



UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG

Interventionist Strategies for Implementing Differentiated Instruction: A Cultural- Historical Activity Theory Approach

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In partial fulfilment of the requirements for the degree

Master of Education (Inclusive Education)

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DECLARATION

1. I know that plagiarism is wrong. Plagiarism is to use another's work and pretend that it is your own.
2. I have used the APA convention for citation and referencing. Each significant contribution and quotation from the works of other people has been attributed, cited and referenced where appropriate.
3. I certify that this submission is my own work.
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Signed: 

Date: 17 March 2025

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DEDICATION

This Master's Research Report is dedicated to my beloved late grandmother Sarah Mokoena, whose silent strength and encouragement inspired me to pursue my aspirations in education. I will always love and remember you.

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ABSTRACT

It has been 23 years since the introduction of the foundational policy of inclusive education by the Department of Education (2001), “White Paper 6: *Special Needs Education, Building an Inclusive Education and Training System*”, which outlined the need for teaching methods that address various learning needs. Regrettably, teachers remain faced with challenges hindering the successful application of approaches like differentiated instruction (DI) which allow teachers to cater to the varying needs of different learners. Teachers as key role players in the process of implementing inclusive practices hold a great responsibility to address the differences of their learners. As a result, this research report aimed to develop teachers’ understanding of, and capacity to apply differentiated instruction strategies in the context of South African schools. Utilising the Cultural-Historical Activity Theory (CHAT) as a theoretical framework, the study employs a qualitative research approach to explore the realisation of DI in two schools in Johannesburg.

The research collected and generated data by means of semi-structured interviews, non-participation observations, and an interventionist method called the Change Laboratory. The interventionist approach provided teachers with a collaborative space to question, discuss, refine, and reflect on their teaching strategies for the positive outcomes for their learners. Through an expansive learning process, the research highlighted that, although teachers recognize the importance of differentiation, their understanding of differentiated instruction remains limited and sometimes flawed. Barriers including overcrowded classrooms, inadequate resources, and limited professional development of teachers further impede proper implementation of DI. Furthermore, the findings revealed structured collaborative efforts between teachers to be effective in developing strategies that best fit their contexts. The study highlighted the importance of collective reflection and finding solutions when encouraging inclusive teaching practices. These findings contribute to ongoing discussions about teacher professional development, the need for practical research strategies, and effective differentiation strategies in inclusive environments.

Key words: Differentiated Instruction, Change Laboratory, Inclusive Practices, Contradictions, Expansive Learning Cycle

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LIST OF ABBREVIATIONS

Abbreviation	Meaning
CHAT	Cultural-Historical Activity Theory
WP6	White Paper 6
DoE	Department of Education
DBST	District-based Support Team

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CHAPTER 1

RESEARCH OVERVIEW

1.1 Introduction

South Africa, as in the case in many other countries throughout the world, has made inclusive education a cornerstone of educational policy and practice. Globally, inclusive education has been widely adopted and promoted, with approaches such as differentiated instruction used to cater to various learning needs. Differentiated instruction is a worldwide recognized approach with a potential to enhance educational outcomes through adapting teaching to address the needs of diverse learners (Tomlinson, 2001). The approach is necessary as classrooms become more diverse (Letzel-Alt & Pozas, 2023). However, the implementation of DI is different across educational context due to various factors, including available resources, teacher preparedness, etc. Research in a global context including studies from 13 countries across parts of the world (North America, Europe, Africa, Asia, and Australia) reveals both the effectiveness and challenges of differentiated instruction, highlighting the necessity of development opportunities for the implementation of DI (Letzel-Alt & Pozas, 2023). This international viewpoint sheds light regarding the more effective implementation of DI to foster inclusive education and enhance learner participation and success globally.

Within the South African context, legislation and policy frameworks, including the WP6, “*Guidelines for Responding to Learner Diversity in the Classroom through Curriculum and Assessment Policy Statements*” (DoE, 2011), and “*The Policy on Screening, Identification, Assessment, and Support*” (DoE, 2014), highlight the value of DI in responding to diverse learners’ needs. As aforementioned, international classrooms, including South African ones, are becoming more diverse in terms of learners’ interests, needs, abilities, disabilities, and learning styles (Adebisi, 2024; Maulana et al., 2023; Letzel-Alt & Pozas, 2023; Smale-Jacobse, & Feng, 2023; Onyishi & Sefotho, 2020; Taole, 2020). Diverse learners learn differently; thus, the importance of differentiated instruction. This strategy allows teachers to cater for the diversity that exists within classrooms. Differentiated instruction entails modifying content, process, and outcomes of learning to meet various learner interests, readiness levels, and learning profiles (Goodnough, 2018). In addition, DI serves as an approach that helps mitigate the challenges associated with diverse learner needs in the classroom (Adebisi, 2024). Within an inclusive education setting, where learners have diverse abilities, learning styles, or

background, DI provides an approach for adapting teaching practices, guaranteeing that all learners are provided with equitable opportunities to succeed (Adebisi, 2024).

Despite its acknowledged importance, the practical implementation of differentiated instruction presents challenges for South African teachers (Adebisi, 2024; Maulana et al., 2023; Taole, 2020). This poses challenges to the implementation of inclusive education. Scholars such as Amor et al., (2019) and Nilholm (2021) advocate for more practical research strategies rather than the predominantly theoretical approaches currently being used, to assist teachers with implementing inclusive education practices such as differentiated instruction. It can be noted by Amor et al., (2019) that there is a necessity for a shift from simply describing issues, to enacting interventions that can help teachers in real-world inclusive education settings. The Cultural-Historical Activity Theory (CHAT)-based formative intervention, such as the Change Laboratory, is often used to support collaborative reflection and problem-solving (Foot, 2014). This study argues for the Change Laboratory as a potential methodology in which an inclusive education practical approach can be realized.

Differentiated instruction is crucial for ensuring equitable access to quality education. However, the difficulties that teachers encounter in effectively applying these strategies often result in the exclusion of certain learners from receiving an equitable and high-quality education (Taole, 2020). This results in increased gaps in academic achievement and perpetuates inequalities (Onyishi & Sefotho, 2020).

This research project explores the implementation of differentiated instruction in two selected South African schools. By adopting CHAT as both a theoretical and methodological lens, the study utilizes Change Laboratory as an interventionist approach to enhance the understanding and application of differentiation instruction methods/strategies to cater to the diverse learning needs of learners. The identification of challenges to the implementation of inclusive education is addressed through collaborative reflective Change Laboratory sessions with teachers. This research project presents research overview, literature review, theoretical framework, methodology, research design, and key considerations, offering a comprehensive insight into the challenges and strategies for enhancing inclusive education practices. In addition, the study provides a detailed examination of the interventionist approach, its rationale, and its potential impact on educational quality in South African classrooms.

1.2 Problem Statement

Inclusive education requires the effective use of differentiated instruction to meet the diverse learning needs of learners in classrooms. Although there are various methods of differentiated instruction available, such as Universal Design for Learning (Liasidou, 2012; McKenzie & Dalton, 2020), diverse instructional materials (Adebisi, 2024; Tomlinson et al., 2003; & Zerai et al., 2021), and flexible grouping (Rose & Meyer, 2002; Taole, 2020), implementing them is a major challenge in South African schools. Research shows that implementing DI strategies in South Africa is difficult due to overcrowded classrooms, inadequate resources, insufficient teacher training in inclusive education practices (Adebisi, 2024; Maulana et al., 2023; Mokhampanyane, 2024; Onyishi & Sefotho, 2020; Taole, 2020; Themane & Thobejane, 2019). Teachers face difficulties in applying differentiated instruction effectively, which leads to compromised academic achievement and hinders inclusive learning environments. There is, therefore, a difference between the intended and the actual implementation of differentiated instruction strategies for inclusion. It is then important to explore and examine strategies that can promote the successful implementation of differentiated instruction, thereby better addressing the diverse learning needs in South African schools. Consequently, this study addresses the gap by using the Change Laboratory to identify and explore possible inclusive practices and strategies aimed at catering to diverse learning needs.

1.3 Rationale

Differentiated instruction offers teachers an effective approach to cater to the diverse learning needs of all learners. Despite the potential of such inclusive education practices, there are significant challenges associated with their implementation, particularly in terms of differentiated instruction. Teachers are expected to meet the diverse needs of increasingly diverse learners, yet research by various scholars reveals that teachers are faced with multiple systemic constraints such as overcrowded classrooms, limited resources, and insufficient professional development. This study addresses these challenges directly by responding to the need for practical, contextualised strategies to assist teachers in the implementation of differentiated instruction.

This study plays a significant role in educational research and interventionist methodologies by contributing to the expansion of the body of knowledge on how differentiated instruction can be practically implemented in South African schools, particularly in complex and

challenging environments. It extends knowledge on the practical realities of implementing differentiated instruction in diverse South African schools.

This research is essential because while differentiated instruction is recognised and acknowledged as important for inclusive education, there is limited empirical evidence on how teachers in schools can be supported to implement differentiated instruction through collaborative and reflective processes. The study particularly focuses on the use of Cultural-Historical Activity Theory and the Change Laboratory as an interventionist strategy for encouraging and facilitating change and growth. This is done through reflection, the identification of systemic tensions and contradictions and co-constructing strategies for their contextually relevant to their school and classrooms. The study offers a model of how interventionist approaches can support teacher agency and change in inclusive education. As a result, the findings from this study can inform future professional development initiatives, contribute to teacher education curriculum, and school-based support initiatives in creating conditions for the successful implementation of differentiated instruction. . Additionally, this research project is important for informing inclusive educational practices that are aimed at promoting the quality of teaching and learning in South Africans schools.

1.4 Aim and Objectives

1.4.1 Research Aim:

This study aims to develop teachers' understanding of, and capacity to apply differentiated instruction strategies in the context of a full-service primary school and a private secondary school in South Africa.

1.4.2 Research Objectives:

- To evaluate the current level of comprehension and utilization of differentiated instruction among teachers in a full-service primary school and a private secondary school in South Africa.
- To facilitate Change Laboratory sessions between teachers and the researcher with the aim of enhancing teachers' proficiency in differentiated instruction.
- To examine the utilization of differentiated instruction within classroom activity systems using a CHAT-based interventionist approach, namely, the Change Laboratory.

To create and assess new differentiated instruction strategies specifically designed for a full-service primary South African school environment, utilizing insights from the CHAT-based intervention.

1.5 Research Questions

Main Research Question:

How can teachers' understanding and implementation of differentiated instruction strategies be developed through the Change Laboratory?

Sub-questions:

- What are the barriers and challenges that teachers face when attempting the implementation of differentiated instruction strategies in a full-service primary school and a private secondary school in South Africa?
- How do teachers make use of differentiated instruction strategies in addressing diverse learning needs?

How can teachers' use and understanding of differentiated instruction be expanded with the aid of a Change Laboratory intervention?

1.6 Conceptual Clarification of the Key Concepts Applicable in the Study

This section focuses on the clarification of key concepts used in this study. This is to show how the concepts are understood in the study's context for the purpose of clarity and consistency. The section clarifies the meaning and relevance of the concepts to the study. The key concepts addressed in this study are differentiated instruction, inclusive education, interventionist strategies, and Cultural-Historical Activity Theory. These concepts will be explained further below.

1.6.1 Differentiated Instruction

Tomlinson (2001) defines differentiated instruction as an approach that involves the modification of content, processes, products, or the learning environment to meet the diverse needs of learners. This approach recognises and acknowledges the differences between learners in terms of their readiness, interest, and learning profiles, and that teaching should be flexible and responsive to the needs of learners. In this study, differentiated instruction is understood as a range of teaching practices that are intentionally developed and put into practice by teachers to provide learners with meaningful learning opportunities. This is done with the effort to promote inclusive education in schools. This concept is important in understanding how

teachers address learner diversity in challenging contexts such as overcrowded and limited resources classrooms.

1.6.2 Inclusive Education

Slee (2018, p.8) asserts that “Inclusive education refers to securing and guaranteeing the right of all children to access, presence, participation, and success in their local regular classrooms”. In other words, inclusive education means ensuring the learning of all children alongside their peers. It is concerned with providing quality education for all learners by addressing and responding to their diverse needs. In this study, an inclusive education is understood as the main objective for supporting learning and teaching for all learners with differentiated instruction being one of the key strategies teachers could employ to promote inclusivity in their classrooms.

1.6.3 Cultural-Historical Activity Theory

Cultural-Historical Activity Theory is a broad and complex concept. Be that as it may, it is understood as a theoretical framework that is responsible for assisting with the understanding of how people’s actions are shaped by their social, cultural and historical contexts (Engeström, 1987). It emphasises individuals and groups working together in an activity system to achieve goals through the use of tools, language, and collaborative practice. CHAT examines contradictions and tensions within activity systems that drive learning, change, and development (Sannino). In this study, CHAT is used to explore how teacher’s strategies related to differentiated instruction are shaped by the wider activity system within which they operate.

1.6. 4 Interventionist Strategies

Interventionist strategies refer to practices shaped by research that aim to support reflection, examination, and the modification (Sannino, Engeström, & Lemos, 2018). These methods emphasise working together to develop new forms of activity. In this study, interventionist strategies are implemented by means of the Change Laboratory methodology. This is further supported by Foot’s (2014) assertion that Change Laboratory forms part of an interventional research methodology aimed at encouraging collaborative learning and transformation within organisations. In this study, the intervention provides structured sessions in which teachers engage in expansive learning by identifying contradictions in their current practices, analysing alternatives, and constructing contextually appropriate strategies for implementing diversified instruction.

In this study, differentiated instruction is understood as a teaching tool for realising inclusive education, while the interventionist strategy enable teachers to develop and implement diverse methods. CHAT serves as the theoretical framework for understanding how these processes take shape in complex school settings. Collectively, these concepts provide a way for studying current practices, identifying challenges, and developing strategies for change to enhance differentiated instruction and learning.

1.7 Chapter Outline

This research report is organised as follows:

Chapter 1: Research Overview

This chapter presents the background and rationale of the study, the research problem, aims and objectives, key questions, and the clarification of key concepts in the study. It also outlines the structure of the research report.

Chapter 2: Literature Review

This chapter looks at key studies related to the research by exploring previous research, and the theoretical framework that underpins the study. The chapter also explores concepts relevant to the methodology and highlights how the theoretical framework helps explain the results.

Chapter 3: Research Methodology

This chapter describes the research philosophy, research design, and methodological approach. It also outlines the processes used for obtaining and interpreting data. It further considers the study context, sampling, data generation tools, limitations, ethical considerations, and methods for ensuring trustworthiness and validity.

Chapter 4: Findings and Discussion

This chapter simultaneously presents and interprets the findings of the study. The chapter is structured according to the research objectives and sub-questions, and provides evidence from the data, including participant quotations from semi-structured interviews and excerpts from the Change Laboratory sessions were relevant. The chapter also, interprets the findings in relation to the research questions, theoretical framework, and existing literature, showing how the findings contribute to the understanding of the research problem.

Chapter 5: Conclusion

This chapter summarises the key findings of the study and their implications. It reflects on the contributions of the study, highlights limitations, and offers recommendations for practice, policy, and further research.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

This chapter presents the literature review on differentiated instruction, both internationally and locally, focusing on the South African context. The review of literature provides a comprehensive understanding of differentiated instruction, its principles, and implementation in diverse educational contexts. The chapter begins with the exploration of the differentiated instruction framework, followed by a discussion on inclusive education in South Africa. It goes on to explore and examine the challenges of implementing differentiated instruction and situates the research project within the theoretical framework of CHAT. Finally, the chapter presents the theoretical framework underpinning this study.

2.3 Inclusive Education in South Africa

2.3.1 Policy Context

South Africa is a multicultural and diversified country, and this is evident in its classrooms. This is because of the increasing diversity in learners' intellectual strengths, learner interests, learning preferences, and social contexts, all of which teachers need to accommodate (Taole, 2020). To provide equitable access and quality education for all learners, inclusive education policies were introduced after the apartheid era. The Bantu Education system during apartheid was racially segregating with black people receiving low quality education as compared to the white people (McKay, 2019). This resulted and reinforced inequalities in the system. (Fataar, 1997, as cited in McKay, 2019, p.161) report that "Classrooms were overcrowded, poorly equipped, lacked teaching and learning materials (as well as windows, ceilings and toilets in many cases), and had insufficient teachers, many of whom were unqualified or underqualified". The challenges outlined by Fataar (1997) hinders the successful implementation of quality and equitable education. McKay (2019) and McKeever (2017), among others argue that the disparities of the past education system remain during the post educational context which further result in inequalities in education.

Key policy and legislature documents, such as the WP6, "*Guidelines for Responding to Learner Diversity in the Classroom*" (DoE, 2011), "*The Care and Support for Teaching and Learning (CSTL) Framework*" (SADC, 2014), and the "*Standards for Inclusive Teaching (Department*

of Higher Education and Training”, (DHET, 2018), were developed in post-apartheid educational context. Although WP6 does not explicitly mention the term differentiated instruction, it highlights some principles of differentiated instruction, which are the emphasis on tailored teaching methods, flexibility in curriculum and individualized support for learners (DoE, 2001). The WP6 policy highlights the need for educational practices that are inclusive by recognizing and responding to the diverse needs of learners (DoE, 2001). To further show the necessity to address the diverse learning needs of learners, the South African government adopted a policy document which provides a comprehensive framework for implementing differentiated instruction in South African classrooms (DoE, 2014). On the other hand, the framework for addressing learner diversity (DoE, 2011) provides strategies for differentiated instruction and developing approaches to meet learners’ diverse needs. Despite this policy, a decade and more later, South African classrooms remain challenged to implement differentiated instruction. Proponents of inclusive education argue that the inability to implement inclusive education lies in the ambiguity and lack of clarity of policies (Ainscow, Slee, & Best, 2019; Donohue & Bornman, 2014; Magnusson, 2019; Raveaud, 2005).

Furthermore, CSTL-2014 identifies differentiated instruction as a key strategy for achieving inclusive education (SADC, 2014). The holistic approach of this policy is to address barriers to learning through multiple approaches including catering for the diverse learning needs of learners. Similarly, DHET, 2018) identifies key areas in developing inclusive teachers. It highlights the importance of the development of teachers who understand and implement inclusive practices in their classrooms for the inclusion of all learners. Whether stated explicitly or implicitly, the above-mentioned policies highlight the importance of addressing learner diversity through strategies such as differentiated instruction. However, translating policy goals into successful classroom practices remains a challenge (Donohue & Bornman, 2014).

According to the DoE (2011), Curriculum differentiation is an important approach to addressing the diverse learning styles and needs of learners. It is argued by Taole (2020) to be a method where teachers adjust their instruction to accommodate the learners’ individual needs. This means that it is an approach that guarantees the active participation of every learner according to their abilities, interests, and learning styles. Consequently, while inclusive education provides a foundation for supporting the needs of diverse learners, its effectiveness depends on effective implementation, adequate resources, and the continuous teacher development (Mokhampanyane, 2024).

