FOUNDATION PHASE TEACHERS' UNDERSTANDING AND IMPLEMENTATION OF DIFFERENTIATED PEDAGOGICAL PRACTICES IN TEACHING READING

A thesis submitted in fulfilment of the requirements for the degree

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DECLARATION OF ORIGINALITY

I, Johanna Makgati Muroa; hereby declare that this thesis is my original work and has not been previously submitted in any form for assessment or a degree in any other higher education institution. All ideas, quotations and other materials used in this study derived from the work of other people have been acknowledged using complete references according to Rhodes University Education Department Guidelines.

J.M. Muroa

Signature Date

ABSTRACT

Pre-1994, teacher education in South Africa was separated into mainstream and special education classes. Special education classes accommodated learners who were not coping with grade-level work. In 2001, Education White Paper Six advocated for inclusive education. This policy promotes differentiated pedagogical practices to accommodate learners' needs and minimize barriers to learning. However, research has shown that teachers do not have the required content and pedagogical knowledge to teach according to diverse learners' needs. One of the reasons given is that the teacher education system does not prepare teachers adequately to teach in classrooms with diverse learners. This qualitative case study is underpinned by an interpretivist orientation as it seeks to ascertain how teachers understand and implement differentiated pedagogical tools in their practice. The research asks the question: How do Foundation Phase teachers understand and implement differentiated pedagogical tools? Seventy-six teachers enrolled for in-service Bachelor of Education (Foundation Phase) completed a questionnaire and three Foundation Phase teachers were observed and interviewed. Data gathered was analyzed using the Theory of Practice Architectures. The study found that the teachers recognized the importance of accommodating the different learners' learning needs, however, they struggled to implement differentiated pedagogical practices in the classroom.

Keywords: Teacher education, Differentiated pedagogical practices, Appropriation, and Reading comprehension.

DEDICATION

This thesis is dedicated to my parents, Moloto and Hunadi, whose good examples and teachings have taught me to always work hard to achieve the things I aspire to. To my children, Motheo and Molemo, who have been supportive throughout this journey. I hope this sets an example for you that education is key.

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CHAPTER 1: RATIONALE FOR THE STUDY

1.1 Learner performances

The Southern and Eastern Africa Consortium for Monitoring Education Quality (SACMEQ) attests that South African learners perform poorly in reading. Despite this, it is worth noting that South African learners have improved from the SACMEQ III to the SACMEQ IV study. In the SACMEQ IV study, South African learners "achieved above the mean SACMEQ score of 500" (SA.DBE, 2017, p. 27). The score for reading in SACMEQ IV was 538. This is marked by a "significant decrease in the percentages of learners who achieved the lower reading levels of the SACMEQ hierarchies and a remarkable increase in the percentages that achieve higher levels" (p. 30). As indicated in Table 1.1, there are eight reading competency levels in the SACMEQ studies. Learners "who perform at a higher level demonstrate more understanding and competence than those at a lower level" (SA.DBE, 2017, p. 29).

	Level	Descriptor	Competencies
BASIC READING SKILLS	1	Pre-reading	Matches words and pictures involving concrete concepts and everyday objects
	2	Emergent Reading	Matches words and pictures involving prepositions and abstract concepts.
	3	Basic Reading	Interprets meaning (by matching words and phrases, completing sentences).
	4	Reading for Meaning	Reads to link and interpret information located in various parts of the text.
	5	Interpretive Reading	Interprets information from various parts of the text in association with external information.
ADVANCED READING SKILLS	6	Inferential Reading	Reads to combine information from various parts of the text so as to infer the writer's purpose.
	7	Analytical Reading	Locates information in longer texts (narrative, document or expository) in order to combine information from various parts of the text so as to infer the writer's personal beliefs (value systems, prejudices and biases).
	8	Critical Reading	Reads from various parts of the text so as to infer and evaluate what the writer has assumed about both the topic and the characteristics of the reader

Table 1.1: Levels of reading competence in the SACMEQ studies (SA.DBE, 2017).

In the SACMEQ IV study, 50% of South African Grade 6 learners demonstrated reading competence at Levels 1, 2 and 3. This means that these learners cannot read for meaning, a necessary requirement for the Intermediate Phase (Pretorius & Spaull, 2016; Spaull, 2015a; Van Staden & Bosker, 2014).

The results from the Progress in International Reading Literacy Study (PIRLS) in 2016 were concerning. According to the PIRLS study, 78% of Grade 4 learners cannot read for meaning (Spaull & Pretorius, 2019). The 2011 pre-PIRLS study showed significant linguistic inequalities in South Africa, as 50% of learners learning an indigenous language (e.g., Setswana) could not read for meaning by the end of Grade 4, compared to 11% of English and Afrikaans learners (Spaull, 2015a). Spaull (2015a) notes that as these children progress up the schooling system, they tend to fall further and further behind due to the severe learning backlogs. The recent PIRLS results are even more startling, with 81% of Grade 4 learners who cannot read for meaning (SA.DBE, 2023).

The concern over SA learners' performance has led to several national initiatives to monitor the quality of education. One of these initiatives was the Annual National Assessment (ANA), which aimed to gauge the extent to which the education system supported numeracy and literacy development (Motshekga, 2014). In promoting the ANAs, the Minister of Basic Education, Motshekga, argued in 2014 that the ANA testing would continue assisting teachers and researchers in diagnosing literacy problems and devising improvement plans. However, debates around the validity of the ANAs, and pressure from teacher unions, led to the ANAs being stopped in 2015 (Spaull, 2015b). Many educationists argue that standardised testing narrows education goals, and limits teaching to testing (Chisholm & Wilbeman, 2013; Franklin & Snow-Gerono, 2007; Jansen, 2005).

1.2 Reasons for poor learner performance

There are many reasons for poor learner performance in literacy. These include poor infrastructure, unequal distribution of resources, teacher quality, and teacher knowledge of content and pedagogy (Reddy, 2006). Adding to the reasons for poor learner performance, van der Berg et al. (2016) listed four binding constraints in SA education: (1) weak institutional functionality; (2) undue union influence; (3) weak teacher content knowledge and pedagogical skills; and (4) wasted learning time and insufficient opportunity to learn. Howie et al. (2017) added that rural schools, schools without libraries, and the province the schools were in were all factors which contributed to the poor performance. These are linked to the legacy of the apartheid system in the country, which has resulted in unequal distribution of resources (Howie et al., 2008).

While there are numerous explanations given for poor learner performance in literacy, the most significant for my study is teacher knowledge. Research has shown that teachers need to have the required content and pedagogical knowledge to teach (Anderson & Gumus, 2006; Dack, 2018; Gafoor & Asaraf, 2009; Kortahagen et al., 2006). Seven hundred and seventy-five Grade 6 teachers participated in the SACMEQ IV study. They were given the same questions as the learners, with a few questions rated slightly more complex. While the overall reading score was significantly higher than the learners (726.6 versus 538.3), concerns should be raised about the levels of reading competence as noted in Table 1.2 (SA.DBE, 2017).

Table 1.2 notes that the majority of Grade 6 teachers are critical readers (Level 8). In other words, they can infer and evaluate what the author has assumed about the topic. However, it should be noted in Table 1.2 that the percentage of teachers at Level 8 decreased from 77.8% (SACMEQ III) to 64% (SACMEQ IV). In addition, it remains a concern that there are

teachers teaching Grade 6 learners, who are themselves not able to read for meaning (Level 4).

	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6	Level 7	Level 8
SACMEQ III	0.1	0	0.3	0	0.2	1.2	20.5	77.8
SACMEQ IV	0	0	0.5	0.6	0.8	6.7	27.8	64.0

Table 1.2: Percentage of teachers' reading competence according to the SACMEQ levels in III and IV (SA.DBE, 2017)

Similarly, Mbatha (2014) found that most teachers cannot adequately address the needs of linguistically and culturally diverse learners in SA. This lack of pedagogical content knowledge has dire effects on learner performance.

Gess-Newsome et al. (2019) defined high-quality teaching as the purposeful and deliberate planning of instruction that results in a coherent learning experience for learners. High-quality instruction requires a teacher who can adapt the curriculum and select appropriate pedagogical techniques to address learning needs (Gess-Newsome et al., 2019). Without good content knowledge, it is unlikely that teaching will be effective. As Taylor (2008) noted, it is difficult to teach when one does not know the content. Without pedagogically solid content knowledge, and an understanding of developing and assessing learners' reading comprehension, the poor literacy results for South African learners will continue (Zimmerman & Smit, 2014). This might be exacerbated in the context of policy recommendations that schools be inclusive and cater to a wide variety of learners' learning needs.

1.3 Inclusive education in South Africa

Pre-1994, most learners with disabilities and special learning needs had limited access to education (Khumalo & Hodgson, 2017; Lomofsky & Lazarus, 2001; Muthukrishna &

Schoeman, 2000; Pather, 2011; Soudien & Baxen, 2006). Post-1994, the democratically elected government sought to address this by establishing inclusive education policies (e.g., White Paper 6: Special Needs Education – Building an Inclusive Education and Training System) or policies based on the principle of inclusion (Curriculum and Assessment Policy Statements).

1.3.1. Policy

The Education White Paper 6: Special Needs Education – Building an Inclusive Education and Training System (SA.DoE, 2001) is a policy developed by the Department of Education, which envisioned an inclusive education system premised on the principles of non-discrimination and human dignity for all children. The policy seeks to remedy the problems inherited from the apartheid education system and eradicate all forms of barriers to learning.

The Education White Paper 6 (WP6) recognizes that all learners can learn, provided they receive the necessary support. Furthermore, it celebrates learner diversity and recognizes that learning occurs in different social contexts, including schools (SA.DoE, 2001). Understanding learner differences, and designing ways to address them, is central to implementing inclusive education (Green & Engelbrecht, 2007). Inclusive education requires educators to transform their content and delivery practices by focusing on learner-based pedagogies that meet the needs of learners with differing interests, learning profiles, and levels of functioning (Kraglund-Gauthier et al., 2014).

Despite the commitment to transformation and inclusivity, “traditional conservative attitudes and practices” still prevail in schools and classrooms (Engelbrecht, 2006, p. 260). The traditional conservative attitudes and practices include amongst others the need to isolate learners according to racial lines, language, physical and learning disabilities, and those from poor backgrounds. Although South Africa had expectations, and the political will, to

change education by adjusting legislation and policies, it has been challenging to achieve in practice (Engelbrecht et al., 2016).

1.3.2. Teachers' knowledge and pedagogical practices

Dalton et al. (2012) argue that the implementation of inclusive education is hampered by the teachers' lack of skills and knowledge in differentiating the curriculum to address a wide range of learning needs. The WP6 emphasises the need for extensive training of teachers in order to gain the skills to teach children with barriers to learning. A study by Ntombela (2011) showed that teachers have limited experience and understanding of inclusive education, and feel they need more preparation to implement it. The poor knowledge of teachers is often attributed to the lack of training. This is seen as one of the main barriers to inclusion (Florian, 2008). Prinsloo (2001) notes that the Department of Basic Education (DBE) is attempting to train and retrain in-service teachers to accommodate diversity in inclusive classrooms and to address the teachers' limited knowledge in implementing inclusive practices.

1.3.3. The training of pre- and in-service educators

Pre-service and in-service teacher education is key to the successful implementation of inclusive education (Swart et al., 2002). The importance of having a positive attitude towards inclusive education amongst in-service teachers has been long recognized (Sharma et al., 2006). Research indicates that teachers with more teaching experience have more negative attitudes toward inclusive education (Savolainen et al., 2012). Younger teachers are perceived as more effective in creating an inclusive learning environment. Forlin et al. (2009), Savalainen et al. (2011) and Sharma et al. (2018) concur that younger teachers' extensive knowledge of pedagogical practices that promote inclusion has prepared them well to implement inclusive practices.

However, Korthagen et al. (2006) and Dack (2018) disagree. They argue that both in-service and pre-service teachers need more knowledge of creating inclusive classrooms that meet the learning needs of all learners. This has led to a critique of the teacher education system, with many suggesting that teachers are not adequately prepared to teach (Darling-Hammond, 2000).

Allday et al. (2013) examined 109 teacher education programmes in the United States to determine the number of course hours devoted to inclusion, instruction, and managing learners with disabilities. The findings suggested that few programmes offer courses relating to inclusion (Allday et al., 2013). Further research on what pre-service teachers learn about inclusive practice is required (Florian et al., 2010).

Teacher knowledge significantly influences attitudes, concerns, and efficacy (Forlin et al., 2014). Research suggests a relationship between self-efficacy and inclusion (Savolainen et al., 2012; Sharma et al., 2018). Sharma et al. (2018) concluded that teachers who received appropriate training in inclusion and support in implementation tend to have higher levels of efficacy in inclusion. They further suggested that teacher education should design professional learning programmes that cover the practical aspects of inclusion (Sharma et al., 2018). In other words, teachers need information about working with the local community (school leaders and other stakeholders) to mobilise resources to include all learners. The aim of teacher education in preparation for inclusion should focus on improving and increasing the teachers' understanding and confidence in inclusive practices (Forlin et al., 2009).

The role of teacher education in developing a positive attitude toward inclusion is to ensure that teachers are prepared for the rapidly changing needs of learners (Dack, 2018; Korthagen et al., 2006; Sharma et al., 2006). The Minimum Requirements for Teacher Education Qualifications Policy (MRTEQ) (SA.DHET, 2015) has emphasised that "Foundation

Phase teachers must be skilled in identifying and addressing barriers to learning in the early years of schooling as well as in curriculum differentiation for multiple learning levels" (p. 20).

Research on teacher education for inclusion has taken many forms, including but not limited to inclusive practices, programme content, programme delivery, instructional techniques for diversity, attitudes, concerns and self-efficacy (Anderson & Gumus, 2006; Dack, 2018; Florian, 2008; Forlin et al., 2014; Gafoor & Asaraf, 2009; Kortahagen et al., 2006; Mji & Makgato, 2006; Savolainen et al., 2012; Sharma et al., 2006).

In South Africa, research on teachers' attitudes toward inclusive education has been linked to a lack of training and preparation for inclusive classrooms (Stofile & Green, 2007). Walton and Lloyd (2012) identify a gap in the literature on courses focusing on inclusion in teacher education in South Africa, and suggest how a postgraduate qualification in inclusive education could be structured and presented to draw on international best practices while reflecting local realities.

1.4 The role of Differentiated Instruction in inclusive education

One way to promote inclusive practices in the classroom is through differentiated learning. Tomlinson (2003a), a prominent advocate of Differentiated Instruction (DI), described this teaching strategy as a pedagogical approach to teaching and learning whereby learners of differing readiness levels, interests, and learning modes are taught within the same classroom. Anderson and Gumus (2006) claim that teachers should understand how to differentiate the curriculum and draw on pedagogical practices to accommodate all learners in inclusive classrooms. As a pedagogical approach, DI incorporates how the teacher modifies the content, process, product, and assessment to address learners' different needs (Smit & Humpert, 2012). This concept requires teachers to anticipate diversity, and adjust their

instruction to accommodate all learners (Tomlinson, 1999; Tomlinson, 2001; Tomlinson et al., 2003).

Brodie et al. (2002) added that teachers who employ this pedagogical approach start with different levels and kinds of prior knowledge, assess how and what learners are learning, and adapt instruction to different learning styles and needs (Smale-Jacobse, 2019). According to Dixon et al. (2014), teachers who differentiate their pedagogical practices respond to learners' needs in multiple ways: how the content is taught, learned, and assessed. They refer to this as differentiating according to content, process, and product.

Teachers seemingly limited knowledge of how to create inclusive classrooms, where all learners' learning needs are met, has led to a critique of the teacher education system with many people suggesting that teachers are not adequately prepared to teach a diverse range of learners (Dack, 2018; Korthagen et al., 2006). Teacher education institutions should be preparing teachers (pre-service and in-service) for the complexities of the classroom, classroom diversity, and issues related to inclusion. However, Allday et al. (2013) found that only some teacher education programmes offer courses explicitly relating to differentiation. In light of this, teacher education has been challenged to improve the quality of their programmes to focus on accommodating learning barriers (Dack, 2018; Korthagen et al., 2006).

In this study, I have explored how teachers understand and implement DI in their pedagogical practices when teaching reading in the classroom. In my study, reading consists of five components: phonics, phonemic awareness, vocabulary, reading comprehension, and fluency (Burns et. al., 1999). The study's initial focus was to explore how teacher education practices can support the appropriation of differentiated pedagogical tools. Due to the Covid-19 pandemic and ensuing lockdown, it became difficult to continue with this focus as all

teaching went online. Nevertheless, I worked with the teachers virtually to create a meaningful understanding of DI, and observed them applying differentiation in their practice.

1.5 The research aim and questions

This research aims to explore teachers' understanding and implementation of differentiated pedagogical practices that promote the learning of all learners in their classrooms.

The following main research question will guide the study:

How do Foundation Phase teachers understand and implement differentiated pedagogical practices in teaching reading?

Sub-questions:

1. What are the teachers' understandings of Differentiated Instruction?
2. How do teachers appropriate[1] and implement Differentiated Instruction in their classrooms?
3. What are the enabling and constraining factors in the implementation of Differentiated Instruction?
4. What support do teachers need in implementing Differentiated Instruction?

1.6 An overview of the chapters in this thesis

In Chapter 1, I provide a rationale for my research. The research takes as its starting point poor learner reading performance. While there are many reasons for this, I focus specifically on the concerns with teachers' pedagogical and content knowledge. This lack of appropriate knowledge comes to the fore in a context where inclusive education is promoted. I show that there is a disconnect between the policy on inclusion and the practice in the classroom. One

[1] While the concept of appropriation will be discussed in Chapter 2, I use the term to refer to teachers' understanding of DI and the implementation of DI in the classroom.

of the reasons for this is that teachers have inadequate training in implementing inclusion in the classroom. Differentiating teaching and learning may support the education of all learners in the classroom, and lead to improved learner performance.

Chapter 2 focuses on the conceptual framework. This study's key concepts are teacher education, appropriation, reading, and DI. I provide the challenges in teacher education and discuss how teacher education prepares teachers for inclusion. I focus on teachers' pedagogical content knowledge to teach in a diverse classroom, and the knowledge and tools required to appropriate DI practices. Using the vast literature on DI, I argue that teachers can create classrooms that meet the required standards and maintain high learner expectations. This requires teachers to support all learners' learning differences and differentiate through content, process, and product, based on learners' readiness, interests, and learning profiles. Learners' reading progress varies and develops at different rates, depending on where they are located on the developmental continuum of learning to read. Hence, I motivate for DI as an approach to teaching reading.

Chapter 3 highlights the theoretical framework for the study. The theoretical framework that will underpin this study is the Theory of Practice Architectures (ToPA). I discuss how practices (‘sayings’, 'doings', and 'relatings') and the mediating preconditions, that is, the cultural-discursive, material-economic and social-political arrangements, shape teachers’ DI pedagogical practices. I also discuss how the elements of practice enable and constrain teachers' pedagogical practices. The ToPA will assist me in explaining: (1) the teachers’ understanding of DI; (2) the appropriation and implementation of differentiated pedagogical practices in their classrooms; and (3) the preconditioning arrangements that enable or constrain the appropriation of differentiated pedagogical practices in the classroom.

In Chapter 4, I explain the research methodology. This study will employ a qualitative research approach underpinned by an interpretivist orientation. I use case study as the research method for answering my research questions. This case study explores the in-service teachers' understanding of the concept of DI, their implementation of DI in the classrooms, and the conditions under which they practice. The data generation tools used in my study include questionnaires, lesson implementations, and individual interviews. I first coded the data inductively to identify key themes. Thereafter, I analysed the data by drawing on the ToPA.

In Chapter 5 I present and analyse the data generated during the research. Specifically, the chapters use the Theory of Practice Architectures to analyse the extent to which the teachers appropriated DI pedagogical practices. I did this by engaging with the questionnaire, interview and lesson observation data.

Chapter 6 presents the summary of my research, the key findings, recommendations, and limitations of the study. This is followed by a brief reflection of the impact of this study on my personal, professional and academic development.

CHAPTER 2: CONCEPTUAL FRAMEWORK

2.1 Introduction

In Chapter 1, I explained that various benchmarking tests (e.g., PIRLS) indicate that South African learners are underperforming in reading. While there are many reasons for poor learner performance, some of which are outside the control of the teacher (e.g., poor functionality of the education system), the focus of my study is the seemingly poor content and pedagogical knowledge of teachers to enable them to teach reading. This might be exacerbated by the policy recommendations underpinned by the principle of inclusion and the recognition that teachers cater for the reading competencies of all the learners in their classrooms.

In this chapter, I explain the key concepts relating to my study: teacher education, appropriation, differentiated pedagogical practices, and reading. I argue that differentiated pedagogical practices may be a way of implementing inclusive education to improve learners' reading performance.

2.2 Teacher education

Dack (2018) emphasised that teacher education is responsible for preparing teachers for the complexities of the classroom, and should therefore be held accountable when teachers are insufficiently prepared to teach. In relation to my research, teacher preparation needs to focus on building literacy content knowledge and pedagogical content knowledge. Korthagen et al. (2006) maintain that various people complain that teacher preparation programmes fail to prepare teachers for the realities of the classroom environment. This has generated pressure to rethink both the structure and the practices of teacher education. At the same

time, Korthagen et al. (2006) acknowledge that teacher education is inevitably inadequate and cannot fully prepare teachers for their entire teaching career.

2.2.1. Teacher Education in South Africa: preparing students for inclusive education

Pre-1994, teacher education in South Africa was separated into mainstream and special education. Special classes/schools accommodated learners who were not coping with grade-level work. They were taught by teachers with additional qualifications to teach children with special educational needs (Oswald & Swart, 2011). In 2001, the policy, Education White Paper 6 (WP6), advocated for inclusive education. This policy supports inclusion by promoting the use of differentiated pedagogical practices to accommodate all learners' needs in an effort to minimise barriers to learning. The WP6 recommended moving away from terminology that explicitly assigns labels to learners, such as, 'special needs' and 'disabilities' (SA.DoE, 2001). Such labels emerged from a medical model which emphasises what is wrong with people as opposed to the social model which acknowledges the structural and attitudinal barriers that 'disable' people with impairments (Oliver, cited in Grenier, 2010). A medical model approach refers to a state where disability is seen as something wrong with the person's body or mind (Algraigray & Boyle, 2017; SA.DoE, 2001). Learners' 'disabilities' are foregrounded, and this creates a space for teachers to not take responsibility for their learners' performance. By contrast, the social model draws on a socio-cultural perspective of barriers to learning and recognises that learners' 'disabilities' are not their fault. The WP6 endorses the social model, and rather than referring to learners as having 'special needs' or 'disabilities' suggests that the phrase 'learners experiencing barriers to learning' is more acceptable (SA.DoE, 2001, p. 7). The social model thus attempts to accommodate all learners, and recognises the "need to restructure mainstream schooling practices" (Grenier, 2010, p. 389) to ensure that all learners have the opportunity to learn.

The move to the social model has implications for teacher education, as teachers are now required to endorse inclusivity in their practices and ensure that all learners' learning needs are met. To effectively mediate learning, teachers are expected to attend to the diverse needs of learners, including those with barriers to learning (SA.DoE, 2000).

In support of WP6, the South African Council for Educators (SACE) developed professional teaching standards to promote a common set of knowledge, skills, and commitments across the profession to enhance the learning opportunities of all learners (SACE, 2020). These include, amongst others:

- teachers believe in the capacity of all learners to achieve and make progress both inside and outside the classroom;
- teachers are committed to ensuring that learners are given the support they need for inclusive access to learning opportunities;
- teachers consider how learners develop and learn when choosing teaching and learning strategies;
- teachers explain content knowledge to learners in ways that are understandable and accurate; and
- teachers use assessment tasks that give learners opportunities to show what they have learned, and what they can do with that knowledge.

Building on the SACE standards, Bekker and Rusznyak (2017) presented the teaching standards for inclusive beginner teachers. These include, amongst others:

- valuing and understanding learner diversity;
- classroom practices that support collaborative and individual learning; and

- collaborating with other teachers, parents, and other stakeholders to enable learners to reach their full potential.

Prinsloo (2001) upheld that training and empowering teachers with appropriate knowledge to identify and effectively support all learners should be the focus of teacher education programmes. Teacher education programmes must focus on inclusive policies and practices to close the gap between policy formulation and successful implementation in schools and classrooms (SA.DHET, 2015; Savolainen et al., 2012). Green et al. (2011) maintained that for teacher education in South Africa to be strengthened to produce quality teachers, an integrated approach would need to be adopted. This integrated approach should include improving the relevance of teacher education through research-informed teacher education programmes to prepare teachers (Green et al., 2011). Successful implementation of inclusive education lies in teachers' preparation, and their exposure to diversity during this preparation (Rojo-Ramos et al., 2022). Furthermore, Rojo-Ramos et al. (2022) emphasised that these two factors (teacher preparation and exposure to diversity) influence the teachers' attitudes, which are considered predictors for acceptance of all learners. Teacher education programmes need, therefore, to address teachers' perspectives and values for the successful implementation of inclusion. This study aims to understand how teacher education practices support the appropriation of differentiation pedagogical tools.

2.2.2. Teacher Knowledge

Shulman (1986) distinguished three categories of teacher content knowledge: subject matter, pedagogical content knowledge, and curricular knowledge. Subject matter knowledge refers to a teacher's knowledge about the subject and how that knowledge is organised in the teacher's mind (Shulman, 1986).

Pedagogical content knowledge (PCK) goes beyond knowledge of the content to the dimension of content and pedagogical knowledge (Shulman, 1986). It is the nexus of content knowledge (CK) and pedagogical knowledge (PK), as shown in Figure 1. PCK includes an understanding of what makes the learning of specific topics easy or difficult.

