by assigning less work to students who struggle with the content while providing more work to students who easily understand it. Tomlinson (2022, p. 42) believes many teachers "teach down" to students who have some academic difficulty. According to Tomlinson (2022) it is not beneficial to decrease the number of tasks a student does not comprehend, nor is it advantageous to increase the number of tasks they are already familiar with. Competent teachers maintain high standards for all students and provide them with challenging learning opportunities that are suitable for their development. These experiences take place in many learning settings and enable students to meet rigorous expectations and achieve their maximum capabilities (Tomlinson & Imbeau, 2023). This study's outcomes indicate that teachers may be lowering their expectations for the students who need additional support in their learning by reducing students' workload.

As a result, the study also suggests that students with additional learning needs may not like the tasks or activities provided by the teacher as they are not challenging for them. Differentiated teaching aims to give every student an equal opportunity to achieve by modifying learning experiences to each student's unique needs. Hence, lowering expectations may limit students' overall growth and learning competencies (Klapp & Jönsson, 2021). Moon et al. (2020) claims that DI is based on the principles that teachers must eliminate obstacles to equity to maximise students' advancement and having a growth mindset to believe in students' potential for achievement. Smets and Struyven's (2020) findings support the idea and state teachers' expectations have a dramatic impact on the manner in which teachers engage with their students. This, in turn, is witnessed by the students and has an influence on their conduct and academic performance. This understanding of promoting competencies is contradicted by the findings of this study, as the teachers lowered their expectations by reducing the amount of work which support students needed to complete.

Another unanticipated finding from the study was the teachers' assumptions of giftedness. The findings show that teachers described gifted students as those who perform at grade level by achieving all learning outcomes and who complete the assigned tasks or activities before the

allocated time. Hence, teachers are assuming that gifted students are those that achieve higher. However, students who are identified as gifted may not always perform better than peers (Hornstra et al., 2023). This is supported by the findings of Callahan et al. (2017) who found that there is a lack of understanding within the domain of gifted education regarding the process of identifying gifted individuals, and it is imperative to establish a clear and precise description of what qualifies as giftedness. Therefore, teachers' misinterpretations or assumptions about supposedly gifted students may suggest inadequate attention to students' needs.

Moreover, the current study also emphasised two additional findings: that students categorised as gifted students are helping their peers complete their work, and sometimes, teachers reported students are being given challenging worksheets to complete. Since teachers reported not conducting pre-assessments of students, it was unclear if the worksheets provided catered to those individuals according to their readiness, interest, or learning profile. These practices differ from the principles of DI. According to Tomlinson (2022) it is not appropriate for advanced students to dedicate a significant amount of their school time to serving as tutors for their peers. One particularly important concern for high-ability students may be that in order to support their demand for competence, students should always be able to develop their talents beyond what they can already do. These high achievers, however, frequently complain about not being given enough challenges in the classroom (Lavrijsen et al., 2024). A teacher in this study reported that when gifted students complete their work early, they become bored and disturb the class. Therefore, DI, which involves tailoring instruction to each student's cognitive demands to enable them to reach their maximum potential in the classroom (Tomlinson, 2015), has therefore been proposed to be relevant for high-ability children (Barbier et al., 2023).

The results, according to interviews and lesson plans, show teachers may have assumed some students as gifted and may not cater to them according to their interests, readiness, and learning profile. Although teachers attempted to implement DI, neither content, process, nor product was differentiated for the assumed gifted students, resulting in limited alignment with the differentiated framework (Tomlinson, 2014). However, the study indicates that although teachers attempt to differentiate, their main focus is on modifying activities according to students' ability

levels rather than considering their unique interests or preparation. There is a discrepancy between the DI philosophy, which promotes adaptable and attentive teaching, and the teachers' more individualised, ability-based approaches.

5.3 RQ2. How are Maldivian primary school teachers currently planning for differentiated instruction in their lesson plans?

The second research question sought to determine how teachers are currently planning for DI in their lesson plans. The findings show that teachers believe DI is essential to help individual students; hence, to prepare for their lessons, teachers first conduct coordination meetings with all the grade teachers. Collaboratively, teachers decide the activities to be carried out in the class during the lessons, and how diverse learning needs may be addressed in their lessons.