2.2 Differentiated Instruction

2.2.1 Understanding Differentiated Instruction

In the context of education, all learners learn differently (Tomlinson, 2001), meaning learning does not occur in the same way for everyone. As a result, teachers must acknowledge the differences of learners in learning and ensure that they provide instruction that is inclusive for all. This could be done through differentiating instruction as it involves providing multiple options for learners to learn (Hall, 2002). Tomlinson (2001, p.1) asserts that "...differentiated classroom provides different avenues to acquiring content, to processing or making sense of ideas, and to developing products so that each learner can learn effectively". This implies that differentiated instruction is not just about what the teacher does, but rather, it provides effective learning for all learners through modifying methods of teaching, understanding, and demonstrating learning. Learners, therefore, are also central in its processes, since their responses should determine how learning and teaching should proceed. Hence, Makoelle (2014, p.1261) says "Differentiated teaching is a proactive method that is designed to respond to the needs of all learners". DI ensures the maximization of participation and learning for all with the aim of the growth and success of all learners (Hall, 2002).

However, there remains a lack of academic literature on how differentiated instruction might improve student achievement (Joseph, Thomas, Simonette, & Ramsook, 2013). Even though educators acknowledge the importance of differentiated instruction, Joseph et al., (2013) point out that many teachers find it challenging to integrate its aspects, content, process, and output. Likewise, Hajis and Othman (2024) argue that most teachers are unaware of how to apply differentiated instruction and therefore tend to rely on one-size-fits-all teaching methods.

Notable scholars, such as Hall (2002) and Tomlinson (2001), assert that differentiated instruction highlights the need to cater to the needs of all learners. However, this does not entail categorizing learners in terms of abilities, thereafter, providing them with isolated instruction. This is clearly articulated by Tomlinson (2001, p.2) that "While it is true that differentiated instruction offers several avenues to learning, it does not assume a separate level for each learner". DI values and respects the diversity of learners (Hall, 2002). Teachers who employ differentiated instruction respect the differences of their learners and do not view them as having deficits as done by the medical model of disability (Oliver & Barnes, 2010). Instead, these teachers align more with a social model of disability which highlights that learning difficulties arise due to barriers in the environment, teaching methods, etc., rather than deficits

within the learner (Barnes, 2003). According to the inclusive education pedagogies, all learners are viewed as capable, and teachers hold high expectations for all their learners (Barnes, 2003). Given the importance of valuing learners and their differences, it is important for teachers to take a structured approach to realizing learners' potential by creating and implementing DI strategies. The figure below illustrates the learning cycle and key decision factors used in guiding teachers create inclusive learning experiences.

2.2.2 Elements of Differentiated Instruction: Content, Process, and Product

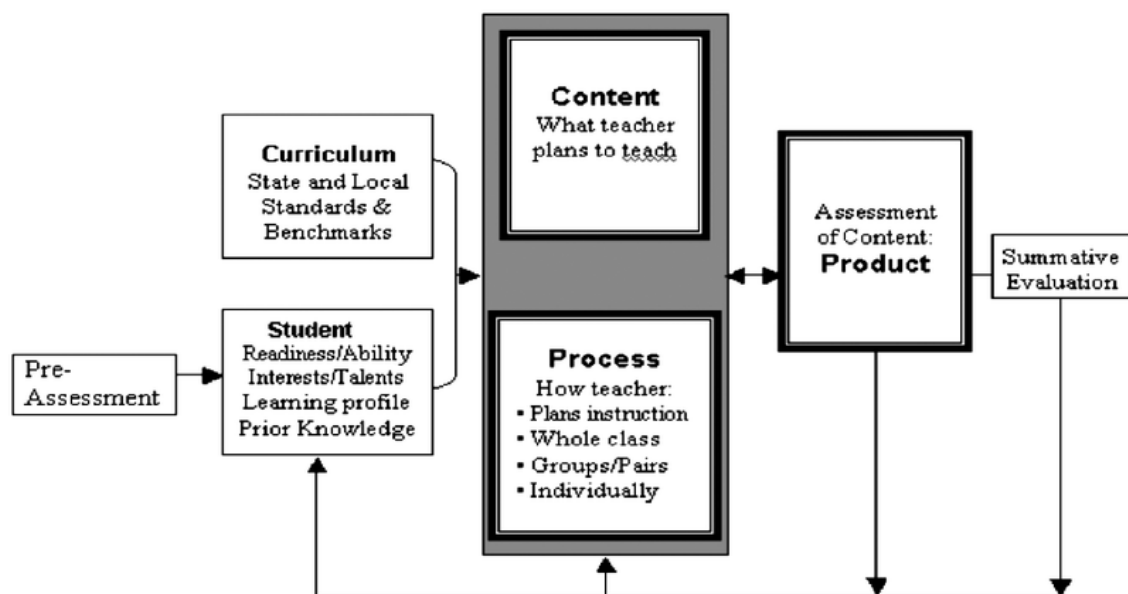


Figure 1: Learning Cycle and Decision Factors Used in Planning and Implementing Differentiated Instruction

As can be seen from the above figure 1, three elements of curriculum can be differentiated (Tomlinson, 2001): content, process, and product differentiation. These elements are essential in differentiating instruction as they can assist teachers in addressing the diverse needs of their learners. The learning cycle as shown in the above figure 1 shows an on-going process that involves planning, teaching, assessing, and modification to cater to the diverse needs of learners (Hall, 2002). Teachers cannot execute teaching and learning without planning (Hall, 2002). Therefore, teachers plan by doing pre-assessment through baseline assessment, learner profiles, and prior knowledge to design lessons that meet the learning needs of all learners (Department of Education, 2014). At the point of teaching, teachers implement differentiated instruction by employing different teaching methods. Assessment is also crucial in teaching and learning as it is used to check for learners' progress and understanding (Tomlinson et al.,

2003). Hall (2002) further posits the intention of assessment to evaluate the effectiveness of the teachers' pedagogy; hence teachers must be reflective in their teaching for the benefit of their learners.

Teachers find it overwhelming and unsupported in providing support to diverse learners (Joseph et al., 2013). Smale-Jacobse et al., argues that this is due to teachers' lack of necessary preparation and support in the implementation of differentiated instruction (Smale-Jacobse, Meijer, Helms-Lorenz, & Maulana (2019). Maia & Freire (2025) found that many teachers report a lack of adequate training in inclusive teaching strategies, which result in barriers to educational success. Furthermore, it is argued that differentiated instruction is not widely used and that teacher beliefs hinder the successful implementation of differentiated instruction (Smale-Jacobse, 2019).

Additionally, reflection is important in decision-making as it allows teachers to consider the learner's readiness, interests, and profiles which can assist in realizing success in the application process (Tomlinson, 2017). This is supported by Hall (2002, n.p) when he states: "To differentiate instruction is to recognize learners varying background knowledge, readiness, language, preferences in learning, interests, and to react responsively". For learner readiness, teachers must check the learners' current level of understanding or skill to ensure that they match it to the complexity of a task (Tomlinson, 2001). Tomlinson (2001) posits that teachers must also consider the learners' interests in the differentiating process as they motivate and encourage learners to engage in learning. The learner profiles refer to the learners' learning styles and strengths (Tomlinson, 2001). All these are integral in the decision-making process to ensure that learners access learning in ways that suit their needs.

Taole (2020) takes the argument further to say differentiated instruction requires a lot of planning from the teacher, since it can be achieved at the content level, assessment, and the teaching strategies that teachers employ in their classrooms. At the content level, teachers should ensure the provision of learning materials in multiple formats and adjust the level of complexity to cater to varying learning preferences. Several scholars (Adebisi, 2024; McKenzie & Dalton, 2020; Zerai et al., 2023) amongst others, claim that during the process of differentiating instruction, teachers must incorporate diverse instructional strategies, such as the Universal Design for Learning, direct instruction, group work, and hands-on activities, to effectively engage all learners. Differentiating the product implies that teachers should employ a range of assessment methods, including tests, projects, and presentations to enable learners

to highlight their understanding in ways that align with their strengths (Hall, 2002). The learning cycle and decision factors used in planning and implementing differentiated instruction ensure that each learner can access the curriculum and achieve their full potential, making differentiated instruction a cornerstone of inclusive and effective teaching (Hall, 2002). The effectiveness of differentiated instruction is necessary for the successful enactment of inclusive education since every learner deserves access to quality and equitable education in inclusive classrooms regardless of their differences (Alan & Slee, 2008).

2.3.2 Challenges in Implementing Differentiated Instruction

Fundamental to inclusive education is the commitment to cater to the diverse interests, needs, abilities, disabilities, and learning styles (Adebisi, 2024; Maulana et al., 2023; Onyishi, Sefotho, 2020; Taole, 2020). However, the current literature shows that the implementation of inclusive education, particularly through differentiated instruction poses a variety of challenges within the context of schools in South Africa (Adebisi, 2024; Donohue & Bornman, 2014; Mokhampanyane, 2024; & Taole, 2020).

Although provisions such as policies and legislature have been made to include all learners, teachers remain challenged to implement DI. This is due to many factors affecting the implementation, such as class size limitations and insufficient resources (Taole, 2020). Scholars such as Maulana et al., (2023), further argue for more challenges such as the implementation of DI being time-consuming and demanding for teachers, language barriers in multicultural learning environments, classroom management, assessment, parental involvement, and policy support. Scholars consistently report lack of teacher competence in implementing differentiated instruction as one of the key challenges (Adebisi, 2024; Goodnough, 2018; Hlalele, Jiyane & Radebe, 2020; Maulana et al., 2023; & Taole, 2020; & Zerai et al., 2023).

Adebisi, (2024), Taole, (2020), and Onyishi and Sefotho, (2020) contend that despite the concept of inclusive education being around for decades, teachers remain challenged to implement differentiated instruction both globally and in the local context of South Africa. This is a huge challenge as teachers are at the forefront of the implementation of differentiated instructions. Hence, it is alarming when they are considered by themselves and others not to be competent in ensuring that every learner's learning needs are catered for. This is also supported by the WP6 (DoE, 2001) as it emphasizes teachers as key performers for attaining the goal of inclusive education. The literature demonstrates that teachers do not possess the skills to

implement inclusive pedagogies, plan, and adjust instruction to meet the individual learners' requirements (Taole, 2020).

2.2.3 Methods/Strategies for Implementing Differentiated Instruction

South African classrooms have become more heterogeneous, and schools are compelled to cater for learners having diverse learning needs, interests, abilities, and learning styles (Taole, 2020). This makes it challenging for teachers to address the diverse demands of learners. Onyishi and Sefotho (2020, p.138) supports this by arguing that “they teach them the same curriculum content, using the same process and teaching method, and also expect them to express what they have learned in the same way and most cases using a paper-pencil test”. To overcome this, the literature suggests that teachers must employ various differentiation methods and strategies such as the Universal Design for Learning, varied instructional materials and flexible grouping (Adebisi, 204; McKenzie & Dalton, 2020; Maulana et al., 2023; & Adebisi, 2024). The UDL refers to an educational framework that advocates for the creation of adaptable learning environments to cater to the diverse needs of all learners (Liasidou, 2012). The UDL promotes diverse teaching methods for the enhancement of educational accessibility without the need for specialist interventions and adaptations, further supporting the social model of inclusive education which views social arrangements as the key disabling or enabling factor. Using UDL, all learners can learn together without being isolated from their peers, which will promote more inclusive classrooms (McKenzie & Dalton, 2020).

To accommodate diverse learners, the UDL framework offers a variety of modes of representation, participation, and expression encouraging inclusive education (McKenzie & Dalton, 2020). To accommodate learners with different requirements and preferences, Rose and Meyer (2002) stress in their study how important it is to provide flexible learning options. Strategies addressing the diverse learning needs of learners are essential for effectively carrying out differentiated instruction. McKenzie & Dalton (2020) suggest that UDL and other methods and strategies can be effectively employed for differentiated instruction. However, those fail to account for the contextual nature of the approaches. Some of the methods are context-specific and not easily aligned to the context of this study, namely, two selected Johannesburg schools in South Africa. For instance, the UDL offers choice in assignments. This given the realities of South African schools, is not realistic especially, as we make use of standardized tests, which culminate in a high-status national examination in Grade 12 (DoE, 2011). Nonetheless, UDL does increase the learners' engagement, motivation, and learner achievement (Liasidou, 2012; McKenzie & Dalton, 2020).

Tomlinson et al., (2003) argues that varied instructional materials and flexible grouping of learners are essential for effective differentiation. The same materials cannot be used for all learners as they learn differently. Teachers should take that into consideration when planning their lessons for the inclusion of all learners. According to Tomlinson and Imbeau (2023), providing diverse materials, such as textbooks, digital resources, manipulatives, and real-life items, enables teachers to accommodate learners' diverse learning needs, styles, abilities, etc. Teachers could also make use of diverse teaching materials to accommodate different socio-economic statuses and cultural differences (Zerai et al., 2023). These strategies are valuable in diverse secondary schools in South Africa.

Tomlinson (2001, p.102) recommends flexible grouping in such a way that “Learners are part of many different groups—and also work alone— based on the match of the task to learner readiness, interest, or learning style”. Flexible grouping is the process of assigning learners to groups based on their needs, tasks, and strengths to provide tailored instruction (Tomlinson, 2001). This type of grouping ensures that learners learn to work collaboratively and individually while it also allows them to actively take charge of their own learning. It also minimizes the labelling and exclusion of learners as they get to collaborate with various learners (Tomlinson, 2001). Furthermore, group work is important in learning and beneficial. The literature shows that learners who participate in small groups exhibit significantly greater achievement in comparison to learners who do not participate in small group learning (Taole, 2020; Rose & Meyer, 2002). These enable teachers to be more flexible in their teaching and in addressing the diverse learning needs of their learners. Moreover, the group settings allow for more interaction of learners promoting a sense of belonging for them (Taole, 2020).

2.2.4 Teacher Importance

According to Tomlinson et al., (2003, p.134) “Leaders would need to acknowledge that teachers, like learners, are nested in a culture and context”. This implies that, just like learners, teachers are influenced by specific cultural, social, and institutional contexts that shape their beliefs, behaviors, and practices. In much the same way as learners' learning can be impacted by their cultural and contextual background, teachers' approaches to instruction and interactions with learners are also influenced by these factors (Subban, 2006). This is supported by proponents of inclusive education who argue that the classroom context in South African schools makes it difficult for teachers to implement differentiated instruction (Taole, 2020). This is due to the nature of their classroom sizes. South African classrooms are overcrowded with large-class

sizes (Taale, 2020). The overcrowding of classrooms hinders teachers in implementing DI. Moreover, it is making it difficult for teachers to interact with all the learners (Adebisi, 2024).

Teacher-learner interaction plays a pivotal role in the learning process (Vygotsky & Cole, 1978). Vygotsky's theory of development underscores the significance of social interaction in cognitive development (Vygotsky & Cole, 1978; Foot, 2014; Bal et al., 2021). According to Vygotsky, learning is inherently a social process, and individuals enhance their comprehension and skills through interactions with more knowledgeable others (Vygotsky & Cole, 1978). This interaction facilitates learners' progress using the zone of proximal development, which highlights the gap between what learners can do alone and what they can achieve with guidance and support (Vygotsky & Cole, 1978).

The differentiation of learning aligns with Vygotsky's theory as it requires teachers to provide appropriate support and scaffolding tailored to the unique needs of learners (Vygotsky & Cole, 1978). This implies that the theory recognizes the diversity that exists in learners in terms of learning hence the need to provide flexible teaching, individual, and group learning. Through teachers' mediation and scaffolding, learners are provided with opportunities to participate in the cultural activity of their classrooms. It is through their interactions that they develop and use cultural tools provided by society which significantly influence their learning (Bal et al., 2021).

2.2.5 Applications of CHAT in Educational Research

An increasing number of studies have explored CHAT in educational research (Bal et al., 2021; Wardekker, 2010). Studies by scholars such as (Andrews, 2024, Bal et al., 2021; Botha, 2017; Kornelak & Dlakitsi, 2018; Wardekker, 2010) have been conducted using the CHAT as a theoretical lens with the intention to enhance learning and teaching. The Change Laboratory, as a CHAT-based research method, has been applied in multiple studies on workplace-based learning and educational transformation (Andrews, 2024; Bal et al., 2021). "Change Laboratory constitutes a research-assisted environment of change in which participants can re-design their work activity and organization by creating new models, tools, and practices with the aid of researcher-interventionists" (Kerosuo, Kajamaa, and Engeström, 2010). To put it briefly, the Change Laboratory is part of an interventionist-research methodology used to support collaborative learning and transformation within organizations (Foot, 2014).

CHAT is considered extremely important for co-creating and revising learning and teaching practices in initial teacher education (Wardekker, 2010). This suggests that CHAT can be used to improve how new teachers learn and teach by analysing and adjusting their teaching approaches. It encourages collaboration to improve teaching methods. This approach develops new and improved educational systems. Furthermore, a study by Kornelaki and Dlakitsi (2018) concluded that the Change Laboratory proved to be an effective tool for teacher training as it encourages reflective learning and promotes the development of appropriate training programs.

Although there have not been studies conducted that specifically used CHAT or the Change Laboratory in educational settings focusing on differentiated instruction, a research study by Berliner (1985, p.2) posits that “Pedagogical laboratories are not only possible, but they would also be highly beneficial to the field of education”. Pedagogical laboratories are organised environments in which teachers and researchers test and create innovative teaching and learning methods (Berliner, 1985). They enable teachers to reflect on their practices, test new strategies, and collaborate to improve education. These Change Laboratory frequently incorporate action research, collaboration, and the application of theoretical frameworks such as CHAT to analyse and transform teaching processes. Furthermore, scholars such as Serdyukov (2017) argue that it is impossible to innovate practice without ever taking steps that are not yet fully proven or certified. In the context of this study, CHAT is applied to support teachers in developing their understanding and capacity to make use of differentiated instruction methods/strategies in their specific context.

Through a cultural-historical analysis, researchers and teachers can pinpoint contextual factors that could either support or impede the execution of differentiated instruction (Ruth et al., 2009). In this study, a CHAT-interventionist method called the Change Laboratory encourages teachers to engage in reflective practices, enabling teachers to analyse their teaching practices to identify areas of improvement and professional growth. This refers to a practical intervention which is used by teachers in their understanding and application of differentiated instruction.

2.3 Theoretical Framework

CHAT is a sociological approach to understanding human activity which provides an opportunity to analyse learning as a culturally mediated, historically situated and object-oriented activity consisting of the individual, interpersonal and systemic perspectives (Botha, 2017). The framework was developed from Vygotsky and Leontiev’s ideas and has been expanded by academics such as Yrjö Engeström and offers a lens for examining human actions

as systemic and socially situated (Kerosuo, Kajamaa & Engeström, 2010; Bal et., 2021; Engeström, 1987). It highlights the importance of social interactions, cultural tools, and the collective nature of human activities. This study make use of the second generation of CHAT developed by Engeström (1987) building from Vygotsky’s insights which emphasise the importance of tools and signs in shaping human activity (Vygotsky, 1978) and Leontiev’s emphasis on the individual’s relation with reality (Postholm, 2014). While the first generation emphasises, individual actions mediated by cultural tools, the second generation by Engeström expanded the framework by developing a model to analyse collective activity systems.