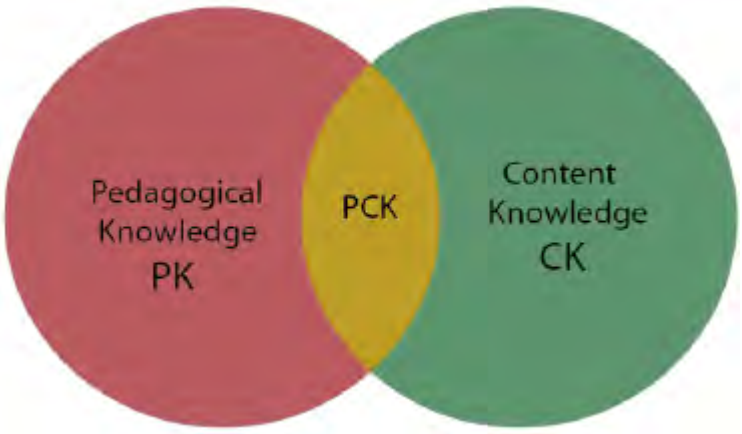


Figure 1: Pedagogical content knowledge model (Shulman, 1986).

Drawing on Shulman's work, Darling-Hammond (2000) identified three areas of knowledge that teachers require:

1. knowledge of learners and how they learn and develop within social contexts;
2. understanding of curriculum content and goals, including the subject matter and skills to be taught in light of disciplinary demands, learner needs, and the social purposes of education; and
3. understanding of and skills for teaching, including pedagogical content knowledge and knowledge for teaching diverse learners.

These learning areas are needed in all teacher development programmes, but to different degrees, depending upon the teacher's knowledge, experiences and understanding. Moreover, recent research indicates that teacher education should create integrated programmes that weave coursework with teachers' classroom experiences. Darling-Hammond (2000) maintains that this integration will attract and retain quality teachers. As a

result, efforts have been made to transform the teacher education system in the United States so that the links between theory and practice are more evident (Crandall, 2000).

2.2.3. The quality of teacher education

Darling-Hammond (2000) upheld that well-prepared teachers are more confident and successful with learners. She suggested that the extent and quality of teacher education impact the teachers' effectiveness (Darling-Hammond, 2000). Grossman et al. (2009) maintained that ensuring quality teacher education requires changes in focus at the pedagogical and organisational levels of teacher education.

In South Africa, the Department of Higher Education and Training has instituted several programmes to support Higher Education Institutions with Teacher Education Departments. The Strengthening Foundation Phase Teaching and Teacher Education project, funded by the European Union, sought to improve the quality of teaching and teacher education in the Foundation Phase (SA.DHET, 2010). In 2015, the South African government approved the Minimum Requirements for Teacher Education Qualifications policy (MRTEQ) (SA.DHET, 2015). The aim of MRTEQ was to standardise teacher education programmes, highlight the progression across qualifications, and provide the minimum requirements for teacher education qualifications.

The Department of Higher Education and Training initiated the Primary Teacher Education: Mathematics and Literacy Projects (2015) to develop standards for teaching mathematics and language across Bachelor of Education (Foundation and Intermediate Phase) qualifications. More recently, to improve the quality of teacher education programmes, the Council of Higher Education has mandated that all Bachelor of Education (Foundation and Intermediate Phase) and Postgraduate Certificate in Education (Senior Phase and Further Education and Training) qualifications be audited (SA.DHET, 2019).

Across all the above initiatives is the acknowledgement of the importance of inclusivity. For example, the MRTEQ states that all Foundation Phase teachers "must be skilled in identifying and addressing barriers to learning in the early years of schooling, as well as in curriculum differentiation for multiple learning levels within a grade" (SA.DHET, 2015, p. 20). It is thus incumbent on teacher education qualifications to ensure that teachers are prepared to teach learners with diverse experiences and needs.

2.2.4. Teaching diverse learners

With the emphasis on inclusive education in South Africa, as noted in Chapter 1, teachers are required to work with learners with various barriers to learning. Dixon et al. (2014) claimed that teachers find it challenging to provide all their learners with focused learning activities designed to suit all in a mixed-ability class. However, Chesley and Jordan (2012), and Anderson and Gumus (2006), emphasised that teachers are insecure about differentiating lessons to meet all learners' needs in the classroom.

Darling-Hammond (2000) stated that teachers require deep and flexible pedagogical content knowledge in order to teach a diverse group of learners. Furthermore, they should clearly understand how to represent ideas in powerful ways to benefit the learning process (Darling-Hammond, 2000). Leko and Brownell (2011) concluded that teacher education should provide teachers with the knowledge and tools necessary for teaching a diverse learner population to have the confidence and motivation to appropriate the knowledge and tools. According to Skae et al. (2020), in an inclusive classroom, teachers use various inclusive teaching and learning practices, strategies, features, skills and techniques when engaging with learners.

While teacher education programmes should support teachers in addressing the learning needs of all the learners in their class, how teachers appropriate what they have learned into their specific classroom contexts needs to be clarified.

2.3. Appropriation of conceptual and pedagogical tools

Appropriation is "the process through which a person adopts the conceptual and pedagogical tools available for use in particular social environments" (Grossman, et al., 1999, p. 13). Through this process, teachers reconstruct the knowledge they are internalising and transform their conception of that knowledge to be used by others (Grossman et al., 1999). Appropriation involves imitating, noticing, goal setting, selecting, evaluating, and adapting (Jiang & Yu, 2022). Jiang and Yu (2022) describe appropriation as a process of using social-cultural tools, such as DI practices, mediated by discursive resources and contextual conditions. Appropriation involves an emotional dimension whereby one makes a pedagogical tool one's own (Stillman & Anderson, 2014).

The effectiveness of appropriation depends on individuals' prior experiences, goals and competence as well as the social context where the appropriation takes place (Smagorinsky et al., 2004). These prior experiences and knowledge either advantage or disadvantage appropriation practices (Leko & Brownell, 2011).

While teachers need to appropriate the DI pedagogical practices, they should not be uncritical curriculum implementers. Appropriating DI tools involves adaptations and modifications rather than straight-up internalisation (Dang, 2013).

Grossman et al. (1999) proposed that appropriation can occur at five different levels: a lack of appropriation, appropriating a label, appropriating surface features, appropriating conceptual underpinnings, and achieving mastery.

Lack of appropriation occurs when the person does not appropriate a conceptual or pedagogical tool because the concept might be too difficult to comprehend at the point in their development when it is initially encountered (Grossman et al., 1999). Other reasons might be that the pedagogical or conceptual tool may be too foreign to prior frameworks, or the teacher might understand the concepts as intended but reject them for various reasons (Grossman et al., 1999). Lack of appropriation is the lowest level, whereby a teacher does not have sufficient knowledge of the pedagogical or conceptual tools, their beliefs do not support using the tool, or the context is not conducive to utilising the tool (Leko & Brownell, 2011). Teachers who do not have knowledge of DI or do not believe in the practice of DI are unlikely to appropriate it.

Appropriating a label occurs when one merely learns and adopts the name of a particular tool but knows none of its features (Grossman et al., 1999; Leko & Brownell, 2011). Simply put, the teacher can name a tool but needs help explaining how it works. For instance, Foundation Phase teachers may know about DI but need help explaining and using it to help the learners understand the content more efficiently in their teaching and learning.

Appropriating surface features is when the teacher possesses knowledge of some or most of the features of a tool but fails to grasp the overall concept and its application in practice (Grossman et al., 1999). The teacher grasps some features of the tool yet does not understand the overall concept and is unclear about what learners could gain from the experience. Leko and Brownell (2011) added that these teachers know some of the tool's features but need help describing how those features work together to create a holistic picture of the tool. For example, teachers might know and be able to explain what DI is but not be able to implement it in their classrooms.

Appropriating conceptual underpinnings occurs when one has grasped the theoretical basis that informs and motivates tool use but lacks the pedagogical application (Grossman et al., 1999). Teachers who grasp the conceptual underpinnings of a tool are likely to explain the tool as they studied it, but do not have experience in implementing it in their own classroom practice. These teachers can explain the tool, critique it, and plan and carry out lessons using the tool. In this case, the teacher would be able to explain DI, why it is important and know how to implement it, but not have had the opportunity to implement it.

Achieving mastery is the highest level of appropriation, in which a teacher has full mastery of the tool and can apply it effectively in their teaching context to ensure that every learner in their class has an opportunity to learn the required curriculum knowledge and skills (Yuan, 2017). At this level, teachers are able to integrate a tool effectively into their classroom instruction and practice (Leko & Brownell, 2011). This is shown by the teachers' ability to explain DI, justify its effectiveness, and effectively implement it in their practice. Achieving mastery typically requires years of experience using DI (Grossman et al., 1999)

Critical factors affecting the appropriation are teachers' knowledge and beliefs about both the content and teaching (Grossman et al., 1999). In exploring the appropriation of differentiated instruction, it is critical to understand its conceptual underpinnings and practical strategies, effectiveness, feasibility, and implementation in practice (Dack, 2019).

2.4. Differentiated pedagogical practices

Differentiated pedagogical practices, mostly known as Differentiated Instruction (DI), can be seen as a system whereby different teaching strategies are designed for different types of learners (Mills et al., 2014). Tomlinson (2003a) describes this teaching strategy as a philosophical and pedagogical approach to teaching and learning whereby learners of differing readiness levels, interests, and modes of learning are taught within the same

classroom. Tomlinson (2014) argued that differentiation presents a pedagogical approach in which a teacher proactively anticipates and responds to diverse learner needs. However, differentiation, as Mills et al. (2014) articulated, also entails recognizing the different knowledge that various learners bring to the classroom.

Tomlinson (2001, 2003b, 2005a) maintained that the main objective of DI is to take full advantage of every learner's capability and maximise their learning potential. A learner can only progress to the Zone of Proximal Development (ZPD), and, consequently, independent learning if guided by a teacher or expert (Subban, 2006). Through the ZPD, teachers can provide guidance by scaffolding the learning process and creating a safe environment where learners practise their new knowledge and skills (Scigliano & Hipsky, 2010). According to Heacox (2012), DI is a two-step process that involves (1) analysing the degree of challenge and varying instructional plans; and (2) modifying, adapting and designing new approaches in response to learners' needs, interests and learning preferences. Teachers who employ DI adjust their teaching for learners of varying experiences and competencies to maximise each learner's growth and individual success by meeting each learner where they are, and assisting them in the learning process (Dixon et al., 2014). In Taukeni's (2019) study, learners who showed the need for support to complete their schoolwork through scaffolding improved their performance. Therefore, if well planned and implemented, it could make a difference in addressing learners' various needs.

Through task modification, teachers can maximise the learning process by accommodating 'ability' levels (Subban, 2006). Huss-Keeler and Brown (2007) identified six characteristics of differentiation, based on Tomlinson's (2003) description:

(1) the teacher proactively plans ahead of time to meet a variety of learner needs in the classroom;

(2) the type of assignment is adjusted to meet learner needs;

(3) it has a basis in assessment;

(4) there are many different approaches to the content, process and product of learning so all learners can make progress in learning;

(5) it is learner- and learning-centred, motivating, relevant and engaging; and

(6) supports the learners by providing opportunities that enable them to experience success in a community-of-learners environment.

Pham (2012) identified four general principles guiding differentiation: appropriate and challenging tasks, flexible groupings and classroom arrangements, ongoing assessments, and appropriate scaffolding. DI is designed to meet the needs of diverse learners while emphasizing learner responsibility, flexible groupings, and learner choice (Morgan, 2014).

According to Dupriez (2010), 'ability' grouping enables teachers to adapt curriculum content to varying groups of learners according to their levels of performance. Despite the benefits, critics of 'ability' grouping perceive the practice as an act of injustice towards those in low-achieving groups. Hove and Phasha (2022) recommend that grouping practices should not focus purely on improving the levels of academic achievement of learners in regular classes to avoid social exclusion. Furthermore, Hove (2022) argued that mixed-ability grouping offers different learners' opportunities to improve their communication skills and general academic performance. However, teachers should avoid keeping the same grouping practice where learners remain in the same group despite their change in performance or interests (Hove, 2022).

2.4.1. Elements of differentiation

Mills et al. (2014) are advocates of 'ability' grouping and argue that DI can also be seen when the teacher splits the class into smaller groups, according to learners' capabilities, giving

them individually modified curriculum materials or activities. From Tomlison's work, Brassell and Rasinski (2008) and Landrum and McDuffie (2010) emphasised that learners bring into the classroom differences in their readiness, interests, profiles of learning, and environments. In contrast, the teacher needs to use content and activities suitable for the product of learning to occur. Drawing from Tomlinson's work, Rock et al. (2008) emphasised the need for teachers to continuously adjust the content, process, and products to meet the individual learner's levels of prior knowledge. Dixon et al. (2014) claim that teachers who differentiate their pedagogical practices respond to learners' needs in the way content is presented (i.e., what is taught), the process through which the content is learned (i.e., how the content is taught), and the product (i.e., how learners demonstrate what they learnt). Teachers can create classrooms that meet the curriculum standards and maintain high learner expectations by supporting all learners' learning differences and differentiating through content, process and product, based on learners' readiness, interests, learning profiles and environments (Brassell, 2009).

2.4.1.1. Differentiating content

Differentiating content requires teachers to recognise their learners' varying background knowledge, readiness, language, and preferences in learning (Dixon et al., 2014). Differentiating content stands in contrast to approaches that assume that all learners in a classroom, regardless of its diversity, benefit and learn from a standard, methodological curriculum (Hertberg-Davis, 2009). Tomlinson et al. (2003) maintain that learners vary in readiness and interest to learn given content at a given time. In addition, due to differences in cognitive development, learners perceive, organise, and retain information differently (Pham, 2012).

According to Tomlinson (2005b), the content has to do with the depth or complexity of the knowledge the learners are expected to learn. Content refers to the 'what of the teaching'. In Tomlinson's (2000a) view, and with specific reference to reading, differentiating content involves:

> (1) using reading materials at varying readability levels; (2) putting text materials on tape; (3) using spelling or vocabulary lists at readiness levels of students; (4) presenting ideas through both auditory and visual means; (5) using reading buddies; and (6) meeting with small groups to re-teach an idea or skill for struggling students, or to extend the thinking or skills of advanced students (p. 2).

According to Heacox (2012), teachers differentiate content when they pre-assess their learners' skills and knowledge in order to match them with appropriate activities according to their readiness when they provide learners with choices about topics and provide learners with resources that match their current level of understanding. A good example of differentiating reading in the Foundation Phase is the graded readers, whereby each learner receives the same series of books but at different reading levels.

2.4.1.2. Differentiating process

Differentiating the process means adjusting the instruction for struggling learners to allow them to grasp the concepts at their own pace (Morgan, 2014). However, differentiating the process does not mean changing the activity altogether but varying the activity requirements (King-Sears, 2005). For instance, in a literacy class, the teacher may group learners according to their learning styles. Learners with a kinesthetic dominant learning style could role-play. Visual learners may draw or cut and paste pictures relating to the story. The auditory learners should be given opportunities to listen to a recorded story.

Morgan (2014) reckoned that differentiated learning is based on Vygotsky's concept of the ZPD. A task should be slightly more challenging, and just beyond a learner's comfort level, with appropriate support, for meaningful learning to occur (Hawkins, 2009).

To promote the ZPD, learners need to actively interact with a 'more knowledgeable other' (e.g., teacher, peer). In order to do this, teachers need to ascertain the learners' prior knowledge and build on this to advance their learning (Subban, 2006). Teachers may be aware of the need to make the learners participants in the learning process, however, in most cases, this is understood more in procedural terms (i.e., theoretical) rather than as something which practically promotes learning (Brodie et al., 2002).

From Vygotsky's theory, individuals learn best in a context that provides moderate challenge (Smit & Humpert, 2012). When differentiating the process, teachers adjust learning activities to each learner's ZPD. The key to differentiating the process involves flexible grouping, which enables learners to see themselves in a variety of contexts and aids the teacher in providing learners with different kinds of work and opportunities to learn (Tomlinson, 2000a). Teachers can implement flexible grouping by task, outcome, interest, background knowledge, or social readiness (Kapusnick & Hauslein, 2001). To provide small-group instruction, part of the class needs to be engaged in alternative tasks so that the teacher can focus on one small group of learners at a time (King-Sears, 2005). A good example of this is group guided reading (Kapusnick & Hauslein, 2001), whereby learners with the same reading 'ability' are grouped and read with the teacher providing them with her full attention, genuine response, and verbal scaffolding, enabling them to further their literacy skills (Ankrum et al., 2013). Flexible guided reading allows the teacher to move from explicit instruction to scaffolding with support, and gradually releasing support (Stover et al., 2017).

2.4.1.3. Differentiating product

In the context of DI, the product refers to the end results of learning. It reflects what the learners have understood and been able to apply (Heacox, 2012). Differentiating the product includes giving learners options, and allowing them to bring their ideas or unique ways of showing what they have learned (Heacox, 2012; Tomlinson, 2000a). For instance, learners can be challenged to do a puppet show about the story they read in group guided reading, or they can be asked to write a poem about the topic they learned.

For all learners to receive appropriate stimulation, teachers should employ a variety of strategies to differentiate the products of learning (Dixon et al., 2014; Subban, 2006; Tomlinson, 2001; Tomlinson, 2003b; Tomlinson, 2005a). Learning tasks in this regard should offer different ways to explore the content and allow various products from learners working either individually, in pairs, or in groups (Smit & Humpert, 2012).

Tomlinson et al. (2003) emphasised that allowing learners to do something they love will likely help them develop a positive attitude about learning and their creative potential. However, teachers can only know their learners' interests by continuously assessing them.

2.4.2. Differentiation by readiness, interests and learning profiles

Rock et al. (2008) emphasise that teachers can differentiate instruction by adjusting content, process, and product based on the learners' readiness, interest, and learning profiles. Differentiated instruction supports the classroom as a community, accommodating differences and sameness, and creating an environment in which all learners can succeed and benefit (Subban, 2006; Tomlinson, 2003b). Learners differ in three important ways: their readiness, interests and learning profiles (Moon, 2005; Subban, 2006). In a differentiated classroom, the teacher should pay attention to these differences.

2.4.2.1. Readiness

According to Landrum and McDuffie (2010), readiness means meeting the learners where they are, and planning instruction based on a careful and thorough assessment of their prior knowledge and what they need to learn next. Readiness focuses on differences according to a learner's existing knowledge relating to the learning goals to be attained (Gheyssens et al., 2020). Thus, taking learners' readiness into account provides the possibilities to attain the learning objectives based on every learner's learning pace and prior knowledge (Gheyssens et al., 2020). Considering learners' readiness, the activity being taught must challenge the learners' current level of mastery (Tomlinson et al., 2003) following Vygotsky's notion of the ZPD.

2.4.2.2. Interests

Tomlinson (1999) explains interests as learners' affinity, curiosity, or passion for a specific topic. Just like readiness, learners' interests also differ. Interests are linked with motivation, thus contributing to a sense of competence and self-determination (Tomlinson et al., 2003). It also contributes to positive learning behaviours, such as a willingness to accept and run with challenges (Tomlinson et al., 2003). For instance, allowing learners to use a well-resourced book corner (with various storybooks) can help them develop a positive attitude about learning and their creative potential (Tomlinson et al., 2003). Learners will be able to choose from fiction, non-fiction, poetry, folktales and fables, and rhymes, which will boost their motivation and engagement and develop their reading identity.

2.4.2.3. Learning profiles

Tomlison (2003) noted that learning profiles attend to the learners' preferred mode of learning. She suggests that learners' intelligence preferences, gender, culture, or learning style shape their mode of learning. Guided by the work of Howard Gardner (1993) and Robert

Sternberg (2014), intelligence preferences mean that learners of any age have their preferred modes of receiving and processing information. Tomlinson (2009), however, warned that learning profiles are not a replacement for learners' readiness needs. The option to do a task through different learning modes (e.g., visual, auditory, or kinesthetic) will have little impact if a learner is unable to read.

2.4.3. Assessment in differentiated instruction

The central element of DI as discussed by Gaitas and Alves Martins (2017), is the regular ongoing assessment that allows teachers to adapt and scaffold all learner learning with appropriate procedures, materials and activities and to engage learners in instruction through alternative learning and teaching modalities, appealing to different interests and using different degrees of complexity accordingly to the learners' actual needs.

Assessment is a process of collecting, synthesising, and interpreting classroom data about learners' academic strengths and weaknesses, interests, and learning preferences, in order to make decisions about when and how to differentiate for the benefit of the learners (Moon, 2005; Tomlinson & Moon, 2013). In addition, Heacox (2012) upheld that assessment is a crucial element in a diverse classroom to help the teacher plan for the learners' diverse needs.

There are three types of assessments, namely, formative, summative and baseline assessments. Summative assessment measures and evaluates the learners' performance (Tomlinson & Moon, 2013). It informs the teacher about learners' content mastery (Moon, 2005). This carefully collected data also informs stakeholders (learners, parents, and school administrators) about the learners' performance (Moon, 2005; Heacox, 2012; Tomlinson & Moon, 2013). Formative assessment is an ongoing process to guide, mentor, direct, and encourage academic growth (Tomlinson & Moon, 2013). This assessment can be in the form of tests, learners' work samples, and discussions, provided that the data collected informs

decisions made regarding whether it is necessary to re-teach or extend learning goals, and for whom. In addition, teachers may use this data to form or reform learner groupings, modify pacing, or change the manner in which materials and content are presented to learners (Moon, 2005). Although baseline assessments are formative, they play a critical role in the teacher's ability to differentiate, as they inform the teacher about the learners' preparedness or readiness, what they know, understand and can do, their interests, and learning profiles (Moon, 2005; Heacox, 2012).

Brodie et al. (2002) emphasised the importance of assessment in implementing DI. She argued that teachers who employ DI acknowledge that learners start at different levels and have different kinds of prior knowledge. In this way, teachers are required to assess how and what learners know and are learning and adapt instruction to meet each learner's needs. Building on this, Dack (2018) added that in a differentiated classroom, the teacher accepts the different learning experiences and provides various ways to access and process information that supports learners in demonstrating their learning. Data collected through different forms of assessment enables the teacher to determine points of the curriculum where flexible instructional grouping and tiered activities will be best placed (Heacox, 2012).

2.4.4. Differentiation strategies

Tomlinson (2000b) maintained that there is no recipe for DI. Teachers may opt for a variety of strategies to differentiate in the classrooms. Tiered lesson planning is one way that assists teachers in staying focused on the standards and curriculum while maintaining flexibility in content, process, and product (Levy, 2008).

2.4.4.1. Tiered activities

Tiered lessons allow several pathways for learners to arrive at the outcomes of the lesson (Pierce & Adams, 2004), as demonstrated in Figure 2. below. Tier 1 refers to a whole class

teaching whereby the teacher explains the content, the purpose, and ways of approaching the content (Bovill, 2020). In Tier 2, the teacher focuses on extending the content. Tier 3 focuses on meeting the varying individual educational needs. In this tier, the lessons are designed according to the learning preferences of the learners. These lessons promote success as the learners are encouraged to select the product, they wish to reach from the rubrics outlining product requirements at each task level (Kapusnick & Hauslein, 2001). Different types of tasks are used to describe the differentiation of products. According to Ur (1996), different tasks include "compulsory-plus-optional tasks" (p. 307) (certain minimal components of the task have to be learned or done by everyone, the other only by some), open-ended tasks (learners respond to questions that have a range of acceptable answers rather than a single right response), tiered tasks and bias tasks (tasks for weaker learners & tasks for stronger learners).

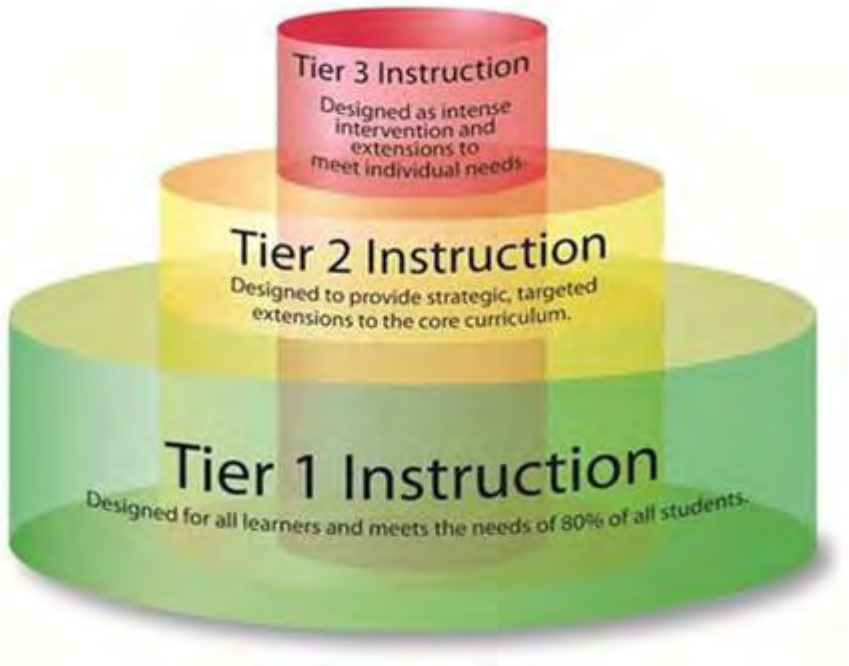


Figure 2: Tiered instruction - differentiated instruction strategies.

2.4.4.2. Flexible groupings

Teachers can implement flexible grouping by task, outcome, interest level, background knowledge, or social readiness (Kapusnick & Hauslein, 2001). In order to provide small-group instruction, part of the class needs to be engaged in alternative practice tasks, so that the teacher can focus on the small group (King-Sears, 2005). A good example of this is group guided reading (Kapusnick & Hauslein, 2001), whereby learners with the same reading 'ability' are grouped and read with the teacher, who provides them with her full attention and provides genuine responses and appropriate scaffolding to enable their literacy development (Ankrum et al., 2013). Guided reading allows the teacher to move from explicit instruction to scaffolding with support, using the gradual release of support (Stover et al., 2017).