The results demonstrated that teachers reported that implementing DI is essential as it helps students at different levels. It is widely recognised (Coubergs et al., 2017; Gheyssens et al., 2023; Pozas et al., 2020) in educational literature that DI is an essential strategy that caters to students' diverse learning requirements, capabilities, and preferences, ensuring that each individual makes academic advancements Therefore, to plan for DI, teachers prepare their lesson plans with guidance from the grade-leading teacher [head teacher] and ideas from collaborative discussions. The study findings indicate that teachers engage in a process of reflection when developing lesson plans. This involves considering the content covered in previous grades to know students' prior knowledge. Hence, these teachers are engaging in planning to support DI, although they were asked, they still did not report use of pre-assessment.

A study by Bukhari (2018) conducted to find the effectiveness of pre-assessment in identifying reading abilities in a mixed-ability classroom, demonstrated the benefits of utilising pre-assessment to assess students' readiness levels. This approach is effective because it gives insight into the learners' readiness to modify activities with suitable options, support, challenge, and explanation of instructions for learners at different levels. This observation contradicts the current study as the teachers did not report using of pre-assessment to determine students' prior knowledge or readiness level. According to the instruction flow in differentiated classrooms

(Tomlinson, 2017), teachers are encouraged to check students' prior knowledge by conducting pre-assessments to determine students' readiness levels. Successful differentiation is most likely achieved when a teacher has a clear understanding of a student's level of knowledge, understanding, and skills (KUDs) or the learning objectives. In this way, teachers plan how to advance students once they have mastered the necessary sequences, and can help students who are lacking essential knowledge and skills catch up, all while keeping the rest of the class moving forward (Tomlinson, 2022). Therefore, it is understood that teachers may not check prior knowledge before planning of DI, as was apparently the case in the participants of this study.

The results also highlighted that teachers decide the learning intention for the lesson and write success criteria for mixed-ability levels while they write lesson plans. DI is an instructional technique in which teachers take a proactive approach and prioritise shared objectives for each student in the classroom by offering students several options in anticipation of and in response to differences in their readiness, interests, and learning preferences (Tomlinson, 2017). Hence, teachers share the success criteria with the students based on mixed-ability groups.

Moreover, the results also illustrated that teachers implement formative assessment to some extent to assess the student's ongoing progress. For example, “I assess the students while they are doing the group work and while doing individual work, as well as by asking questions orally and giving pair works” (Malka). This aligns with the flow of instruction in a differentiated classroom and the DI framework (Tomlinson, 2014, 2017). According to the framework, assessment in differentiated classrooms is ongoing and diagnostic.

Additionally, the analysis further demonstrated that DI teachers have collaborative coordination meetings with all teachers teaching the specific class before they prepare the lesson plans. It showed that coordination meetings help the teachers prepare for their lessons as all teachers share their ideas on how to carry out the lessons and discuss how to address students of different abilities. This study data are coherent with the research conducted in Germany by Pozas and Letzel-Alt (2023). The results of a mixed analysis of variance revealed that teachers mostly engage in collaboration through less demanding and less intensive cooperative behaviours, such

as sharing instructional materials and content-related information. Similarly, Goddard and Kim's (2018) study conducted to find out the connection between teachers' perception and collaborative use of DI revealed a positive and significant connection between teachers' collaboration and the use of DI. Moreover, according to Tomlinson (2014), proactive planning is crucial for successful differentiation. This includes organising the curriculum around essential knowledge, comprehension, and skills, identifying student differences, and responding appropriately to them. Thus, the present study shows that teachers intend to implement DI by planning well ahead of the lessons by working collaboratively. The result illustrates that teachers utilise some elements of the framework while planning for DI.

5.4 RQ3. What are the barriers and enablers for teachers in implementing differentiated instruction in their classrooms?

The third research question focused on identifying the barriers and enablers of these teachers in implementing DI to cater to students' diverse learning needs. The results exhibited that teachers find it challenging to implement DI because of the high student-to-teacher ratio [class size] and limited lesson duration to complete planned activities for implementing DI. They reported that support from an assistant teacher in class and collaborative planning would help them to implement DI effectively.