2.3.2 Applying CHAT to Differentiated Instruction

As it can be seen in Figure 2 below, the activity system model has six core components that have historical and cultural significance for how an activity is carried out and develops (Foot, 2014). The dialectical relationships between the components of the activities explains, represented by double headed arrows, allow researchers to trace the culminal evolution of activities as these activities pursue the object that defines and shapes them.

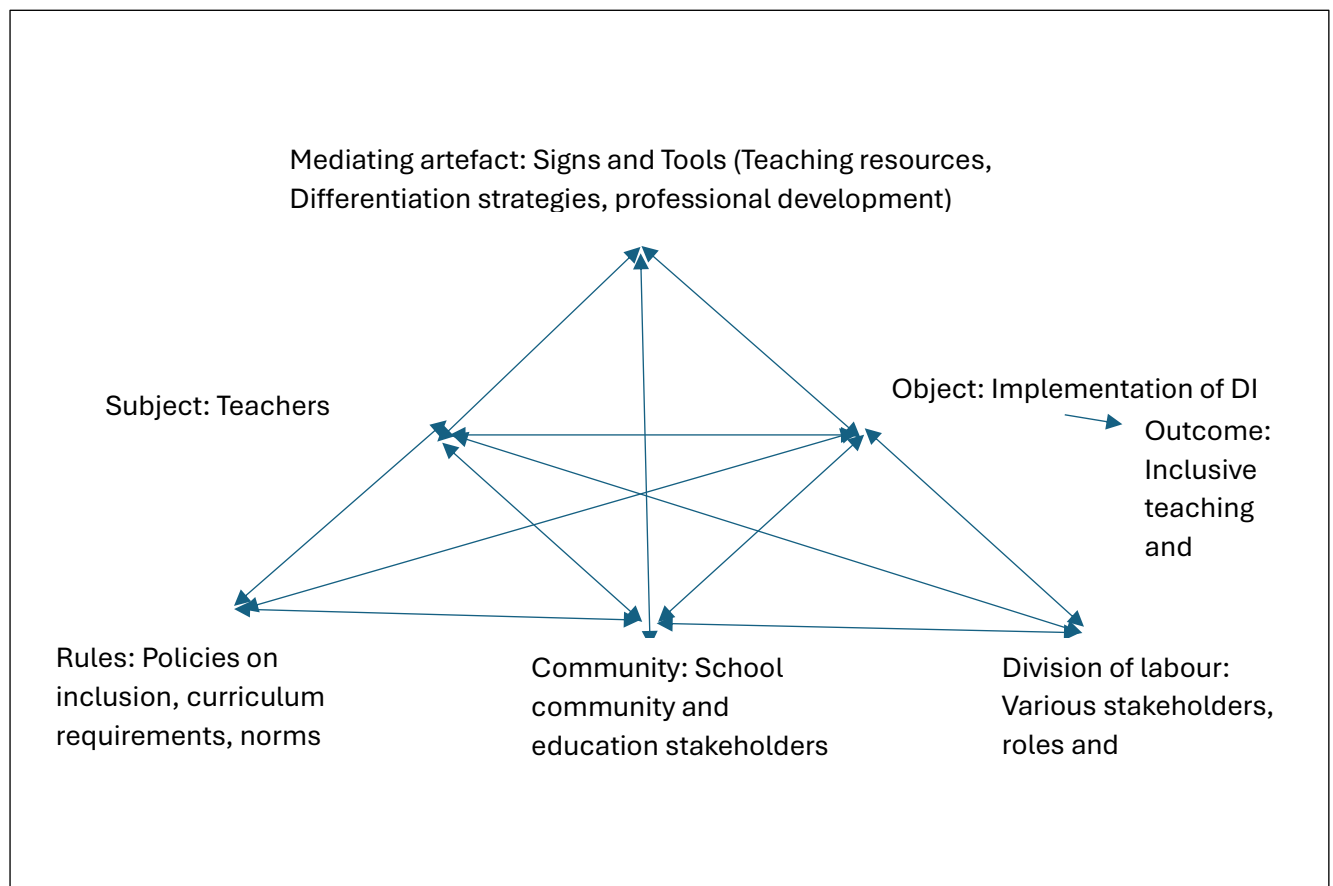


Figure 2: An Activity System of Inclusive Teaching

These interrelated components include the subjects (individuals, e.g., teachers and learners), tools and artifacts, rules and norms, community, and division of labour, according to Engeström (1987). In the context of this study, the activity system consists of the subject (teacher), object (goal of differentiated instruction), tools (instructional methods, resources), community (learners, school), rules (educational policies), and division of labor (roles and responsibilities). Through an analysis of these elements and their dynamic interplay in this study, CHAT offers insights into the complexities of educational practices along with the sociocultural dynamics that shape instruction and learning.

Furthermore, CHAT in the context of this study was applied to support teachers in developing their understanding and capacity to make use of differentiated instruction methods/strategies in their specific context in their activity systems. This framework attempted to address the complexities and challenges experienced by teachers in diverse classrooms by offering a thorough lens through which to study and improve educational practices. Furthermore, introducing the idea of tensions and contradictions within and between activity systems components (Engeström, 2011). Engeström's expansion allows for a more comprehensive analysis of systemic challenges in educational settings, making it particularly suitable for this study.

In CHAT, activities are seen as a systemic whole and not as separate components (Engeström, 1987). The framework encourages practitioners to look beyond the most obvious pair of components in a scenario and try to determine how the other components are present and having an impact on the circumstance (Foot, 2014). This view helps in understanding how the six components influence each other and impact the overall educational practice. The activity theory has a unique characteristic of analysing complex social practices and acknowledging the existence of contradictions within the activity system. "Contradictions act as driving forces of change as they generate tensions, disturbances and innovative attempts for development in social action" (Kerosuo, Kajamaa and Engeström, 2010, p.115). In an educational context, tensions within and between contractions may arise from mismatches between educational policy legislation and framework, the reality of classrooms, or between teachers' teaching methods and learners' diverse learning needs. However, when participants take action to overcome the contradictions and conflicts in the system, the activity system evolves (Kerosuo, Kajamaa, & Engeström, 2010; Foot, 2014). This evolution, or development of an activity system may occur through expansive learning and takes place within what Engeström (2011) calls an "expansive cycle".

The concept of expansive learning is a component of the adopted CHAT framework underpinning this study. Engeström (1987, p.7) declares “...expansive learning is a historically new type of learning which emerges as practitioners struggle through developmental transformations in their activity systems, moving across collective zones of proximal development...”. This refers to a process through which individuals and groups actively participate in learning that goes beyond the mere acquisition of established knowledge and skills, seeking instead at the creation of new (kinds of) knowledge and practices (Engeström, 2011). This process holds particular importance in situations where current practices are insufficient to tackle emerging challenges or contradictions within an activity system. In the context of this study, the barriers that teachers face in implementing differentiated instruction serve to identify contradictions within the activity system, hence the relevance of the expansive learning cycle in assisting teachers to understand and develop inclusive practices that will benefit all their learners. The figure below visually represents the important phases and steps involved in an expansive learning process, showing a clear representation of how the cycle ideally works in practice.

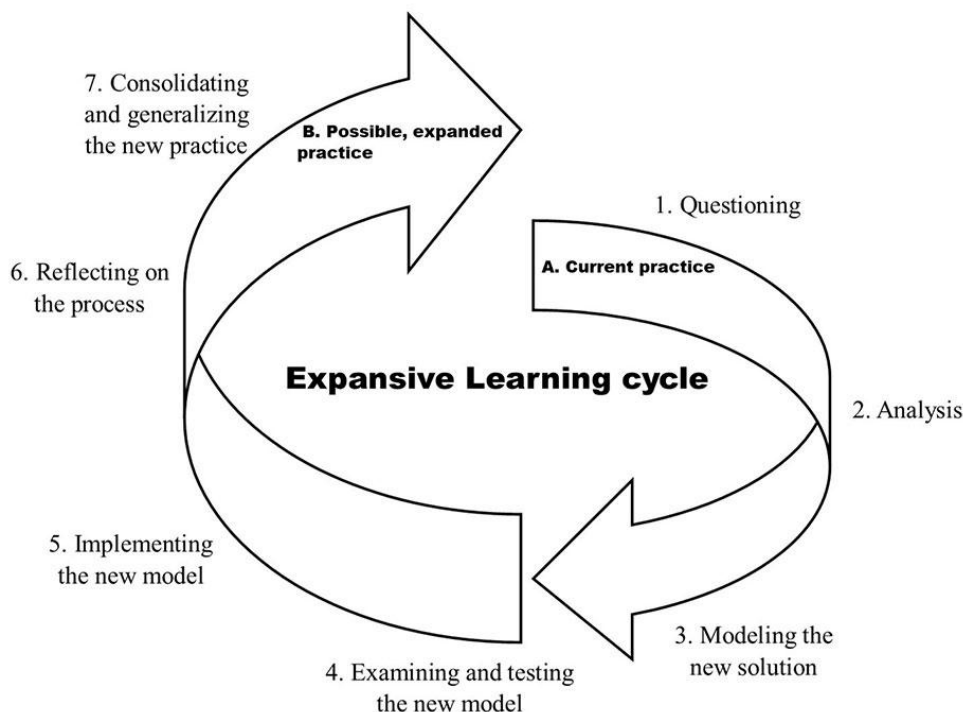


Figure 3: Expansive Learning Cycle

Foot (2014, p.338) outlines that “The process of expansive learning represents the process of mutual learning during which a new collective object of activity is created through solving

contradictions and mobilizing the available social and cultural resources in an activity”. This process challenges existing practices, examining underlying issues, developing new solutions, putting these new ideas into practice, and then reviewing and commenting on them (Kerosuo, Kajamaa, Engeström, 2010). As can be seen in Figure 3 above, the process involves seven steps which Foot (2014) describes as collaboratively developing new ways of thinking to address contradictions within an activity system. The process starts with participants questioning their existing practices with the intention to identify tensions, thereafter, analysing the tensions to determine the cause (Engeström, 1987). Participants proceed to develop, evaluate, and refine their solutions through practical application. This process allows them to have new practices in their activity system (Foot, 2014).

A formative intervention called the Change Laboratory was developed by CHAT to facilitate expansive learning and organizational change through collaborative innovation and reflections (Kerosuo, Kajamaa, & Engeström, 2010). This study employed the Change Laboratory method, and in the methodology chapter, I explain how, in this method, researchers facilitate the expansive learning process through the providing of theoretical insights and ensuring that the intervention is grounded in CHAT principles to achieve meaningful change (Kerosuo, Kajamaa, Engeström, 2010). The application of CHAT and the Change Laboratory in this study aimed to empower or develop teachers to effectively implement differentiation instruction, thereby addressing the diverse learning of learners in secondary schools, specifically in two schools in the Gauteng Province, South Africa.

Teachers can create professional development programs specific to the requirements and difficulties of different educational contexts because of this understanding (Ruth et al., 2009). CHAT encourages teachers to engage in reflective practices, meaning that teachers should analyse their teaching within the context of their activity system to identify areas of improvement and professional growth. A limited number of studies in inclusive education have made use of CHAT extensively as a perspective to understand the implementation of differentiated instruction. In this study, the researcher facilitates professional development sessions between teachers and herself to analyse how differentiated instruction strategies are and could be used in a classroom activity system using a CHAT-based interventionist approach, namely, the Change Laboratory. The next chapter will explain some of the theory and practices of the Change Laboratory and how these were employed in this study to try and drive the expansive development of teachers’ understanding of differentiated instruction.

The Change Laboratory is a research-based framework in which participants, guided by researchers, may modify their work and develop new models, tools, and practices (Kerosuo, Kajamaa, and Engeström, 2010). Within the framework of this study, this method is a practical intervention used to support teachers in developing their understanding and application of differentiated instruction. In addition, the Change Laboratory is a way of implementing the expansive learning process to address a problem or challenges (Engeström, 1987). CHAT is essential for this study and as a tool for promoting the learning of all learners. The successful implementation of differentiated instruction will change learners' experiences in a more positive way hence changing the world through those learners (Adebisi, 2024).

2.4 Conclusion

Chapter two of this research report presented the literature review of the study. Furthermore, it presented the research gaps and the importance of practical strategies when it comes to inclusive education. It also outlined differentiated strategies such as the UDL and flexible grouping in catering for diverse needs of learners. Finally, it outlined the key features of CHAT as the theoretical framework underpinning this study. The next chapter outlines the methodology employed in this study, specifying the research strategy, data collection methods, and method of analysis utilised in achieving the research objectives.

CHAPTER 3

RESEARCH METHODOLOGY

This chapter consists of the process of writing a research methodology, which is essential and requires a detailed and descriptive outline. It supports the research findings by explaining the approach taken and providing a rationale for how the conclusions were reached (Alharahsheh & Pius, 2020).

3.1 Introduction

This study explored the implementation of differentiated instruction in two South African schools, specifically within Johannesburg. As outlined in the literature, differentiated instruction is a method of instruction that recognises and meets all learners' unique needs, abilities, interests, and learning styles (Makoelle, 2012). Its goal is to ensure that all learners have equal access to education by offering individualised strategies, resources, and opportunities to help them achieve (Makoelle, 2012). The research sought to uncover the challenges faced by teachers in addressing the diverse learning needs of learners, explored current practices, and collaboratively developed practical solutions to enhance inclusive education through the effective implementation of differentiated instruction. This was done through the lens of the Cultural-Historical Activity Theory (CHAT) which is explained in the second chapter as a framework that analyses human activities, concentrating on interactions, tools, roles, and systemic challenges (Engeström, 1987). As such, the conceptual tools of CHAT are mobilized through the Change Laboratory method to facilitate the development of solutions to the challenges that the teachers face. This chapter starts with situating these aims within the project's research philosophy, which is then followed by an explanation of the methodological design used. Moreover, data generation and analysis methodologies are also provided, along with the rationale behind their selection, to ensure transparency in the research process.

3.2 Research Philosophy

Understanding the foundation of one's research philosophy is crucial as it influences the overall methodology of the research and has an impact on how research questions are developed and interpreted (Alharahsheh & Pius, 2020). Thus, "It is highly important for researchers to understand the key underpinning ontological and epistemological assumptions, and to further

understand how the given assumptions determine researchers' selection of an appropriate methodology and methods" (Alharahsheh and Pius, 2020, p.40). Below I outline the beliefs fundamental to guiding my study, and how reality and knowledge are understood.

3.2.1 Interpretivist Ontology and Epistemology

Ontology is concerned with the nature of reality (Kant, 2014). In the social sciences, ontology specifically deals with social reality (Kant, 2014). The research philosophy employed in this research draws from an interpretivist ontology, which proposes that reality is not a fixed entity but is socially constructed (Zajda, 2021). According to the interpretivist perspective, as outlined by Kant (2014), knowledge and understanding stem from the interaction of individuals with their environment. This perspective maintains that learning occurs when individuals actively interact with concepts and experiences, using their social relationships, emotions, culture, and cognitive abilities to make sense of the world (Zajda, 2021). This highlights the co-construction of learning and reality through social processes and shared experiences.

The interpretivist ontology is well aligned with the theoretical framework adopted, Cultural Historical Activity Theory, which views learning as a socially mediated activity deeply rooted in cultural and historical influences (Riggert-Kieffer, 2018). This methodology has its foundation in Vygotskian philosophy, which emphasises the importance of social interactions and cultural tools in learning (Engeström, 1987). This alignment is particularly important as it supports the research's focus on exploring differentiated instruction through collaborative reflection sessions. This is said on the basis that an interpretivist perspective enables an awareness of the experiences and difficulties encountered by teachers shaped by their specific social and educational context, reinforcing the importance of shared meaning-making in education.

Epistemology is concerned with the characteristics of knowledge and the methods in which it can be obtained (Kant, 2014). This research adopted an interpretivist epistemology, which came as a critique of positivism due to its nature of objectivity. According to positivism, outlined by Alharahsheh and Pius, (2020, p.41) "In terms of epistemology, the research would focus on the discovery of facts or regularities that are observable and measurable". For a social science study, human beings cannot be explored in the same way as the natural sciences which focuses on measurable facts (Alharahsheh and Pius, 2020). As a result, this study adopted an interpretivist epistemology, which assumes knowledge to be subjective, context-dependent, and constructed through individual' interpretations of their experiences (Alharahsheh and Pius,

2020). It is significant for this study because it allowed a more contextual understanding of the teachers' practices, perspectives, and experiences in two South African schools.

Moreover, "Interpretivism is different from positivism as it aims to include richness in the insights gathered rather than attempting to provide definite and universal laws that can be generalised and applicable to everyone regardless of some key variables and factors" (Myers, 2008; Saunders et al., 2012; Bhattacharjee, 2012, as cited in Alharahsheh & Pius, 2020, pp. 41 - 42). In the context of this research, interpretivism enabled an in-depth exploration of teachers' subjective experiences and meaning as they engaged in their practices, particularly the implementation of differentiated instruction. This provided a nuanced view of teachers' challenges and strategies. By exploring their personal and collective interpretations, interpretivism contributed to the study's emphasis on the processes of meaning making and the construction of knowledge within social and cultural activity systems. This approach allowed for a richer understanding of how differentiation strategies are conceptualised, adapted, and applied in practice during the Change Laboratory Sessions.

3.3 Research Design

Research design is fundamental for conducting research (Asenahabi, 2019). Asenahabi (2019, p.76) describes it as "...a plan adopted by the researcher before data collection commences so as to achieve the research objective in a valid way". A research plan offers an outline of how the study is conducted to address the research questions effectively. It details the methods, techniques, and processes for collecting, analysing, and interpreting data (Creswell, 2013).

3.3.1 Methodological approach

Research design can be approached in different ways such as using quantitative and qualitative methods (Creswell, 2013). As previously described, a research design provides an outline for systematically collecting, analysing, and interpreting data to address specific research questions (Sogunro, 2002, Creswell, 2013). Quantitative research focuses on gathering and analysing numerical data to identify patterns, test hypotheses, and generalise findings across populations (Gelo, Braakmann, & Benetka, 2008). This approach is mainly suitable for the natural sciences as it also emphasises objectivity (Sogunro, 2002). In contrast, qualitative research is concerned with understanding the perspectives individuals or groups hold regarding social and human issues (Sogunro, 2002). This approach aims to gain in-depth insight into

participants' experiences, perspectives, and the context in which they occur (Gelo, Braakmann, & Benetka, 2008).

In the context of this study, qualitative research is appropriate as it enabled a comprehensive, in-depth exploration of teacher experiences and systemic challenges related to differentiated instruction in diverse classrooms. It also provided an opportunity for the participants to construct a shared understanding of their problems and ways on how to address them (Kerosuo, Kajamaa, & Engeström, 2010). This aligns with the aim of a qualitative approach of generating practical, context-specific insights rather than generalisable conclusions (Sogunro, 2002).