2.4.4.3. Questions

Lewis and Batts (2005) suggested questions may be adjusted based on readiness, interest or learning profile, and may be varied from basic to advanced levels according to the learners' needs. During and after any type of reading in the Foundation Phase, the teacher chooses to ask a variety of questions, guided by Bloom's taxonomy (Anderson & Krathwohl, 2001; Bloom et al., 1956), to help the learners follow the story and to test comprehension by promoting higher-order thinking skills (Gray & Waggoner, 2002). The teacher allows adequate wait time for answers and provides opportunities for peer discussions and follow-up questions (Kapusnick & Hauslein, 2001). This also assists teachers in assessing their learners (Lewis & Batts, 2005).

2.4.5. Critiques of Differentiated Instruction as a pedagogical practice

There is a growing body of research questioning the effectiveness of DI and the assumption that it promotes quality education (Bannister, 2016; Boaler, 2014). Boaler (2014) argued that the 'ability' grouping practices can promote a sense of pretense in the classroom,

where the teacher's practices appear to be promoting DI, but are not. Bannister (2016) argued that many framing ideas for this approach are incongruent with an inclusive education strategy. In her paper, Bannister (2016) outlined four problems with DI:

(1) assumptions that learners labelled with ''less developed readiness'' (p. 338) require more direct instruction and routine practice over inquiry-based pedagogical approaches;

(2) perpetuation of the myth of learning styles in education;

(3) whether the differentiated instruction model has the unlikely capacity to preclude within-classroom tracking practices; and

(4) usage of deficit framings of learners and their families within an academic diversity rationale for the model.

2.5. Reading

Reading consists of five components. These are phonemic awareness, phonics, fluency, vocabulary, and comprehension (Rupley, 2009). These five reading components allow children to read effectively and successfully (Wegenhart, 2015). Defined concisely, phonemic awareness is hearing and manipulating individual sounds in words (Tindall & Nisbet, 2010). Sodoro et al. (2002) added that it is the awareness of sounds in spoken language that is separate from the meaning of language. The skill of manipulating the phonemes, rhymes, and syllables develops over time as children learn to read (Anthony & Francis, 2005). For instance, learners should be able to segment the words into syllables, e.g., cut can be /c/-u/-t/. Anthony and Francis (2005) held that phonological awareness is the ability to recognize, discriminate, and manipulate sounds regardless of the size of the word. Research shows that phonological awareness is essential in accelerating learning to read (Anthony & Francis, 2005; Tindall & Nisbet, 2010, Milankov et al., 2021; Míguez-Álvarez et al., 2021). Wegenhart (2015) argued that phonemic awareness is necessary to develop phonics skills.

Phonics is the understanding of how letters represent the sounds of a language (Wegenhart, 2015). Paris (2019) emphasized that phonics enables learners to decode words by sounding them out. In essence, learners understand the alphabet names and sounds and then blend them to reconstruct words (Paris, 2019). Thus, Paris (2019) defined phonics as understanding a predictable relationship between phonemes and graphemes. Learners use this essential cueing system (phonics) and phonemic awareness to read fluently (Dahl & Scharer, 2000; Wegenhart, 2015).

Fluency is the ability to read with speed, accuracy, and proper expression (Begeny et al., 2009). Moreover, Rasinski et al. (2005) note that fluency has to do with mastery of decoding words and interpreting them meaningfully when reading orally. Reading fluency seems compelling in enabling learners to comprehend text (Rupley et al., 2020). Therefore, fluency needs to be mastered as early as possible in reading development (Ransinski et al., 2005).

For reading to be successful, it requires the reader to identify written words and attach meaning to them (Biemiller, 2007). Masrai (2019) highlighted vocabulary knowledge as a reliable element in learning to read. Wegenhart (2015) added that a rich vocabulary enables learners to read with comprehension.

The ability to read for comprehension is a critical component of school success (Masrai, 2019; Rasinski et al., 2020; Wegenhart, 2015). Learners who do not learn how to read during their foundational years have difficulty navigating and coping with the school curriculum going forth (Mastropieri & Scruggs, 1997; Schmidt et al., 2002; Wahlberg & Magliano, 2004). Reading guides how well an education system delivers on its mandate (Pretorius & Mampuru, 2007). As noted in Chapter 1, most South African learners perform poorly in literacy skills.

Schmitt (2008) argued that it is not sufficient to know that children must be able to read and write by the end of Grade 3. The purpose or motive must also be known. Teachers'

supportiveness, warm affect, and sensitivity influence learners' long-term academic outcomes (Hargrave & Sénéchal, 2000). Thus, the teacher needs to encourage learners to guess and take risks, praise them for trying, accept all responses, and use them to promote further learning (SA.DoE, 2008).

There has been rising interest in how children learn to read and how to teach reading, which resulted in the 'reading wars' (Castles et al., 2018; Kim, 2008; Pearson, 2004). The controversial debate on reading was centred around three approaches: the phonics approach, the whole-language approach, and the three-cueing approach (Castles et al., 2018). The phonics approach encouraged teachers to focus on phonemic awareness and phonics (Castles et al., 2018; Kim, 2008; Pearson, 2004). The whole-language approach emphasises that children learn and discover new meanings through exposure to printed materials (Castles et al., 2018). The three-cueing approach maintains that beginning readers use semantic, syntactic, and letter-sounds to predict the word (Castles et al., 2018). Through rigorous research, teaching phonics in the initial stages of learning to read emerged as a crucial step (Castles et al., 2018; Kim, 2008; Pearson, 2004). However, a balanced approach, where teachers emphasise teaching phonemic awareness and phonics, while helping learners develop word recognition skills and appropriate reading strategies in the context of reading a story, is more relevant (Center, 2020). Due to its complex contextual nature, there is no single approach to teaching reading (Abdulatief et al., 2018).

The Curriculum and Assessment Policy Statement (CAPS) states that by the end of Grade 3, children must reach a high level of communicative competence and be able to read well (SA.DBE, 2010). Time allocation for Home Language (HL) in the Foundation Phase is 6 hours, and the First Additional Language time allocation is 4 hours for Grades R-2 and 5 hours for Grade 3. Reading occurs during the allocated reading and writing focus time in the timetable.

Foundation Phase teachers should teach Grade 1-3 learners to be effective readers and writers (SA.DoE, 2008). The Foundation Phase CAPS document divides the reading requirements into shared reading, group guided reading, paired reading, and independent reading.

2.5.1 Shared reading

Shared reading is a reading lesson in a relaxed environment, usually done with the whole class using big books. According to Boyle et al. (2019), shared reading is an interaction between the teacher and learners, involving asking questions to expand knowledge and allowing learners to complete the sentence or provide information. It provides learners with opportunities to read familiar linguistic routines and repeat phrases with the intention of becoming progressive active agents (Deckner et al., 2006). In essence, the learners share the reading task with the teacher and gradually take over (SA.DoE, 2008). In this activity, the teachers may ask for learners' input or to read along as they point to the text (N'Namdi, 2005). Shared reading allows learners to hear language while observing its corresponding phonological representation (Drucker, 2003).

2.5.2. Group Guided Reading

Group Guided Reading (GGR) is a teacher-directed activity involving carefully selected books (graded readers) that are at the learners' instructional or developmental reading level. GGR enables learners to successfully apply their reading strategies to overcome the challenges in the text and read independently (Hornsby, 2000; SA.DoE, 2008). As part of planning, the teacher should group learners according to their reading levels, choose a graded reader at the appropriate level for the particular group, and decide how to informally assess the learners (SA.DoE, 2008; Reitsma, 1988). Ford and Opitz (2008) explain that GGR is based on the assumption that all children can learn when guided by a skilled teacher who knows the

learners' prior knowledge and what they should be learning. They then design instruction accordingly. During GGR, each learner reads the same story. They take turns reading aloud as the others follow silently in their books. The teacher prompts, confirms and encourages their attempts, and intervenes when necessary (SA.DoE, 2008; Reitsma, 1988). Should a learner get stuck on a word, they are encouraged to use different skills (e.g., decoding) to read the word, and ask other group members and the teacher to assist them (Arrow et al., 2015)

GGR promotes decoding and comprehension strategies among learners, as they get exposed to higher-level thinking activities from its three-phase (prior, during & after) reading process (Hornsby, 2000). Before reading the text, learners are engaged in active dialogue about the text and make connections to their own lives (Yazdani & Mohammadi, 2015). During reading, they engage with the text to make meaning, and, after reading, learners answer questions related to the text they have read (SA.DoE, 2008; Yazdani & Mohammadi, 2015). For Yazdani & Mohammadi (2015), there are three types of questions that teachers should ask in order to ensure that the learners have comprehended the text. These are literal, interpretive and applied questions. Literal questions focus on the recognition of ideas directly stated in the text. Interpretive or inferential questions are about ideas implied by the author of the text. Applied questions are application questions that move beyond the content of the text, e.g., How would you feel if someone said you were ugly? What would you do if someone called you names?

2.5.3. Paired reading

Paired reading refers to two learners working together to practise their reading skills. They take turns reading aloud to each other and provide one another with helpful feedback and support to improve their reading (SA.DoE 2008). Li and Nes (2001) found that paired reading was useful in helping learners read more fluently and accurately. Griffin (2002) concluded that

pairing emergent readers of approximately equal expertise provides opportunities for collaborative relationships. Readers have the opportunity to draw on expertise in jointly constructing text. Paired reading can substantially improve learners' reading fluency while ensuring that accuracy and comprehension remain stable (Nes, 2003).

2.5.4. Independent reading

Independent reading is a purposively planned activity whereby learners choose their storybooks based on their interests and reading competence. Learners engage in discussions and dialogue with their teacher and peers about the text they have read (SA.DoE, 2008). Widdowson et al. (1996) maintain that independent reading allows for the development of readers to practise reading without the risk of public failure. Key to providing opportunities for learners to engage in independent reading is a well-resourced classroom where learners have a variety of texts to choose from (Cullinan, 2000).

2.5.5. Reading approaches and teaching methods

During the Foundation Phase (Grades 1–3) much of the emphasis on reading instruction focuses on the teaching of decoding skills. Pretorius and Currin (2010) claim that this is often done in a superficial, decontextualized and relaxed manner, for example, having learners read lists of syllables or words aloud in the context of rote teaching. Pretorius and Machet (2004) maintain that this emphasis on rote learning to develop learners' decoding skills is the dominant practice in South African schools. They argue that such an approach is not beneficial to reading development.

According to Pretorius and Machet (2004), cultivating good readers involves focusing on strategies teachers can use to teach learners to read effectively. Therefore, the critical issue for teachers is knowing how to teach the skills required for reading fluently and with understanding. According to the SA.DoE (2002), learners in the Foundation Phase need to be

taught strategies that help them to read with understanding, and that help them unlock the code of written text. Furthermore, they must know how to locate and use information, follow a process or argument, summarise, build their understandings, adapt what they learn, and demonstrate what they learn from their reading in the learning process (SA.DoE, 2002). In other words, learners should learn to read for comprehension.

2.5.6. The reading acquisition process

Many curricula (e.g., CAPS (SA.DBE, 2008)) and researchers (e.g., Saracho, 2019) suggest that there are five stages of acquiring reading: pre-reader, emergent reader, early reader, developing reader, and independent reader.

2.5.6.1. Pre-reader

Learners at the pre-reader stage can hold a book, recognise the beginning and the end of the page, and turn the pages correctly. They listen and respond to stories, interpret the pictures, pretend to read aloud and silently, know some letters, and show interest in print (SA.DoE, 2008). Wildová and Kropáčková (2015) stated that these learners should be provided with enough opportunities and stimuli to motivate them to read and further develop their reading competence. They maintain that this stage is highly significant from the view of lifelong learning, as it is at this stage that the foundations of reading literacy are laid (Wildová & Kropáčková, 2015).

2.5.6.2. Emergent reader

The emergent reader knows that reading starts from left to right and from top to bottom, knows some sounds (phonemes) and letters that make the sound, and recognises some words. The emergent reader uses pictures to tell stories and reads familiar print in the environment and books with word repetition and rhymes. Emergent readers are confident to

join someone reading a familiar book (SA.DoE, 2008). These skills are acquired gradually during the early years (Justice & Ezell, 2001; Saracho, 2019).

2.5.6.3. The early reader

The early reader reads aloud when reading to self, reads word for word loudly, and reads early readers and picture books with pattern, repetition and rhyme. They know some letter sounds and recognise some common words. The early reader uses pictures to make meaning of the written text and can retell a story (SA.DoE, 2008).

At this stage, the learner knows how to use early reading strategies, that is, s/he can use decoding, phonological and morphological strategies during reading. The early reader can read appropriately selected texts independently, after an introduction to the story by a teacher, and can begin to attend to print and apply the phonetic value (change in vowels in words) (Johnson, 1999).

2.5.6.4. The developing (transitional) reader

Developing readers use meaning, grammatical and letter cues more fully, and recognise many frequently used sight words (Johnson, 1999; Saracho, 2019) Furthermore, they use pictures (to figure out words) in a limited way. According to the SA.DoE (2008), the developing reader can read silently, and self-correct when making a mistake. They know sentence structure, combine words into phrases, use punctuation marks, retell the story's beginning, middle and end, and give some details about the story when asked.

2.5.6.5. The fluent (independent) reader

Fluent readers read for meaning with less attention to decoding, and can independently solve problems encountered in the text (Johnson, 1999; Saracho, 2019). According to Rasinski (2004), fluent readers develop control over surface-level text processing in order to focus on understanding more profound levels of meaning in the text. The SA.DoE (2008) expects

learners whose home language is English to read at least 60 words per minute fluently, understand implied meanings, and read longer and more advanced books independently. Furthermore, fluent readers should be able to use both decoding and comprehend rapidly and simultaneously (Bohlmann & Pretorius, 2002).

2.5.7. Reading and Differentiated Instruction

Learners' reading progress varies and develops at different rates depending on their reading stage (Arrow & McLachlan, 2011). Some learners are able to identify the context after having had only a few spelling–sound correspondences explicitly taught to them, whereas others require a structured and teacher-directed introduction to reading (Arrow et al., 2015). Hence, Arrow et al. (2015) upheld that DI is well-balanced in teaching reading because the specific learning needs are met across decoding, fluency, and comprehension skills. Reis et al's. (2011) study showed that DI and high-interest, self-selected books above learners' reading levels resulted in higher reading fluency and comprehension. Providing DI based on the specific learning needs of everyone in the classroom is particularly relevant for addressing the variation in reading abilities and skills (Arrow et al., 2015). As noted above (section 2.4.3.), assessments are critical to the teacher's ability to differentiate.

2.5.7.1. Reading Assessment and Differentiated Instruction

A critical part of DI is the ongoing assessment to understand and improve learning (Demos & Foshay, 2009). According to Reis et al. (2011), DI emphasises that learning is most effective when teachers use the data obtained from learners' assessments to help them progress to more advanced levels of functioning. Furthermore, this allows for the identification of specific learning needs that can be a focus for individualised instruction (Roehrig et al., 2008). The teacher's knowledge of the reading process and data analysis will inform instruction (Ankrum & Bean, 2008).

Assessment tools that inform instruction should be comprehensive, ongoing, classroom-based, and easy to administer and interpret (Ankrum & Bean, 2008). These diagnostic tools should be specific and detailed (Arrow et al., 2015), and match the developmental reading process (Ankrum & Bean, 2008). Teachers who know the developmental reading levels of their learners are able to plan differentiated reading activities.

2.6. Conclusion

In this chapter, I have discussed the key concepts relating to my study: teacher education, appropriation, differentiated pedagogical practices and reading. I argue that DI can be used to support learning by differentiating content, process, and product, based on learners' interests, readiness, and learning profiles. The next chapter will discuss the theoretical framework underpinning this study.

CHAPTER 3: THEORETICAL FRAMEWORK

3.1. Introduction

The question that forms the basis of this study was how teachers understand, appropriate, and implement differentiated pedagogical tools. Given the focus of this research on DI practices, I decided to draw on the theory of practice architectures to both explain and analyse my research data. Research on practice is not new (Kemmis et al. 2014a). Nicolini (as cited in Mahon et al., 2017) noted that there are multiple and diverse theories under the umbrella term 'practice theory'. Drawing on this, Postill (2010) identified two generations of practice theory emerging in the 20th century. First-generation practice theorists, such as Pierre Bourdieu, Michal Foucault and Anthony Giddens, laid the foundation for second-generation practice theorists such as Theodore Schatzki and Susan Ortner (Postill, 2010). The differences between practice theories are largely derived from their roots in varying scholarly traditions and the influence of a range of theorists and philosophers who are not necessarily regarded as practice theorists themselves (Mahon et al., 2017).

The work of Theodore Schatzki was instrumental in informing the theory of practice architectures (ToPA) (Kemmis et al., 2014a). The ToPA incorporates and extends several central tenets of practice theory (Salamon et al., 2016). Practice theory is critical of the dichotomy between individualistic and structural determinist notions of the social world. Rather, practice theorists explain that the social world is the result of both social structures and individual agency (Jonas & Littig, 2015). In other words, practice theorists see the individual agent as central to the production and reproduction of the social world. The ToPA is premised on this view. Given my focus on DI practices, the ToPA provides explanatory and analytic tools for my research and forms the focus of this chapter.

3.2. The theory of practice architectures

The ToPA holds that practices are social phenomena located in circumstances and conditions that occur in particular locations in physical space-time (Mahon et al., 2017). It provides a lens that examines practices and, in so doing, enables valuable accounts of how practices happen, how they are mediated, and their role in the constitution of social life (Mahon et al., 2017).

Individual and collective practices shape and are shaped by practice arrangements (formerly referred to as practice architectures) (Kemmis et al., 2014a). While the practice arrangements may prefigure practitioners' practices, they do not necessarily predetermine the unfolding of the practice (Hemmings et al., 2013). Kemmis et al. (2014a) maintain that practice arrangements may enable and constrain practices. Kemmis and Mutton (2012) further stated that changing practices requires changing the awareness, understanding, concerns and skills of individual participants in the practice, and changing the practice arrangements that hold existing practices in place.

3.2.1. Practice

Kemmis et al. (2014b) adopted Schatzki's conception of practice. They regard practices as "sites of human coexistence" (p. 156) that should be understood not as abstract entities but as emerging within and from the contexts in which they happen (Kemmis et al., 2014b). For Schatzki (2002), practices consist of 'sayings' and 'doings'. Kemmis et al. (2014b) extended this conception of practices by highlighting that practices also consist of 'relatings' as people interact with each other in a practice. Thus, Kemmis et al. (2014b) describe a practice as:

> a form of socially established cooperative human activity that involves characteristic forms of understanding (sayings), modes of action (doings), and ways in which people

relate to one another and the world (relatings), that 'hang together' in a specific project (p. 155).

In other words, practices are human activities that consist of actions and activities ('doings'), ideas and discourses ('sayings') and relationships ('relatings') that are intertwined in a project. The aim in my research is to understand the 'sayings', 'doings', and 'relatings' that comprise the DI practices of Foundation Phase teachers (Figure 3).

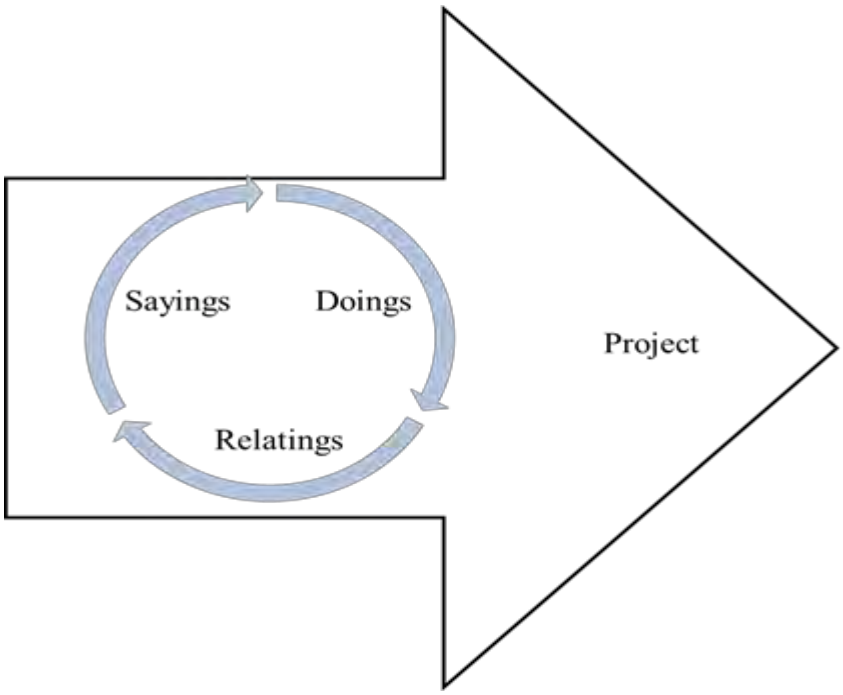


Figure 3: The 'sayings', 'doings' and 'relatings' of a practice hang together as a project (Kemmis et al., 2014a, p. 33).

Kemmis et al. (2014a) view practices as a site in which participants speak the language characteristic of practice ('sayings'), engage in activities ('doings') related to the practice and enter into relationships with others or objects ('relatings') in the practice.

The ’sayings’, ‘doings’ and ‘relatings’ in my research included:

- The language and terminology used by the teachers and learners in the classroom are the ‘sayings’ of the practice.

- The actions and activities, such as reading, asking questions and explaining ideas, relate to the 'doings' of the practice.
- The ‘relatings’ of the practice include how the teachers and learners behave towards each other and objects in the classroom.

Hemmings et al. (2013) maintain that practices occur in practice landscapes and are influenced by practice traditions. Practice landscapes are the settings in which the practices take place, that is, the site of the practice (Kemmis et al., 2014a). In my research, this included Zoom lectures, observations, and interviews.

The observations took place in the practice landscape of the classroom. The 'sayings', 'doings' and 'relatings' take place in three intersubjective spaces: (1) the semantic space in which mutual understandings are shared; (2) physical space-time in which shared activity and work is constituted; and (3) the social space, that is, the space in which relationships of power and solidarity co-exist (Kemmis and Heikkinen, as cited in Hemmings et al., 2013). The practice traditions “encapsulate the history of the happenings of the practice, allow it to be reproduced, and act as a kind of 'collective ‘memory' of the practice” (Kemmis et al., 2014a, p.27). Put differently, Kemmis et al. (2014a) argue that the practice traditions are the prior ‘sayings’, ‘doings’ and ‘relatings’. These prior practices (i.e., the ‘sayings’, ‘doings’ and ‘relatings’) form part of the practice arrangements in a practice (Kemmis et al. 2014a). An example of a classroom practice that has been reproduced over many years is ‘chorusing’, that is when learners respond to a question asked by the teacher in unison. Chorusing is a device that encourages the repetition of answers that individual children have already provided (Chick, 1998). ‘Chorusing’ has become a practice arrangement that influences the ‘doings’ in the classroom.

Practices are intergenerational as they are passed down from generation to generation. Novices are inducted into practice by people already engaged in the practice. In that way, we cannot easily rid ourselves of 'old' practices. As Røpke (2009) says, people carry past practices like one would a backpack; they are always there.

According to Kemmis and Mutton (2012), the 'sayings', 'doings' and 'relatings' that constitute practices are shaped by mediating preconditions, that is, the practice arrangements. These preconditions enable or constrain the individual and collective actions of those involved in a particular practice.

3.2.2. Practice arrangements

According to Rönnerman et al. (2017), practice arrangements are the preconditions that prefigure practices, making them possible and holding them in place. There are three practice arrangements: (1) cultural-discursive arrangements; (2) material-economic arrangements; and (3) social-political arrangements. Together, these arrangements make possible and shape practices (Mahon et al., 2017).

1.3.2.1. Cultural-discursive arrangements

Cultural-discursive arrangements are the 'handed-down' knowledge and language practitioners acquire (Kemmis and Grootenboer, as cited in Salamon et al., 2016). For Kemmis et al. (2014a), cultural-discursive arrangements are the resources that make the language and discourses used in and about the practice possible. These arrangements are realised in the semantic space, as people engage intersubjectively through language. These cultural-discursive arrangements enable and constrain the 'sayings' characteristic of the practices and the meaning that people make and develop through their interactions in practice (Kemmis et al., 2014a).

Cultural-discursive arrangements prefigure and make particular 'sayings' possible in a practice by constraining or enabling what is relevant and appropriate to say (and think) in performing, describing, interpreting, or justifying the practice (Hemmings et al., 2013). In my research, the 'sayings' are conditioned by the policies on inclusive education, the curriculum (CAPS), the LoLT etc.

1.3.2.2. Material-economic arrangements

The material-economic arrangements of practices relate to the physical and economic arrangements that shape what the people in the practice do (Kemmis and Grootenboer, cited in Salamon et al., 2016). According to Kemmis et al. (2014a), these arrangements are realised in the medium of activity and work in physical space and time. They further describe material-economic arrangements as the resources that make possible the activities undertaken during the practice (Kemmis et al., 2014a).

The material-economic arrangements shape what people do in a practice (Kemmis and Grootenboer, cited in Salamon et al., 2016). They shape the 'doings' of a practice by affecting what, when, how, and by whom something can be done (Mahon et al., 2017). In my research, the 'doings' are conditioned by the interactions in the classroom (e.g., asking questions), the Learning and Teaching Support Materials, the set-up in the classroom, etc.