A teacher unpredictably reported that some students sometimes resent receiving differentiated tasks [less challenging work] that teachers provide as a barrier to implementing DI. Implementing DI is considered a challenging process for teachers (Gaitas & Alves Martins, 2017). Gaitas and Alves Martins (2017) found that it is challenging to implement DI and that teachers may benefit from opportunities to develop further knowledge and skills. Eysink et al. (2017) found that teachers are uncertain about the right resources to use, how much assistance students need to use those resources efficiently, and how to help students develop critical thinking and reasoning skills at various levels. Research also shows that teachers find time management and classroom control challenging when implementing DI (Bondie et al., 2019; Wan, 2017).

Studies conducted in the Maldivian context show barriers to implementation of DI include insufficient skill, insufficient time to manage demanding tasks, challenges in evaluating the learning

of students' (Shareefa, 2021), class size, resources, and support (Shareefa et al., 2019). Similarly, Suprayogi et al. (2017) found that class size was a barrier to implementing DI. The present study is consistent with these findings to some extent, as teachers perceived time allocations for the lessons and student-teacher ratios as constraints faced in implementing DI.

The findings also illustrated that preparing in advance for the lessons and having a support teacher would help teachers implement DI. Shareefa (2021) found that it was beneficial to implement DI by having a master teacher and assistant teacher in the classroom. Two teachers working together helped to accomplish classroom management, overseeing and recording student work and leading specific learning activities. The study discussed that having two teachers in the same classroom creates an environment where ideas can be shared, and new tactics may be learned from the more experienced instructor. This finding is in line with current research findings. Moreover, analysis demonstrated teachers considered collaborative planning as another enabler which paves the process of planning for DI. This brings this study's findings into line with those of Reeves et al. (2017), which showed that teacher collaboration during lessons planning was a highly significant beneficial predictor of student achievement.

5.5 Implications and Recommendations

The findings demonstrated that the teachers believed the concept of DI is essential for equity and student achievement in inclusive classrooms; however, teachers experienced challenges implementing DI in their classrooms. These observations are widely acknowledged in the literature. Nevertheless, this study has enhanced the understanding of DI as applied in the context of the Maldives by highlighting the discrepancy between teachers' knowledge and understanding of DI and their lesson planning, which may also be influenced by barriers to implementation of DI, such as the duration of the lessons and teacher-student ratio.

The findings of this study replicated earlier research (Pozas & Schneider, 2019; Strogilos et al., 2017), highlighting the importance of teachers' understanding and ability to conduct DI. The current professional development programs for teachers in the Maldives are conducted annually for a total of only 15 hours per teacher. Hence, one suggestion to increase knowledge and understanding of DI among educators in the Maldives would be to conduct further ongoing

professional development programs. Professional development programs could specifically be focused on educating teachers on the principles and core elements of DI and the flow of differentiated classrooms. This could help the teachers to expand their understanding of DI beyond a set of strategies. Professional development programs can enhance teachers' abilities to apply DI in their classrooms (Coubergs et al., 2017). The findings showed that although primary school teachers exhibited some elements of DI, their understanding of its implementation was narrow. Teachers cannot successfully implement DI in their classrooms if they do not fully comprehend all its components (Van Geel et al., 2022). Hence, supporting primary school teachers' understanding of the benefits and elements of DI may enhance their readiness and capacity to adopt this approach, leading to enhanced student engagement in addressing their diverse needs.

The findings suggest that although teachers are collaborating to implement DI, there is still potential for additional skill enhancement in collaborating. Increased assistance from school administrators, combined with collaborative efforts, could greatly assist teachers in improving their DI practices. The collaborative approach, with the added assistance of leadership, can have the capacity to enhance the actual implementation of DI, hence increasing its efficacy in addressing the varied requirements of students. In alignment with the views of Gheyssens et al. (2020), teachers in this study expressed positive experiences working together while discussing their personal learning activities and recognised the importance of collaborating on the collective advancement of knowledge within the school. They unanimously concurred that to implement DI, it was imperative for them to enhance their collaboration (Langelaan et al., 2024). Within the current collaborative environment, school leaders could support teachers to implement DI despite the challenges of large class sizes and time constraints.