This research employed a CHAT-based interventionist approach (Engeström, 1987), the formative intervention, utilizing the Change Laboratory as a method to analyse contradictions and promote expansive learning within the activity system. CHAT shaped the methodological design of the study by influencing the choice of the Change Laboratory as an interventionist strategy. A formative intervention refers to a research approach used to question and support expansive learning and transformative agency within an activity system (Sannino, Engeström & Lemos, 2018). As described by Sannino, Engeström, and Lemos (2018, p.4) "Object-centered expansive learning and transformative agency are pursued through formative interventions by mobilizing procedures and analyses based on the epistemological principles of double stimulation and ascending from the abstract to the concrete." This means that the central goal of a formative intervention involves expansive learning and transformative agency. In the context of this study, teachers as participants worked together to address the challenge of implementing differentiated instruction. The process of a formative intervention involves the conceptual tools of the Change Laboratory: the double stimulation and ascending from abstract to concrete.

The principle of double stimulation is essential in an interventionist approach as it provides tools and models for participants to identify and address their challenges (Sannino & Engeström, 2018). As Sannino (2011) explains, "Vygotsky's principle of double stimulation (1978) refers to the mechanism with which human beings can intentionally break out of a conflicting situation and change their circumstances or solve difficult problems" (p.584). The first stimulus is the problem, while the second stimuli are artifacts that have been converted into signs and then used to gain control over the problem (Sannino, 2011). The Change Laboratories enabled the identification of tensions and contradictions within the activity system (Foot, 2014), which was the primary stimulus of the double stimulation which consists of the

problematic situation (Sannino, Engeström & Lemos, 2018). As demonstrated in the findings and discussion chapter of this study, these include teachers' limited understanding of differentiated instruction, lack of professional development, and overcrowded classrooms.

The second stimulus of the double stimulus in the context of this study refers to the theoretical and conceptual framework provided to assist teachers in transforming their activity system and these included the conceptualisation of inclusive education, differentiated instruction, inclusive practices and pedagogy, CHAT, and expansive Learning (Sannino, Engeström & Lemos, 2018). The Change Laboratory makes use of the expansive learning cycle to generate these understandings by questioning, analysing, modelling, examining, implementing, reflecting, and consolidating new practices (Foot, 2014). This method also makes use of CHAT concepts defined by (Engeström, 1987) such as tools, rules and norms, community, and division of labour as the second stimulus to analyse teachers' activities.

The principle of ascending from the abstract to the concrete is rooted in dialectical thinking (Sannino, Engeström, & Lemos, 2018), enabling participants to shift between general ideas and practical solutions that can be implemented for changes in their activity systems (Sannino & Engeström, 2018). This movement has four main characteristics identified by Sannino (2011, p.593) "... (a) practical transformation, change, and experimentation with(in) a problematic situation; (b) identification and modeling of a germ cell behind the problematic situation (initial abstraction); (c) testing the germ cell in its different material manifestations and possible variations; and (d) projecting a theoretically mastered solution to the initial problematic situation". This principle makes possible the reconceptualization of the object by facilitating the application of expansive learning. Both the principle of double stimulation and ascending from abstract to concrete play an essential role in assisting the participants shift from identifying problems to developing practical solutions.

They are operationalized by the formative intervention employed in this study, namely, the Laboratory Change Laboratory (Foot, 2014). The Change Laboratory provides a strong approach to facilitating transformative learning and change within communities of practice (Kerosuo, Kajamaa & Engeström, 2010). Drawing on the literature (Bal et al., 2021; Foot, 2014; Kerosuo, Kajamaa & Engeström, 2010), the Change Laboratory is commonly used to generate collective reflection and action plans, making it appropriate for this research since it promotes teacher collaboration in addressing challenges in implementing inclusive education.

This study facilitated changes through structured sessions that encouraged teachers to examine and refine their activity systems through collaborative problem-solving and reflection.

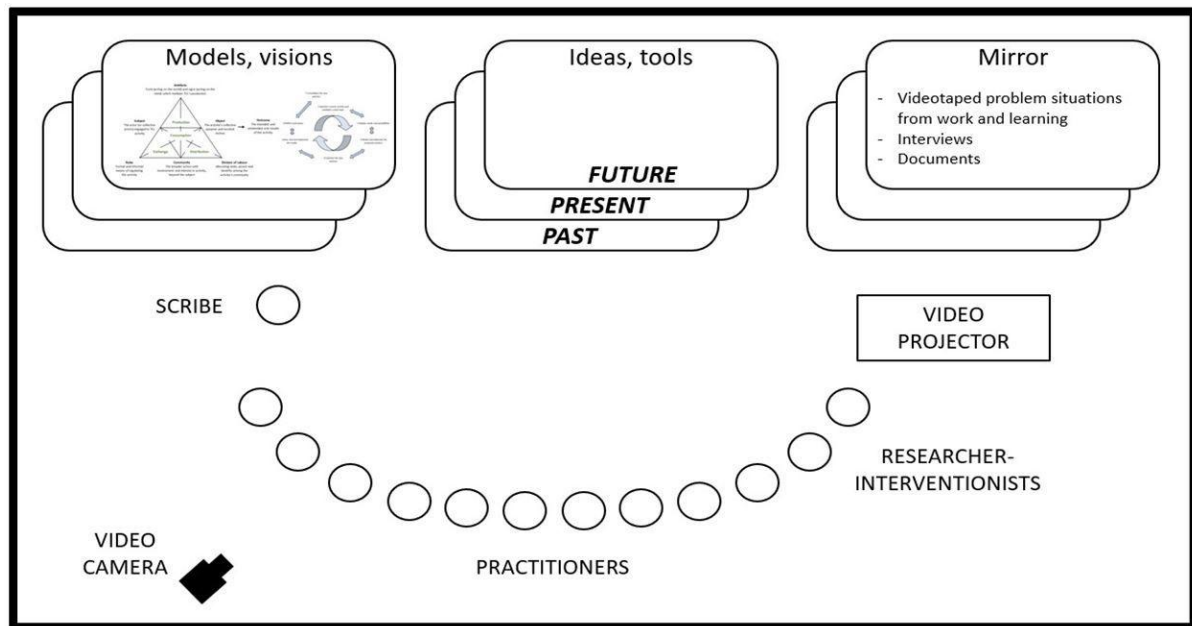


Figure 4: The Change Laboratory Setup

The Change Laboratory is a workshop that takes place in a room or shop floor to engage in work activities (Kerosuo, Kajamaa, & Engeström, 2010). The setup can be seen from Figure 4, above. In addition to a video camera for recording data generated during the Change Laboratory sessions, it employs three components in a wallboard's presentation, namely: the mirror, model/vision, and ideas and tools (Kerosuo, Kajamaa, & Engeström, 2010). The “mirror” board reflects data about daily work practices, which in this study, was able to enable the understanding of the challenges and practices related to teachers’ use of differentiated instruction. The “model/vision” board analysed the systemic qualities and interconnectedness within work activities, such as the activity system model to understand the contradictions. The “ideas and tools” board serve as a collaborative space for teachers to develop new concepts and tools aimed at addressing the diverse needs of learners through differentiated instruction. This process enabled teachers to collectively analyze historical and present activity systems, envision the future models, and implement innovative differentiation instructional methods/strategies.

“Change Laboratory constitutes a research-assisted environment of change in which participants can re-design their work activity and organization by creating new models, tools, and practices with the aid of researcher-interventionists” (Kerosuo, Kajamaa, and Engeström,

2010, p.112). This method is a practical intervention used to support teachers in developing their understanding and application of differentiated instruction. In addition, the Change Laboratory is a way of implementing the expansive learning process to address a problem or challenges. The process of expansive learning involves mutual learning where new collective objects of activity are created through collaboratively solving contradictions and mobilizing the available social and cultural resources in an activity (Kerosuo, Kajamaa, & Engeström, 2010; Bal et al., 2021). These CHAT- based tools were essential for this study and for developing the teachers' capacity for promoting the learning of all learners through the successful implementation of differentiated instruction. It is hoped that this will, in turn, change learners' experiences more positively, and hence change the world through those learners (Adebisi, 2024).

3.3.2 Research Setting

This study was conducted in two schools, one full-service primary school and one private secondary school in the Gauteng province, Johannesburg. The primary school is a full-service school which can be described by Conway, (2017, p.2) as explained here “Full-service schools are mainstream education institutions providing quality education to all learners by meeting the full range of learner needs”. In the South African context, these are government schools and should respond to the diversity of learners which is a key principle of differentiated instruction (Conway, 2017). On the other hand, the other school is a private school which refers to educational institutions operating independently of government usually considered to provide more individualized attention and personalized instruction for learners as compared to government schools in the context of South Africa (Peterson & Llaudet, 2006).

The schools selected offered a diverse range of research participation, they included a full-service primary school where semi-structured interviews, non-participant observations, and the Change Laboratory sessions took place and a private secondary school where only semi-structured interviews and non-participant observations took place. The decision to conduct the Change Laboratory only in a full-service school rather than in a private school, was motivated by several factors, including resource allocation and the unique challenges faced by teachers in full-service schools. Compared to private schools, public schools often operate with limited resources with a more diverse learner population (Peterson & Llaudet, 2020). This includes a limitation in instructional material and large classroom sizes (Mokhampanyane, 2024 and Taole, 2020). Developing practical solutions that can be implemented even in resource-constrained environments is beneficial for the implementation of inclusive education. In this

study, the Change Laboratory assisted in bridging the gap by providing teachers with the tools and collaborative opportunities to develop and refine their teaching differentiated instruction strategies.

Both school types were selected to provide the understanding of differentiated instruction in diverse educational settings. The full-service primary school was chosen for the Change Laboratory intervention due to the school being intended to encourage inclusive education and support learners with diverse learning needs. This characteristic made the full-service school a suitable and meaningful context for exploring and testing interventions aimed at enhancing differentiated instruction. Although the private secondary school was not selected for the intervention, it was primarily selected to enrich the study's understanding of differentiated instruction in a different context.

Furthermore, educational policy frameworks and legislation such as the Salamanca Statement and Framework for Action on Special Needs Education (1994), WP6 (2001), and SIAS (2014) specifically aims at improving full-service education systems to achieve greater equity and inclusion. Therefore, aligning the Change Laboratory with the policies seeks to support the governmental efforts to enhance full-service schools.

3.3.3 Sampling

Purposive sampling, sometimes referred to as judgmental or selective sampling, is a non-probability technique where researchers intentionally select participants based on certain features or criteria relevant to the research subject (Nyimbili & Nyimbili, 2024). As such, this study employed purposive sampling for both schools, a full-service primary school and the private secondary school and the participants. I selected two schools that were accessible to me, and participants were purposely chosen to enhance the reliability and trustworthiness of the findings (Nyimbili & Nyimbili, 2024). The sample consisted of approximately eight teachers, representing various subjects and grades. With five teachers from a full-service primary school and three teachers from a private secondary school, the selection ensured a combination of novice and experienced teachers to provide a comprehensive view of differentiated instruction challenges and practices. The aim was to select teachers who are most likely to provide relevant and insightful data for the study. Teachers selected are those who have direct involvement in classroom teaching with an interest in improving their differentiated instruction practices. The principal was asked to identify such teachers and teachers themselves then volunteered to take part in the research.

As can be seen from Table 1, below, while the study included eight participants from two school types, only seven participated in the interviews. Of these, four were from a full-service primary school, and three from a private secondary school. Participants included teachers who were engaged in teaching. Only three of the eight teachers taught only one subject. Despite this, they taught at various grades. The other teachers taught various subjects and grades. This represents the amount of responsibility that teachers have when it comes to teaching, especially in many grades with diverse learners and learning needs. The majority of the teachers had teaching experience of more than five years. This was significant because the teachers were already familiar with the working environment. However, there were teachers with very little experience of no more than 2 years. The school types were also important because the full-service school is intended to promote inclusive practices for learners who face a variety of barriers to learning, while the private secondary school has slightly better resources but still faces challenges in addressing learner diversity. All this diversity generated varied perspectives on the implementation of differentiated instruction.

Pseudonym	Institution Type	Teaching Experience	Grades taught	Subject taught	Participation in Research Methods
Mr Thibela	Full-Service School	29 years	Grade 4 and 5	Mathematics	Interviews Observations Change Laboratory
Ms Mawila	Full-Service School	1 year	Grade 4, 5, 6, and 7	English HL Life Skills Life Orientation	Interviews Observations Change Laboratory
Ms Ndlovu	Full-Service School	6 years	Grade 4, 5, and 6	English HL	Interviews Observations Change Laboratory

Ms Mabodi	Full-Service School	4 years	Grade 4 and 7	Natural Sciences Tshivenda Mathematics	Interviews Observations Change Laboratory
Mrs Mathebula	Full-Service School	2 years	Grade 4, 5 and 6	English HL	Change Laboratory
Mr Smith	Private School	15 years	Grade 4-6 and 8-12	Natural Sciences Technology Mathematics Economics	Interviews Observations
Mr Scofield	Private School	7 years	Grade 10-12	Physical Sciences, Tourism and English HL	Interviews Observations
Ms Dlamini	Private School	5 years	Grade 10-12	Life Sciences Geography	Interviews Observations

Table 1: Teachers' Demographic and Background

3.3.4 Data Generation Methods

For a thorough generation of data, this research adopted various methods to ensure a rich triangulated understanding of the research problem. As established in earlier studies, triangulation involves the use of several data sources and methodologies to verify conclusion (Adebisi, 2014; Engelbrecht, 2020; Goodnough, 2018; Taole, 2020). In this research, the data was collected through semi-structured interviews, non-participant observations and the Change Laboratory sessions.

Semi-structured interviews refer to a qualitative research method which involves verbal interchange where the interviewer probe for information from the other person by asking open-ended questions using pre-determined questions (Longhurst, 2003). This allows the interviewer

to explore specific topics in depth while adapting to the flow of the conversation (Longhurst, 2003). In this research, these were conducted with seven teachers from two different research sites, a full-service school and a private school. The semi-structured interviews supported this research by allowing for deeper insights into the teacher's individualised experiences and understanding regarding differentiated instruction. Additionally, they were to understand teachers' perspectives and challenges in implementing differentiated instruction for inclusive education. The semi-structured interviews explored teachers' perceptions, experiences, and reflections on differentiated instruction designed to probe deeper into the themes emerging from the interviews. These enabled the identification of themes such as barriers and challenges in the implementation of differentiated instruction and the conceptualisation of differentiated instruction. Moreover, these were recorded and transcribed, capturing rich qualitative data for analysis.

This study also included non-participant observation at both research sites with four teachers from a full-service primary school and three from the private secondary school. Defined by Ciesielska, Bostrom, and Ohlander, (2018, p.40) 'A non-participant observer observes without any involvement into human interaction in the field'. This is to ensure that the researcher does not as far as personally influence any of the interactions and activities taking place. The observations were conducted to observe the teachers' practices with regards to inclusive education. Through these, themes such as observable challenges such as resource limitations and practical knowledge were identified. Non-participant observation enhanced the robustness of this data collection, fostering a comprehensive view of the challenges and possibilities for differentiated instruction within the complex realities of South African classrooms. The main purpose of the semi-structured interviews and the non-participant observation was to generate mirror data for the Change Laboratories.

As outlined in the theoretical framework, Change Laboratory sessions (Foot, 2014, Kerosuo, Kajamma, & Engeström, 2010), served as a key method providing a collaborative environment where teachers discuss and address challenges, they face in implementing differentiated instruction. I conducted three Change Laboratory sessions with five teachers from a full-service primary school who are directly involved in classroom teaching and interested in improving their differentiated instruction. These sessions were video recorded and transcribed, capturing rich qualitative data for analysis. The Change Laboratory employed in this research used data collected and generated from semi-structured interviews and non-participant observations as

mirror data about teachers' perspectives and practices to develop teachers understanding and practices of inclusive education.

The above selected instruments were carefully selected to align with the main aim of this study which is to explore and encourage the implementation of differentiated instruction through an interventionist strategy informed by CHAT. Each of the instruments played a significant role in providing data to achieve this aim. The semi-structured interviews and non-participant observations both at the full-service school and the private school contributed to understanding the current practices, challenges, and opportunities related to differentiated instruction. The semi-structured interviews captured the teachers' individual perspectives and experiences, while the non-participant observations provided direct evidence of the realities and practices of classrooms. As stated in the above, these also formed part of the mirror data for the Change Laboratory sessions.

The Change Laboratory sessions were conducted at the full-service school and functioned as an interventionist tool. These sessions provided a collaborative space for teachers to reflect on their existing classroom practices, identify challenges, and collaboratively co-construct strategies for implementing differentiated instruction. These sessions directly supported the study's aim of expanding teachers' understanding and capacity of employing differentiated with the aid of a Change Laboratory intervention.

3.3.5 Data Analysis Methods

For data analysis in this study, no qualitative data analysis software was used. To make sense of the data, the analysis was done manually through a thematic analysis using both deductive and inductive processes. CHAT as a theoretical framework informed the deductive coding highlighting the elements of the activity system such as tools, rules, community, division of labour, and contradictions. On the other hand, the inductive coding enabled themes to emerge directly from the data. This allowed the identification of patterns, key ideas, and challenges expressed by the participants. These codes were then organised into broader categories, which were reviewed, refined, and developed into themes that addressed the research questions. The process was repeated several times, as I double-checked the data, the transcripts I wrote, and the CHAT framework to ensure that the analysis made sense and was thorough.

The semi-structured interviews were analysed thematically to identify recurring patterns and themes that shed light on teachers' perspectives and experiences related to differentiation instruction. This approach is well-suited for capturing the complexity of teacher perspectives and is supported by the iterative nature of qualitative analysis, allowing for flexibility in exploring emerging insights related to differentiation practices.

Informed by CHAT's principles of contradictions as a source of change (Foot, 2014) and the expansive learning cycle (Kerosuo, Kajamaa, & Engeström, 2010) as a framework, the data analysis took a thematic approach, which helped identify tensions and growth opportunities within the educational activity system. Through the Change Laboratory, these data are analysed and developed further by examining instances where contradictions arise, as these points reflect barriers and opportunities for change within the activity system. Thus, as outlined by Engeström, 1987), the subject, object, tools, community, rules, and division of labour are the elements of the CHAT framework that are the focus of the initial thematic analysis in this research. The identification of contradictions and tensions, which are essential in processes of expansive learning and development, also receive particular attention during the Change Laboratory component of the research (Foot, 2014; Kerosuo, Kajamaa, Engeström, 2010; Bal et al., 2021; Engeström 2011). This aligns with the CHAT methodology, which emphasizes examining contradictions as a source of developmental change in educational practices (Foot, 2014).

3.3.6 Ethical Considerations

Ensuring ethical thoroughness is extremely important in educational research (Donohue & Bornman, 2014; Onyishi & Sefotho, 2020; Raveaud, 2005; Taole, 2020). This research involved human participants hence the essentiality of considering ethical considerations. Therefore, the study follows an ethical criterion to assure the safety and respect of all participants. The research underwent the application of ethics clearance from the University of Witwatersrand and the Gauteng of Education Department (GDE) Research Request and got approved permission from the schools' principals to access and conduct research at the premises of the school before conducting the actual research. Previous research (Taole, 2020; Engelbrecht, 2020; Onyishi & Sefotho, 2020) offers extensive guidance for ethical considerations, such as obtaining informed consent, maintaining confidentiality, and protecting participants' rights. An informed consent refers to the process by which a participant consents

to participate in a research project after being fully knowledgeable about the study's objectives, methods, risks, rewards, and rights (Cropley, 2022).