1.3.2.3. Social-political arrangements.

Salamon et al. (2016) described the social-political arrangements as the position of different participants in the practice and their positions in other practices. In essence, the social-political arrangements make possible the 'relatings' of the practice. Social-political arrangements shape how people relate to each other and non-human objects (e.g., books) in practice (Kemmis et al., 2014a). These arrangements are realised in the medium of power and solidarity in the social space (Kemmis et al., 2014a). Kemmis et al. (2014a) acknowledge that

power relations are imbued in the way people interact and relate to each other in a practice. Furthermore, Kemmis et al. (2014a) maintain that the social space of the practice, relations of power, and solidarity condition the practices in social life. For example, in their research on Early Childhood Education teachers, Salamon et al. (2016) explained that power relationships exist between educators with different roles and qualifications, among children, between educators and children, between educators and parents, and between the early childhood researchers and the participants of their research. The 'relatings' in my research are conditioned by the classroom rules.

Figure 4 shows how the ‘sayings’, ‘doings’ and the ‘relatings’ are enabled and constrained by the cultural-discursive, material-economic and social-political arrangements that occur in pursuit of a project. As noted earlier, with my research, the project is to understand the ‘sayings’, ‘doings’, and ‘relatings’ that comprise the practice of DI and the arrangements that prefigure the ‘sayings’, ‘doings’ and ‘relatings'.

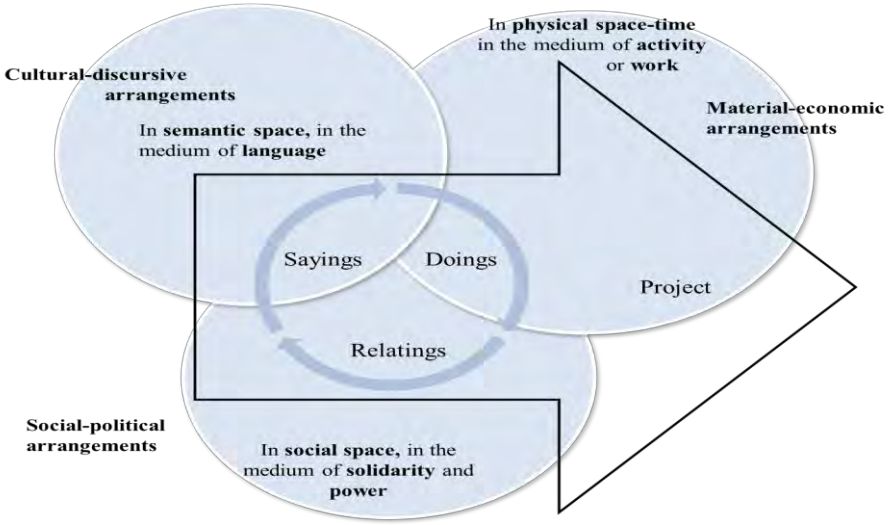


Figure 4: Practices, the arrangements of a practice in pursuit of a project Kemmis et al., 2014a p. 34.

As mentioned earlier in this chapter, practices have a history and traditions. Kemmis and Smith (2008) suggest that when practices are merely reproduced, or become simple rule-

following (e.g., using the national workbooks without engaging with them critically), "the moral agency of educators is at stake and they become operatives of the system in which they work" (p. 434). Grootenboer and Edwards-Groves (2013) argue that when teachers are able to theorise their practice and see their practice as a form of praxis, the affective aspect of the pedagogy comes to the fore. This emphasis on the affective and what is important for the social good informs Kemmis and colleagues' notion of praxis.

3.2.3. Pedagogy as praxis

Praxis is used in a neo-Aristotelian sense to denote an action that is morally committed, oriented, and informed by traditions in a field (Kemmis & Smith, as cited in Hemmings et al., 2013). It is also viewed in a post-Hegelian and post-Marxian sense to denote "history-making action" (Hemmings et al., 2013). Mahon et al. (2017) explain that Aristotle has been influential in their conceptualisation of praxis, specifically in relation to the attention he gave to the moral dimensions of practice. Moreover, Marx left a permanent mark on practice theory by showing how practices are formed and secure patterns of social relationships throughout history. Referring to Aristotle and Marx, Kemmis (2010) conceptualised praxis as an action that is morally committed and informed by traditions in a field. Salamon et al. (2016) described praxis as a human and collective action by which good individuals and good societies are formed and transformed.

Any application of the ToPA framework requires a greater sense of trust and responsibility from both traditional and emerging experts (Lowrie, 2014). As Salamon et al. (2016) state, by facilitating multiple links between the theoretical, practical, and relational elements of practice, the ToPA is an appropriate lens for understanding different practices.

3.3. The use of the theory of practice architectures in research

The theory of practice architectures has been used in research on early childhood education (ECE) (e.g., Cooke & Francisco, 2021; Rönnerman et al., 2017; Salamon et al., 2016), mathematics education (e.g., Grootenboer, 2013; Groetenboer & Edwards-Groves, 2013), language education (Edwards-Groves & Grootenboer, 2015), and teacher leadership (Wilkinson et al., 2010; Wilkinson & Kemmis, 2015) to name a few.

Salamon et al. (2016) conducted their research to identify elements of practice that enable or constrain early childhood teachers' praxis. The research was conducted to explore the potential for helping educators understand their practices by examining the cultural-discursive, material-economic and social-political arrangements that shape, and are shaped by, early childhood practice traditions (Salamon et al., 2016). The study by Salamon et al. (2016) found that ToPA is a helpful tool for examining the educational practices of early childhood teachers, as the teachers were able to engage critically with their practices, having some knowledge of the practice arrangements.

Cooke and Francisco's (2021) case study investigated the conditions within three Australian high-quality early childhood education settings that enabled and constrained educators' risk-taking. They collected their data through observations, interviews, and a questionnaire. Cooke and Francisco (2021) found that providing resources and enabling environments (material-economic arrangements) increased the children's and educators' risk-taking.

Ronneman et al. (2017) conducted a study in Sweden with 15 middle leaders in schools as participants. The study aimed to explore and understand the factors that enable and constrain these leaders' practices in their work. Data was generated from surveys and recorded professional learning dialogues. Rönnerman et al. (2017) revealed that the practices of middle

leaders were crucial in sustaining quality in ECE as they coordinate between the educational practices within the preschool and across the city district. Thus, it was important for them to understand the arrangements that condition pre-school practice.

Wilkinson et al. (2010) investigated how educational leadership influences how praxis is enabled or constrained in Australia, Norway and Sweden. Wilkinson et al. (2010) argued that leadership and educational leaders are essential to investigate as they influence the conditions in which praxis may be enabled or constrained. In another study, Wilkinson and Kemmis (2015) examined how practices of leading relate to other educational practices in three Australian primary schools. The study employed a multiple case study approach. Interviews and observations were used to generate the data. Wilkinson and Kemmis (2015) concluded that the responsibility of educational leadership is to create practice arrangements that enable, support, and sustain teachers' practices.

Grootenboer (2013) used ToPA to examine teaching in actual classroom practice and to ground the ideals in the routine, thoughts and actions of teachers and learners. This qualitative case study used semi-structured interviews, observations, and reflective discussions to collect data. The sample included 13 teachers from Australia and New Zealand. The results suggest that everyday routine practices (i.e., the practice traditions) should be attended to if mathematics education is to be improved. Furthermore, Grootenboer (2013) argued that the 'relatings' were noted as teachers need to have warm and deep professional relationships with their learners to know when they need extra support and when they can be left to grapple with the ideas.

A further study by Grootenboer and Edwards-Groves (2013) sought to examine mathematics education using ToPA in five Australian schools. The aim was to conduct an in-depth exploration of practices as they happen in formal education settings over four years. A

multiple case study was employed using interviews and observations. Grootenboer and Edwards-Groves (2013) argued that the teachers' teaching practices should relate to their learners' learning practices.

In language education, Edwards-Groves and Grootenboer (2015) used ToPA to illustrate praxis by examining the site-based practical wisdom of educational practices in English education. Forty-five people, including teachers, learners, and other education professionals, participated in the study. They collected data through interviews and observations. The study revealed that praxis and practice arrangements emerged as resources for understanding and enacting English education.

The above research, which is by no means a reflection of all the research done using the ToPA as an analytic framework, suggest that the ToPA assists in illuminating the practice arrangements that enable or constrain the practices. This knowledge is important if the practices need to be changed. The ToPA assisted me in explaining: (1) teachers' understanding of DI; (2) the extent to which they appropriate DI practices during their reading lessons; and (3) the preconditioning arrangements that enable or constrain the appropriation of differentiated pedagogical practices in the classroom.

3.4. Conclusion

The focus of this chapter was to explain the theoretical framework informing my research, that is, the teachers' differentiated instruction practices. The theoretical framework is based on the theory of practice architectures as developed by Kemmis and colleagues. Two of the key concepts elaborated on in this chapter are practices and practice arrangements. As noted in the chapter, practices consist of 'sayings', 'doings' and 'relatings'. I explain that practices are not neutral, but rather, that they are conditioned by practice arrangements, that is, the cultural-discursive, material-economic, and social-political arrangements. The practice

arrangements condition the practices, but in turn, are shaped by the practices. Practices with a moral intent, that is a focus on the social good, are referred to as praxis. In Chapter 5, I analyse the teachers' practices (or praxis) by drawing on the data generated in my research. The next chapter focuses on the methodology of my research and provides an explanation of how the data was generated and analysed.

Chapter 4: Methodology

4.1. Introduction

In this chapter, I explain why I employed a qualitative case study in my research. According to Yin (1994), the main purpose of a well-thought-through research design is to help avoid situations where the evidence does not address the initial question. Research design is necessary because it contributes to the possible 'smooth sailing' of the various research procedures, thereby assisting the researcher in conducting the study as professionally as possible to yield maximum results. I explain the research methods of collecting and analysing data. I conclude by stating my positionality, the validity and trustworthiness of the results, and the ethical processes.

As highlighted in Chapter 1, the aim of the research was to explore the teachers' understanding, appropriation and implementation of differentiated pedagogical practices that promote the learning of all learners in their classrooms.

The following main research question guided the study:

How do Foundation Phase teachers understand, appropriate, and apply differentiated pedagogical practices in teaching reading?

Sub-questions:

1. What are the teachers' understandings of Differentiated Instruction?

2. How do teachers appropriate and implement Differentiated Instruction in their classrooms?

3. What are the enabling and constraining factors in the implementation of Differentiated Instruction?

4. What support do teachers need in implementing Differentiated Instruction?

4.2. Research orientation

This study employed a qualitative research approach underpinned by an interpretivist orientation. Qualitative studies explore the attitudes, opinions, and beliefs of several parties involved in education, and the general public, and examine personal reactions to education contexts and teaching strategies (Brantlinger et al., 2005). Interpretivist research focuses on the idea of people as subjects (active, creative individuals) constantly involved in creating their social world through their interpretations and interactions (Hay, 2011). As such, interpretive researchers study beliefs, opinions, and attitudes as they appear within and frame actions, practices, and institutions (Bevir & Rhodes, 2005).

According to Denzin and Lincoln (cited in Näslund, 2002), qualitative researchers deploy a wide range of interconnected methods to understand the phenomena under study better. In my research, I used case study as the research approach for answering my research questions. This case study focused on the teachers' understanding of DI and identified the link between their understanding and implementation of DI. As such, my study sought to identify the teachers' 'sayings', 'doings', and 'relatings' and the arrangements that enable and constrain their practices.

4.3. Case study

A case study is a research approach used to generate an in-depth, multi-faceted understanding of a complex issue in its 'real-life' context (Crowe et al., 2011). It is an intensive, holistic description and analysis of a bounded system, which involves understanding an event, activity, process, or one or more individuals (Creswell, 2002; Merriam, 1998). According to Stake (1995), case study is a specific, complex, integrated system with a boundary and purpose in social and human services. A case study is an empirical inquiry that investigates a

"contemporary phenomenon within its real-life context, especially when the boundaries between the phenomenon and context are not clearly evident" (p. 13).

Stake's (1995) work has been particularly influential in conceptualising and explaining the case study approach to scientific enquiry. He has characterised three main types of case studies: intrinsic, instrumental and collective case studies. Stake (1995) uses the term 'intrinsic' to suggest that researchers who have a genuine interest in a 'case' should use this approach when the intent is to understand a particular phenomenon better. An intrinsic case study is typically undertaken to learn about a unique phenomenon. The researcher should define the uniqueness of the phenomenon, that is, distinguishing it from all other cases. Like an intrinsic case study, an instrumental case study uses a single case to gain a broader appreciation of an issue or phenomenon (Stake, 1995). It enables the identification of commonalities and differences within the boundaries defining a case (Bullough Jr., 2015). The collective case study involves studying multiple cases simultaneously or sequentially to generate a broader appreciation of a particular issue. It also involves collecting and analysing data from several cases. Therefore, collective case studies involve both intrinsic and instrumental cases (Kekeya, 2021). However, collective case studies differ from single case studies, with subunits or subcases embedded within (Merriam, 2009). In this study, I have used an instrumental case study which allowed me to study three (3) subunits in different classrooms to explore the commonalities and differences in the teachers' understanding and implementation of DI.

The case study approach lends itself well to capturing information on 'how', 'what' and 'why' questions (Crowe et al., 2011). According to Yin (2003), case studies can explain, describe, or explore events or phenomena in the everyday contexts in which they occur. My research is both descriptive and explanatory. Explanatory research seeks to explain the 'real-

life' interventions that are not possible through surveys or experimental strategies (Yin, 2003). Descriptive research describes an intervention or phenomenon and the 'real-life' context in which it occurred (Yin, 2003). Exploratory research explores situations where the evaluated intervention has no clear, single set of outcomes (Yin, 2003). I begin by describing teacher conceptions of DI and the implementation thereof. I then use ToPA to explain what cultural-discursive, social-political, and material-economics arrangements have conditioned the teachers' descriptions and implementation of DI. In other words, my research is both descriptive and explanatory.

4.4. Research design

Research design ensures that the evidence obtained enables the researcher to answer the initial research question (Yin, 1994). Yin (1994) further discusses design as a logical action plan for moving from the initial set of questions to the conclusions or answers, and back to the questions or generation of new questions. Drawing from Yin's work, Anfara et al. (2002) stated that research design deals with answering who, what, when, where, how, and why questions.

4.4.1. The research context

The Bachelor of Education (In-Service) Foundation Phase Teaching (B.Ed. FP) programme is offered for continuing professional development to teachers who wish to upgrade their initial teacher education qualifications to a degree (RU, 2021). To be admitted to the programme, teachers must hold an initial teaching qualification of 360 credits at level 6 (e.g., a former three-year College of Education Diploma or a National Professional Diploma in Education (NPDE) 360 credits qualification at former NQF Level 5). The degree is offered at NQF Level 7, with 480 credits. The aim is to develop the teachers' extensive classroom experience above the supervised and assessed work-integrated learning during their period of registration. The

curriculum is designed to ensure that the teachers are provided with the required depth of theory and the required level of supervised and assessed work-integrated learning. Secondly, it seeks to develop the teachers' reflection on theory in their practice. Lastly, it is designed so as to ensure that all teachers are able to attain the minimum level of teaching proficiency required by the Minimum Requirements for Teacher Education Policy (SA.DHET, 2015).

4.4.2. Research Site

This study occurred in two sites: (1) over Zoom due to the COVID-19 restrictions, and (2) in schools in the John Taolo Gaetsewe (JTG) District in the Northern Cape. Although the JTG is surrounded by iron-ore and ferroalloy mines, it is a district with high levels of unemployment. In 2015 this district was one of South Africa's poorest, with 85.4% of all people receiving grants and subsidies as a significant percentage of the total income for the district (Statistics South Africa, 2016). This district has different types of schools: former Model C schools, 'township schools', and rural schools. The district's most common languages for teaching and learning are English, Afrikaans and Setswana. For this study, only three teachers in three schools (in the JTG district) were observed. These schools were rural schools where the Language of Teaching and Learning (LoLT) is Setswana.

4.4.3. Sample

The study used purposive and convenience sampling. According to Etikan et al. (2016), purposive sampling means that the researcher decides what needs to be known and sets out to find people who can and are willing to provide the information by virtue of their knowledge or experience. Convenience sampling means choosing a sample that is easily accessible to the researcher (Etikan et al., 2016). This study was conducted with the teachers registered for the B.Ed. FP who are working in the JTG district of the Northern Cape. The researcher worked directly with these teachers. It was convenient to choose this sample as the participants were

required to attend lectures, workshops and seminars during the research process. Although I observed only three teachers between Grades R-3 for the study, there were 76 teachers in the B.Ed. FP 2nd-year programme. The teachers were from the Northern Cape (NC) and Eastern Cape (EC). I invited all the teachers in the programme to complete a questionnaire. As the researcher, I approached and requested three teachers who obtained their teaching diplomas (NPDE & Diploma in Grade R teaching) between 2007 and 2017 to be part of the observations. Since the adoption of inclusive education in 2001 in SA, I wanted to see if teacher education had prepared these teachers in the past ten years.

Of the 76 registered teachers, only 34 participated. In other words, these teachers consented to being part of the research. Of the 34 teachers, two pairs of teachers (four) had the exact same responses to each of the questions in the questionnaire. This suggests that they worked together on the questions in the questionnaire. I removed their responses to the questionnaire from my data set. I ended up with questionnaire data from 30 teachers. The analysis of the questionnaires focused on the 30 teachers' responses.

On the questionnaire, the teachers were required to indicate their highest professional qualification, the grade they currently teach in and the number of years they have taught in the Foundation Phase.

As indicated in Table 4.1, most of the teachers have a Diploma in Grade R teaching. The Diploma in Grade R teaching is pegged at Level 6 on the NQF, and thus provides entry into the B.Ed. FP. As indicated in Table 4.1, twenty of the participants in my research had a Diploma in Grade R teaching. There were eight teachers whose previous qualification was an NQF Level 5 Diploma and two who did not specify what their qualification was other than noting that it was a Diploma (Table 3).

Qualification	NQF Level	Number of teachers
NPDE	Level 5	6
ECD Level 5	Level 5	2
Diploma (not specified)		2
Diploma in Grade R Teaching	Level 6	20

Table 3: Table of qualifications.

Most of the teachers have 6 to 10 years of teaching experience, followed by those with 11 to 15 years of experience. Table 4. provides a summary of the teachers' experience in the Foundation Phase, and their current grades.

Years of experience	1-5 years	6-10 years	11-15 years	16-20 years
Overall teaching experience	3	13	12	2
Foundation Phase	7	12	9	2
Current grade	9	12	6	2

Table 4: The Teachers' years of experience.

All teachers in this study are in early childhood education (ECE). By that, I mean they predominantly teach learners from 0 to 9 years of age. The majority of the teachers are teaching Grade R (Table 4.3). This is followed by five teachers teaching in Grade 1, two teachers in Grades 00 and 2 respectively, and one teacher in Grade 3. Table 5. provides the number of teachers teaching in each grade.

Grade 00	2
Grade R	20

1	5
2	2
3	1

Table 5: The Numbers of Teachers Per Grade.

Based on Tables 3., 4., and 5, the majority of in-service teachers in the 2nd year of their B.Ed. FP have a Diploma in Grade R teaching, between 6 and 15 years of experience and teach in Grade R.

4.5. Data generation

Data was collected using open-ended questionnaires, observations and semi-structured interviews. The observations and semi-structured interviews were conducted with the same teachers. Given that the questionnaires were anonymous, it was not possible to match the teachers that I observed to the questionnaires. This motivated me to interview the 3 teachers I observed separately after the observations. I chose to observe and interview one teacher from each of Grades R, 1 and 3. This allowed me to observe the implementation of DI and understanding of DI across different grades in the Foundation Phase.

4.5.1. Open-ended questionnaire

Before starting with the DI module, I gave each teacher an open-ended questionnaire (Appendix 1) to establish their knowledge of DI and the extent to which they implement DI in their classrooms. The open-ended questionnaire enabled me to establish the teachers' knowledge of DI and their implementation of differentiated learning. Open-ended questions allowed the participants to express their opinions without being influenced by the researcher (Reja et al., 2003). This was also enabled by the fact that the questionnaires were anonymous. A concern I had at the beginning of my research, and that was raised by the Education Higher

Degrees Committee, was that I would have too much data should all 76 teachers agree to participate in the research. They were particularly concerned about the open-ended nature of the questionnaires. This did not materialise as only 34 teachers consented to the research, and after collating the data on an Excel Spreadsheet only 30 teachers' data proved to be reliable. As mentioned earlier, two pairs of teachers had worked together on the questionnaire and so I excluded these four teachers from my dataset.

4.5.2. Observations

Observation enables the researcher to investigate the phenomenon in the context and site of the research study (Bertram & Christiansen, 2014). Observation is gathering 'live data' from 'live situations' (Cohen et al., 2010). Due to the Covid-19 restrictions, data was collected virtually using Zoom. I had to arrange a time with each of the teachers to connect and observe their teaching. The teachers used their laptops to connect via Zoom and placed it at the back of the classroom, enabling me to see the teacher clearly, but only the backs of the learners. According to Driscoll (2011) there are two types of observers: participant observer and unobtrusive observer. A participant observer may interact with the participants and become part of their community, while the unobtrusive observer does not interact with the participants but instead, simply records their behaviour (Driscoll, 2011). In this study, I was an unobtrusive observer for two reasons: (1) I was not in the classroom as I observed the lesson via Zoom, and (2) the teachers could teach their lesson, without feeling intimidated by me. I was mindful of the fact that the teachers would be aware that I was observing them over Zoom, but I hoped that they would forget about me given that I was on the computer. I used a semi-structured observation rubric (Appendix 2) to record data in detail while observing the lessons. Using Zoom, I video-recorded each lesson so that I could watch the lessons later, and add to my observation notes on the semi-structured observation form. I

transcribed and translated each video recording of the three participants' lessons. The lessons were all conducted in Setswana as this is the LoLT in the Foundation Phase in all three of the schools. I translated the data into English after transcribing the data. To avoid observation bias, I recorded the observations during the lesson and my thoughts to separate my observations from my judgments and feelings.

4.5.3. Semi-structured interviews

Semi-structured interviews (Appendix 2) consist of several key questions that help define the areas to be explored and allow the interviewer and interviewee to diverge from the interview schedule to pursue an idea or response in more detail (Gill et al., 2008). Semi-structured interviews have several benefits. They generally consist of open-ended questions, and allow the researcher to ask follow-up questions to delve deeper into the phenomena of the study. The researcher can probe for understanding, further information, and clarification. A semi-structured individual interview allows the participants to respond candidly. This may not be the case in a focus group interview, where participants may be wary of what other participants may think about their responses (Adams, 2015). However, individual interviews are time-consuming, the interview and transcribing the interview take time (Adams, 2015). While I only interviewed three teachers, that is, the teachers I observed, I not only had to transcribe the interview data but also translate it from Setswana into English for the presentation of my research.

I conducted semi-structured interviews with each of the three teachers whose DI pedagogical practices I observed. I intended to generate data about the participants' experiences, perceptions, opinions, and interpretations of DI. I conducted these interviews in their home language (Setswana) via Zoom. I recorded the Zoom meeting to capture the interviews, which I later transcribed and translated into English.

4.6. Data analysis

Data analysis is a dynamic, intuitive, and creative process of inductive reasoning, thinking and theorising through which the researcher attempts to gain a deeper understanding and appreciation of what they have studied and continually refine their interpretations (Basit, 2003). This study sought to ascertain teachers' understanding and implementation of DI and the constraints and enablements in implementing DI in the classroom. The primary purpose was first to allow research findings to emerge from the frequent, dominant, or significant themes inherent in raw data without the restraints imposed by structured methodologies (Thomas, 2003), such as the ToPA. Once I had identified the themes inductively, I used the ToPA categories to re-analyse the data. Data generation and analysis continued throughout the project's life (Basit, 2003). In other words, it was an iterative process. During the process of collecting the data, the following procedures were taken: data maintenance and cleaning, coding, or categorization of data, and writing the findings.

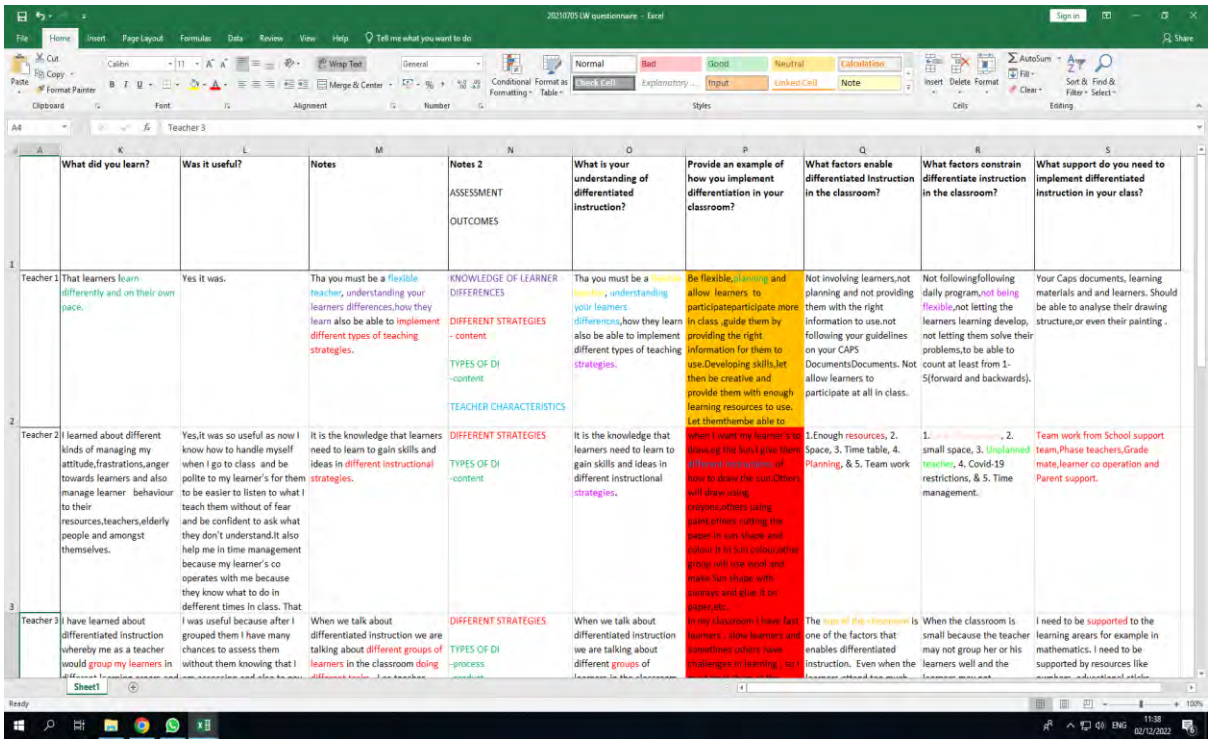
4.6.1. Data maintenance and cleaning

Although this study aimed to assess the data quality, no data was deleted or thrown away (Ader, 2008). I created separate data files for the questionnaires and interview transcripts and translations.