The results of this study also suggest implementing changes to criteria for university qualification of Maldives teachers to include pre-service courses and training in DI and designing programs for lesson planning. Teacher educators should promote the cultivation of differentiated and multitasking classrooms among their teacher trainees (Gaitas & Alves Martins, 2017). Moreover, school leaders could consider revisiting lesson plan format, as the current lesson plan format shows fixed ability groups (gifted, average, students with learning difficulties). Having these three groups in lesson plan format could limit teachers' autonomy in planning to differentiate by

adapting flexible learning strategies that suit students' readiness level. Hence, to design lesson plan format, leaders could refer to Tomlinson's (2017) flow of differentiated classroom and incorporate its components to the format.

Further research into differentiated instruction should delve more deeply into the contextual challenges to implementation of DI in classrooms in the Maldives setting, including investigations of social, cultural, and economic factors that may be overcome through greater acknowledgement and understanding. Future studies should also be undertaken to evaluate the efficacy of professional development initiatives and pre-service training to support teachers in their competencies and motivation to implement DI. Finally, research could examine the consequences of partially adopted DI strategies on student achievements. By acknowledging and considering these consequences, stakeholders can establish a more encouraging and supportive setting for teachers, resulting in a more equitable and inclusive learning environment for all students.

5.6 Limitations

Several limitations of this study are acknowledged. Firstly, the research focused on one primary school and four teachers. Thus, it is not clear if these findings are generalisable to other teachers or other school contexts in Maldives. Secondly, the researcher's attitudes and prejudices can impact on the interpretation of interview data. To overcome this, the researcher was engaged in reflexive practice, and rich data were provided to support the transferability of the findings (Braun & Clarke, 2019). The context of the school teachers was clearly described. Moreover, a detailed description of the context and the researchers' own positioning as a researcher was provided (Creswell, 2013). As a third limitation, the research supported teachers' self-reporting of their perceived understanding and planned use of DI, which may not precisely reflect their real knowledge and capabilities. The researcher did not directly observe teachers' classrooms or the potential differences between their intended plans and their actual implementation in the classroom. Furthermore, as the qualitative interview data were gathered from an online interview, in-depth interaction may be less, affecting the data quality (Carter et al., 2021).

5.7 Conclusion

This research explored Maldivian primary school teachers' perceived understanding and planned use of DI. The study explored teachers' reported levels of understanding, its implementation in the classroom, and its influence on addressing the diverse needs of the students. A qualitative collective case study design was exploited to understand the phenomena of teachers' knowledge and understanding, and DI was planned. The data gathered from one-on-one interviews, lesson plans, and reflexive thematic analysis aligned with previous research to some extent, showing that teachers exploited some elements of the framework of DI (Tomlinson, 2014, 2017).

The findings unveiled that DI for the participating teachers might be viewed as a set of strategies rather than a philosophy, since teachers attempted to implement DI by differentiating tasks according to students' ability levels. The results indicated that teachers perceived DI as crucial for addressing students' various learning requirements, and they tried to implement it through mixed-ability grouping. Moreover, teachers plan for DI by having collaborative coordination meetings and writing lesson plans before they teach. The reflection of interview data and analysis of the lesson plan revealed that teachers implemented what they intended to, according to their lesson plans. However, the likelihood of its successful implementation was perceived to be reduced due to time constraints to carry out the lessons and large class sizes. To conclude, the results indicated that four key elements of the framework, differentiating by the product, differentiating by the environment, use of formative assessment, and students working in the heterogeneous grouping, were evident from the results. Therefore, teachers utilised and acknowledged DI as a significant pedagogical tool in catering to students' diverse needs in the Maldives inclusive classroom.

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APPENDICES

Appendix 1: Ministry of Education Research Approval Letter

Ministry of Education

Policy Planning and Research Division

Malé, Maldives

To Whom It May Concern

Approval for collecting information from Schools

This is to inform [ ] who is undertaking Master of Leadership in Education at Flinders University, Australia has the permission to collect information required for her research project from the schools of Maldives.

Research Topic:

"A Study of a Maldivian School Teachers' perceived understanding and use of Differentiated Instruction (DI)."

Main Objectives:

The main aim of this study is to evaluate Maldivian Primary school teachers' perceived knowledge and understanding of the use of DI. The aims include:

1. To explore teachers' perceived understanding and use of DI.
2. To identify how teachers plan for DI in their lesson plans.
3. To discover the barriers and enablers teachers face in implementing DI in their classrooms.