This research ensured that participants are provided with a participation information sheet which provided essential information about the study and obtain their consent to participate, ensuring they understand the research goal, procedures, and their rights. Since the participants were teachers and familiar with research processes, this method was appropriate to ensure they were informed. The study also sought to protect the participants' privacy and confidentiality as far as possible during the study. Confidentiality in research is the process of protecting participants' privacy by ensuring that their personal information and replies are not revealed to unauthorized parties (Wiles et al., 2008). While the researcher may know the participants' identities, confidentiality ensures that this information is not shared and that the data is handled in a way that respects the participants' privacy (Wiles et al., 2008).

On the other hand, anonymity in research refers to researchers not disclosing identifiable information about participants and attempting to shield their identities through various anonymization techniques (Wiles et al., 2008). In this research, as the researcher, I used pseudonyms instead of the participants' names. The semi-structured interviews and the non-participant observations were strictly anonymous as the participants' identities were not in any way disclosed in the findings and reporting. However, the anonymity did not apply for participants involved in the Change Laboratory sessions due to the collaborative nature of these sessions. Participants are required to come together and engage in group discussions and their identities are known amongst themselves and the researcher. However, in this study participants were encouraged to maintain confidentiality by refraining from sharing or disclosing any information or discussions that took place during the sessions outside of the research context. This ensured a safe and respectful environment for open and constructive collaboration. However, while participants were assured that the data generated through the research would be securely saved and only accessible by me, they were made aware that participation was fully voluntary, and participants were allowed to withdraw from the study at any moment with no consequences.

3.3.7 Limitations of the study

This study has possible limitations. Because the study focuses on two schools (full-service school and a private school), which were selected based on my convenience in terms of the location and the schools' willingness to participate, the findings may not reflect the broader

diversity of South African schools. A purposefully selected sample of eight teachers was employed. Teachers that volunteered for the study may have had a prior interest in differentiated instruction, which could have influenced the results. The teachers' prior experience with the concept may have led to more positive attitudes or higher levels of participation during the Change Laboratory sessions, potentially biasing the data. This limitation implies that the findings may not fully capture the challenges and perspectives of teachers who are less familiar with or supportive of differentiated instruction.

Change Laboratory sessions are time-consuming and resource-intensive, which limits the number of participants or schools involved. This limitation made it difficult to schedule sessions that fit into the teachers' already busy schedules. The sessions' time-consuming nature may further limit their feasibility for further implementation, as schools with strong demands or resource constraints may struggle with finding the required time.

3.3.8 Trustworthiness and Validity

For thorough collection of data, this research adopted various methods to ensure a rich triangulated understanding of the research problem. The study adopted semi-structured interviews, non-participants observations, and Change Laboratory sessions as research methods. As established in earlier studies, triangulation involves the use of several data sources and methodologies to produce a more comprehensive set of findings (Adebisi, 2024; Engelbrecht, 2020; Goodnough, 2018; Taole, 2020). The incorporation of multiple methods enhances the credibility, validity and depth of research (Heale & Forbes, 2013). Credibility refers to the reliability and convincing nature of the research findings (Noble & Smith, 2014). To ensure credibility, triangulating data helped in exploring the teachers' experiences through multiple angles and to corroborate findings, reduces biases, and provides a deeper understanding of the phenomenon being explored (Heale & Forbes, 2013). In this context the phenomenon being teachers' implementation of differentiated instruction.

Additionally, Validity refers to "The precision in which the findings accurately reflect the data" (Noble and Smith, 2015, p.3). In the context of this study, validity focused on the consistency and the authenticity of teachers' experiences and meanings. One key aspect of credible research is ensuring that the findings accurately represent the participants' perspectives. This was achieved using member checking and triangulation as mentioned above. Member checking is a technique used in qualitative research to improve accuracy, credibility, and validity of data

and results (Noble & Smith, 2015). It entails returning the data, findings, or interpretations to the people from whom they were initially obtained (Motulsky, 2021). Member checking refers to a method employed in qualitative research to ensure the correctness and trustworthiness of the findings (Noble & Smith, 2015). It is used to verify that the interpretations and conclusions are accurate reflections of the participants' experiences and perspectives. Ensuring credibility was particularly important to authentically present the teachers' voices in exploring the implementation of differentiated instruction.

3.4 Conclusion

In summary, this chapter has outlined the philosophical underpinnings, research methodology, data collection, and analysis methods, ethical consideration for this study on implementing differentiated instruction in South African schools. Through CHAT and Change Laboratory sessions, this study leveraged a collaborative, interventionist approach to foster teacher reflection and change in inclusive education practices. The next chapter presents and analyses the findings from the data collected in these sessions, interviews and observations, highlighting key insights and implications for differentiated instruction.

CHAPTER 4:

FINDINGS AND DISCUSSION

4.1 Introduction

This chapter simultaneously presents the findings and discussion of the research report, which explored the implementation of differentiated instruction by teachers within the context of inclusive education. The research aimed to develop teachers' understanding of, and capacity to apply differentiation instruction strategies within the context of South African schools. The findings are structured to address the research's key objectives, namely: (1) evaluating the current level of comprehension and utilization of differentiated instruction among teachers in school and classroom activity system, (2), using a CHAT-based interventionist approach, named as the Change Laboratory, for enhancing teachers' proficiency in differentiated instruction by creating and assessing new differentiated instruction strategies specifically designed for the teachers' school environment.

As explained in the methodology chapter, the Change Laboratory, grounded in CHAT, is a research-interventionist approach designed to address systemic challenges and promote transformative learning (Engeström, 1987). The findings were analysed through the expansive learning cycle which is defined as a process of shared learning where individuals work together to create solutions to their identified challenges in their activity system (Foot, 2014). The Change Laboratory is implemented and shaped by the expansive learning cycle (Foot, 2014). In the context of this study, the Change Laboratory sessions served as a collaborative platform for teachers to engage in critical reflection and envision strategies for implementing differentiated instruction. The process of the expansive learning cycle was used to identify problems (often in the form of contradictions), analyse the problems using CHAT- based concepts and the participants' knowledge, and then attempt to collaboratively model solutions based on the participants' ideas.

The findings of this research clearly show the data generated from semi-structured interviews, non-participants observations, and Change Laboratory sessions. These multiple sources enabled a holistic understanding of the implementation of differentiated instruction. The findings were generated from both the research sites (full-service school and the private school) although only the teachers from the first research site (full-service school) participated in the Change Laboratory sessions. To reiterate, only one school participated in the Change

Laboratory, given the extensive time needed to complete the Change Laboratory. The Change Laboratory's mirror data incorporated findings from the second research site that is comparable, applicable, and relevant to the first research site. This was done to provide a broader perspective and expand the robustness of the mirror data before conducting the Change Laboratory.

The semi-structured interviews aimed to gather teachers' insights, experiences, and challenges with implementing differentiated instruction for inclusive education. The interviews explored teachers' perspectives and reflections to gain a deeper understanding of the themes related to differentiated instruction. The non-participant observations present classroom practices, and lastly, the Change Laboratory sessions generated data about how inclusive and differentiated strategies were developed from collaborative sessions with teachers. The data collected and generated from first two sources- semi-structured interviews and non-participants observations served as a mirror data for the third-Change Laboratory sessions to develop teachers' understanding and practices of differentiated instruction and inclusive education.

Major broad categories emerged from the individual interviews, non-participant observations, and the Change Laboratory sessions. These are: Teachers' Understanding and Practices of Differentiated Instruction; Barriers and Challenges to Differentiated Instruction; Collaborative and Professional Development Efforts. The findings are not presented in isolation due to the discussion integrating existing literature and theoretical perspectives to provide a comprehensive analysis of the factors that influence teachers' ability to differentiate instruction effectively.

4.2 Identifying challenges - questioning and analysis phase

This research conducted three Change Laboratory sessions which took place over a period of several weeks. Each Change Laboratory session addressed two phases of the expansive Learning Cycle due to time constraints. The first Change Laboratory focused on the first phases of an expansive learning cycle: the questioning and analysing phase. These first phases helped in identifying contradictions within an activity system which according to literature leads to the foundation of developing new solutions for the identified problems (Engeström, 1987). The questioning and analysing phase included findings from the mirror data which incorporated those from the semi-structured interviews and the non-participant observations in both research sites. The mirror data was used to gain insight into how teachers understood differentiated

instruction and to identify the problems related to the implementation of differentiated instruction.

4.2.1 Teachers' understanding of Differentiated Instruction

From the findings, specifically the individual interviews it was revealed that teachers held a limited understanding of what is conceptualised as differentiated instruction. This is evident from the interviews, where teachers were asked about their understanding and application of DI. They expressed their challenges with inadequate professional development, overcrowded classrooms and limited resources. Additionally, their narrow understanding about DI may have contributed to a flawed understanding of its application. The factors identified by teachers hindered their ability to have a thorough understanding of DI and apply its strategies within their classrooms. The approach of differentiated instruction is an inclusive one that acknowledges learner diversity and aims to maximise the participation of learners through careful alignment of the learning environment and tasks with the specific needs of learners (Hall, 2002). According to the literature, differentiation instruction is conceptualised as a learner-centred approach that values and responds to learner differences (Tomlinson, 2001). This means that learners learn differently and require different support to achieve learning. Notwithstanding teachers' limited understanding of differentiated instruction, the findings collectively highlight that the teachers were aware of certain essential aspects of differentiated instruction, such as recognizing the diversity of learners and the adaptation of teaching methods.

In his explanation below, Mr Smith acknowledges the importance of learner diversity and the use of different teaching methods in learning which are crucial in differentiated instruction. However, his understanding does not account for all the characteristics of differentiated instruction which results in a limited understanding of the concept. The failure to consider all aspects could have been because he was not aware that he had to account for all and expressed his individual understanding of the approach. When asked to explain it, he had the following to say:

It's that type of instruction where the educator identifies different learners with different levels of understanding and applies different methods of teaching so that these learners can be accommodated in the teaching and learning process (Mr Smith, Individual Interview, Research site 2).

A similar view was expressed by Mr Smith, Ms Ndlovu, and Ms Mawila, articulating their awareness of key aspects of differentiated instruction such as, the diversity of learners, and how crucial it is for teachers to therefore, acknowledge and take into consideration the differences of learners when teaching.

To differentiate the instruction, when I give the learners the instruction, they are not the same, which means I have to use different kinds of teaching and learning so that I can reach them at their level. If I use the instruction for those who are capable of doing everything, I'm not being fair. I have to think about those who don't (Ms Ndlovu, Individual Interview, Research Site 1).

It's when you are able to recognize and identify that learners are not the same, and then you come up with strategies to meet their needs because they learn differently. So, you need to cater to all of them using different techniques (Ms Mawila, Individual Interview, Research Site 1).

While Mr Thibela notes the different needs of learners below, he furthermore shares that it is also important to understand the diverse background of learners.

In my own words, I describe that concept as a way to cater to every learner's needs, understanding their background and their level of understanding so that, by that time, you can approach them because you already have a little background of where they're coming from (Mr Thibela, Individual Interview, Research Site 1).

Scholars, including Hall (2002), Subban (2006), and Tomlinson (2001), argue that understanding the background of learners is crucial in differentiated instruction as it enables teachers to create inclusive classroom environments that acknowledges and embrace the unique experiences of learners. Teachers must take into consideration contextual factors such as cultural or socio-economic influences in their teaching and learning (Subban, 2006). Within the framework of CHAT, teachers served as subjects in the activity system and aimed to effectively implement DI (Object) to meet the educational diverse needs of their learners. However, to achieve this effectively depends on their understanding of the learners' backgrounds and their prior knowledge. Additionally, to differentiate instruction, teachers employ multiple tools, including cultural knowledge and teaching strategies. The lack of

knowledge about learners' background on the part of teachers may affect their ability to select the appropriate tools, resulting in ineffective differentiation.

From the ongoing perspectives from teachers' individual interviews, it is highlighted that teachers recognize learners' differences and their importance in learning and teaching. This is evidenced by earlier expressions by Mr Smith, Ms Ndlovu, Ms Mawila, and Mr Thibela which suggest they understood that differentiated instruction implies accounting for the learners' diverse needs. However, their understanding as reflected in their expressions also reveals certain limitations. These limitations include a lack of strategies for implementation, and that they focus solely on their roles as teachers, not highlighting the need to empower learners to also take an active role in the learning process. This introduces a contradiction in the activity system of inclusive teaching between the teachers as subject and learners as part of the division of labour. Learners constitute part of the division of labour, thus, have a responsibility to take part in their learning and teaching process. However, the limited understanding of teachers limits the learners' agency in the process of effectively implementing differentiated instruction. Teachers should therefore see learners as active partners in the process of learning and teaching.

As pointed out in the literature, differentiated instruction encourages learners to take an active role in their learning process but this is not reflected from the views shared by Mr Thibela, Mr Smith, Ms Ndlovu and Ms Mawila. The acknowledgement of learners as active agents agrees with the principles of inclusive education (Hall, 2002; Bhat, 2023). In an inclusive classroom, differentiated instruction is employed by teachers through instances such as peer learning, project work and other adjustments to teaching methods which accommodate the diverse needs of learners (Bhat, 2023). Such inclusive education strategies have shown to improve the active participation of learners (Bhat, 2023). The participation of learners deepens learning and provides a foundation for their progress (Letzel-Alt & Pozas, 2023).

Assessment is crucial in differentiated instruction, as it is used as a tool to monitor the effectiveness of its implementation which is linked to instruction (Letzel-Alt & Pozas, 2023). In earlier expressions by the teachers, the aspect of assessment was not mentioned in their comprehension of differentiated instruction. As explained in the literature review, a sophisticated understanding of differentiated instruction is one that differentiates content, process, product, and the learning environment (Tomlinson, 2017). The element of 'product' is linked to assessment as it highlights how learners demonstrate learning in different ways (Hall, 2002). It is argued by policy that in differentiated instruction, varied assessment is

crucial to the learning and teaching process. (DoE, 2014). This is corroborated by DoE (2011), by highlighting the need for diverse DI assessments to accommodate diverse learner needs. The importance of assessment in differentiated instruction aligns with the model by Tomlinson (2017) on how to address the needs of all learners through the modification of the four aspects in correspondence to the learners' readiness, interests and learning profiles. For teachers to show a sophisticated or sufficient understanding of the inclusive approach, they must demonstrate knowledge of differentiated instruction using all the aspects of Tomlinson's model.

From a CHAT perspective, the limited understanding demonstrated by teachers, creates contradictions between the tools, division of labour, and object, to mention a few, in the activity system. Understanding is crucial for the implementation of differentiated instruction as an activity since limitations in this regard give rise to problems in the activity system which then calls for transformation within the system. For instance, tools, in the context of this study as briefly mentioned earlier, refer to the assessments, resources, curriculum, teaching strategies, and other material and conceptual resources used for pursuing the object of the activity. The object in this case refers to the effective implementation of differentiated instruction. The contradiction arose when the tools obstructed rather than facilitated differentiated instruction because of the limited understanding of teachers.

The effective implementation of differentiated instruction depends on varied instructional methods due to its principle of adapting teaching to meet the diverse needs, interests, and abilities of learners (Petrina, 2007). Varied instructional methods in the context of this research report refer to different teaching methods employed by teachers to accommodate the diverse learning needs of learners (Patel, 2020). Employing different teaching methods is essential in implementing differentiated instruction. During the non-participant observations, the classrooms I observed employed a singular way of teaching. The teachers mainly taught in a traditional sense which promote rote learning using what Freire (1996) calls the banking approach where some used the board to write notes, others relied on a textbook to directly relay the information to the learners verbally. Consequently, this results in learners becoming passive recipients instead of active participants in their learning furthermore restricting their role as members of the division of labour. Moreover, this type of teaching does not account for the diversity of learners in learning. Rather, it goes against the principles of inclusive education

because it is exclusionary, catering for some learners while others are being excluded from receiving an equitable education.

The use of a lecture-based instruction where teachers structurally deliver content to learners in a verbal format, and learners typically listen, take notes, and asking questions is insufficient for diverse learners (Patel, 2020). This is furthermore supported by Patel (2020, p.2) in that “...a single instructional method cannot meet the requirements of every learner at the same time because of the individual differences”. The use of a single instructional methods marginalises learners whose learning styles and capitals do not align with the dominant instructional methods. For instance, some learners would benefit more from hands on activities or verbal explanations. As a result, teachers need to develop the capacity to not only use a single instructional method but should be comfortable using a variety of instructional methods to match the learners’ learning needs, styles, interests, and abilities (Petrina, 2007). In the expansive learning cycle, teachers engaged in a collaborative process that enabled them to recognise their limitations in their current practices (such as relying heavily on single teaching methods) but also experiment with co-constructed strategies, thus, improving their teaching practices.

When asked about the inclusive instructional methods or strategies they use to cater to the diverse learning needs of their learners, the findings revealed that most of the teachers cited their use of the method of group work. Mr Smith shared “*I think the method I thought is applicable is the method where the learners are given the opportunity to study in a group and ask questions when necessary*” (Individual Interview, Research Site 2).

Mr Thibela emphasised that “*Normally, what I do is I try to group them, like to divide them into groups, just to say, OK, these ones really need support, these ones are average, and these ones are at least good. That way, it becomes simpler for me to know where to put more emphasis*” (Individual Interview, Research Site 1).

Building on the insights shared by the teachers above, it becomes clear that their expression highlights a flawed understanding of the implementing of diverse strategies. This is because their understanding of group work produces rigid ability grouping which could results in lower expectations for learners experiencing challenges in learning, thus, making it unsuitable for differentiated instruction. Furthermore, it reduces the opportunity for learners to learn from one another. According to the literature, group work is a learner centered method in which

learners are grouped in small groups and encouraged to learn alongside one another (Patel, 2020). Although the method of group work is important, it is crucial for teachers to be aware and acknowledge that it might not work for certain learners. Group work must be intentional for them to be effective as it can also be used to exclude certain groups of learners. This was evident in the Change Laboratory sessions where teachers revealed that learners usually group themselves according to their abilities leaving those who need support on their own. This does not depict the atmosphere of an inclusive classroom. In an inclusive classroom, all learners must feel safe and be encouraged to participate fully in the classroom (Bhat, 2023). Scholars, including, (Bhat, 2023; Tomlinson, 2001) posits that an inclusive environment promotes active participation and fosters a sense of belonging. Creating an inclusive environment is beneficial to the holistic development of learners and a crucial element of the implementation of differentiated instruction (Bhat, 2023; Hall, 2002), therefore, teachers as key players in creating inclusive environments must ensure inclusivity within their classrooms (Leiflier, 2020).