4.6.2. Coding or categorization of data

I used both inductive and deductive coding. Coding involves subdividing the data and assigning categories, tags, or labels for allocating units of meaning to the descriptive or inferential information compiled during a study (Basit, 2003). My initial coding of the data was conducted inductively. I categorised the data into themes by reading and rereading the data to see what was similar and different across the data. This is shown in Figure 4.1. Each

code is highlighted in a different colour. For example, the text in purple relates to the code, 'knowledge of learner differences'.



	What did you learn?	Was it useful?	Notes	Notes 2 ASSESSMENT OUTCOMES	What is your understanding of differentiated instruction?	Provide an example of how you implement differentiation in your classroom?	What factors enable differentiated Instruction in the classroom?	What factors constrain differentiate instruction in the classroom?	What support do you need to implement differentiated instruction in your class?
Teacher 1	That learners learn differently and on their own pace.	Yes it was.	Tha you must be a flexible teacher, understanding your learners differences,how they learn also be able to implement different types of teaching strategies.	KNOWLEDGE OF LEARNER DIFFERENCES DIFFERENT STRATEGIES - content TYPES OF DI -content TEACHER CHARACTERISTICS	Tha you must be a flexible teacher, understanding your learners differences,how they learn also be able to implement different types of teaching strategies.	Be flexible,planning and allow learners to participateparticipate more in class ,guide them by providing the right information for them to use.Developing skills,let then be creative and provide them with enough learning resources to use. Let themthembe able to	Not involving learners,not planning and not providing them with the right information to use.not following your guidelines on your CAPS DocumentsDocuments. Not allow learners to participate at all in class.	Not followingfollowing daily program,not being flexible,not letting the learners learning develop, not letting them solve their problems,to be able to count at least from 1-5(forward and backwards).	Your Caps documents, learning materials and and learners. Should be able to analyse their drawing structure,or even their painting .
Teacher 2	I learned about different kinds of managing my attitude,frastrations,anger towards learners and also manage learner behaviour to their resources,teachers,elderly people and amongst themselves.	Yes,it was so useful as now I know how to handle myself when I go to class and be polite to my learner's for them to be easier to listen to what I teach them without of fear and be confident to ask what they don't understand.It also help me in time management because my learner's co operates with me because they know what to do in defferent times In class. That	It is the knowledge that learners need to learn to gain skills and ideas in different instructional strategies.	DIFFERENT STRATEGIES TYPES OF DI -content	It is the knowledge that learners need to learn to gain skills and ideas in different instructional strategies.	when I want my learner's to draw,eg the Sun,I give them different instructions of how to draw the sun.Others will draw using crayons,others using paint,others cutting the paper in sun shape and colour it in sun colour,other group will use wool and make Sun shape with sunrays and glue it on paper,etc.	1.Enough resources, 2. Space, 3. Time table, 4. Planning, & 5. Team work	1. , 2. small space, 3. Unplanned teacher, 4. Covid-19 restrictions, & 5. Time management.	Team work from School support team,Phase teachers,Grade mate,learner co operation and Parent support.
Teacher 3	I have learned about differentiated instruction whereby me as a teacher would group my learners in	I was useful because after I grouped them I have many chances to assess them without them knowing that I	When we talk about differentiated instruction we are talking about different groups of learners in the classroom doing	DIFFERENT STRATEGIES TYPES OF DI -process	When we talk about differentiated instruction we are talking about different groups of	In my classroom I have fast learners , slow learners and sometimes others have challenges in learning , so I	The of the classroom is one of the factors that enables differentiated instruction. Even when the	When the classroom is small because the teacher may not group her or his learners well and the	I need to be supported to the learning arears for example in mathematics. I need to be supported by resources like

Figure 5: Data coding

After that, I engaged in deductive coding, whereby identified themes were colour-coded (Figure 5), drawing on the ToPA categories developed by Kemmis and colleagues (Chapter 3). The reason for the initial inductive coding process was to allow for categories that might not have surfaced using the ToPA to emerge. The teacher lessons were also analysed using the ToPA. I drew tables to map out the practices and practice arrangements evident in the teachers' implementation of DI. During my observations, I was able to identify the practice landscape, that is the specific site (classroom) in which the lesson took place. The practice landscape refers to the arrangements that may already be found in the project (Chapter 3). The open-ended questionnaires, particularly the question where the teachers were requested to explain how they implement DI in their practice, gave me a sense of the practice traditions. In Chapter 3, I explained that practice traditions refer to practices that evolve over time in

ways that transform and reproduce the practice. Reading through my data, particularly the observation data, I was able to identify the 'sayings', 'doings' and 'relatings', and the practice arrangements (cultural-discursive, material-economic and social-political).

4.6.3. Writing the findings

When reporting the findings, the themes were often used as main headings in the findings, with specific categories as subheadings (Thomas, 2003). For instance, the actual questions from the questionnaire and the interviews were used as headings and subheadings in Chapter 5. I used actual quotes from the data to illustrate the categories/subcategories, and I linked these quotes to the literature review. I added my critical commentary to the discussion. This was done by comparing the research findings with other studies to provide a critical understanding of why this study is similar or different.

4.7. Referencing conventions

The participants in my study completed the questionnaire anonymously in order to try to protect their anonymity. Since the questionnaires were emailed back to the researcher, learners were requested to exchange or swap their questionnaires to ensure their anonymity. Some learners used the internet cafe' email address to send their questionnaires, which also protected their anonymity. When I analysed the data, the participants were named Teacher 1, 2, 3,...34. Given the anonymity of the questionnaire, the researcher did not know the allocated number of each of the three teachers observed. Therefore, it needs to be clarified whether they participated in the questionnaire and if they did participate, how they answered the questions. However, it is possible that they were among the 4 disregarded questionnaires. This is a limitation of my study as it would have been helpful to ascertain whether there was consistency between their responses to the questionnaire with the lessons they taught, and the semi-structured interviews after the lesson. While analysing the observations and

interviews, I gave the participants pseudonyms to protect their identities. I refer to the three teachers as Dineo, Lorato, and Kaone. These three teachers were observed and interviewed.

4.8. Positionality

I was aware of my position as the participants' lecturer and teaching practice (TP) support person in the Northern Cape. The programme, B.Ed. FP, seeks to develop the teachers' extensive classroom experience over the supervised and assessed work of integrated learning during their period of registration. One of my roles as the TP support person was to visit the teachers' classrooms to observe and support their teaching practices once each term. I realised my positionality as their 'senior' might influence their decision to participate in this research. I gave out and explained the consent forms (Appendix 3) to the teachers so that they were not pressured or compelled in any way to participate in the study. I told the participants they could withdraw from the research at any stage without fear of repercussions. Given that I have worked with these teachers in their classrooms for 2 years, they were familiar with having me in their classrooms, virtually due to COVID-19 restrictions. I was explicit about the aims and focus of the study with the teachers, which is to improve myself and my practice.

4.9. Validity and trustworthiness

For qualitative research findings to be utilised and incorporated into practice, their validity and trustworthiness need to be evaluated. Noble and Smith (2015) described validity as the precision with which the findings accurately reflect the data. According to Bashir et al. (2008), validity focuses on how the research results are interpreted. Trustworthiness relates to the consistency of the analytical procedures, including accounting for personal and research method bias that may have influenced the findings (Noble & Smith, 2015). I have considered the validity to ensure the research findings' trustworthiness (Sensing, 2011). By triangulating

data, I attempted to provide evidence that promotes credibility (Eisner, cited in Bowen, 2009). I have collected data from different sources, that is, questionnaires, interviews, and observations. By examining information collected through different data collection methods, I corroborated findings across data sets in an attempt to reduce the impact of potential bias that might have existed in the study (Bowen, 2009). This helped me guard against the accusation that a study's findings are simply an artefact of a single method, source, or investigator's bias (Bowen, 2009). I also conducted member checking by sending the transcribed observations and interview data back to the participants in the study so that they could confirm the credibility of the information. This also provided an opportunity for the three teachers to remove anything they felt uncomfortable with from the data. None of them did this. In order to keep the data as close to the teachers' expressions as possible, I chose to use their exact words in the presentation and analysis of the data.

4.10. Ethics

Ethical clearance was sought prior to conducting this study.

- I obtained ethical clearance from the Education Higher Degrees Committee (ethics number: 0868). I have attached the ethical permission letter in Appendix 4.
- I sought consent from the Northern Cape Department of Education (Appendix 5). A letter requesting permission to conduct the study was written and emailed to the Department together with the ethics approval from the University.
- A letter requesting permission to conduct the study, accompanied by ethics approval, was also sent to the Rhodes University Registrar (Appendix 6) because the participants in the study are registered learners at the University. I obtained permission to conduct the study and saved the permission letter.

- All 74 2nd-year learners registered for B.Ed. FP at Rhodes University were informed about the research in one of their lectures. I explained the purpose of the research and that they did not have to participate in the study. Although all 74 learners attended the lectures on DI, only 34 participated in the questionnaire. As explained above, 4 of the questionnaires were not included in the data set.
- The 3 participants who participated in the observations and interviews received additional letters requesting them to participate in the study and a consent form (Appendix 3). I also approached them individually to further explain the process of the research. I explained the issue of identity protection by using pseudonyms. I assured them that participation was voluntary and that there would be no repercussions should they wish to decline or withdraw from the study at any moment.
- Upon receipt of the participants' consent, the school principals where the teachers were based received a letter requesting permission to conduct the study (Appendix 7), the ethics approval letter, and the permission letter from the Department. I explained that the school and teachers' identities would be protected by using pseudonyms.
- I requested the teachers participating in the study to request permission from the parents of the learners in the classrooms (Appendix 8). I provided the teachers with a letter requesting permission to conduct the study explaining that the focus of the study would be on the teacher, not the learners, and that their children would not be embarrassed during the study. I explained that should the child's face be accidentally filmed; their face would not appear in the thesis. I saved all of the permission letters and consent forms obtained via the teachers from the parents.

4.11. Conclusion

This chapter outlines the research methodology. I have explained the research design, the methods of collecting data, and data analysis process. I elaborated on the research site, research participants, sampling, positionality, validity and trustworthiness, and the ethical concerns of the study. The next chapter presents and analyses the data.

Chapter 5: Data Presentation and Analysis

5.1. Introduction

In Chapter 4, I explain my methodology, research design and research analysis process. I use both emic and etic analysis. I initially coded my questionnaire and interview data inductively to allow codes and themes to emerge from the data before applying the codes related to the theory of practice architectures (ToPA).

I begin this chapter by presenting the data collected through a questionnaire before the lesson observations. The questionnaires provided insight into teachers' knowledge about DI and how they implement it in the classroom. After that, I present a vignette of the lessons I observed, and my analysis of these lessons using the ToPA. Finally, I present my analysis of the individual interviews I conducted with the three teachers I observed. At the end of this chapter, I discuss the findings that emerged from my research.

5.2. Teacher questionnaire

The questionnaire aimed to ascertain the teachers' understanding of DI and provide an example of how they implement it in their classrooms. As noted in Chapter 4, thirty-four teachers participated in the questionnaire. However, two pairs of teachers seemingly worked together while answering the questionnaire. I was concerned about the impact this might have on the overall validity of my data if I included them in my research. Therefore, I chose not to include their questionnaires in the dataset.

Most teachers were familiar with DI. They had learned about DI in their previous teacher qualifications, or in professional development workshops, between 2015 and 2020. Table 6 provides some details about the qualifications that include DI in their course. Of the 23, one teacher learnt about DI in professional development workshops, two learnt about it during

their TE, while twenty learnt about it both during their TE and in the professional development workshops. Three teachers indicated that they had never learned about DI, three were unsure and one teacher did not answer this question.

Opportunities to learn about Differentiated Instruction	**Number of teachers**
Previous teacher education qualifications	23
Professional development workshops	23
Never learnt about Differentiated Instruction	3
Not sure	3
Not answered	1

Table 6: The context in which the participants learned about DI.

The questionnaire required the teachers first to describe their understanding of DI. This corresponds with sub-questions 1 and 2 of my research, that is:

- What are the teachers' understandings of Differentiated Instruction?
- How do teachers implement Differentiated Instruction in their classrooms?

The themes that emerged from the questionnaire data that relate to the sub-questions mentioned above are: knowledge of learner differences, different strategies, elements of DI, assessment, lesson planning and teacher characteristics. I used the teachers' voices to highlight what they wrote in the questionnaires. No spelling or grammatical errors were changed.

5.2.1. Knowledge of learner differences

Seven (23%) teachers indicated that the teacher should recognize the various learners in the classroom. Teacher 1 commented that "*Understanding your learners' differences and how they learner*" is a requirement for DI. Three teachers stated that they accommodate the

different learning styles in the classroom. Teacher 20 stated that she "*design lessons based on learners learning styles.*" Teacher 10 was more specific in her response, emphasising the importance of knowing the learners' 'abilities' and learning styles. She wrote that teachers should adapt their teaching:

> *according to the learner's ability to understand new concepts; for example, learners learn through different learning styles. In other words, some are auditory, where they can understand by hearing/listening. Some are visual learning learners who need to see objects. Kinesthetic learning is where learners physically need to touch and feel given content*.

Tomlinson et al. (2003) maintain that learners vary in readiness and interests. Due to differences in cognitive development, learners perceive, organise, and retain information differently (Pham, 2012). Six teachers (20%) stressed the necessity of knowing the learners' 'ability' levels in order to "*give the learners the support they need"* (Teacher 16). Tomlinson maintains that the main objective of DI is to take full advantage of every learner's capabilities to maximise their learning potential (Tomlinson, 2001, 2003b, 2005a). She argues that differentiation presents a pedagogical approach in which teachers proactively anticipate and respond to diverse learner needs (Tomlinson, 2014). Mills et al. (2014) adds that the teacher needs to recognise the different knowledge that various learners bring to the classroom and respond in ways that value these differences.

5.2.2. Different strategies

Thirteen (43%) respondents indicated using different strategies in their responses. For instance, Teacher 2 stated: "*When I want my learners to draw, e.g., the sun. I give them different instructions of how to draw the sun. Others will draw using crayons, others using*

paint…". Teacher 5 stated, "*During story time, read a story for learners or have a video of the story and have learners watch it*".

Mills et al. (2014) argued that DI could be seen when the teacher gives individually modified curriculum materials or activities according to learners' capabilities. Fourteen teachers (47%) indicated that they split the class into groups to differentiate instruction. When asked to provide an example of how to implement differentiation, Teacher 33 stated, "*paired reading, group guided reading, and small groups*", while Teacher 34 indicated "*group children who share the same ideas in small groups.*"

Brassell and Rasinski (2008), and Landrum and McDuffie (2010), emphasise that learners bring into the classroom differences in their readiness, interests, profiles of learning and environments; therefore, the teacher needs to use content, activities (process) and product for learning to occur. For all learners to receive appropriate stimulation, teachers should employ a variety of strategies to differentiate the products of learning (Tomlinson, 2001, 2003b, 2005b; Subban, 2006; Dixon et al., 2014). Learning tasks in this regard should offer different ways to explore the content, and allow various products from learners working either individually, in pairs or in groups (Smit & Humpert, 2012).

5.2.3. Elements of Differentiated Instruction

Twelve respondents (40%) touched on the elements of DI in their understanding of DI. Teacher 10 explained:

> *My understanding is the teaching methodologies that need to be adapted according to the learners ability to understand new concepts. E.g. Learners learn through different learning styles in other words, some are auditory, where they are able to understand by hearing/listening. Some are visual learning learners where they need to*

see objects, etc, then there are kinesthetic learning where learners physically need to touch and feel given content.

Teacher 14 explained DI as "*using different technique when teaching learners with different level of learning with the aim to achieve a certain objective."* To Teacher 21, DI meant:

My planning using formal and informal assessment, having content knowledge and reflect on my lessons all the time. Content knowledge meaning knowing what is taught, how to teach it and why using that particular instructional practises and when to use them. To reflect on action and in action to my teachings.

Dixon et al. (2014) claim that teachers who differentiate their pedagogical practices respond to learners' needs in three ways. They respond in the way content is presented (i.e., what is being taught), the way content is learned (i.e., how it is being taught), and the way learners respond to the content (i.e., learners' demonstration of what they learnt). Rock et al. (2008) emphasised the need for teachers to continuously adjust the content, process, and products to meet the individual learners based on their prior knowledge. Teachers can create classrooms that meet the curriculum outcomes and maintain high learner expectations by supporting all learners' learning differences and differentiating through content, process, and product based on learners' readiness, interests, profiles of learning, and environments (Brassell, 2009).

Four respondents (13%) touched on the importance of differentiating content. Teacher 2 stated: "*Learners need to learn to gain skills and ideas in different instructional strategies.*" Moreover, five respondents (17%) included differentiating the process in their understanding of DI. Teacher 3 explained, "*When we talk about differentiated instruction, we are talking*

about different groups of learners in the classroom doing different tasks." Additionally, Teacher 12 clarified:

> *that there are "different learners and you need to be able to prepare lessons that will help each individual equally. As a teacher you need to be able to see how to help each learner and how to do so. Get to know your learners, build relationships, and build a culture in your class where learners feel similar to the next* .

Three (10%) respondents' understanding of DI focused on differentiating the product. Teacher 6 stated DI meant "*the assessment done after learning that can differentiated learning."* Teacher 28 added "*meeting each learner's needs throughout the assessment*" in their understanding of DI.

Tomlinson (2003a) noted that learning profiles attend to the learner's preferred mode of learning, shaped by their intelligence preferences or learning style. Teacher 16 stated, "*I will design lessons based on learners learning style.*"

5.2.4. Assessment

Although six (20%) teachers mentioned assessment, only two teachers demonstrated their understanding in this regard. Teacher 21 stated her understanding of DI as *"my planning using formal and informal assessment, having content knowledge and reflect on my lessons all the time",* while Teacher 7 explained that it is important to *"plan according to the children level of learning and plan according to the assessment outcome you want to reach."*

Assessment is a process of collecting, synthesising, and interpreting classroom data about learners' academic strengths and weaknesses, interests, and learning preferences, to decide when and how to differentiate for the benefit of the learners (Tomlinson & Moon, 2013; Moon, 2005). In addition, Heacox (2012) upheld that it is a crucial element in a diverse

classroom to help the teacher plan for the learners' diverse needs. According to Tomlinson (2010), there are several aspects of assessment which include baseline assessment of learners' readiness before instruction and formative and summative assessments. Teacher 3 stated, "*I as teacher must instruct learners what to do and assess them especially in Grade R there is a continuous assessment.*" The central element of DI, as discussed by Gaitas and Alves Martins (2017), is the regularly ongoing assessment that allows teachers to adapt and scaffold all learners learning with appropriate procedures, materials, and activities, and to engage learners in instruction through alternative learning and teaching modalities, appealing to different interests and using different degrees of complexity accordingly to the learners' actual needs.

5.2.5. Lesson planning

Only four teachers (13%) referred to lesson planning in their explanation of DI. This could be linked to teachers need for more support with planning to meet the needs of all their learners (Whitley et al., 2019). As noted above, Teacher 7 and Teacher 21 indicated planning according to the learners' needs helps to monitor learning progress. For Teacher 22, DI involved, "*Planning using formal and informal assessment."*

According to Heacox (2012), DI is a process that involves analysing the degree of challenge and varying instructional plans. From Tomlinson's work, Huss-Keeler and Brown (2007) identified proactively planning to meet a variety of learner needs as one of the characteristics of DI.

5.2.6. Teacher characteristics

The respondents in this section regarded the teachers' flexibility as a requirement for the successful implementation of DI. Teacher 16 stated, *"As a teacher you must be effective to do whatever it takes to help learners with challenges."* Similarly, Teacher 1 held "*That you must*

be a flexible teacher, understanding your learners differences...". Huss-Keeler and Brown (2007) identified adjusting the type of assignment to meet learner needs as a characteristic of DI.

According to Heacox (2012), DI involves modifying, adapting, and designing new approaches in response to learners' needs, interests and learning preferences. Teacher 20 and Teacher 16 state they "*design lessons based on students learning styles"*. Teachers who employ differentiation adjust their teaching for learners of varying experiences and competencies to maximise each learner's growth and individual success by meeting each learner where they are and assisting them in the learning process (Dixon et al., 2014). Similar to this, Teacher 10 explained, "*My understanding is the teaching methodologies that need to be adapted according to the learners ability to understand new concepts".* Teacher 3 clarified *"In my classroom I have fast learners, slow learners and sometimes others have challenges in learning ... I must group the learners and give them work accordingly."* Although it is not explicit, this might link to Subban's (2006) idea of task modification to accommodate 'ability' levels to maximise the learning process.

5.2.7. Factors enabling and constraining the implementation of differentiated instruction

Understanding and implementing DI are important. However, the questionnaire also aimed to discover the enabling and constraining factors in implementing DI. Five (17%) of the thirty participants did not indicate any factors that enabled or constrained the implementation of DI in their classrooms. For Teacher 21, the enabling factors include *"to enter each lesson with a clear plan to successfully teach a concept in a differentiated manner. Foster a climate of acceptance in my class and be prepared to adapt their instruction in the midst of instructions."* Only three (10%) of the respondents indicated that teacher knowledge

and skills were enabling factors in implementing DI. Teacher 8 listed *"subject content for the teacher, knowledge, skills development and curriculum implementation*" as the enabling factors. Although Teacher 6 only stated "*knowledge and skills"*, it is unclear which knowledge and skills the teacher refers to. Similarly, Teacher 18 mentioned "*class size. time. tools"* as the enabling factors. Teacher 10 stated *"Teachers should provide learners with complex learning opportunities. Factors to be taken in consideration will be small class sizes, extra time and very importantly appropriate resources for these various instructions in the classroom. Teachers should identify and then organise accordingly"*. However, the majority of the teachers seemingly did not understand the question. For instance, Teacher 1 stated "*Not involving learners, not planning and not providing them with the right information to use …. not following your guidelines on your CAPS Documents. Not allow learners to participate at all in class."*

The respondents stated lack of teacher knowledge and skills is a constraining factor. Teacher 14 indicated a "*lack of knowledge about differentiation of instruction in the classroom."* In addition, Teacher 20 stated, "*poor teacher knowledge. Lack o experience in using the differentiate instruction."* Tomlinson (2004) maintains that for the longest time, teachers have been teaching in a common practice which proves difficult to change. In addition, Van Geel et al. (2019) argued that subject-matter knowledge and sufficient pedagogical content knowledge are enabling factors for DI.

Furthermore, five respondents mentioned a lack of resources as a constraining factor. Teacher 22 mentioned *"lack or shortage of LTSM"*, while Teacher 18 stated *"too much workload."* Teacher 3 explained, "*When the classroom is small because the teacher may not group her or his learners well and the learners may not participate up to their level best because they are controlled by the space in their groups."* The teachers' responses are the

same as those identified by Valiandes and Neaphytou (2018) in their research. Valiandes and Neaphytou (2018) identified time, lack of resources, and overloaded curriculum as key institutional limitations in the implementation of DI.

When asked what support they need in implementing DI, 13 (43%) of respondents indicated they need training and workshops. Teacher 29 said she required "*training and support to enable us to implement in our classrooms."* Interestingly, Teacher 24's response did not focus on the importance of training to assist her in implementing DI, instead, she stated that she required *"training and workshops to be motivated."* In addition, Teacher 18 expressed that it would be useful to have a manual to which she could refer. She said, "*the training and manual to referring."*

5.2.8. Analysing the teachers' responses to the questionnaire using the theory of practice architectures

The ToPA underpinned the study. I used ToPA as a lens to analyse and interpret my data. Hemmings et al. (2013) maintained that practices involve practice landscapes and practice traditions. The project in the study was to explore the teachers' understanding and implementation of differentiated pedagogical practices that promote the learning of all learners in their classrooms.

As noted in Chapter 3, Kemmis et al. (2014a) define practice as:

> socially established cooperative human activity in which characteristic arrangements of actions and activities involving utterances and forms of understanding ('sayings'), modes of action ('doings'), and customs in which people relate to one another and the world ('relatings'*)* that 'hang together' in characteristic ways in distinctive 'projects' (p. 27).

In essence, the ToPA describes practices as being made up of ‘sayings’, ‘doings’ and ‘relatings’, which relate to the language, actions, and ways of relating in a project. Practices are prefigured and shaped by the practice arrangements, that is, the cultural-discursive, material-economic, and social-political arrangements present in or brought to a site (Kemmis et al., 2014a). During data analysis, I identified the ‘sayings’, ‘doings’, and the ‘relatings’ and the arrangements that conditioned the practice. In this process, I have realised that the practice arrangements interact across the ‘sayings’, ‘doings’ and ‘relatings’.