Data Needed:

Qualitative responses through four interviews and four lesson plans (one lesson plan from each participant)

Participant/s:

[ ]

Velaanaage, 9th Floor, Ameer Ahmed Magu, Malé 20-096, Maldives
Tel: 332 3261, 332 3262 Fax: 332 1201

ވެލާނާއާ، 9 ވަނަ ފަންގިފިލާ، ކަނޑުދޮށް ރާ، ފ. 20-096، ދިވެހިރާއްޖެ
ފޯނު: 332 3261, 332 3262 ފެކްސް: 332 1201

Appendix 2: Email to The School Principal

With (Reference Number) to the approval from the Maldives Ministry of Education, I am writing to seek your assistance in conducting a research project in your school. I am a Flinders University student undertaking a Master of Leadership in Education program specialising in learning difficulties.

Research Title: A Study of a Maldivian School Teachers' perceived understanding and planned use of Differentiated Instruction.

The research aims to explore teachers' perceived understanding and planned use of Differentiated Instruction and identify the barriers and enablers for the effective implementation of Differentiated Instruction. To conduct the study, I will purposely choose two teachers from Key Stage One and two teachers from the Key Stage who have completed the New National Curriculum and Inclusive Education Training. Therefore, I require your assistance in sharing the information sheet and consent form with the teachers who have completed the New National Curriculum and Inclusive Education Training. Those teachers who are willing to participate could mail me the signed consent forms within two weeks.

Conducting this research could be beneficial to the school in identifying and understanding teachers' perceived understanding and planned use of Differentiated Instruction and how teachers currently implement Differentiated Instruction into their daily practices. Second, as school leaders oversee and assist teachers during the instructional process, the research findings could raise their awareness and understanding of effective ways to assist teachers in implementing Differentiated Instruction more effectively.

If you would like to clarify any additional information regarding the research, do not hesitate to contact me.

Appendix 3: Participant Information and Consent Form

Flinders University

PARTICIPANT INFORMATION SHEET AND CONSENT FORM

Title: A Study of a Maldivian School Teachers' perceived understanding and use of Differentiated Instruction (DI).

Chief Investigator
Ms Muna Adam
College of Education, Psychology and Social Work
Flinders University

Description of the study
This project will investigate a Maldivian Primary School Teachers' perceived understanding and planned use of Differentiated Instruction. This project is supported by Flinders University, College of Education, Psychology and Social Work.

Purpose of the study
This project aims to determine teachers' perceived understanding and planned use of DI and identify the barriers and enablers for the effective implementation of DI.

Benefits of the study

The sharing of your experiences will help educational stakeholders identify leaders' and teachers' current knowledge and how the teachers are implementing Differentiated Instruction. This research could further raise leaders' awareness and understanding of effective ways to assist teachers in implementing differentiated instruction, and the results could serve as a framework to plan professional development programs for future advancements. There are no direct benefits to you as a participant.

Participant involvement and potential risks

If you agree to participate in the research study, you will be asked to:

- Attend a one-on-one interview with a researcher that will be audio recorded. The interview will take approximately 45- 60 minutes. The interview will be conducted over Microsoft Teams at a mutually agreeable time.
- You will also be required to share your lesson plan before the interview. Within two weeks of time duration, you can conduct the lesson and inform me by email. Once you finish conducting the lesson, an interview will be scheduled.
- Respond to questions regarding your views about implementing Differentiated Instruction
    - Current classroom practices of Differentiated Instruction
    - Barriers and enablers that affect the implementation of Differentiated Instruction.

No significant risks are expected to arise from participating in this research beyond the day-to-day; however, some of the minor risks are listed below.

- Social risk
- Experiencing anxiety
- Unwanted self-knowledge

If you experience feelings of distress as a result of participation in this study, you can contact the following services for support:

- [redacted]ervice)
- [redacted]
- [redacted]

Withdrawal Rights

You may decline to take part in this research study. If you decide to take part and later change your mind, you may withdraw at any time within the February 2024- May 2024 time frame of the data being collected. Once the transcript has been completed and verified by you, your data will be included in the research and cannot be withdrawn from this point onwards. To withdraw, please contact the Chief Investigator to have your data removed from the study or you may just refuse to answer any questions / close the internet browser and leave the online interview or not participate in questions at any time. Any data collected up to the point of your withdrawal will be securely destroyed.