Contrary to the focus on group work, Ms Mawila elaborated on her teaching methods by explaining:

Whenever I deliver lessons, for learners who struggle with reading or understanding a text, I usually break it down into short sections to help them understand. For others who cannot comprehend or respond to the text, I use visual aids” (Ms Mawila, Change Laboratory 2).

The above insight shows that Ms Mawila employs different instructional methods to support learners with different needs. Breaking down information is an appropriate strategy for differentiated instruction, and the use of varied instructional methods is important for the effective implementation of differentiated instruction. In the context of this study, breaking down information into smaller parts aligns with Vygotsky’s concept of scaffolding as teachers provide a guided support until learners are able to grasp the whole information. Through a CHAT perspective, providing learners with smaller, and manageable information enables teachers to provide a mediating tool that support learners in their learning process, particularly, in diverse classrooms where there are different levels of readiness.

While Mr. Thibela highlights the methods of group work, he also uses language that is exclusionary in inclusive education when he refers to them as ones who “really need support”, “average” and “least good”. The labelling of learners is a discriminatory act and often leads to

the stigmatisation and marginalisation of some learners (Slee, 2018). Furthermore, it creates low expectations of learners (Slee, 2018). This is evidenced in the findings where teachers were using exclusionary language to describe certain learners. For instance, Ms Mawila described a learner who experiences learning challenges as a ‘highly gifted underachiever.’ She referred to the learner as ‘highly gifted’ twice which may be the language that she is accustomed to on a daily basis. She further outlined the challenges that comes with teaching such a learner, particularly when lack of parental involvement is concerned. The solution that Ms Mawila suggested is for the learner to be moved to a special school.

The placement of learners in special education schools as a result of their learning challenges highlight a medical model’s perspective where learners are placed based on perceived deficit. This is what scholars such as Slee (2018) and Oliver & Barnes (2010) amongst others argue against as it segregates learners from learning alongside their peers. It is further argued that it is beneficial for all learners to learn together to promote a sense of belonging, develop social skills, and challenge the stigma of disability (Slee, 2018). The intervention of Change Laboratory in this study provides a collaborative space for teachers to reflect and refine their practices, potentially, enhancing a deeper understanding of how DI can be used to meet the diverse needs of all learners. The above perspectives can be evidenced below in a discussion from one of the Change Laboratory sessions.

The excerpt below encourages teachers to make use of what is already available to them to meet the varied needs of learners. Regrettably, it also reveals teachers’ use of exclusionary language towards learners. Additionally, the excerpt reveals the importance of supporting teachers in realising the goals of inclusive education. In this context, Mr. Thibela and Ms Mawila expressed their feeling of not being supported, particularly, by the parents and the government. The following excerpt illustrates the discussion during the session:

Excerpt from Change Laboratory 1:

Mr Thibela

The only way would be to individualize support, which we don’t have time for.

Ms Mawila

Yes, but we do try.

Researcher

How do you try? I want that. How? Because already, it's the reality. Yes, there are overcrowded classrooms, and it's challenging to implement differentiated instruction, which is individualized learning. What is it that teachers are doing with what they have?

Mr Thibela

Ma'am, here's a scenario. I have identified a learner in my class, and this learner is a highly gifted underachiever. They can't perform, but I try to create one-on-one meetings with the child to say, 'How about you do this work?' And at the same time, parental involvement comes in. This learner lacks discipline. They go home, sit down, and whether they read or not, they need that push, that motivation from the parent. The parent isn't there, not that they're absent, but they don't care. To the parents, education is not that important. The teachers will deal with it. And so, you give them homework, and the parents might call you and say, 'I'm not their teacher, I'm paying transport, school fees, lunch money, that's your job.' And as a teacher, you're trying to give that learner supportive work. So, we're trying already.

Researcher

So it's more challenging when parents are not involved?

Participants

Yes.

Researcher

If all the responsibility falls on you as a teacher, it becomes challenging.

Ms Mawila

I think also, when it comes to parental involvement, the department is not doing their best. Remember the learner who is highly gifted, the one I was talking about, this learner can't write their name. When you call the parents and explain that this type of learner needs to be in a different school where they can apply practical work, the parent, because of society and stigma, often denies it and insists that their learner should stay in mainstream

school, which is quite difficult. So, I think the department should educate parents that special schools are not different from other schools; they cater for such learners. Then it wouldn't be difficult. Another challenge is that we complete all the forms, apply for placement for such learners, and then go to the department, and they tell us that there's a waiting list and no space. They need to expand their infrastructure, I don't know how, to cater for such learners and educate the parents.

As we can see from the above excerpt, teachers expressed challenges they encounter in putting into practice DI. Teachers further continued to express their frustrations with the barriers hindering their effective implementation of DI. Among the challenges are lack of individualised support (not enough time), lack of parental involvement, and deficit views of learners' ability (labelling and needing special education). According to Slee (2018), language is a powerful instrument that can be used to reinforce exclusion and the marginalisation of learners. As a result, he proposed re-righting the language of inclusion. Teachers must do away with discriminatory language as it has the power to shape their perception and expectations of learners. Learners should not be categorised into groups as they all have equal right (Slee, 2018). This highlights the need to see all children as normal and that there is no single way of learning. It is important to acknowledge the differences of learners and work of supporting them instead of comparing them with their peers.

Within the questioning and analysing phases and from the mirror data generated through the individual interviews, teachers had a limited understanding of differentiated instruction. The teachers' limited understanding further showed in the first Change Laboratory where teachers continued to express some of the challenges that they were experiencing when implementing differentiated instruction. Below are some of the expressions:

Under limited time constraints, we have learners with challenges. We must provide differentiated instruction and allocate extra time for them, which can deprive other learners. It becomes difficult because we are racing against the ATP while trying to support children with challenges" (Ms Mawila, Change Laboratory 1).

"When teaching, we are expected to give certain learners extra support during lessons. This is quite challenging because we have to manage the needs of two different groups of learners in the same classroom" (Ms Mathebula, Change Laboratory 1).

During the first Change Laboratory session, teachers acknowledged the importance of differentiated instruction and the need for it as articulated by Ms Mawila and other teachers during the sessions. However, they highlighted some of the challenges making it difficult for them to do so. This reflects a contradiction within the activity system that lies between different elements and therefore considered a secondary contradiction as explained in the theoretical framework. The contradiction arises between the object (implementation of differentiated instruction) and the tools (teaching resources, time limitations, Annual Teaching Plan), as well as the rules (policies on inclusion, curriculum requirements) as shown in the figure below. This is because teachers (subject) need to implement differentiation, but their interpretation of the concept together with curriculum structure, time limitations, and policy expectations, create tensions that restrict them from accomplishing it effectively. The following figure 5, illustrates the model of the human activity as understood through CHAT, highlighting the contradictions that arose within the activity system.

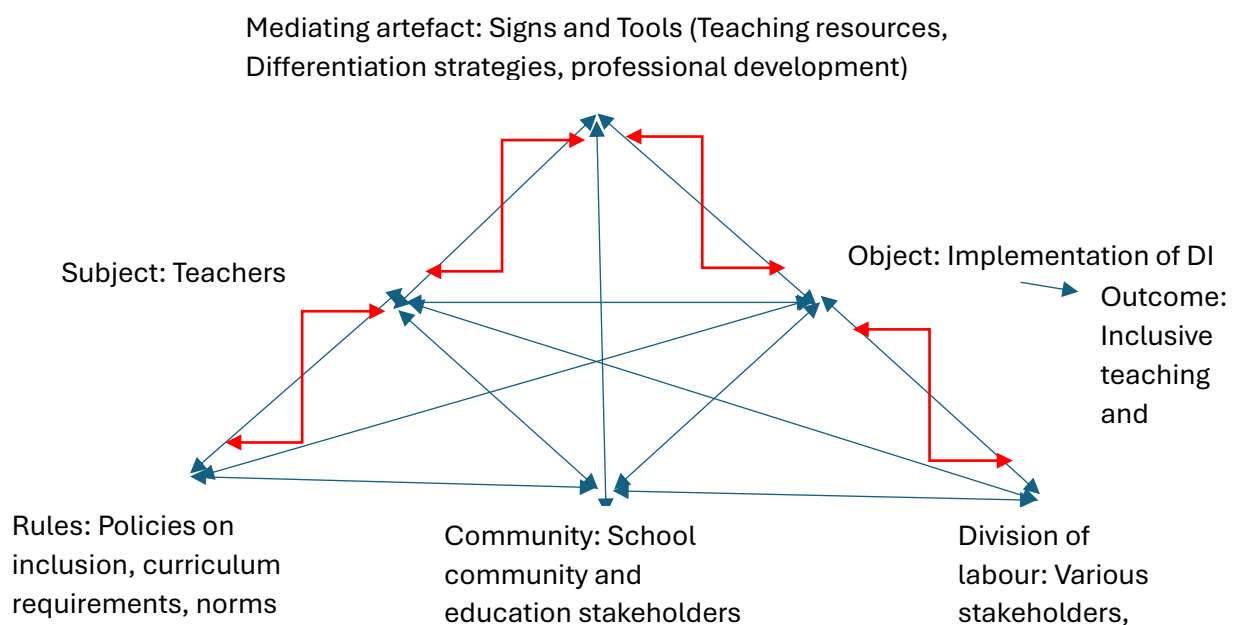


Figure 5: A model indicating contradiction of human activity (adapted from Engeström, 1987)

One of these contradictions occurs between the object and the rules where the object calls for the use of flexible assessments aimed at the evaluation of teaching and learning practices, while rules such as the South African curriculum requires standardized assessments which only evaluate learners' understanding of content. This makes it challenging for teachers to design flexible (differentiated) teaching and learning activities for themselves and their learners.

Another secondary contradiction lies between the object and the division of labour. For teachers to implement differentiated instruction, they require support from the other stakeholders such as parents and special education schools. As the above Change Laboratory discussion show, whilst some teachers are willing to implement differentiated instruction, they lack sufficient support and training to do so. It was revealed that teachers feel unsupported in implementing inclusive practices. And, in an educational context, the involvement of parents plays an important role in promoting inclusive education (Makhampanyane, 2024). This is supported by conducted studies which highlight the relationship between parental involvement and inclusive education academic success (Makhampanyane, 2024). Despite the rules (inclusive education policies) such as the WP6, mandating the involvement of parents, the contradiction between rules (policies) and division of labour (parents) remains a challenge for the successful implementation of inclusive education.

The contradictions that lie within the model of human activity hugely influence the implementation of differentiated instruction. The contradictions result in tension between the elements in the activity system. For differentiated instruction to be effective, the contradictions should be addressed. This was attempted using the expansive learning cycle. The contradictions guide change and innovation (Foot, 2014). The contradictions are necessary for change and transformation to take place. Teachers engaged in a collective discussions and reflections to address the challenges of implementing differentiated instruction.

In addition to the secondary contradiction between the object, tools, and rules, the above excerpts reveal that teachers furthermore had a flawed understanding of individualised support, and this gave rise to further tensions, or exasperated the ones mentioned above. Teachers had the assumption that providing individualised support meant that they had to provide each learner with isolated individualised teaching which they expressed they lacked the time to do so. This idea continued to be a challenge even after the introduction of the intervention of Change Laboratory in which we tried to clarify how differentiation instruction should be

applied, when teachers were testing out the methods they collectively developed. For instance, one method involved learners turning a card that they have on their desks either green or red, depending on whether they understood or not. After testing this strategy Mr Thibela reported:

So, every time they wanted attention; they would turn the card red so that I can go there. Just for me to go to them. That is the challenge I realised—that here we are playing (Mr Thibela, Change Laboratory 3).

Another contradiction becomes apparent in the above extract between the subject's action (Mr Thibela) and the tool as a means of mediating (method of cards) as Mr Thibela went to each learner every time their cards turned red which was not the agreed purpose of the cards. This showed that Mr Thibela still held the same understanding of individualised support. The lack of understanding led him in struggling to apply the strategy appropriately, further leading to ineffective differentiation. A more appropriate inclusive approach would be to use the card colours to assess at which point the learners did or did not understand the lesson and adapt their teaching accordingly.

Mr Thibela's misunderstanding poses a challenge for the implementation of inclusive education in his classroom as time will be spent moving around to each learner with a red card, with little chance of making much difference in all the learners' learning or meeting the purpose of the lesson. Thus, while the issue of limited time in planning and instructing is a burning issue amongst many teachers in schools (Adebisi, 2024), when the teachers in this study emphasised how they are unable to cater to the diverse needs of learners due to limited time, this was largely due to the inappropriate application of differentiation strategies.

Despite various challenges, there were some good attempts by teachers in implementing differentiated instruction. During the non-participant observations at the first research site, during a Grade 6 English class, Ms Ndlovu assigned tasks based on learners' preferences and abilities, allowing some to write a dialogue and others to draw their own cartoons. This approach supported learners by catering to different skill levels and interests, which aligns with the principles of differentiated instruction. Additionally, at the first research site, in the Grade 4 Life Skills lesson conducted by Ms Mawila, learners were encouraged to collaborate, share answers and discuss cultural topics, promoting inclusivity and peer learning. Differentiated instruction encourages learners to contribute to their learning, thus, be encouraged to be active participants in the learning process (Makoelle, 2014).

Most of the other observed lessons, though, followed a teacher-centred approach, with Mr Smith dominating the lesson and learners having limited opportunities to engage actively. For instance, at the second research site in an Economics class, the teacher was copying notes on the board and the interaction between the teacher and the learners was minimal. This method of teaching limits opportunities for collaborative learning, learners' engagement, and differentiated instruction. While much of the success of implementing differentiated instruction lies in the teachers' knowledge of it, the findings also revealed other obstacles to its application in schools.

4.2.2 Implementing Differentiated Instruction

The implementation of differentiated instruction was not without challenges. This is evident in the semi-structured interviews, and the Change Laboratory sessions where it was raised that teachers are confronted with barriers, including, limitation of resources (seven teachers), learner behavioural issues (three teachers), large class sizes (three teachers), limited time (two teachers), background (two teachers), diverse abilities (one teacher). The findings from the individual interviews exclude one teacher (Ms Mathebula) from research site one who did not take part in the individual interviews. These findings are in line with previous studies both local and globally (Adebisi, 2024; Chipika & Mapfunde, 2024; Graham, 2023; Lavana & Nor, 2020; Letzel-Alt & Pozas, 2023; Taole, 2020) which found similar challenges in implementing differentiated instruction.

4.2.2.1 Classroom Context and Constraints

The issue of overcrowding due to large class sizes was identified as a major barrier to implementing differentiated instruction. This was emphasised in both the individual interviews and the Change Laboratory sessions. Furthermore, I observed the large number of learners in research site 2 during the non-participants observations. Teachers expressed the difficulties of accommodating learning needs in classrooms with 50 - 60 learners. This is line with findings from scholars like Graham (2023), who argues that overcrowded classrooms have dire consequences for teaching and learning, further, stating that the larger the classrooms, the worse the achievement. The findings from Graham (2023) revealed teachers' expression that the only way to create an individualized instruction and meaningful learning experience was through one-on-one interactions with each learner. This presents a contradiction to Hall (2002)'s interpretation of individualized learning. Within the context of this study, teachers

noted lack of time to address each learner's unique learning needs, which according to Hall (2002) is identified as a flawed understanding of differentiated instruction.

Teachers expressed their challenges regarding the issue of overcrowding and how it affects their implementation of differentiated instruction. One teacher shared that for her, *“the biggest challenge I've faced is overcrowding”* (Ms Mawila, Individual Interview, Research Site 1). Another expressed the following:

It's not that effective because of overcrowding. For example, if you are standing in front of a class with 70 learners, you can't know each learner's needs, background, and everything (Mr Thibela, Individual Interview, Research Site 1).

Although teachers expressed how they cannot address the learners' individual needs due to the issue of overcrowding, amongst others, the literature encourages teachers to be trained to be able to cater to their learners' needs. This is supported by Chipika and Mapfunde (2024, p.3-4) “It is therefore important that all teachers receive training and continuous professional development so that they are able to attend to the needs of all learners”. Teachers should be knowledgeable in identifying and addressing their learners' needs. Despite this, it is crucial to not overlook how overcrowding can be a hindrance to the implementation of inclusive education (Graham, 2023). Overcrowded classrooms often hinder teachers from implementing differentiated instruction to its full potential, as they must focus on maintaining overall class order rather than tailoring methods to diverse needs. The participants shared how maintaining order takes learning and teaching time which is a hindrance to the implementation of differentiated instruction.

It is essential to recognize that overcrowding contributes to resource limitations, which consequently affect teaching and learning negatively. Similar sentiments were shared by Ms. Ndlovu:

I don't want to lie; overcrowding is a burning issue. In our school, even if learners come to enrol in term four, they still accept them, even though other learners are sitting on the floor—not even on chairs. They don't have tables or chairs, but they are still enrolled (Ms Ndlovu, Individual Interview, Research Site 1).

Resources play an important role in the application of DI (Gibbs, 2022). In the context of this study, the lack of resources identified are textbooks, lack of printing resources, infrastructure which includes chairs and tables, technological tools such as laptops, projectors, and wi-fi. Teachers expressed frustration at having limited access to teaching aids and technological tools, which restricts their ability to use diverse instructional methods effectively.

Ms Dlamini (Individual Interview, Research Site 2) said that “*There’s only one projector in the school, so we have to share, which makes it hard to use visual aids regularly*”. Mr Thibela (Individual Interview, Research Site 1) added that “. So, robots, smart boards, and computers—if they are hands-on—you might find it can improve their way of learning.” Additionally, Mr Smith indicated that “*I think the days we are in now are mostly about technology. So, I think, with the help of projectors and the internet, it would better the understanding of our learners. The teaching and learning would improve more with the use of technology.*” Both research sites not only lack technological equipment to enhance their teaching, but they also lack basic resources necessary for learning and teaching such as textbooks.

Resources play a key role in learning and teaching. In the non-participant observations, across both research sites, the lack of resources was a major barrier to effective learning and teaching. For instance, in the second research site, I observed an Afrikaans class, where learners had to share a single textbook. This hinders learners to engage independently with the learning material. Resources such as textbooks are crucial to learning. Research in education acknowledges that the availability of textbooks plays a crucial role in learners' academic success (Letseka, 2014). This is supported by Letseka (2014, p.4866) by asserting that “Textbooks permit teachers to utilize a wider range of teaching strategies such as: assigning reading exercises to the whole class while providing more focused teaching to slower learners; stimulating classroom discussions about material that has been read by all pupils...”. This is in support of differentiated instruction as the textbooks could support varied learning needs of learners and allow teachers provide support to them where needed.

In addition to the classroom context and constraints, time is also a crucial factor in teaching and learning and without it, differentiated instruction cannot be fully implemented (Tomlinson, 2011). The issue of limited time was a collective challenge in both research sites. In the first research one during Mr Thibela’s grade 4 Mathematics lesson, while there was more interaction, time constraints meant that not all learners questions could be addressed, leading

to some learners without sufficient support to understand the material fully. This is an impediment to the learning and teaching process.