The 'sayings' included the language teachers used to define DI. Their knowledge of DI included accommodating a variety of learning styles, such as visual and kinesthetic learners, splitting learners into small groups and using different teaching strategies. They are familiar with the language of DI and used some of the terms, for example, ‘process’, and ‘product’. The cultural-discursive included the inclusive education policies and the curriculum (CAPS), which expect teachers to differentiate their teaching strategies.

The ‘doings’ related to the teachers’ use of different strategies to teach reading. The teachers’ most preferred strategy is organising learners in ‘ability’ groups whereby learners are provided with different instructions and resources. They design their lessons in such a way that they accommodate varying learners in the classroom. They provide the necessary support to learners. Teacher characteristics that relate to the ‘doings’ included the flexibility of the teacher. The teachers emphasised that they need to be flexible and strive to help all learners, including those with learning barriers. They also stressed planning lessons and assessments that accommodate the varying learners in the classroom.

The material-economic arrangements included lesson plans, LTSM, and other appropriate resources. Structural factors such as classroom size also emerged as material-economic arrangements. These arrangements shape the 'doings' in practice. While the availability of

these resources enabled the teachers to differentiate their instruction, the lack of such resources constrained the ability to support the learning needs of the learners. Similarly, lack of time, poor teacher knowledge, and lack of experience (exposure to DI) constrained the implementation of DI.

The 'relatings' were shaped by the social-political arrangements. Building relationships, and a conducive classroom environment that ensured learners are accepted and do not feel different, enabled the teachers' practice. The 'relatings' linked to the teachers' willingness to support a variety of learning needs, which is influenced by their knowledge of DI and curriculum requirements.

After I analysed the questionnaire data, I adapted my DI module in the Education and Professional Studies Course of the B.Ed. FP programme. In order to analyse the extent to which the teachers managed to appropriate DI into their lessons, I explain the DI module below.

5.3. The in-service Bachelor of Education (Foundation Phase) Course

The B.Ed. FP is an NQF Level 7 course offered for continuing professional development for in-service teachers to improve their initial teacher education (RU, 2020). All students enrolled in B.Ed. (in-service) FP at Rhodes University attend three sessions (2 hours each) on differentiated instruction in the Professional Studies module, which is worth 20 credits (Figure 5). This module is aimed at inducting students into the study of education and professional issues relating to pedagogy and policy (RU, 2020). By the end of the module, students are expected to understand diversity and promote inclusivity in Foundation Phase (RU, 2020).

Course code	*Mnemonic*	*Course name*	*Year*	*NQF level*	*Credits*
9130001	BDNFN50	Education and Professional Studies 4 (Understanding the Whole Child in Context)	1	6	10
9130002	BDNFN51	English for Teaching 4	1	6	10
9130003	BDNFN52	African Indigenous Language for Teaching 4 (Mother-tongue and Non-mother tongue)	1	6	10
9130004	BDNFN53	Understanding the Social and Physical World 2	1	6	10
9130010	BDNFN59	Mathematics for Teaching	1	5	10
9130006	BDNFN55	Introduction to First Additional Language	1	6	10
9130007	BDNFN56	Foundation Phase Studies 2: Home Language	1	6	5
9130008	BDNFN57	Foundation Phase Studies 2: Life Skills	1	6	5
9130009	BDNFN58	Foundation Phase Studies 2: Mathematics	1	6	5
91300011	BDNFN60	Education and Professional Studies 5 (Philosophy of Education)	2	7	20
91300012	BDNFN61	Performance and Multimodalities 2A (Music, Dance, Drama and Physical Education)	2	6	15
91300013	BDNFN62	Foundation Phase Studies 3: First Additional Language (English)	2	6	10
91300014	BDNFN63	Foundation Phase Studies 3: Home Language	2	6	10

Figure 5: B.Ed. (in-service) Curriculum.

During the time of data collection for my study, the DI sessions were held online due to COVID-19 regulations which restricted the teachers' movement and gatherings. Prior to the first session, students were requested to complete a questionnaire aimed at assessing their knowledge of DI.

The DI sessions covered the definitions, the elements, and the implementation of DI in practice. The first session focused on the definitions of DI. I started with the purpose of differentiation as the background. I continued with the definition of DI from Tomlinson's perspective. Figure 6 below shows an example of my PowerPoint slides as the introduction to the session.

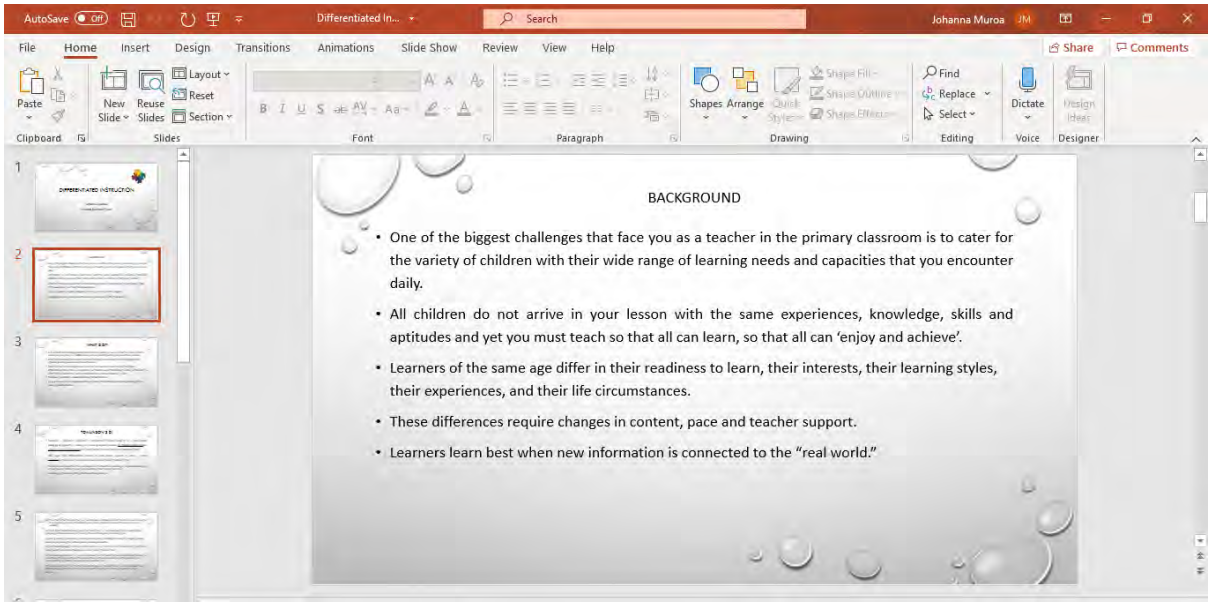


Figure 6: Example of my PowerPoint slides used at the start of the module.

The students shared their own understandings of DI. Discussions were held on what DI means to them. Carol Tomlinson's definition of DI was shared with the students through a presentation (Figure 7). Drawing on Tomlinson (2003a), DI is a pedagogical approach to teaching and learning whereby learners of differing readiness levels, interests, and modes of learning are taught within the same classroom.

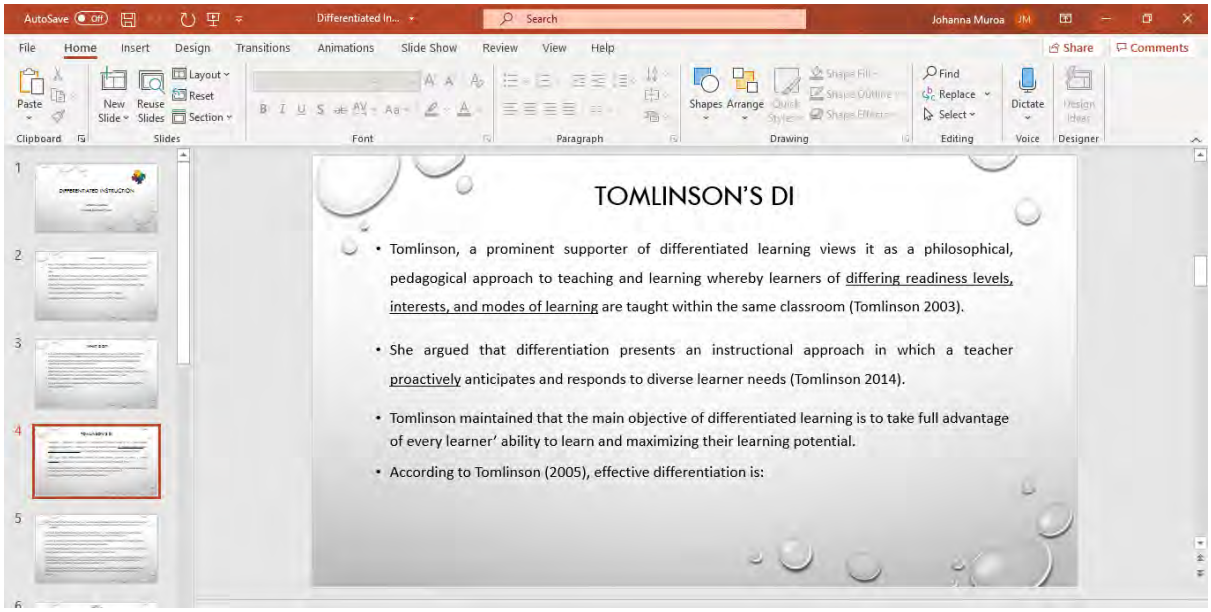


Figure 7: Tomlinson's work on DI.

Building on the definition, the second session focused on the elements of DI (content, process, & product) as shown in Figure 8, and various ways to implement it were discussed. The session included some group discussions focusing on each element, for example, after presenting the content, the students discussed in breakaway groups (+/-10 members per group). Since the sessions were on Zoom, it required that I prepare for group discussions in advance. I opened eight breakaway rooms before students joined the link. During the discussions, I randomly allocated them to the breakaway rooms and allocated time for each activity. Zoom settings enabled me to allocate groups and time randomly and allowed me to move between the rooms to monitor and provide input to the discussions. The discussions were not subject or grade specific. After discussions, students provided feedback and guided each other on how to find alternative ways to differentiate content, process, and product. To prepare for the next session, the students were expected to read any of the provided examples of Tomlinson's work on DI. The students had access to the following articles:

- Tomlinson, C. A. (2000). *Differentiation of instruction in the elementary grades*. ERIC Digest.
- Tomlinson, C.A. (2001). *Differentiated instruction in the regular classroom. Understanding our gifted*, 14(1), 3-6.
- Tomlinson, C. A. (2014). *The differentiated classroom: Responding to the needs of all learners*. ASCD.

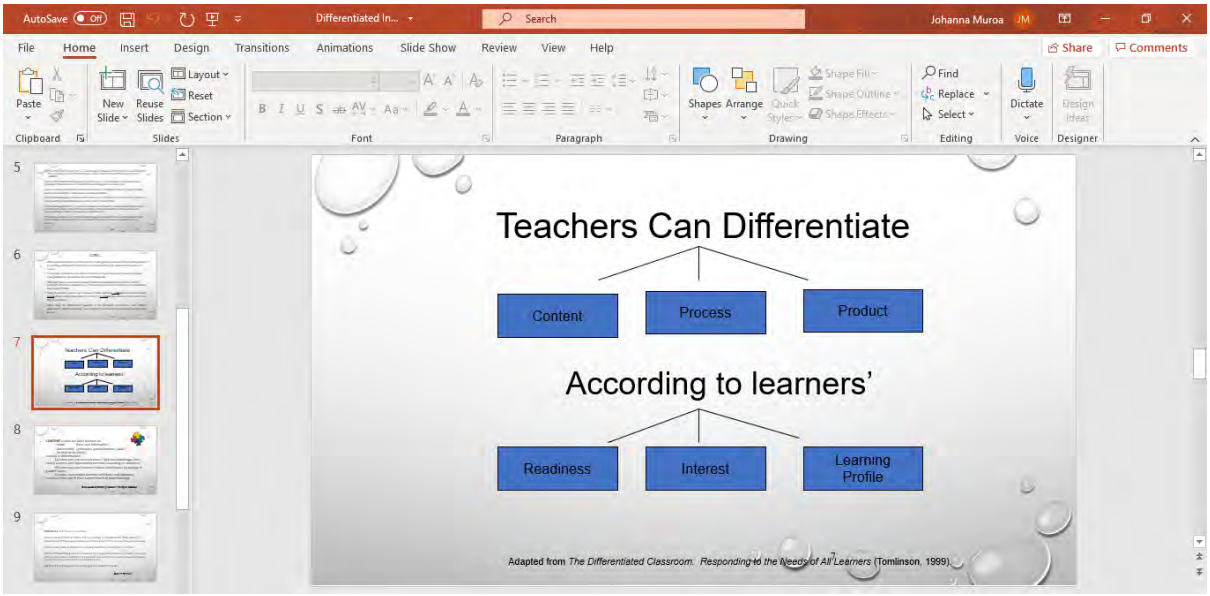


Figure 8: Elements of DI.

On the last day, students were expected to collaboratively plan for a reading lesson where DI would be implemented. The students were divided into 8 groups according to the Grade (R-3) they were teaching. Using Zoom, the facilitator opened eight breakaway rooms and asked students to join the rooms. The rooms were labelled according to the Grades in the Foundation Phase. This enabled me to move between the rooms to ensure that discussions were taking place, and to provide clarity where necessary. Students were expected to provide feedback on how they would teach the lesson to the whole class. Due to the sessions being online, the students did not get the opportunity to role-play their lessons. To extend their knowledge, students were expected to implement the planned lesson in their classrooms and reflect on their experience implementing DI as an assignment. In the reflections, the focus was on identifying which element (differentiating content, process, & product) they implemented, aspects they felt confident in, and how they could improve their implementation. The assignment was not part of the research and thus the data has not been used for this study.

I sought consent from 3 teachers to observe them implementing a DI literacy lesson in their classrooms (Chapter 4).

5.4. Teacher lessons

The practice landscape (Chapter 3) was three Foundation Phase classrooms in different schools around the John Taolo Gaetsewe District, Northern Cape. All three classrooms use Setswana as LOLT, the learners' mother tongue. The lessons took place in Grades R, 1 and 3. In Grade R, the teacher taught reading to demonstrate her implementation of DI. I observed three teachers, Dineo, Lorato, and Kaone. The teachers were asked to implement DI in their lessons, which related to the second sub-question of the study, that is, how do teachers implement DI in their classrooms? All three teachers chose to teach reading lessons in which they attempted to differentiate their pedagogical practices to accommodate all the learners in the class. Dineo presented a phonics lesson, and Lorato and Kaone taught reading lessons. Lorato's lesson focused on reading aloud and Kaone presented a group-guided reading lesson. I provide a vignette of each of the teachers' lessons below before analysing the lessons using the ToPA.

5.4.1. Dineo's classroom practice landscape

Dineo's lesson focused on teaching phonics to her Grade 1 learners. The practice landscape in which Dineo works and teaches is a rural school. It is a Quintile 1 school as it is in a socio-economically poor area where the learners do not pay fees. The school has learners from Grades R to 7. She has 42 learners in her Grade 1 class. The Language of Learning and Teaching (LoLT) is Setswana, the home language of most learners.

The classroom is light and well-ventilated. It is print-rich with posters on the wall. Dineo has a mat in the front of the class for both whole-class and small-group teaching. During COVID-19, the learners came to school on a rotational basis, and so given the national COVID-

19 regulations for schools, the mat was only used for small-group teaching. In addition, there is a mat in the reading corner. The learners use the reading corner for independent reading.

In Dineo's school, subject teaching is implemented from the Foundation Phase. The learners remain in the same classroom while the teachers rotate from one classroom to another. This was evident when Dineo was teaching as another teacher who also teaches in this class came and joined the lesson. The learners seemed undisturbed by the presence of this teacher. Dineo indicated during the interviews that she had negotiated with her colleague that she be given extra time for the lesson I observed.

The Setswana Home Language CAPS (SA.DBE, 2011) requires that learners should be taught 'oa' in Grade 1. The 'oa' is a diphthong in Setswana HL CAPS. In English, 'oa' makes one sound (a digraph). For instance, the 'oa' in the words coat, goat, float, and roast makes one sound. However, in Setswana, 'oa' is a diphthong in which the sound begins as one vowel and moves to another. Both 'o' and 'a' are pronounced separately. The lesson was conducted in Setswana and I translated it into English.

5.4.1.1. Dineo's phonics lesson.

Dineo starts the lesson by greeting the learners and introducing the lesson. She explains that they will do phonics with double vowels. She asks the learners which vowels they know and starts by naming the first one 'a'. The learners continue to name others. She pointed to one of the learners, and he said, 'o'. Dineo continued, saying we have 'a'. She writes 'a' on the chalkboard, and the learners continued to name 'e', ''i', 'o', and 'u' in unison. As the learners name each vowel, Dineo writes the vowels on the board. She explains that the purpose of the lesson is the double vowel 'oa'. She writes and underlines the diphthong on the board. Then she writes the 'o' and 'a' separately on the side.

Dineo explains that the double vowels may be in the middle or at the end of the word. She asks the learners to give a word with the double vowel 'oa'. She points to a girl in the class and asks for

a word with the 'oa' sound. The girl answers "*loapi*" (weather). Dineo writes the word on the board and says "good" to the girl. She looks at the learners and picks a different girl to underline the double vowel in the word written on the board. The girl stands up and underlines the 'oa' in "*loapi*" on the board. Dineo says "Good my girl, you may sit down". She asks the learners to give more words with double vowels. She points to a boy. He says "*moagi*" (builder). She writes the word on the board and says, "Good boy."

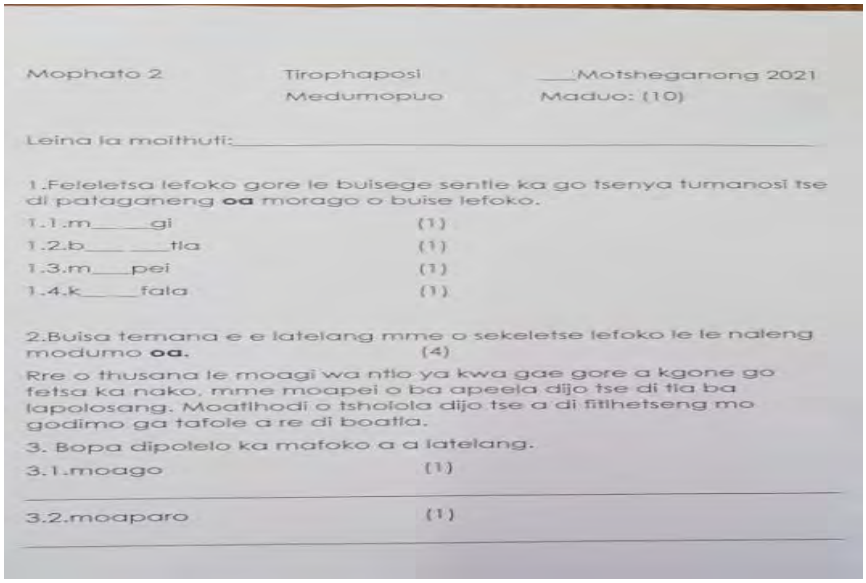
After a brief silence, Dineo claps her hands trying to encourage the learners to suggest more words. She asks a learner in front of her for a word with the 'oa' sound, but the learner could not give her a word. She points to another learner at the back of the classroom and he says "*moago*" (a building). Dineo repeats the word as she writes it on the board. She points at another learner who says "*moafala*" (evaporate). The learner does not pronounce the word correctly so Dineo assists her.

Dineo explains that the learners should be able to use the words written on the board in sentences. As she is busy teaching, another teacher comes into the classroom and joins. Dineo asks the learners to build sentences with the words on the board, starting with "*moagi*" (builder). One learner attempts to build a sentence and says, *"Rre o aga ntlo*." (A man is building a house*).* Dineo repeats the sentence and asks the learners if the word "moagi" is in the sentence. Another learner answers, *"Moagi o aga ntlo." (*A builder is building a house). Dineo writes the sentence on the board and says that the sentence should end with a full stop.

She asks the learners what the next word is and encourages them to participate. A learner gives a new word not on the board and says "*moapei'* (cooker). Another learner puts the word in a sentence by saying "*moapei o a apaya*" (a cooker is cooking). Dineo writes the sentence on the board. She explains that in the sentence there are two vowels'o' and 'a' that we write separately. Therefore "*moapei*" is correct while "*o a apaya*" is the verb. She explains that they are not joined and reminds the learners that the focus of the lesson is words with the 'oa' diphthong. She then explains to the learners that they should start by building words with the double vowels 'oa' and then use the words to construct the sentences.

Dineo explains that the same process can be done using the flashcards on the bottom of the chalkboard. The flashcards on the bottom of the chalkboard have 'o' and 'a' separately rather than as diphthong 'oa'. She takes the two flashcards, puts them together and builds the sound 'oa' on the board. She asks the learners to build the words with 'oa' using flashcards. One learner comes to the front and starts building the word *"moagi"*. Dineo asks the learner to read the word.

The other learners read out the word. Dineo stops them and asks the learner in front again to read the word she built on the board. The learner reads the word softly. Dineo asks her to repeat what she read while pointing to where she is reading. The learner reads softly, pointing to each syllable. The other teacher jumps in and helps the learner to decode the word into syllables while pointing at the word *mo/a/gi/*. Dineo rubs out the double vowel and asks learners if they can read the word without them. They said that they could not read it. Dineo gives the learners a worksheet to complete. A photograph of the worksheet is included below (Fig. 9) with the translation.



Mophato 2 Tirophaposi ___Motsheganong 2021
Medumopuo Maduo: (10)

Leina la moithuti:_____

1.Feleletsa lefoko gore le buisege sentle ka go tsenya tumanosi tse di pataganeng **oa** morago o buise lefoko.

1.1.m_____gi (1)
1.2.b___ ___tla (1)
1.3.m___pei (1)
1.4.k_____fala (1)

2.Buisa temana e e latelang mme o sekeletse lefoko le le naleng modumo **oa**. (4)

Rre o thusana le moagi wa ntlo ya kwa gae gore a kgone go fetsa ka nako, mme moapei o ba apeela dijo tse di tla ba lapolosang. Moatlhodi o tsholola dijo tse a di fitlhetseng mo godimo ga tafole a re di boatla.

3. Bopa dipolelo ka mafoko a a latelang.

3.1.moago (1)

3.2.moaparo (1)

Figure 9: Phonics worksheet used in Dineo's lesson.

[*The worksheet requires learners to fill in the missing double vowel 'oa'. In the second section, learners are asked to read the paragraph and circle words with 'oa'. The last section requires the learners to construct sentences using the words provided. While the worksheet is written Grade 2 at the top, this is actually a Grade 1 activity in a Grade 1 class]*

5.4.1.2. Dineo's pedagogical practices.

Dineo's lesson was analysed using the theory of practice architectures (ToPA), as discussed in Chapter 3. The analysis focused on identifying the 'sayings', 'doings', the 'relatings' and the cultural-discursive, material-economic and social-political arrangements.

In Dineo's lessons the 'sayings' were all in Setswana. The 'sayings' included revising the vowel sounds before introducing the diphthong 'oa'. The words with the diphthong used by

the learners in the classroom include. *'loapi', 'moagi', 'moago', 'moafala' and 'moapi'*. One of the cultural-discursive arrangements that conditioned the 'sayings' in the lesson was the LoLT, as learners in the Foundation Phase are required to learn in their home language, which is Setswana. Furthermore, the CAPS document influences the content that should be taught and thus what is spoken about in the classroom. In Grade 1, the learners must learn the diphthongs (sounds with two vowels).

The 'doings' in the class related to the actions and activities in the lesson. Before introducing the diphthong 'oa', Dineo drew on the learners' prior knowledge by revising the vowels. She introduced the diphthong 'oa' and engaged the learners in the lesson by asking them to provide her with words with the 'oa' sound. She asks the learners open-ended questions (Who can give me a word? Who can give me a sentence?). She writes these on the chalkboard. As she writes the words on the board, she emphasises 'oa' by repeating the word and she underlines the diphthong. The learners move from building words to constructing sentences with those words. The teacher changed the strategy by introducing the flashcards and explained that the same activity can be done with flashcards. Another teacher helps the learners to decode the word. The learners, together with Dineo, start building words using flashcards. She encourages learners to think deeper by boosting them to put their words into sentences. She completed the lesson by giving the learners a worksheet to complete.

A few material-economic arrangements shaped the 'doings' of the lesson. While there was a mat for the learners at the front of the classroom, they were seated at their desks for the lesson due to COVID-19 regulations. The teacher uses the chalkboard to write the sounds, words and sentences provided by the learners. A further material-economic arrangement is that she had resources, that is, flashcards and worksheets. These resources enabled the

‘doings’ of Dineo’s practice. Moreover, Dineo’s practice of asking open-ended questions emerged as the material-economic arrangement that shaped the ‘doings’.

The 'relatings' of the practice are evident as the teacher begins her lesson by greeting the learners, inviting them to participate, and praising them when they respond with a correct word or sentence. She calls on individual learners to give her words and sentences. When a learner provides an incorrect answer, she moves on to the next learner to avoid embarrassing them. She encourages the learners to 'speak louder' throughout the lesson so everyone can hear. The social-political arrangements that enable Dineo's practices are the seemingly relaxed and friendly classroom environment. The behaviour of the learners, that is listening to the teacher, and responding to her questions, is influenced by the school and classroom rules.

The second lesson that I observed was in Lorato’s Grade R classroom.

5.4.2. Lorato’s Classroom Practice Landscape

The practice landscape in Lorato’s class is similar to that of Dineo. Lorato teaches in a Quintile 1 school which means that the school is located within a low socio-economic environment. The school includes learners from Grades R to 7. Lorato teaches Grade R. There are 38 learners in the class. The LoLT in the Foundation Phase (Grades R – 3) is Setswana, the home language of the vast majority of the learners in her class.