Data recorded during one-on-one online interviews can be deleted. And the data will not be used in this research study without your explicit consent.

Confidentiality and Privacy

Only researcher listed on this form have access to the individual information provided by you. The researcher will take all possible steps to ensure privacy and confidentiality will be adhered to at all times.

Individual participants are requested to maintain confidentiality and not disclose to a third party any issues discussed during the interviews.

The research outcomes may be presented at conferences, written up for publication or used for other research purposes as described in this information form. You will not be named, and your individual information will not be identifiable in any research products without your explicit consent.
Due to the small sample size, anonymity is not fully guaranteed, and there is a likelihood you as a participant could be identified; however, anonymity will be minimised with the use of pseudonyms.
No data, including identifiable, non-identifiable and de-identified datasets, will be shared or used in future research projects without your explicit consent.

Please provide your consent to this by ticking the appropriate box on the Consent Form at the end of this form.

Data Storage
The information collected will be stored securely on a password-protected Flinders University server throughout the study. Any identifiable data will be de-identified for data storage purposes unless indicated otherwise. All data will be securely transferred to and stored at Flinders University for five years of publication of the results. Following the required data storage period, all data will be securely destroyed according to university protocols.

How will I receive feedback?
On project completion, a short summary of the outcomes will be provided to all participants via email.

Ethics Committee Approval
The project has been approved by Flinders University's Human Research Ethics Committee (HREC project number 6734).

Queries and Concerns
Queries or concerns regarding the research can be directed to the research team. If you have any complaints or reservations about the ethical conduct of this study, you may contact the Flinders University's Research Ethics and Compliance Office team either via telephone (08) 8201 2543 or by emailing the Office via human.researchethics@flinders.edu.au.

Thank you for taking the time to read this information sheet, which is yours to keep.

If you accept my invitation to be involved, please sign the enclosed Consent Form.

CONSENT FORM

Title: A Study of a Maldivian School Teachers' perceived understanding and use of Differentiated Instruction
HREC project number: 6734

Consent Statement

- ☐ I have read and understood the information about the research, and I understand I am being asked to provide informed consent to participate in this research study. I understand that I can contact the research team if I have further questions about this research study.
- ☐ I am not aware of any condition that would prevent my participation, and I agree to participate in this project.
- ☐ I understand that I am free to withdraw at any time during the study.
- ☐ I understand that I can contact Flinders University's Research Ethics and Compliance Office if I have any complaints or reservations about the ethical conduct of this study.
- ☐ I understand that my involvement is confidential, and that the information collected may be published. I understand that I will not be identified in any research products.
- ☐ I understand that anonymity is not fully guaranteed due to the small sample size. There is a likelihood that you, as a participant, could be identified.
- ☐ I understand that the information collected may be published and that my identity may be revealed.
- ☐ I understand that I will be unable to withdraw my data and information from this project. I also understand that this data will not be used for this research study.

I further consent to:

- ☐ participating in an interview
- ☐ having my information audio-recorded
- ☐ having my information video-recorded
- ☐ my data and information being used in this project and other related projects for an extended period of time (no more than five years after publication of the data)

Deleted: ¶
¶

Signed:

Name:

Date:

Appendix 3: Seme-Structured Interview Questions

Semi-Structured Interview

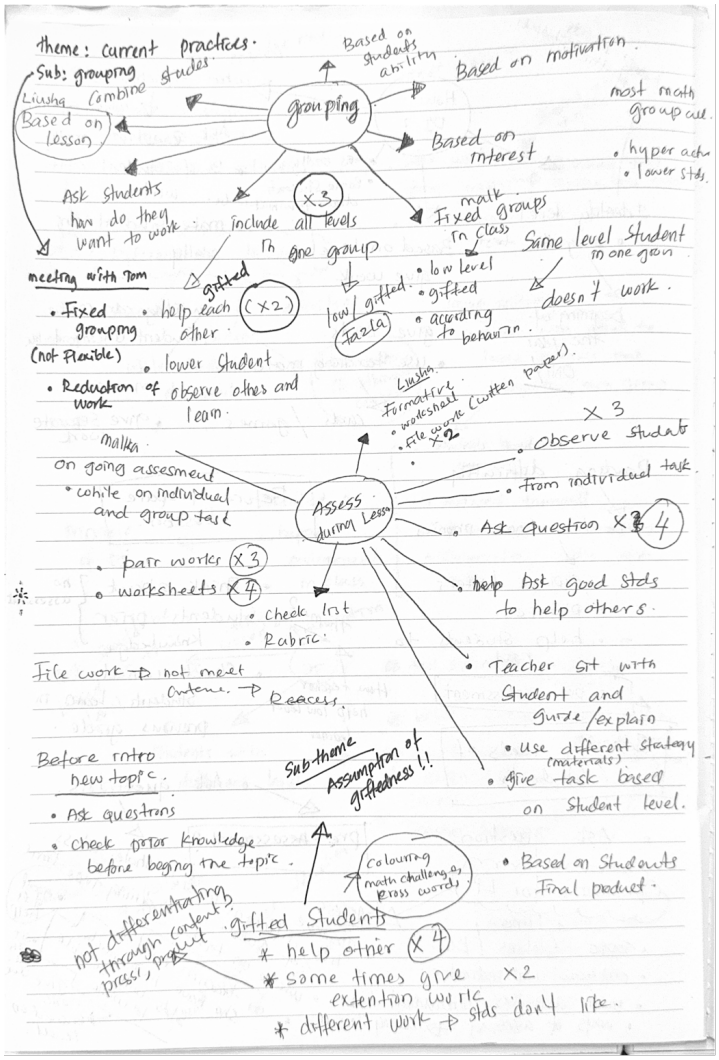
Questions to teachers

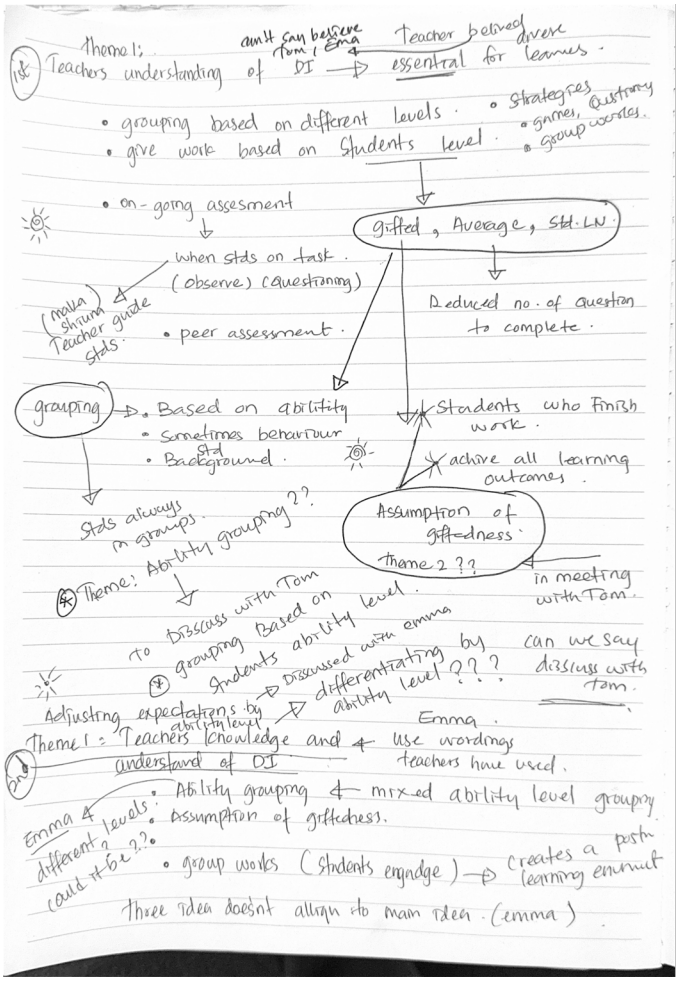
1. what is your professional background? How many years of experience as a teacher? What is your qualification?
2. What instructional strategies do you adopt in your teaching? (why?)
3. What is differentiated instruction? What does it look like in your classroom?
4. How do you differentiate? Describe the last time you differentiated and what you were doing.
5. What are the things you consider before preparing a lesson plan? How do you identify the needs of the students?
6. Can you outline your procedure for creating a lesson plan? What are the things you consider when you prepare the lesson plan?
7. How often do you conduct group activities, and how do you group students?
8. What barriers and enablers do you face to implement differentiated instruction successfully? For example, what helps you differentiate, and what reduces the likelihood of you differentiating?
9. How can differentiated instruction be effectively implemented to address the learning needs of diverse students in a classroom?