4.2.2.2 Behavioural Challenges

The implementation of differentiated instruction is often paired with teacher behaviours such as classroom management (Letzel-Alt & Pozas, 2023). The findings revealed this to be true in the context of this study. Managing learner behaviour was identified as a barrier and a hindrance to the implementation of differentiated instruction, especially when working with large, mixed-ability classes. Teachers noted that disruptive learners often distract others, making it challenging to maintain a conducive learning environment. The participants shared how disruptive learners make it challenging to maintain a conducive learning environment.

For instance, Ms Mawila (Individual Interview, Research Site 1) pointed out that said that *“Sometimes when learners are having challenges, they tend to misbehave to us, so it's discipline.”* Mr Ndlovu (Individual Interview, Research Site 1) agreed that *“The biggest problem is just that when you are giving the instruction to those who need support, others are busy making noise. They are distracting others.”* In an individual interview with Mr Smith (Research Site 2), when asked a question about the challenges he faces when implementing DI was posed, he argued that *“Some learners are strong-headed and make noise, disrupting those who are trying to focus. It's a challenge to manage and makes it hard to provide individualized support.”* While a conducive classroom environment is essential for applying differentiated instruction, the way in which teachers highlight the importance and need of individualised instruction, and their understanding of the concept are flawed. The behavioural problems therefore arise largely because only some learners, rather than all are being productively occupied by the teachers' differentiated instruction strategies. An individualised instruction refers to the adaptation of the way teachers teach to meet the diverse needs of their learners (Tomlinson, 2001). This does not mean that teachers must teach learners in a traditional isolated way at every moment of each lesson. The goal is to create a learning environment where all learners' needs are met.

4.2.2.3 Language and Cultural Inclusivity

Language is revealed to be a significant tool in assisting with bridging the gap of learners' understanding. Teachers' often used code switching which refers to alternating between two or more languages (Hopewell, 2017), using both English and the learners' home languages. This

method enabled access to content for learners. Through alternating between languages, teachers can make the lessons more accessible through clarifying complex concepts making it easier for the learners to understand. Code-switching promoted an inclusive learning environment by providing an opportunity for learners to be comfortable in expressing themselves and to participate actively in their learning. This aligned with DI, as it tailors learning opportunities adapted to cater to the unique needs of every learner (Tomlinson et al., 2003).

Connecting the learners' everyday lives and what they are learning appeared to enhance engagement. For instance, in an Afrikaans lesson in the second research site, the teacher assigned a task where learners were to bring food from their own cultures, promoting cultural exchange and inclusivity. Similarly, in the first research site during a grade 5 Life Skills lesson, learners shared their knowledge about various cultural practices, reinforcing the connection between their identities and the learning content. These activities help learners feel valued and maximises participation amongst the learners. This fostered an inclusive classroom environment which is in line with the principles of differentiated instruction.

4.4 Developing and improving differentiated instruction and inclusive practices- Implementation and reflection phase

The adopting of inclusive education has been faced with various challenges impeding on its success. During the implementation phase, teachers tested out the strategies identified during the modelling phase. Action was taken regarding the strategies teachers committed to trying out. Teachers then shared their findings after the implementation process. Teachers were quite happy to share what worked and what did not. Based on the teachers' reporting, most of the strategies worked, and teachers had meaningful lessons even though they were a few challenges here and there and teachers committed to employing those strategies further in their future lessons.

The strategy of pairing was faced with multiple challenges. As explained earlier in the modelling phase regarding the disadvantage of over dependence of learners experiencing challenges in learning, this was unfortunately one of the results of the pairing strategy. Below is an excerpt from the third Change Laboratory where teachers discussed the implementation of the strategy of pairing learners.

Excerpt from Change Laboratory 3:

Researcher

Because that's the main reason for this session. Did you all try the strategies?

Participants (laughing)

Yes, we did.

Researcher

Okay, before we get to discuss that, what new challenges have you identified in your classrooms besides the ones we have discussed? Are there new challenges that came up?

Ms Mabodi

I think it's common. When we group learners, most of the time learners who are intelligent group themselves based on their levels, and then those ones who are struggling, you find them sitting on their own.

Researcher

So, in terms of the strategies that you were to implement, who is going to start by sharing? Like, okay, I implemented this strategy, did it work? If it didn't work, why do you think so? And if it worked, what worked well? So basically, now we are sharing.

Ms Ndlovu

I was pairing learners. I think that the disadvantage was that learners, they come up with the same answers when you pair them. It's like they are writing the same thing. I don't know, it's just that they discuss the same thing and then when they come, they write the same answers. The English question was like "explain," and then it was the same word for word.

Researcher

So, you paired them, right?

Ms Ndlovu

Yes.

Researcher

They were two, and they wrote the same thing?

Ms Ndlovu

Yes.

Researcher

Did they discuss? Did you see them discussing?

Ms Ndlovu

Yes, they said that is what they discussed. Because I was asking them why they have the same answers, and they said they were discussing and that the answers are the same.

Researcher

And how was the pairing? How did you pair them?

Ms Ndlovu

How did I pair them? Those ones that I know need support with those ones that are intelligent. That is how I paired them. So that those who are intelligent can help those who need support. But when they come up with their answers, their answers are the same. That's why I was saying it's a disadvantage, because it's like the one who is intelligent gives the one who needs support the answers.

Researcher

So, they don't have the opportunity to share their own answers; they just take the answers provided to them.

Participants

Yes.

Researcher

Anyone else who tried that strategy? Because I remember...

Ms Mabodi

I also did that one. I think I had the same challenge of learners having the same answers.

Researcher

So, those who are facing challenges don't really engage, they just take what is given to them...

Ms Ndlovu

They relax and wait for the ones that know the answers.

The method of pairing is mainly to increase engagement and for learners to learn from one another (Makolle, 2012). In the unfortunate event where it results in over dependence of learners from their peers, it would have defeated the purpose of the strategy which was what the teachers shared. Learners should gain more independence when they are paired with their peers (Bhat, 2023).

Teachers who committed to trying out the strategy of breaking down content ended up not trying out the strategy except for Ms Mawila who came up with the creativity of combining the strategy with the one of positive reinforcement.

Excerpt from Change Laboratory 3:

Ms Mawila

Okay, I chose the one of sweets and breaking the information into chunks. Honestly, I didn't have enough time to do it, but I tried, and I combined the two strategies into one. So, the first day, I explained to them the whole thing, but they were sitting in rows. I had four rows. Each row had like three or four or fewer learners who were challenged. For the starting, we explained that mainly we are focusing on the ones who are challenged. We as a group are going to help them. After teaching, the answers I wanted were from the ones who were challenged just to see how they are doing.

And we had rules of how many sweets. They were so excited. I didn't even reprimand anyone for making noise. They were so excited for the next day. I had three days doing that. On the last day, the cups were up, and most of the challenged learners, because they were motivated or feeling pressure to make their team win or something like that, were able to answer the questions.

But in a nutshell, it worked well.

Researcher

So, there are disadvantages and advantages to all the strategies. Anyone else who tried breaking the content into smaller parts?

Ms Ndlovu

That one, it's like we use that strategy every day while we are teaching because for a learner who doesn't understand... let me give you an example with grade 6 learners. If I can give you a diary that they wrote, you won't even know the meaning of what they wrote. Those learners, it means I have to go back and give them those phonics, those words, like I am teaching foundation phase learners.

Researcher:

Does it work?

Ms Ndlovu:

It works, but we are trying to get them to know how to read because they don't even know how to read. They also don't know how to write, which means it's like Grade R learners. I have to teach them how to read, how to write. That is why I have to use those phonics to help them. That is how I break down the content. I am talking about Grade 6; they don't even know how to combine one word. Those are the challenges that we are facing.

Ms Mawila:

Can I add on what ma'am said? When you break down, it means the learner and you as the teacher—you might find that now we are in Term 4, and because we are breaking down, the learner is still behind. Meaning that now that we are in Term 4, some of those learners are still understanding what was taught in Term 1. So, in terms of progress, it doesn't help. But in terms of learning, we do try.

Researcher:

So it all comes down to the ATP and CAPS, because you have to follow them. Some learners will be left behind because of that. But if you as a teacher focus on learning, it disadvantages you because you are mandated to follow the ATP. So, from what I gathered, you are willing to try out the strategies again and that they worked even though they had some disadvantages.

The combination of the breaking down of content and positive reinforcement by Ms Mawila was a success. The learners were not only excited during the lesson, but they were disciplined. Ms Mawila shared how she did not struggle with discipline during the lesson and that most learners who were experiencing challenges were able to learn and receive assistance from their

peers. The contradiction of the rules (time limitation) and tools (curriculum, ATP, CAPS) were also outlined.

The implementation of the red/green cards strategy was implemented by both Mr Thibela and Ms Mathebula who shared almost similar sentiments. The learners found the strategy interesting which Mr Thibela described as a form of a game. Although the teachers shared that learning did take place, the limited understanding of Mr Thibela's individualised attention as explained under teachers' understanding of differentiated instruction resulting him to not follow the rules of the strategy which affects its implementation.

Excerpt from Change Laboratory 3:

Ms Mathebula

I chose the cards. It worked, to be honest. They were so excited drawing those cards, and when I was busy teaching, I told them if they do not understand, they should just turn their cards red, and I will know that they do not understand, and I will explain to them.

Researcher

So, it worked? Whenever they didn't understand, they turned the cards red?

Ms Mathebula

Yes, they would turn the cards, and I would know that this one and this one don't understand.

Researcher

Anybody else who tried the same strategy?

Mr Thibela

I did. To my learners, it was like a game to them. So every time they wanted attention, they would turn the card red so that I can go there. Just for me to go to them. That is the challenge I realised—that here we are playing.

Participants (laughing)

Researcher

One of the things we discussed was that if you see that maybe it's one learner with a red card, you can just continue with the lesson and after try to go to the learner to explain. But

if it's multiple learners, then you can stop right there and try and explain in a different way, because if you go to the learners as they each turn their cards red, you will not finish teaching because you will always be moving around going to the learners.

Mr Thibela

I think the challenge was that, to be honest, they were seeing that thing for the first time. So, to them, instead of concentrating, they wanted attention. So, you stop and say, "What don't you understand?" and then they say, "We don't understand," and then you go back, and when you are done, another one calls you just so that they get your attention.

Researcher

So, it was kind of a game to them.

Mr Thibela

Yes.

Researcher

But did learning take place?

Mr Thibela

Yes.

Researcher

That's good, because that was the aim.

Ms Ndlovu

If I can add on that, I think that is the strategy that you can use so that learners can pay attention when you are teaching. Because for learners, they enjoy the games, but if they take it as a game, it means they will listen to you teaching.

Researcher

Because if the lesson becomes interesting...

Ms Mathebula

They are so excited.

Researcher

So, do you think you will continue using the strategy?

Mr Thibela

Yes, because it's exciting and they like it. They concentrate, and they want to participate.

Teacher collaboration is essential in the implementation of differentiated instruction (Letzel-Alt & Pozas, 2023) The participants revealed the importance of workshops in potentially helping them improve the understanding and application of differentiated instruction. The attendance of workshops organised by the department officials was common amongst the teachers. Ms Ndlovu (Individual Interview) shared, "The workshops are helpful, but they happen only once or twice a year. We need regular sessions to truly feel supported in implementing new methods". Additionally, teachers also highlighted that the workshops are not specifically designed to help them in implementing differentiated instruction. There is a need for consistent and intentional collaborative efforts in assisting teachers in addressing the diverse needs of learners. Hence, the interventionist strategy of Change Laboratory session in this study. Below are some of the insights shared by teachers in relation to collaborative practices:

Ms Dlamini (individual Interview, Research Site 2): *"Talking to other teachers can make a big difference; we share what works and what doesn't, and it saves time trying to figure it out alone".*

Ms Mawila (Individual Interview, Research Site 1): *"I think we can improve my own understanding by making it more practical, meaning more workshops, more tasks on hand."*

The Change Laboratory sessions provided teachers with an opportunity to collaborate and discuss potential interventionist strategies to the challenges they face in implementing differentiated instruction. These include enhancing classroom management strategies, fostering collaborative professional development, and practical strategies in implementing differentiated instruction. During the reflection process, teachers expressed the importance of diverse strategies and revealed a change of attitude in approaching differentiated instruction and the challenges they are experiencing. When asked about their experiences with the Change Laboratory, teachers shared:

Excerpt from Change Laboratory 3

Ms. Mawila:

For me, it feels like we are dealing with persistent challenges that are not going away. I've learned that I just need to do my best because that's all I can do. The most important thing is the learners—they need to learn, and we have to do this for them. That's what I've learned from this process. When you introduced us to different strategies, we initially felt they wouldn't work because we thought we had tried everything. We were waiting for a solution, but I've realized that solution isn't coming anytime soon.

Ms. Ndlovu:

Don't say the solution isn't coming soon...

Ms. Mawila:

It's not, ma'am.

Ms. Ndlovu:

For me, I'm now very interested in the strategies.

Ms. Mawila:

That's why I'm saying this helped me realize I have the ability to change the situation instead of waiting for a solution.

Mr. Thibela:

What we did—the research and these sessions—was very beneficial. The problem was the lack of time. If we had more time to delve deeper, it would have been even more impactful. These sessions also made us aware of things we didn't know before. Unfortunately, the time constraints limited us. I wonder if it's possible to speak with your seniors about starting again, this time with more time allocated. I understand you have deadlines, but these sessions are incredibly helpful.

The above excerpt from third Change Laboratory session and quotation from Mr Thibela shows the development of teachers' attitudes in utilizing differentiated instruction. At the beginning of the Change Laboratory sessions, teachers showed little interest in implementing diverse strategies because of the challenges they identified in the mirror data. Despite all the challenges they face, during the reflection stage, teachers showed determination to try diverse strategies

for the benefit of their learners. They highlighted the importance of learning to all learners. This was a significant development in the teachers' attitudes. The attitudes of teachers play a significant role in the implementation of inclusive education (Richardson, 1996). They influence the teacher's interactions with diverse learners and how they adopt their teaching methods to meet the learners' needs. Teachers are the direct agents responsible for implementing differentiated instruction and their willingness and ability to embrace and employ inclusive practices directly impacts the learning experience of learners.

Teachers whose attitudes accommodates diversity are more likely to try out different teaching and learning styles (Makoelle, 2012). One of the research's objectives was to develop teachers' understanding and capacity to implement differentiated instruction. Through the reflections, it was evident that teachers gained something from the Change Laboratory sessions to a point of repeating them for their development as commented by Mr Thibela during the last session. The professional development of teachers can play a role in positively influencing teachers' attitudes. Through continuous professional development, teachers have the opportunity to challenge and reshape their attitudes. This can result in the dismantling of biases and negative attitudes held by teachers. Moreover, collaborative learning enables teachers to question and critically reflect on their attitudes.

Consequently, to the Change Laboratory sessions, several teachers also highlighted the importance of continuous professional development. These insights show the need for an ongoing professional support to enhance teachers' capacity for implementing differentiated instruction. This was an emphasis from the questioning and analysis process whereby they believed that they were not prepared enough to cater for diverse needs of learners. This was also part of the first stimulus which involved identifying and analysing the current problems or contradictions in the activity system. Continuous professional development is crucial in the implementation of differentiated instruction. Most teachers struggle with the reality of classroom despite having received teacher training (Donohue & Bornman, 2014). Teacher education programs do not fully prepare teachers for the reality of diverse classrooms (Donohue, & Bornman, 2014). As a result, teachers must always strive for learning beyond their education training.

CHAPTER 5:

CONCLUSION

5.1 Introduction

This study set out to develop teachers' understanding of, and capacity to apply differentiated instruction strategies in the context of two selected South African schools in Johannesburg. This addresses the concern that there has been limited development of inclusive education theory and practice through interventionist approaches, as opposed to primarily theoretical research. Through an analysis of the data collected and generated from semi-structured interviews, non-participant observations, and Change Laboratory, key insights emerged regarding the understanding of differentiated instruction, challenges impeding on the implementation of DI such as large class sizes, lack of resources, and inadequate professional development of teachers. This chapter provides a summary of key findings, discuss their significance, and offer recommendations for future research and practice.

5.2 Key conclusions from the study

The findings from the semi-structured interviews and Change Laboratory sessions highlighted teachers limited and flawed understanding of differentiated instruction. Initially, in the semi-structured interviews, it was revealed that teachers held different understandings of DI which mainly highlighted the importance of diversity in the implementation but did not fully embrace inclusive principles such as high expectations for all learners and learner agency. This problematic understanding, it was argued, further impedes the effective implementation of differentiated instruction. The possession of limited knowledge on the implementation of DI, reveals a contradiction between teachers as subjects and their objective in the activity system, resulting in teachers' inability to employ innovative and inclusive strategies in their classrooms.

Thus, although teachers were aware of the importance of recognizing diversity, they did not have adequate knowledge about DI to be able to implement it successfully in their classrooms. The underlying reasons for the unsuccessful implementation of DI were the contradictions within the activity system, such as the tension between the object (effective implementation of DI), and the tools (assessments, resources, teaching strategies, etc.). The object is constructed around principles of inclusivity, while the tools (assessments, resources, teaching strategies, etc) are based on conventional, exclusionary principles such as misapplication of the strategies,

and standardized assessments. There was a misalignment and lack of support due to contradictions within the activity system, hence the difficulties in implementing differentiated instruction. A sophisticated understanding differentiating content, process, product, and the learning environment is crucial for the successful implementation of DI (Hall, 2002).

Although teachers started the questioning and analysis phase with an individual understanding of DI from their semi-individual interviews, during the process of the expansive learning cycle, they had developed a collaborative understanding of the approach which incorporated the content, process, product, and the learning environment. The expansive learning process was about developing a wider understanding. Thus, collaboration became an important factor as teachers became empowered and realised, they had to exercise their agency to develop contextually relevant strategies in their classroom. The collaboration fostered a shared ownership of the process of change, enabling teachers to co-develop solutions for their teaching strategies.

In addition, challenges impeding on the implementation of DI were identified such as large class sizes, lack of resources, inadequate professional development, behavioural challenges, and lack of parental involvement. These findings were consistent with the ones reported by the literature both internationally and locally (Ismajli & Imami-Morina, 2018). However, this study enabled teachers to view the challenges and tensions not as separate from one another and understood how they are interdependent which aligned with the CHAT theoretical approach underpinning of the study.

Despite the tensions having contributed to the challenges of implementing differentiated instruction, they were necessary for highlighting the contradictions and driving change and transformation within the activity system (Engeström, 1987; Foot, 2014; & Sannino, 2011). Contradictions supported teachers to question their current practices and explore alternatives to their problem of ineffective differentiation practices. In attempting to resolve their problems, the identification of contradictions further led to the development of teachers' expansive learning where teachers collaboratively developed new practices to their teaching. These findings align with Engstrom's (2011) argument that contradictions lead to expansive learning where participants together develop new practices. These solutions came about from the modelling phase of the expansive learning cycle where teachers, along with the facilitation by me as the researcher, collaboratively came up with possible inclusive strategies to try out in their classrooms. These were possible through the identification of contradictions.