The mining company, Sishen Iron Ore Company - Community Development Trust (SIOC-cdt), built the Grade R classrooms and provided them with resources. This stands in contrast to the rest of the school. Many resources commonly seen in schools in more affluent communities are visible in this Grade R class. The classroom is print-rich, with posters on the walls. The lighting is good, and the classroom is bright and airy.

The rotational system resulting from the Covid-19 lockdown meant that there were only 19 learners in the class at a time. Lorato's reading lesson involved all 19 learners. The learners in Lorato's classroom are sitting at their desks on small chairs. Lorato is standing in front of the class with a storybook in her hand. The book's title is *Ke gopola Mme* (I miss my mother).

5.4.2.1. Lorato's reading aloud lesson (Grade R)

The lesson begins with Loroto telling the learners that she will read a book and that they should listen carefully to her as she will ask them questions at the end.

Lorato shows them the book's cover and asks them to look and tell her what they see. She allows a few learners to tell her what they see on the cover page. One learner said she sees a father, while another says she sees children. She tells them they must know the title (*Ke gopola Mme*) and the book's author (Robert Hichens) before reading it. Lorato reads the book's title and asks the learners to repeat after her. She also tells them about the author of the book. She asks them to tell her what else they see on the cover page. The learners respond in unison and say they see two children and one father. Lorato asks them who is missing in the picture, and one learner says "Mama" softly then they all shout "Mama". She asks who said that Mom was missing. A learner raises a hand and says, "It is me". Lorato asks why she thought Mom was missing. The learner explains that mom was missing from the picture as the book title is *Ke gopola Mme* (I miss my mom).

Lorato tells the learners to listen as she reads the story to determine if Mom is missing. She holds the book so that both the learners and she can see it. Lorato starts reading the book. After each page, Lorato asks a few questions to check if the learners are following. She asks learners to clap hands for those who attempt to answer questions. As she reads, she finds some difficult vocabulary, for example, *itlamparela (hug); monyebo (smile)*. She stops to explain these words by acting them out and providing synonyms in Setswana. She also shows them the pictures as she reads.

After reading the book, Lorato asks the learners questions to test their comprehension. She asks the learners to name the main characters in the story. The learners shout the characters with each saying a different name at a time. Lorato repeats in agreement after each name learners shout. She also asks where the mother was and they respond in unison that the mother is dead.

Lorato asks how the learners would feel if their mother died. Again, the learners do not raise their hands to answer questions. Instead, they respond in unison and state that they would be sad.

5.4.2.2. Lorato's pedagogical practices.

The 'sayings' in Lorato's lesson were all in Setswana, except for the author of the book the learners were reading. The difficult vocabulary included *monyebo* (smile) and *itlamparela* (hug).

The cultural-discursive arrangement that enabled the lesson was the Language of Learning and Teaching, as this is the same as the learners' home language. The CAPS document encourages teachers to read aloud in the classroom to create a love of reading and a passion for stories in learners. The words introduced to the learners were influenced by the book Lorato was reading.

The 'doings' in the lesson centred around the book Lorato was reading. Lorato read the title and the author of the book aloud. She asked the learners to talk about the cover page by asking what they saw and to predict the story. Lorato reminded the learners to listen to the story to be able to answer questions at the end. She read the story aloud while showing them the pictures and asking open-ended questions as she read. The learners responded to the questions in unison. Lorato explained difficult vocabulary during reading. The lesson concluded by testing the learners' comprehension by asking various questions.

The material-economic arrangements that conditioned the 'doings' in Lorato's lesson included the classroom environment and the book. Lorato has a reading corner in her classroom filled with books. She has a carpet at the front of the class where learners can sit during the reading lesson. However, due to COVID-19 regulations, they were not sitting on the carpet, but at their desks.

Lorato invites the learners to listen to her story and participate in the lesson by responding to her questions about the story. She asks the learners to relate the story to their personal life by asking how they would feel should their mother die. The learners are encouraged to answer questions. However, Lorato does not explicitly encourage learners to raise their hands or to respond individually. She encourages learners to respond to her questions by ensuring that the learners clap for those who attempt to answer questions. These 'relatings' are made possible by the conducive learning environment and the classroom and school rules.

The third lesson that I observed was in Kaone's classroom.

5.4.3. Kaone's classroom practice landscape

As with Dineo, Kaone's school is in a deeply rural area. It is a 90-minute drive from the closest town. The area is arid, but the school has a borehole, so the learners and teachers can access water. The school is in an economically impoverished community. It is a Quintile 1 school, meaning the learners do not pay fees.

As with Dineo and Lorato, the school has learners from Grades R to 7. The LoLT in the Foundation Phase is Setswana. Kaone teaches Grade 3. She has 28 learners in her class. The class has good ventilation and lighting. Kaone's class is print-rich. Most of her resources in the classroom have been made by her, in other words, they are not store-bought. There is a well-resourced reading corner with a carpet and cushions for the learners to sit on when reading individually. In addition, there is also a carpet in front of the class where the learners can sit during small group work.

Kaone's reading lesson, unlike Lorato's, focused on a small group of learners.

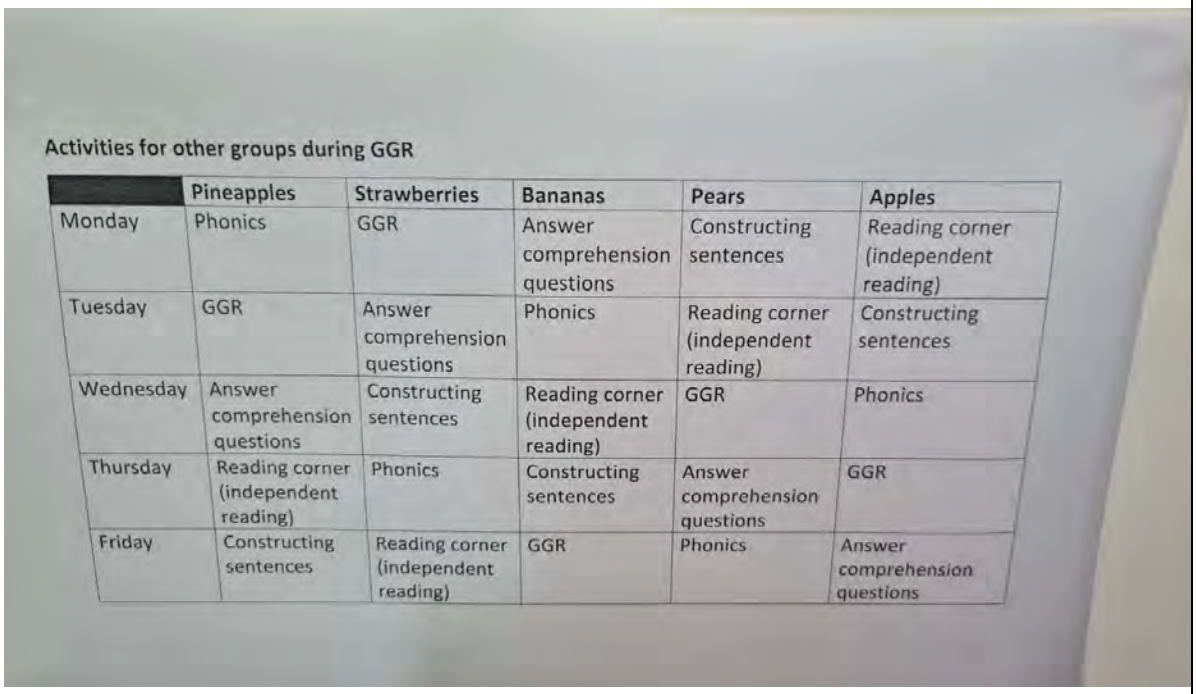
5.4.3.1. Kaone's group-guided reading lesson.

Kaone informs the learners that it is time for group guided reading. A group of learners stand up, pack up their tables, and move to the front of the classroom. The other learners remain seated at their tables in their 'ability' groups.

The teacher tells the whole class what their group activities are. She has given each group the name of a fruit: strawberries, bananas, pears, pineapples and apples. Each group is involved with a different activity.

- Strawberries - building phonics words.
- Bananas - constructing sentences from the phonics words (she provides them with an envelope containing the words).
- Pears - writing a comprehension task in their Setswana National Workbooks.
- Pineapples - reading storybooks independently at the reading corner.
- Apples - the reading group that is working with Kaone in the front of the classroom.

All these activities are displayed on the wall in the classroom for learners to know the routine, as shown in the picture below.



Activities for other groups during GGR

	Pineapples	Strawberries	Bananas	Pears	Apples
Monday	Phonics	GGR	Answer comprehension questions	Constructing sentences	Reading corner (independent reading)
Tuesday	GGR	Answer comprehension questions	Phonics	Reading corner (independent reading)	Constructing sentences
Wednesday	Answer comprehension questions	Constructing sentences	Reading corner (independent reading)	GGR	Phonics
Thursday	Reading corner (independent reading)	Phonics	Constructing sentences	Answer comprehension questions	GGR
Friday	Constructing sentences	Reading corner (independent reading)	GGR	Phonics	Answer comprehension questions

Figure 10: Activities for other groups during GGR.

A group of 7 learners (the 'apples') sit in a semicircle on their chairs in front of the classroom. Kaone joins them in the front and sits on a small chair. All of them are getting the same graded reader, titled *Borotho jo bo monate* (Delicious bread), from a box on the teacher's table. Kaone asks the group to look at the picture on the book's cover page and then tell her what they see. The learners in the group respond by raising their hands and naming everything on the picture on the cover page. She offers all the learners the opportunity to respond individually. She asks the learners what the title of the book is. All the learners read the title in unison.

Kaone explains some of the words that they will encounter in the book to them. She opens her book and takes out some flashcards with the difficult vocabulary relating to the story. She shows these to the learners one at a time and asks them to read them. The flashcards include the following words: *'tšhisi'* (cheese), '*borotho'* (bread), *'jaanong'* (now), '*kgabo*' (monkey), and '*dipounama'* (lips). After the learners read a word in unison, one of the learners pastes the flashcard on the chalkboard. Her focus is on the pronunciation of each word. The last word that Kaone shows the learners is a longer word that is not used frequently in spoken language '*dipounama*' *(lips)*). Kaone asks them what it means, and the learners struggle to explain. She explains the word, uses it in a sentence, and acts it out for learners to understand. She explains that the word is not frequently used in the daily spoken language and indicates that the most used word is '*molomo*' (mouth). She touches her lips while saying the word.

After dealing with the difficult vocabulary, Kaone indicates it is time to read and explains how she would like it done. She explains to the learners that they will each get an opportunity to read a page and that they should read aloud so that everyone can hear. Kaone starts by reading the first page, which is the book's title. As one learner reads the page, the others also read silently in their books.

The fourth learner in the group struggles to read a specific sentence. Kaone asks him to start reading from the beginning of his page. However, he gets stuck again. The other learners in the group help him and he moves on. After all the learners have read, Kaone asks them questions to test their comprehension. She asks both low and high-order questions. She asks:

- What was the main character wearing?
- What did he (the main character) do in the story?
- Where was another character when the event took place?

- What made the main character do what he did?
- How did the other character feel?
- What did you learn from the story?
- What was the moral of the story?

Kaone repeats the questions to allow learners to internalise and prepare their answers before responding. Learners respond by raising their hands. She asked every learner in the group to answer some of the questions. Kaone probes where necessary to enable learners to think more deeply. The learners were unable to answer the question on the moral of the story even though she tried to probe. Kaone answers the question by saying that the story's moral is that guests should be respectful and well-mannered when visiting. She adds that being well-mannered includes waiting to be offered food before eating. Kaone thanks the learners and sends them back to their desks.

5.4.3.2. Kaone's pedagogical practices

The lesson was conducted in Setswana HL and this influenced the 'sayings' in the lesson. The learners read the title of the book (*Borotho jo bo monate /* Delicious bread) and the difficult vocabulary *'tšhisi'* (cheese), '*borotho'* (bread), *'jaanong'* (now), '*kgabo*' (monkey), and '*dipounama'* (lips).

The cultural-discursive arrangements that make this lesson possible are the Language of Learning and Teaching at the school, which is the same as the learners' home language, and the particular book the learners were reading. The CAPS document encourages teachers to teach children to monitor themselves when reading, both in word recognition and comprehension (SA.DoE, 2008). Group-guided reading is promoted in CAPS.

There are a variety of 'doings' in this lesson. The whole class was engaged in different activities while the 'apples' were doing GGR with the teacher in the front of the classroom. Kaone provided activities to those who remained seated at their desks (Figure 5.2). Each

group had a different activity. Kaone offered some graded readers, which were prepared and stored in a box for the reading group. She introduced the book by asking the learners about the pictures on the cover page and title. Kaone had made flashcards for which she asked the learners to read and explain.

The learners each had an opportunity to read a page aloud in their books individually while the others followed by reading silently. After reading, the teacher asked questions to test comprehension before they could go back to their tables.

The material-economic arrangements in the classroom conditioned the 'doings' in Kaone's lesson. Kaone had graded readers, flashcards, and various activities and resources for the learners to engage with while one group read with her. The learners sat on chairs in the front of the class with her while the others sat at their tables. The learners at the tables were using worksheets, the national workbook, words to build sentences ,and reading books individually in the reading corner.

The ‘relatings’ include learners seated according to their reading 'ability' groups, meaning they were more or less at the same level in their reading competence. They worked with the teacher and supported each other during the GGR, especially when one of the learners was struggling to read. The learners clapped hands to support those who attempted to answer questions. The social-political arrangements supporting these 'relatings' in the classroom were influenced by Kaone’s encouragement and her expectation that the class encourage each other. Learners raised their hands when answering a question indicating the importance of the classroom rules established by Kaone while reading.

After observing the teachers in their classrooms, I interviewed them about their understanding of DI, how they implemented DI and the constraining and enabling factors that influenced their implementation of DI. While the questionnaire focused on similar questions,

I wanted to ascertain these three teachers' conceptions of DI. As mentioned earlier, the questionnaires were anonymous, so I could not determine which responses related to the three teachers I observed. This was a limitation of my study.

5.5. Teacher interviews

In analysing the data, I hope to answer the research questions, i.e., What is the teachers' understanding of DI? How do teachers implement DI in their classrooms? What are the enabling and constraining factors in the implementation of DI? What support do teachers need in implementing DI? The questions were kept the same as the questionnaires to determine the teachers' understanding and implementation after learning about DI in the B.Ed. Foundation Phase in-service programme.

5.5.1. The concept of differentiated instruction

Both Dineo and Kaone described DI as a way of teaching. Dineo explained that DI is *"I think it is a way of teaching. A method that accommodates all learners with their differences."* For Dineo, DI is "*a way of teaching*" where one makes "*decisions that are fair to all learners in the classroom.*" They concur with Mills et al. (2014) who articulated that DI can also entail recognising the different knowledge that various learners bring to the classroom and responding in ways that value these differences. Like Tomlinson (2001, 2003b, 2005a), the teachers maintained that the main objective of differentiated instruction is to take full advantage of every learner's capabilities and maximise their learning potential.

5.5.2. Implementation of Differentiated Instruction

Teachers who employ differentiation adjust their teaching for learners of varying experiences and competencies to maximise each learner's growth and individual success by meeting each learner where they are, and assisting them in the learning process (Dixon et al., 2014). This form of teaching is designed to meet the needs of diverse learners and emphasises

learner responsibility, 'ability' grouping, and learner choice (Morgan 2014). Within the framework of task modification to accommodate 'ability' levels, differentiated instruction is the pedagogical method to maximise the learning process (Subban, 2006). All three teachers agreed that DI required preparing their lessons to cater to all the learners in their class. Lorato included in her comment the importance of pacing her lessons according to the various needs of the learners. *"In my planning, I'd know how to pace my lessons. I also consider the learners' strengths in my planning."* Kaone emphasised the importance *of "building a safe space in your class where learners do not feel different."*

Dineo and Lorato indicated that they implement DI by giving the learners choices. Dineo indicated that she trains her learners to volunteer to pick a book of choice during a shared reading lesson, while Lorato explained, *"I give my learners the opportunities to choose their own books to read. I look into the lesson plan and select various books that are related to the lesson for learners to choose from, to avoid deviation."* In assisting learners in choosing appropriate books, Kaone explained that to implement DI in the classroom, the teacher needs to get *"to know your learners and build relationships."* Lorato concurred, adding *"It means I have to know my learners. I should know what they are capable of and where they are lacking."*

Dineo emphasised supporting the learners until they can do the activity independently and at their own pace. She indicated that she implements this strategy during shared reading *"because the learner is supported until they get confident that they can read…at their own pace."*

Kaone indicated that she implemented DI through flexible groupings during her GGR lessons. She also indicated that she has five reading groups, each allocated a day of the week. Pham (2012) has identified three general principles that guide differentiation as appropriate,

challenging tasks, flexible groupings and classroom arrangements, and ongoing assessments and appropriate scaffolding. To provide small-group instruction, part of the class needs to be engaged in alternative practice tasks so that teachers' attention can be on the small group (King-Sears, 2005). A good example of this is GGR (Kapusnick & Hauslein, 2001), whereby learners with the same reading 'ability' are put in groups and read with the teacher. The teacher gives them her full attention, genuine response, and verbal scaffolding, enabling them to develop their literacy skills (Ankrum et al., 2013). Kaone explained, "*I first assessed them and grouped them according to five reading groups.*" Flexible guided reading allows the teacher to move from explicit instruction to scaffolding with support by gradually releasing responsibility (Stover et al., 2017).

5.5.3. Enabling factors

Dineo and Kaone indicated that grouping the learners according to their 'abilities' was an enabling factor. Dineo stated, *"In my classroom, we have four groups. I have grouped them according to their levels."* In addition, Kaone stated**,** *"I can see that teaching in small groups helps me as I focus on a group with the same level at a time."* Lorato mentioned tiered lesson planning as an enabling factor. As noted in Chapter 2, tiered lessons allow several pathways for learners to arrive at the outcomes of the lesson (Pierce & Adams, 2004). Lorato stated, *"I give others extra time to do an activity based on how fast they can grab the context. I develop a mini lesson plan for them that will enable them to do an activity bid by bid at their own pace."* Lorato added that parental involvement was also an enabling factor. She explained, *"I also request the parents at home to continue with the same activity at home in their homework diaries. This is helpful because we do not waste time doing the same thing repeatedly to a point where others get bored."*

5.5.4. Constraining factors

All three teachers had varying responses. Dineo emphasised the lack of time, especially during Covid-19. Lorato indicated a lack of knowledge when dealing with learners with intrinsic barriers. Kaone generalised that *"most teachers are still stuck in the old ways of teaching."* She explained the challenges of working with senior people (Head of Department and/or principal) who do not believe in the new teaching and learning methods. In other words, Kaone highlighted school leadership as a constraining factor in the implementation of DI in the classroom.

5.5.5. Supporting teachers to implement differentiated instruction

In their study, Gaitas and Alves Martins (2017) analysed primary school teachers' perceived difficulty in differentiating instruction in mixed-ability classrooms. Regarding which differentiated instructional practices are more difficult for teachers to adopt, Gaitas and Alves Martins (2017) found adaptation of the curriculum based on one or more learner characteristics (activities and materials), and regular diagnostic assessment in scaffolding learning to help learners move forward from their current position. Both Dineo and Lorato indicated that they need support in implementing DI when teaching learners with barriers to learning. Dineo explained, *"I need support in providing me (with) some strategies I can use to reach even those learners (*with severe learning barriers*)."* In addition, Lorato indicated that teachers needed support with lesson planning. She said, *"How to do a lesson plan for such learners."* Kaone suggested, *"that the Universities should talk to the DBoE (Department of Basic Education) and render some workshops so that even if we are no longer studying, we can still get refreshers to avoid forgetting what we learnt."*

5.6. Data analysis of the teachers' post-observation interviews using the theory of practice architecture

I conducted the interviews in Setswana as it is the teachers' home language and the schools' LoLT. I thought that conversing in the HL might generate more detailed responses. The 'sayings' were influenced by the use of Setswana. The cultural-discursive arrangements made the interviews possible as the teachers were confident in this language. The concept of DI to these teachers means knowing and understanding the learners' abilities to adapt teaching to accommodate the different learning styles. They view DI as a way of teaching that accommodates all learners in the classroom. The teachers indicated that they need support in implementing DI.

The material-economic arrangements that conditioned the 'doings' related to the use of Zoom due to the COVID-19 regulations that discouraged travel. The 'doings' related to assessing and grouping learners according to their 'ability' groups during GGR. Kaone used different strategies and teaching aids to support learning, for example, writing on the chalkboard and using flashcards, different activities given to other learners during GGR, and developing tiered lesson plans.

The social-political arrangements supporting the 'relating' were influenced by the relationship between the teachers and learners and parents. The 'relatings' included knowing their learners and creating a friendly environment for all the learners in the classroom.

5.7. Appropriation

In analysing the data, I sought to answer the research questions, i.e., How do teachers appropriate and implement DI in their classrooms? What support do teachers need in implementing DI?

5.7.1. The implementation of DI

As noted in Chapter 2, appropriation is a process of using social-cultural tools, such as DI practices, mediated by discursive resources and contextual conditions (Jiang & Yu, 2022). Grossman et al. (1999) argued it is a process of adapting the conceptual and pedagogical tools to reconstruct and transform knowledge. As noted above, Dineo taught phonics, while Lorato taught shared reading in their classrooms. Both these teachers claimed that their lessons were differentiated. From Tomlinson's (2003a) work, DI is a pedagogical approach in which a teacher proactively anticipates and responds to diverse learner needs. Both Dineo and Lorato taught their lessons to the whole class. There was little evidence of content, process, or product differentiation. This was only evident by their use of open-ended questions, which supported the different learners in their classrooms. Although Lorato's practice of explaining difficult vocabulary supports differentiating the process, it was to a limited extent. The two teachers understand the concept of DI, however, they found it difficult to implement it. This is related to what Grossman et al. (1999) and Leko and Brownell (2011) identified as 'appropriating a label', which occurs when one merely learns and adopts the name of a particular tool but knows none of its features (Chapter 2).

The group-guided reading lesson is an example of a differentiated lesson because the teacher organised her learners into 'ability' groups, had different tasks for the learners to complete during the lesson, and asked questions that were differentiated to promote a higher level of thinking. Organising learners into 'ability' groups accommodates their readiness levels to learn the content at the appropriate level. This ensured that learners were reading a book graded at their level, which is not too easy or complex. This relates to what Grossman et al (1999) coined 'achieving mastery'. It is the highest level of appropriation in which one has full mastery of the tool and can apply it effectively in their teaching context to ensure that

every learner in their class has an opportunity to learn the required curriculum knowledge and skills (Yuan, 2017).

5.7.2. Supporting teachers to implement DI

As noted above, the GGR lesson showed differentiation characteristics such as 'ability' groupings, different tasks for learners, and questions that promote a higher level of thinking. While the lesson seemed to be differentiated, Kaone reflected that she is still struggling to accommodate all learners in her classroom when implementing GGR. However, the data collected indicates that she has mastered DI pedagogical practices.

On the other hand, Dineo and Lorato need to be supported to achieve mastery. They have claimed that their lessons (phonics lesson and shared reading) were differentiated. Data collected shows DI implementation at a low level. This was observed when Lorato asked open-ended questions and explained difficult vocabulary in her lesson. Dineo and Lorato taught whole class activities that were primarily teacher-centred. Although they understand the concept of DI, they found it difficult to implement. Hence, I argue that Dineo and Lorato need to be supported to achieve mastery.

5.8. Conclusion

I began this chapter by presenting the data collected from the questionnaire, the observations, and the interviews. The responses were coded into themes. I then present the development and discussion of the emerging themes. The dominant themes emerging from the questionnaire were knowledge of learner differences, different strategies, elements of DI, lesson planning, teacher characteristics, and assessment. I concluded by analysing the data through the lens of ToPA, a theory underpinning my study. The 'sayings', 'doings', and 'relatings' that hang together in the practice, and the practice arrangements that shape the

teachers' practice, were outlined. In the next chapter, I summarise all chapters of this study, provide the summary of findings, the limitations of this study, and propose further research.

CHAPTER 6: THE CONCLUSION OF MY RESEARCH

6.1. Introduction

In my research, I hoped to answer the main research question: How do Foundation Phase teachers understand and apply differentiated pedagogical practices in their reading lessons? I developed four sub-questions to assist me in understanding the main question. These are:

- What are the teachers' understandings of Differentiated Instruction?
- How do teachers appropriate and implement Differentiated Instruction in their classrooms?
- What are the enabling and constraining factors in the implementation of Differentiated Instruction?
- What support do teachers need in implementing Differentiated Instruction?

In this section, I present a summary of the discoveries in connection with each research question.

6.2. Chapter summaries

In **Chapter 1**, I provided a rationale for my research. The research took as its starting point poor learner reading performance. While there are many reasons for this, I focused specifically on the concerns with teachers' pedagogical and content knowledge. This seeming lack of appropriate knowledge comes to the fore in a context where inclusive education is promoted. I showed that there is a disconnect between the policy on inclusion and the practice in the classroom. One of the reasons for this is that teachers have inadequate training in implementing inclusion in the classroom (Stofile & Green, 2007). I suggested that differentiating teaching and learning may support the education of all learners in the classroom and hopefully lead to improved learner performance.