Questions to address while sharing the lesson plan

1. Talk to me about the enactment of your lesson plan in the classroom? What went well? What changed?
2. Looking at what is in your lesson plan, did you follow this plan strictly, or did you make changes?
3. How did you differentiate in the lesson? How do you know that differentiation was successful or not?

Appendix 5: Reflexive Journal





Appendix 6: Lesson Plan of a Participant

Lesson plan

SUBJECT & GRADE:	Mathematics / Grade 1	WEEK/LESSON:	W 13 L1
STRAND:	CHANCE AND HANDLING DATA (CD)	DURATION:	30 min
SUB STRAND:	Handling Data (H)	DATE: 28th March 2024	

Key Competencies		Shared values Values relating to:	
Practicing Islam		Self	✓✓
Understanding managing self	✓	Family and others	
Thinking critically and creatively	✓✓	Local & global Community	
Relating to people		Environment	
Making meaning	✓	Focus for learning	
living a Healthy life		Knowledge and understanding	✓✓
Using sustainable practices		Skills	✓
Using technology and media		Values and attitudes	

Learning outcomes:	Focused indicator (s):
Display data in table forms and interpret the information presented.	b. Interpret information presented in a display of objects to answer questions.
Learning Intentions:	
We are learning collecting data and interpret	
Success Criteria:	We will be successful if we are able to: - Collect the data for the given fruits to find the favourite fruits by asking 10 classmates in the class. - Answer at least three questions out of the given six questions to interpret the presented data. - Colour the bar graph to show their collected data.

TEACHING RESOURCES

Worksheets ☐ Pictures ☐ Diagrams ☐ Posters ☐ Flashcards ☐ Charts ☐

Google Slides ☐ Models ☐ Maps ☐ Real objects ☐ Multimedia ☐ Games ☐

Concept maps ☐ Lab equipment ☐ Word cards ☐ Resource Person ☐ Others ☐

Introduction: (7-10 min)	Differentiated learning:
- Greet the class. Recall the previous lesson. - Find the total number of students who came to the class today. and ask them which was the most /least number of students who came to the class? - Note down on the board the number of students who came on the week. - Talk about the learning intention and the success criteria.	**Gifted**: should be able to: 👍collect the data and interpret the information and Answer all questions given on their own
Main Activity : (15-20 min)	**Average**: should be able to: 👍collect the data with the help of peers and interpret the information and Answer half of the questions given on their own
Activity 1: - Explain how to collect data using the table. (use the different drinks and ask the students whether they like or not) - Use the board to draw the bar graph to show the collected data. - Ask individual students different questions. - How many students like watermelon? - How many students do you like most? - Which drink do students like least? - Give them a group activity to collect the data and colour the bar graph among the group. task: different places they like to go. and fill the tally in the table. - Discuss How they can interpret the collection of data they took. - present the group activity. - **Activity 2:** - Give the individual worksheet. They have to ask 10 classmates to find their favourite fruits and collect the data and colour the bar graph to show their result. - Answer the given questions based on the data they collected. - Assess them while they are at work. ask individual questions orally to know their understanding.	**Support**: should be able to: 👍can collect the data on their own and can answer at least one question out of the given and rest of the question get help from peers to complete it.

- Give different instructions to the lower students to complete the task. Tell them to try few question from the given on their own.

Extension work

- Give them a Math big book page to complete.

Conclusion: (5-10 min)

- Show them information and ask questions related to the collected data.

Assesent Tool:	Rating Scale		Rubric		Check list	✓	Oral	✓	Observation	✓	Others	

Checked by:		Comment:		Teacher self-evaluation