The teachers' limited understanding of DI tended to focus on themselves as the only ones capable of contributing to the learning process within their classrooms. Their inadequate knowledge, along with systemic challenges such as overcrowding, presented challenges for them to create effective opportunities for their learners as active agents in their learning. The division of labour is an important component in CHAT, drawing attention to the roles and responsibilities of the various stakeholders in the activity system (Foot, 2014). Within the context of this study, the multiple involved parties in the activity system included the learners, parents, district, etcetera. The findings revealed to be important for teachers to involve learners in the process of implementing DI through encouraging and empowering learners to become active participants in their own learning. The component of division of labour is crucial as teachers need support in effectively implementing DI. Although teachers are key role players, they must be supported by parents and other stakeholders in education if they are to overcome challenges such as overcrowding, limited time, lack of parental involvement, disruptive behaviour, and so forth.

The phase of modelling enabled teachers to come up with strategies to try out specifically for their context with its associated challenges. This allowed the discussion to critique various strategies such as group work, breaking down of information, and be able to adjust the methods to best suit their context, particularly since they had overcrowded classrooms. Initially, teachers showed reluctance about trying the strategies as they had the perception of them not working out. Eventually four strategies were identified and later tried out. The reports from teachers during the reflection phase highlighted the effectiveness of most of the strategies in enhancing inclusivity. However, there were also some challenges, such as teachers not implementing the strategies correctly or effectively, and hence, the strategies not serving their purposes. For instance, the strategy of pairing learners revealed that learners were dependent on each other instead of learning from one another. Thus, it was concluded that teachers should have the ability to apply and make use of multiple strategies. The use of one-single method is not efficient and effective for diverse classrooms.

Collaboration is essential in the effective implementation of DI, and teachers require continuous professional development to equip themselves with the necessary skills and attitudes to be able to address the diverse needs of their learners. This is also because the findings revealed that certain teachers were using exclusionary language to refer to learners' experiencing challenges to learning and one teacher even went to the extent of calling for the placement of the learners. In the context of this study, inclusive education requires learners to

learn alongside their peers which is an important element in inclusive education (Haug, 2016). As explained in the literature, teachers should extend what is ordinarily available to their learners. Following the discussion of the key findings, the next section focuses on practical recommendations aimed at addressing the challenges faced by teachers in implementing differentiated instruction and promote the effectiveness of inclusive practices by teachers within their classrooms.

5.3 Recommendations

Based upon the experiences and insights gained from this research, I would like to put forward practical recommendations with the potential to assist teachers in effectively implementing inclusive practices, further enhancing their learners' educational experience in their classrooms.

An inclusive education remains important in providing equal opportunities for all learners regardless of their learning differences (Slee, 2018). However, for many teachers it remains an ideal that is difficult to realize in practice. Differentiated instruction is an approach that can help with bringing the practice of inclusive education closer to learners with diverse learning needs (Taole, 2020). The approach provides teachers with an opportunity to modify their teaching strategies and address the unique challenges of their learners (Tomlinson, 2001). While inclusive education approaches provide important knowledge to the field, they have largely been developed conceptually, and it is argued that the theories are insufficient in providing guidance on how to create inclusive practices (Nilholm, 2021). Consequently, researchers are calling for the development of inclusive education through more practical means. As such, this study argues for practice-based research such as the CHAT interventionist method, the Change Laboratory, for creating more practically based knowledge and strategies for inclusive classrooms. CHAT as a framework supports collaborative problem-solving and reflection which is important for teachers to continuously adapt their teaching strategies based on learner needs.

Teachers as key role players in the implementation of inclusive education need a theory that could potentially be of use to them in creating inclusive practices for their learners. As this study has demonstrated, the Change Laboratory method provides teachers with the opportunity to collaboratively reflect on their teaching practices and develop solutions such as strategies for implementing differentiated instruction. The Change Laboratory empowers teachers to

become active participants exploring and experimenting with different strategies that are specifically contextualised for their school environment. As Bal et al., (2021) points out, “CHAT and its emphasis on collective activity can serve to further understand collaboration and collective processes that occur when school professionals work together toward a shared object (e.g., disabled child) that is historically and institutionally given” (p.330). This reinforces the idea that through collaboration, teachers can analyse, reflect, and transform their teaching practices for developing inclusive practices. For this reason, teachers can be given opportunities to create research platforms in which they can develop contextually relevant inclusive practices

Collaboration for professional development is not foreign to teachers as they do engage in workshops organised by the district, or rather the District-Based Support Team (DBST). However, the workshops are proving not to be very effective in supporting teachers to develop inclusive practices. This was articulated and evidenced by Makhalemele and Nel (2016) reporting that the DBST remains inadequate and insufficient in helping teachers support learners with barriers to learning.

As a result of the district workshops not being adequate in assisting teachers in developing practices, this study recommends finding something like the Change Laboratory such as the lesson plan approach, learning cycles, etc., where they can develop their own capacity and perhaps feed that into the DBST so that it is shared more widely. This is because Change Laboratory is an ideal type of collaborative learning platform. Unlike many other disconnected professional workshops, Change Laboratory sessions happen across a period whilst being interdependent. The connection between the Change Laboratory enables continuous learning as the Change Laboratory builds on each other. The recommendation of encouraging teachers in a collaborative inquiry and continuous learning networks was also argued by Andrews et al., (2021) where they outlined that the professional development of teachers should go beyond initial teacher training and once off workshops. This aligns well with the objective of the Change Laboratory as teachers would be able to reflect on their past sessions, refine their practices, and implement changes in a progressive way. Moreover, this involves an ongoing support for teachers as such, making the process effective and contextually relevant to their classroom environments.

While the ideal intervention of Change Laboratory offers numerous benefits for teachers, such as enhancing their professional development, they are a difficult process and time consuming. However, the results are effective as shown in the findings chapter where teachers called for more sessions. The Change Laboratory as an interventionist approach allows for collaborative reflection and the co-creation of solutions. Despite it being effective, the Change Laboratory demands a significant amount of time and dedication from both the participants and researchers. As a result, researchers, schools, and teachers considering employing the Change Laboratory should take note of its demands and consider adapting the process to best suit their specific contexts. Future research could also explore shorter approaches to implementing the Change Laboratory to maintain its effectiveness but manageable.

The democratisation of inclusive research is important in inclusive education and Nind (2014) argues that this could be done through the involvement of marginalised groups in the research process. Thus, research should empower the participants and provide them with a voice and agency in shaping the research. In the context of this study, teachers are the marginalised group when it comes to creating the policy, curricula, and decision making for inclusive education. As discussed earlier in the findings' chapter, teachers face multiple challenges such as large class sizes, inadequate understanding of differentiated instruction, lack of resources, and inadequate professional development, impeding on their ability to differentiate instruction to their learners. Therefore, collaboration and shared decision-making through research and consultation that includes teachers can result in more meaningful and impactful findings. This is reinforced by Nind (2014, p.534) when she says: "Another argument is that inclusive research leads to knowledge that is richer through being co-produced or co-interpreted." This means that collaboration is key in inclusive research which is also what this study emphasised through the Change Laboratory intervention. I propose that Change Laboratory as an interventionist strategy offers the opportunity to democratise the process of researching and developing inclusive strategies within schools and districts.

Whilst this study proposes Change Laboratory as an ideal approach to helping teachers in developing inclusive practices approaches such as differentiated instruction, approaches such as Lesson Plan could be an alternative in achieving the same results. The Lesson Study approach refers to a process that encourages teachers to collaboratively reflect on their teaching practices through planning, observing, analysing, and refining lessons to enhance teaching and learning (Jansen, Knippers, & van Jooligen, 2021). The approach fosters continuous professional learning which is crucial to developing effective teachers for inclusive education.

Research by Anfara, Lenski & Caskey (2009) reported improvements in teaching practices, including learner achievement using the Lesson Plan approach. Similarly, to Change Laboratory, the Lesson Plan approach requires certain considerations such as time for the occurrence of collaboration (Anfara, Lenski & Caskey, 2009).

It is suggested through the study's findings that approaches such as the Change Laboratory can play a significant role in supporting teachers to identify challenges in their practices and co-construct inclusive practices and strategies specific to their classroom and school context. This emphasises the importance of creating spaces for teachers to be actively involved in enhancing their teaching practices. Furthermore, this shows a need for teacher professional development and initiatives that are participatory and context specific. Methodologically, this study demonstrates the potential of interventionist approaches such as the Change Laboratory to go beyond the generation of knowledge and support practical change within schools.

The above recommendations aim to support teachers in effectively implementing differentiated instruction. Despite the Change Laboratory being proposed as an ideal intervention, considering the Lesson Plan approach as another possibility highlights the importance of diverse approaches for enhancing inclusive teaching practices. In the end, these recommendations contribute to collective efforts to enhance inclusive education.

5.5 Conclusion

This research project explored the implementation of differentiated instruction in two South African schools in Johannesburg. Findings revealed that whilst teachers acknowledge the importance of DI, barriers such as large class sizes, lack of resources, inadequate professional development, amongst others, impede effective implementation. Despite the challenges, the collaborative nature of the Change Laboratory provided teachers with the opportunity to develop practical strategies that were contextually relevant to their classrooms. While this research contributes to the ongoing discussion about teacher professional development and inclusive practices in inclusive classrooms, it also emphasises the need for collaborative efforts providing continuous support for teachers in implementing inclusive practices.

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APPENDIXES

Appendix A: Research Site 1: Consent Form

Research Consent Form- Change Labs, Interviews and Observations.

Title of project: Interventionist Strategies for Implementing Differentiated Instruction: A Cultural-Historical Activity Theory Approach

Name of researcher: Moraba Preciaus Sekatane

I, ..., agree to participate in this research project.

I agree to the following:

(Please circle the relevant options below)

The research study was explained to me. I understand what this study is about.	YES	NO
--	-----	----

I understand that I can volunteer to take part in the study	YES	NO
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I agree that the interview may be audio recorded	YES	NO
I agree that the change laboratory sessions may be video recorded	YES	NO

I agree that my teaching lessons may observed	YES	NO
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I agree that direct quotations from my interview, change laboratory sessions, and observations may be used by the researcher in their research report	YES	NO
---	-----	----

I agree that my participation will remain anonymous (my name or other identifying data will not be used by the researcher in their research report	YES	NO
--	-----	----

..... (signature)

..... (name of participant)

..... (date)

..... (signature)

..... (name of researcher/person seeking consent)

..... (date)

Appendix B: Research Site 2: Consent Form

Research Consent Form- Interviews and Observations.

Title of project: Interventionist Strategies for Implementing Differentiated Instruction: A Cultural-Historical Activity Theory Approach

Name of researcher: Moraba Preciaus Sekatane

I, ..., agree to participate in this research project.

I agree to the following:

(Please circle the relevant options below)

The research study was explained to me. I understand what this study is about.	YES	NO
--	-----	----

I understand that I can volunteer to take part in the study	YES	NO
---	-----	----

I agree that the interview may be audio recorded	YES	NO
--	-----	----

I agree that my teaching lessons may be observed	YES	NO
--	-----	----

I agree that direct quotations from my interview or observations may be used by the researcher in their research report	YES	NO
---	-----	----

I agree that my participation will remain anonymous (my name or other identifying data will not be used by the researcher in their research report)	YES	NO
---	-----	----

..... (signature)

..... (name of participant)

..... (date)

..... (signature)

..... (name of researcher/person seeking consent)

..... (date)

Appendix C: Interview Questions

Background and Teaching Experience

1. Describe your teaching background and how long you have been teaching?
2. What subjects and grade levels do you currently teach?

Understanding and Application of DI.

3. Define DI.
4. Describe how you implement differentiated instruction?

What strategies or methods do you use to cater to the diverse learning needs of your learners?

Challenges in Differentiated Instruction

5. What challenges do you face when implementing DI?
6. In what ways do you address these challenges?

Professional Development and Support

7. What professional development opportunities related to differentiated instruction have you participated in?
8. How has your school supported you in implementing differentiated instruction?

Workshops

9. Have you participated in any collaborative professional development sessions, such as workshops? If so, can you describe your experience?
10. How do you think workshops could help improve your understanding and application of differentiated instruction?

Reflection and Insights

11. Can you share a specific example where differentiated instruction made a significant impact on your learners' learning?
12. What have you learned from your experiences with differentiated instruction that you think would be valuable for other teachers to know?

Future Improvements

13. What additional resources or support do you feel you need to successfully implement differentiated instruction?
14. How do you see the future of differentiated instruction evolving in your school or within the South African educational context?

These questions aim to comprehensively explore teachers' current practices, challenges, and perceptions regarding differentiated instruction, and gather insights that can inform the development and implementation of effective strategies.

Appendix D: Observation Checklist

Non-Participant Observation Sheet

Research Site:

Date:

Class Observed (Subject/Grade):

Observation Categories

1. Resource Availability and Utilization

Resources Available:

- Textbooks
- Visual aids
- Technological tools (e.g., projectors, tablets)
- Stationery

Others: _____

Observations:

2. Instructional Methods

Teaching Approach:

- Teacher-centred
- learner-centred
- Collaborative learning
- Differentiated instruction

Observations:

3. Language Use

Language of Instruction:

- English
- Learners' home language(s)
- Code-switching

Observations:

4. Activities Observed:

- Connection to learners' lives
- Cultural exchange tasks
- Peer learning opportunities

Observations:

5. Barriers in Teaching and Learning

Observed:

- Large Class sizes
- Inadequate resources
- Time constraints

Others: _____

Observations:

6. Recognition and Motivation Practices

- Motivational Strategies Observed:
- Positive reinforcement (verbal praise, stickers)
- Celebratory initiatives (e.g., hoods, awards)

Observations:

7. General Notes and Reflections

Key Strengths Observed:

Concerns Noted:

Suggestions for Improvement:

Observer Name: Moraba Sekatane

Signature: 

Additional Comments:

Appendix E: Change Lab Excerpt

The provided excerpt is extracted from the first Change Laboratory session (questioning and analysing phase) where teachers discussed policy expectations and the realities of their teaching and education regarding differentiated instruction. This interaction demonstrates how teachers collaboratively reflected on their realities, whilst identifying contradictions, and suggesting potential solutions for inclusive teaching.

Researcher

Okay, regarding our context, in terms of providing differentiated instruction, policies such as the WP6 states that teachers must address the diverse needs of learners, despite of their different abilities, right? But when it comes to schools, is that the reality?

Participants

No.

Researcher

Why is that the case?

Ms Mabodi

Because some of the classes are overcrowded, let's say there are 70 learners, and then I maybe have 40 learners or 20 learners who need support, so you are standing there in the front, and those learners who need support are sitting there at the back. So, for you to move to the back is a challenge.

Ms Mawila

I think you can also say parental involvement somewhere, somehow it is there and sometimes it's not there. A parent can be called to be notified of what challenges we are having with a learner, and sometimes, I don't know how to put it, but you might try to give a learner work while the parent themselves cannot even do that work. So, if you give that learner work, they come back with the books clean without having done anything. You are trying to give them a different strategy of support, and then on the other hand, they are not willing, so it goes back to...I think nothing.

Researcher

Also, the policy mentions a lot about parental involvement parents must, but in reality,

some of you are saying that parents are actually not involved. So, it basically contradicts what is actually said in the policies. Do you guys think there is anything that can be done regarding that? What can be done?

Ms Mathebula

Parents have to be involved at some point. If we call a parent whilst having a challenge, they must come. They must peach and assist you.

Researcher

Another contradiction we can identify is teachers' professional development...do you think as teachers, including myself, were prepared enough to teach or use differentiated instruction at colleges or universities where we got our teacher training?

Participants

No.

Ms Mawila

It was theory, and when it comes to doing the practical work, having that learner in your class, you are also taking baby steps. You need to know the learner better, you need to try different strategies, and the reality is we were never prepared.

Researcher

So, universities and colleges do not prepare teachers enough to implement differentiated instruction?

Ms Mawila

We cannot say they do not prepare us enough, but they do guide us and tell us what we might come across, but when reality hits, it's different. You might learn about, let's say, when you come across this learner, you need to do this, but when you actually have that learner and having to apply those strategies, it's not easy.

Researcher

What makes it not easy? What's the issue?

Ms Mawila

What's the issue? Those are the issues (pointing out at the mirror data).

Ms Ndlovu

If I can add on that, the question that you were asking, if whether universities didn't prepare us enough. The universities prepared us enough under theoretical, but practically, we don't have enough because they just gave us only five weeks for practicals to go to schools. Per year, we are given five weeks only, and then per year I am going to school for five weeks, and the first thing I have to do is what? Start by observation, and then I sit down, and I am observing. Practically, I am not yet started.

Ms Mawila

And another thing, when you are doing practicals, you have your mentor, and the learners are not used to you, so their true colours you see them when you are actually working.

Participants

True.

Researcher

So do you think teachers need more time in schools? Like during training...

Mr Thibela

Not really, what I think can be the solution is when those who are coming up with policies start taking this into consideration. They need to balance what we should be doing in classrooms and what we should be observing from the teacher mentors. What I am saying is that, in a way of maybe reduce the workload, particularly the curriculum, to ensure that effective, and fruitful observations can take place. Teachers should be given specific tasks to complete, balancing those with observation duties. Unlike the current situation, where we are given the full ATP, expected to finish everything, and at the same time attend to learners' individually within a 30-minute or one-hour period. We can't do that; we are not a machine.

Researcher

So it comes down to policy, the issue is with the policy.

Participants

Yes...

Mr Thibela

Yes, the issue is with the policy. The policy expects more of us... and I don't blame them because they are coming with the policies whilst they are in their offices, and we are the ones expected to do the work on the ground. (Change Laboratory 1)

Appendix F: Ethical Clearance



SCHOOL OF EDUCATION ETHICS COMMITTEE

CONSTITUTED UNDER THE UNIVERSITY HUMAN RESEARCH ETHICS COMMITTEE (NON-MEDICAL)

CLEARANCE CERTIFICATE

PROTOCOL NUMBER: 2024ECE045M

PROJECT TITLE

Interventionist Strategies for Implementing Differentiated Instruction: A Cultural-Historical Activity Theory Approach.

INVESTIGATOR

Moraba Preciaus Sekatane.

SCHOOL/DEPARTMENT OF INVESTIGATOR

Wits School of Education.

DATE CONSIDERED

25 July 2024.

DECISION OF THE COMMITTEE

Approved unconditionally.

RISK LEVEL

No Risk.

EXPIRY DATE

Date of submission of the Research Report.

ISSUE DATE OF CERTIFICATE

25 July 2024.

CHAIRPERSON


Dr. Lawan Abdulhamid

cc: Dr. Louis Botha.

DECLARATION OF INVESTIGATOR

To be completed in duplicate and **ONE COPY** returned to the Chairperson of the School/Department ethics committee.

I fully understand the conditions under which I am authorized to carry out the abovementioned research and I guarantee to ensure compliance with these conditions. Should any departure to be contemplated from the research procedure as approved I/we undertake to resubmit the protocol to the Committee.


Signature

21 / 08 / 2024
Date