Chapter 2 provided insights into the conceptual framework of my study. The four key concepts explained in this chapter were teacher education, appropriation, differentiated instruction, and reading. I provided the challenges in teacher education and discussed how teacher education prepares teachers for teaching in a manner that includes all learners. I focused on the teachers' pedagogical knowledge to teach in a classroom of diverse learner needs. Teachers need subject-matter knowledge, pedagogical content knowledge and curriculum knowledge in or to appropriate DI pedagogical tools. I explained the five levels of appropriation as Grossman et al. (1999) proposed: a lack of appropriation, appropriating a label, appropriating surface features, appropriating conceptual underpinnings, and achieving mastery. Using the vast literature on DI, I argued that teachers can create classrooms that meet the standards and maintain high learner expectations by supporting all learners' learning differences and differentiating through content, process, and product, based on learners' readiness, interests, and learning profiles. Learners' reading progress varies and develops at different rates, depending on where they are located on the developmental continuum of learning to read (Arrow & McLachlan, 2011). Hence, I motivated DI as an approach to teaching reading because specific learning needs are met across decoding, fluency, and comprehension skills (Arrow et al., 2015).

Chapter 3 highlighted the theoretical framework for the study. The theoretical framework that underpinned this study was the theory of practice architectures (ToPA). I discussed how the 'doings', 'sayings', and 'relatings' and the mediating preconditions, that is the cultural-discursive, material-economic, and social-political arrangements, shape teachers' DI pedagogical practices. I highlighted how the cultural-discursive, material-economic, and social-political arrangements enable and constrain teachers' pedagogical practices. I chose ToPA as my theoretical framework as my focus was on the teachers' DI practices and the

factors that enabled and constrained their practices. The ToPA assisted me in explaining: (1) teachers' conceptions of DI; (2) the implementation of differentiated pedagogical practices; (3) the support that teachers require to develop their knowledge and understanding of differentiated pedagogical practices; and (4) the pre-conditioning architectures that enable or constrain the appropriation of differentiated pedagogical practices in the classroom.

In **Chapter 4**, I explained the research methods used in my study. I employed a qualitative research approach underpinned by an interpretivist orientation. The research was a case study conducted initially with 34 teachers who were enrolled in the B.Ed. Foundation Phase in-service 2nd year from the Northern Cape (NC), who consented to participate in the research. These teachers were invited to complete the questionnaire. After analysing the data from the questionnaires inductively, I focused my module on the Education and Professional Studies component of the B.Ed. Foundation Phase in-service course on DI. Having facilitated the module on DI, I requested to observe the DI practices of three teachers. These three teachers volunteered and consented to the observations. I observed the extent to which the teachers implemented DI in the classroom. Once I had completed the observations of the teachers' DI practices, I interviewed the three teachers.

In **Chapter 5**, I presented and analysed the data generated during the research. I coded the questionnaire and interviews inductively to identify key themes emerging from the data. Thereafter, I analysed the questionnaire and interview data deductively by drawing on the codes related to the ToPA. The observations were analysed using the ToPA codes, that is, the 'sayings', 'doings' and 'relatings' of the teachers' DI practices and cultural-discursive, material-economic and social-political arrangements that shaped, and were shaped by, the teachers' DI practices.

6.2. Summary of findings

I highlight the key findings that emerged from my analysis of the data in Chapter 5 by linking them to the four sub-questions in my research.

6.2.1. What are the teachers' understandings of Differentiated Instruction?

The study revealed that the teachers recognized the importance of accommodating the different learners' needs. They believe that DI is a way of teaching where one makes decisions that are fair to all learners in the classroom. The 'sayings' included the language teachers use to define DI. Their knowledge of DI included accommodating different styles, such as visual and kinaesthetic learners, splitting learners into small groups, and using different strategies. The curriculum (CAPS) and DI policy influenced the 'sayings'.

As mentioned in Chapter 2, for teachers to mediate learning in a manner that is sensitive to the diverse needs of all learners, they need knowledge and tools to appropriate the curriculum (Grossman et al., 1999). The teachers were familiar with the language of DI and used the terms 'process', 'product' and 'learning styles'. This links to what Grossman et al. (1999) and Leko and Brownell (2011) identified as 'appropriating a label' which occurs when one merely learns and adopts the name of a particular tool but knows none of its features (Chapter 2).

6.2.2. How do teachers appropriate and implement Differentiated Instruction in their classrooms?

The teachers in this study knew the terminology associated with the concept of DI. However, they need help implementing it in their teaching. For instance, Dineo and Lorato's lessons were not differentiated despite the teachers claiming to have implemented DI. However, they asked open-ended questions to support learners at different levels. Lorato explained the difficult vocabulary to support learning.

The ‘doings’ related to the teachers’ use of different strategies to teach reading. In Dineo’s lesson, the ‘doings’ are related to the open-ended questions asked in the lesson. The ‘doings’ in Lorato's lesson were centred around the book read, and explaining the difficult vocabulary to support learning. There were several 'doings' in Kaone's classroom, these involved the different tasks allocated to each group. The material-economic arrangements conditioning the practice includes the resources, i.e., the flashcards, books, chalkboard, etc., used in the classrooms. Kaone’s GGR lesson showed evidence of differentiation as she used ‘ability’ groupings, a range of different learning tasks, and comprehension questions that included both lower- and higher-order thinking.

In this study, two teachers have shown a lack of appropriation. Dineo taught the entire class the 'oa' diphthong in her lesson. While she asked open-ended questions to encourage the learners to share words with the diphthong, everyone participated in the same lesson and completed the same worksheet. Lorato’s lesson was similar. She read a book aloud to the entire class. As she read the book, she asked the learners questions which were answered primarily in unison. She also explained the difficult vocabulary to support learning.

In contrast, Kaone’s lesson showed evidence that she was able to implement DI in her classroom. The learners were divided into ‘ability’ groups with each group engaging in a different activity in the classroom. Her GGR lesson focused on a small group of learners. The words that she taught the learners prior to them reading the book and the questions that she asked related to the ‘ability’ level of the group.

6.2.3. What are the enabling and constraining factors in the implementation of Differentiated Instruction?

Understanding and implementing DI are important, however, the study also aimed to find out the factors that enable and constrain teachers' implementation of DI. Correspondingly, data from the questionnaire and interviews revealed that teacher knowledge, availability of resources, 'ability' groupings, tiered lesson planning, and parental involvement were regarded as important in supporting teachers to implement DI in their pedagogical practices. This is supported by Van Geel et al., (2019), Suprayogi and Valcke (2016), and Sun (2021), as noted in Chapters 2 and 5.

A few teachers emphasised the importance of 'relatings' when explaining how they differentiate their instruction. They highlighted that getting to know the learners, building relationships, and creating a supportive environment for all learners enabled them to differentiate. The 'sayings', 'doings' and 'relatings' were conditioned by a range of factors, including prior teacher education and professional development experiences, the curriculum (CAPS), the availability of resources (e.g., books, flashcards), classroom layout, their own experiences in the classroom, lack of leadership and motivation to introduce new practices in the classroom, school and classroom rules, and parental involvement.

As noted above, teachers have some understanding of the concept of DI but find it difficult to implement it for the benefit of all learners. In other words, there is a mismatch between teacher knowledge and their actual teaching practice.

Valiandes and Neaphytou (2018) identified time, lack of resources, and an overloaded curriculum as institutional constraints. This was congruent with the findings of this study as a lack of resources emerged as a constraining factor. Another constraint that emerged was a lack of time, especially during Covid-19. Tomlinson (1995) reveals that teachers should vary

and adapt to individual and diverse students in the classroom. To do this, Suprayogi and Valcke (2016) argued that teachers need extra time and effort to use appropriate teaching strategies.

6.2.4. What support do teachers need in implementing Differentiated Instruction?

Mills et al. (2014) upheld that implementing DI is difficult when teachers are not adequately supported through relevant resources and professional learning to change their practices. Understanding how to support the development of teachers' competence is central to achieving the appropriation of DI in the classroom (Sharp et al., 2020). The study revealed that teachers require scaffolding in implementing DI in the classrooms. Although data from the questionnaire indicated that teachers plan their lessons to accommodate all learners, the interview data revealed that they require support in designing lesson plans that accommodate all learners in their classrooms.

6.3. Recommendations

Based on the findings of this study, I recommend that Foundation Phase teachers should be supported to implement DI as they attempt to develop their learners' reading. For instance, their implementation of DI could be enhanced with additional resources such as flashcards. In supporting teachers to implement DI practices, I suggest that communities of practice within the school, where teachers support each other to implement DI, should be encouraged. The workshops and training might not be enough to support the teachers, however, mentoring and coaching might be effective. In addition, district officials and the school management and leadership teams should be trained in DI to support its implementation in schools.

6.4. Limitations of the study

In interpreting the current findings, it is important to note that several limitations exist. Firstly, the study was conducted with the teachers registered for the in-service B.Ed. FP programme who are working in the JTG district of the Northern Cape. Although all 76 teachers enrolled in B.Ed. FP 2nd year from Northern Cape (NC) completed a questionnaire, only 34 teachers consented to me using their questionnaire data. Of those 34 it appeared that there were two pairs of teachers who worked together while answering the questions. Furthermore, I only observed three teachers 'implementing' DI in their classrooms. Given the small sample size, the case study cannot be generalised to represent all in-service teachers registered for the B.Ed. FP in-service programme.

Secondly, with the COVID-19 lockdown regulations that discouraged travelling and movement, I was not able to join the teachers in the classroom. The observations were conducted virtually. While the focus was not on the learners, it would have been interesting to see how they engaged with the lessons. Thirdly, it would have been useful to know which questionnaires belonged to which of the teachers I observed as this may have provided greater insight into their knowledge of DI. Lastly, I should have conducted a stimulated recall interview with each of the three teachers after the lesson so that I could ascertain which aspects of their lessons they thought were differentiated.

6.5. Further research

The initial research was on teacher education practices that support the teacher's appropriation of differentiated pedagogical tools. Due to COVID-19, travelling was encouraged to be kept minimal throughout the country, which led to the rethinking of the research question. Further study that will expand the sample to a larger size and area is

recommended. In addition, the study should focus on the nature of support teachers need in implementing DI in their practices.

The study did not ask how the school culture and the role of leadership could impact the implementation of DI. To strengthen the research, future research should consider the school culture, and the role of leadership could be considered in studying DI implementation as is already the case in research and practices about inclusion.

Further research is required on how teacher education courses can assist teachers in transferring the knowledge gained about DI into the classroom. My suggestion is to design research where the researcher engages with the teachers in an iterative manner by providing input on DI and observing classroom practices in order to develop a DI module that supports the implementation of DI.

6.6. Reflection

I have learned much during this study. I realised that research often does not go as planned. My initial intention was to teach the learners in ways that support their DI practices more directly, and in their classroom. I mentioned earlier that I am both a lecturer and teaching practice supervisor in the BEd (inservice) programme. This research plan was thwarted by Covid-19 and the ensuing lockdown. I had to reframe my research which led to several delays. Teaching on-line was new to me, as it was to most lecturers, and I struggled to implement my course in a manner which I would have preferred, such as providing opportunities for teachers to see DI in action in the lecture room. Conducting observations via Zoom was not ideal as the laptop was static and I was not able to see all the interactions in the class, for example, I could not see all the activities that Kaone had given her learners to complete while she was working with a group on the mat. In addition to delay brought on by

the need to reconceptualize my research, I was given additional responsibilities at work which hampered my progress.

The assisted my in honing my research skills. I learned the importance of coherence and alignment across the research process and the writing of this thesis. I found the ToPA to be a useful framework for analysing and explaining my research and I will consider using the same theory for my PhD when I focus more on supporting teachers' practices in the classroom.

I have enjoyed this journey and learned much from the process.

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Appendix 1

Questionnaire

1. What teaching qualifications do you have?

2. In what year did you obtain your last teaching qualification?

3. How many years of teaching experience do you have?

4. How many years of experience have you had teaching in the Foundation Phase?

5. In what grade are you currently teaching?

6. How many years have you taught in the current grade?

7. Were you taught about differentiated instruction in your previous teaching qualification?

8. Have you been taught about differentiated instruction in previous professional development workshops?

Yes		No	

9. If yes,
   a. When was this?

   b. What did you learn?

c. Was it useful?

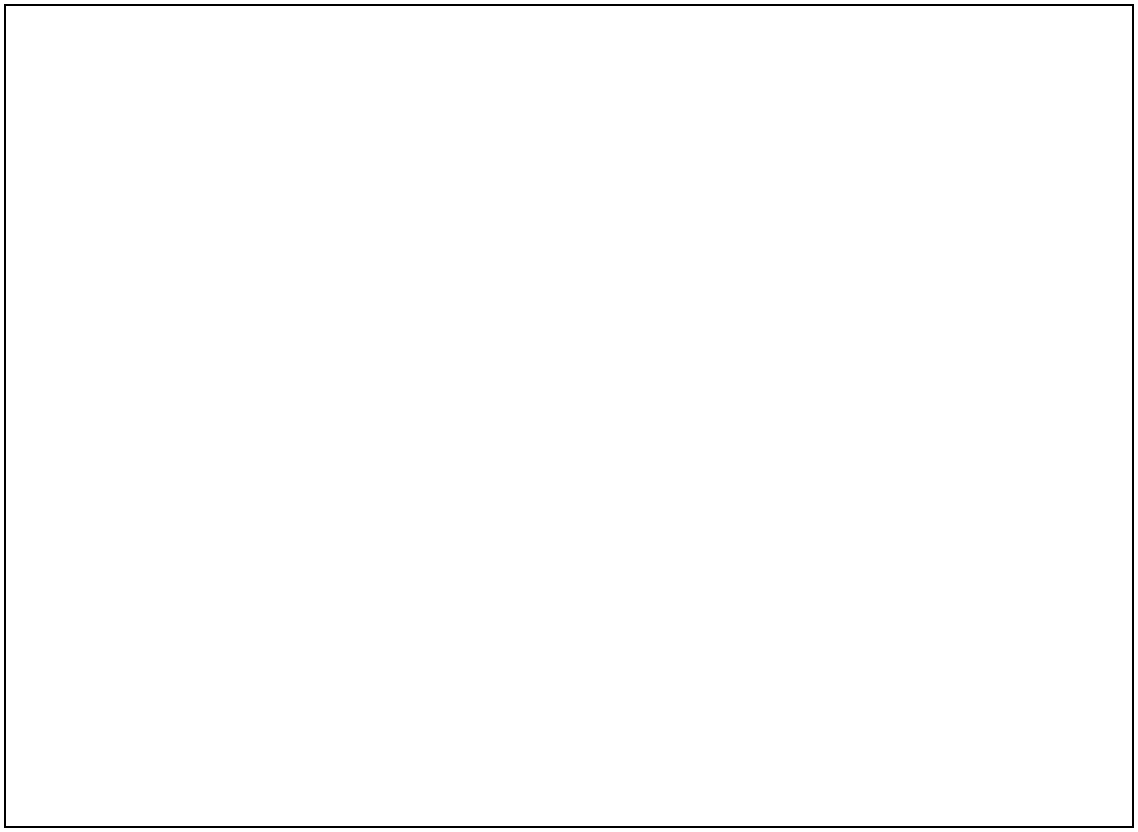
10. What is your understanding of differentiated instruction?

11. Provide an example of how you implement differentiation in your classroom?

12. What factors enable differentiated Instruction in the classroom?

13. What factors constrain differentiate instruction in the classroom?

14. What support do you need to implement differentiated instruction in your class?



Appendix 2

Observation schedule

1. Did the teacher plan the lesson?
2. Did the teacher follow the lesson plan?
3. How did the teacher engage with the learners?
4. How did the teacher implement DI?

Semi-structured interviews (Reflections)

1. What is your understanding of DI?
2. Did the lesson go as planned?
3. How did you implement DI? (Positives and negatives)
4. What were the constraints?
5. What were the enablers?

Appendix 3

PARTICIPANT INFORMED CONSENT

Project Title: Teacher education practices that support the appropriation of differentiated pedagogical tools.

Johanna Muroa from the Department of Education, Rhodes University has requested my permission to participate in the above-mentioned research project.

The nature and the purpose of the research project and of this informed consent declaration have been explained to me in a language that I understand.

I am aware that:

1. The purpose of the research project is to understand how teacher education practices support the appropriation of differentiated pedagogical tools.
2. The Rhodes University has given ethical clearance to this research project and I have seen/ may request to see the clearance certificate.
3. By participating in this research project I will be contributing towards improving teacher education institution practices.
4. I will participate in the project by planning a differentiated lesson, teaching the lesson and reflecting on the lesson taught.
5. My participation is entirely voluntary and should I at any stage wish to withdraw from participating further, I may do so without any negative consequences.
6. I will not be compensated for participating in the research, but my out-of-pocket expenses will be reimbursed.
7. The researcher intends publishing the research results in the form of thesis and research papers. However, confidentiality and anonymity of records will be maintained and that my name and identity will not be revealed to anyone who has not been involved in the conduct of the research.
8. I will receive feedback in the form of research report regarding the results obtained during the study.
9. Any further questions that I might have concerning the research or my participation will be answered by Johanna Muroa at j.muroa@ru.ac.za
10. By signing this informed consent declaration I am not waiving any legal claims, rights or remedies.
11. A copy of this informed consent declaration will be given to me, and the original will be kept on record.

12. The pictures, video and voice recording will be taken for this study

I, …….. have read the above information / confirm that the above information has been explained to me in a language that I understand and I am aware of this document's contents. I have asked all questions that I wished to ask and these have been answered to my satisfaction. I fully understand what is expected of me during the research.

I have not been pressurised in any way and I voluntarily agree to participate in the above-mentioned project.

…… …… …….

Participants' signature **Witness** **Date**

Appendix 4

RHODES UNIVERSITY
Where leaders learn

Rhodes University Human Research Ethics Committee
PO Box 94, Makhanda, 6140, South Africa
t: +27 (0) 46 603 7727
f: +27 (0) 46 603 8822
e: ethics-committee@ru.ac.za

https://www.ru.ac.za/researchgateway/ethics/

19 April 2023

Miss Johanna Muroa

Email: J.Muroa@ru.ac.za

Review Reference: 2022-0868-7320

Dear Miss Johanna Muroa

Re: Human ethics renewal application: Teacher education practices that support the appropriation of differentiated pedagogical tools.

Researcher: Miss Johanna Muroa

Supervisor: Dr Lise Westaway

This letter confirms that the above Annual Report has been reviewed and **APPROVED** by the Rhodes University Human Research Ethics Committee (RU-HREC). Your Approval number is: 2022-0868-7320

Approval has been granted for 1 year. An annual progress report will be required in order to renew approval for an additional period.

Please ensure that the Human Research Ethics Committee is notified should any substantive change(s) be made, for whatever reason, during the research process. This includes changes in investigators. Please also ensure that a brief report is submitted to the ethics committee on the completion of the research. The purpose of this report is to indicate whether the research was conducted successfully, if any aspects could not be completed, or if any problems arose that the Human Research Ethics Committee should be aware of. If a thesis or dissertation arising from this research is submitted to the library's electronic theses and dissertations (ETD) repository, please notify the committee of the date of submission and/or any reference or cataloguing number allocated.

Sincerely,

Janet Hayward

Dr Janet Hayward

Chair: Rhodes University Human Research Ethics Committee, RU-HREC

cc: Ethics Coordinator

Appendix 5

ACCESS LETTER REQUESTING PERMISSION TO CONDUCT RESEARCH

Rhodes University
Drosty Road,
Grahamstown,
6139

The Northern Cape Department of Education
Private Bag X5029
Kimberley
8300
19.11.2019

Dear Ms/Mr

REQUEST FOR PERMISSION TO CONDUCT RESEARCH

I am a registered Master's student in the Department of Education at Rhodes University. My supervisors are Dr Lise Westaway and Ms Beverley Moore. The proposed topic of my research is: Teacher education practices that support the appropriation of differentiated pedagogical tools. The objective of the study is:

(a) To understand how teacher education practices support the appropriation of differentiated pedagogical tools.

I, hereby seek your consent to conduct research in John Taolo Gaetsewe District primary schools where teachers are enrolled for B.Ed. Foundation Phase with Rhodes University, funded by SIOC-CDT. To assist you in reaching a decision, I have attached to this letter requesting permission:

(a) A copy of an ethical clearance certificate issued by the University
(b) A copy the research instruments which I intend using in my research

Should you require any further information, please do not hesitate to contact me or my supervisors. Our contact details are as follows:

Johanna Muroa, j.muroa@ru.ac.za
Dr. Lise Westaway, l.westaway@ru.ac.za
Ms Beverley Moore b.moore@ru.ac.za

Upon completion of the study, I undertake to provide you with a feedback.

Your permission to conduct this study will be greatly appreciated.

Yours sincerely,

Signature
Name

Appendix 6

RHODES UNIVERSITY
Where leaders learn

ACCESS LETTER REQUESTING PERMISSION TO CONDUCT RESEARCH

10 Siegfried street
Grahamstown
6139

The registrar
Rhodes University
Drosty Road,
Grahamstown,
6139
09.03.2021

Dear registrar

REQUEST FOR PERMISSION TO CONDUCT RESEARCH

I am a registered Master's student in the Department of Education at Rhodes University. My supervisors are Dr. Lise Westaway and Ms. Beverley Moore.

The proposed topic of my research is: Teacher education practices that support the appropriation of differentiated pedagogical tools. The objective of the study is:

(a) To understand how teacher education practices, support the appropriation of differentiated pedagogical tools.

I, hereby seek your consent to conduct research with 2nd-year B.Ed. Foundation phase (part-time) students. To assist you in reaching a decision, I have attached to this letter requesting permission:

(a) A copy of an ethical clearance certificate issued by the University
(b) A copy the research instruments which I intend using in my research

Should you require any further information, please do not hesitate to contact me or my supervisors. Our contact details are as follows:
Johanna Muroa, j.muroa@ru.ac.za
Dr. Lise Westaway, l.westaway@ru.ac.za
Ms. Beverley Moore, b.moore@ru.ac.za

Rhodes University, Research Office, Ethics
Ethics Coordinator: ethics-commitee@ru.ac.za
t: +27 (0) 46 603 7727 f: +27 (0) 86 616 7707
Room 220, Main Admin Building, Drostdy Road, Grahamstown, 6139

RHODES UNIVERSITY
Where leaders learn

Your permission to conduct this study will be greatly appreciated.

Yours sincerely,

Signature 
Johanna Makgati Muroa

Appendix 7

ACCESS LETTER REQUESTING PERMISSION TO CONDUCT RESEARCH

Rhodes University
Drosty Road,
Grahamstown,
6139

The School Principal
19.11.2019

Dear Ms/Mr

REQUEST FOR PERMISSION TO CONDUCT RESEARCH

I am a registered Master's student in the Department of Education at the Rhodes University. My supervisors are Dr Lise Westaway and Ms Beverley Moore. The proposed topic of my research is: Teacher education practices that support the appropriation of differentiated pedagogical tools. The objective of the study is:

(a) To understand how teacher education practices support the appropriation of differentiated pedagogical tools

I hereby seek your consent to conduct research in one of your classrooms in which the teacher is enrolled for B.Ed. Foundation Phase with Rhodes University. To assist you in reaching a decision, I have attached to this letter:

(b) A copy of an ethical clearance certificate issued by the University
(c) A copy the research instruments which I intend using in my research

Should you require any further information, please do not hesitate to contact me or my supervisor. Our contact details are as follows:

Johanna Muroa, j.muroa@ru.ac.za
Dr. Lise Westaway, l.westaway@ru.ac.za
Ms Beverley Moore b.moore@ru.ac.za

Upon completion of the study, I undertake to provide you with a feedback

Your permission to conduct this study will be greatly appreciated.

Yours sincerely,

Signature
Name

Appendix 8

PARENT AND GUARDIAN'S INFORMED CONSENT

INFORMED CONSENT DECLARATION

(Parent or Guardian)

Project Title: Teacher education practices that support the appropriation of differentiated pedagogical tools.

Johanna Muroa from the Department of Education, Rhodes University has requested my permission to allow my child/ ward to participate in the above-mentioned research project.

The nature and the purpose of the research project, and of this informed consent declaration have been explained to me in a language that I understand.

I am aware that:

13. The purpose of the research project is to understand how teacher education practices support the use of differentiated pedagogical tools.

14. The Rhodes University has given ethical clearance to this research project and I have seen/ may request to see the clearance certificate. [**2022-0868-7320**]

15. My child will not directly be a participant in the research, but will be in the classroom during the research process while the teacher is teaching the lesson.
16. Neither my child nor I will be compensated for participating in the research.

17. There may be risks associated with my child's participation in the project. I am aware that
    a. The following risks are associated with participation: my child' face might be shown while taking video in the classroom. The children' names and those of the schools will not be written anywhere in the report.
    b. The following steps have been taken to prevent the risks: the video footage will not be used for anything other than for this research. The children' faces will not be intentionally shown when taking videos, but the focus will be on the teacher. The researcher will use pseudonyms for the children and schools. Video recordings are only going to be seen by the researcher. No reference will be made to my child in the research. No other stakeholder will get the access to the information gathered.

18. The researcher intends publishing the research results in the form of thesis and research reports. However, confidentiality and anonymity of records will be maintained

and that my or my child's/school's name and identity will not be revealed to anyone who has not been involved in the conduct of the research.

19. I will not receive feedback regarding the results obtained during the study.

20. Any further questions that I might have concerning the research or my participation will be answered by Johanna Muroa at j.muroa@ru.ac.za

21. By signing this informed consent declaration I am not waiving any legal claims, rights or remedies that I or my child/ward may have.

22. A copy of this informed consent declaration will be given to me, and the original will be kept on record.

I, …….. have read the above information / confirm that the above information has been explained to me in a language that I understand and I am aware of this document's contents. I have asked all questions that I wished to ask and these have been answered to my satisfaction. I fully understand what is expected of my child during the research.

I have not been pressurised in any way to let my child take part. By signing below, I voluntarily agree that my child/ward …… (**insert name of child**), who is …….. years old, may participate in the above-mentioned research project.

……	……	……..
Parent/Guardian's signature	**Witness**	**Date**

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