Assessing Practices and Challenges in Implementing Differentiated Instruction in Mingde Primary School

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Abstract

This study was designed to assess the practices and challenges in implementing differentiated instruction in Mingde primary school. Qualitative research design using case study method was employed to investigate the challenges and practices of differentiated instruction. Semi-structured interviews were conducted to collect data for this study. Data collection method was based on two one to one basis. The findings revealed that there is a conceptual understanding problem among teachers, as well as a difference of understanding regarding differentiated instruction between teachers who teach language versus other science subjects. The study findings reveal that teachers use individualized instruction rather than that of differentiated instruction. The findings also point to the challenges of large class size, stakeholder commitment, and the lack of professional training which hinder teachers from using differentiated instruction in the classroom. In conclusion, Mingde primary school teachers need professional training in differentiated instruction, and the stakeholders should play a role in this training.

Keywords

Differentiated Instruction, Practice, Challenge, Mingde Primary

1. Introduction

1.1. Study Background

Developing academically responsive classrooms is important for a country built on the twin values of equity and excellence. Schools can achieve both these challenging values only to the degree that they can establish heterogeneous communities of learning (addressing issues of equity), built solidly on a high-quality

curriculum, and instruction that strives to maximize the capacity of each learner (addressing issues of excellence) (Tomlinson, 1999). Living in a changing world that requires frequent adaptations impacts most classrooms, which consist of students with different backgrounds, preferences, learning styles, and different language proficiencies (Bajrami, 2013). The technocratic and positivist traditions, focusing on knowledge and content-oriented educational practices, have been strongly criticized for their failure to mediate society's needs. The need for a new theoretical framework for educational practices arose, that is, a student-centered theoretical framework that primarily focuses on students and their learning (Valiandes et al., 2018).

Every student learns in a different way and this gave rise to the theory of differentiated instruction which says that, the teacher, in order to make the learning process beneficial for the learner, should take into account the individual differences of the learner, in order to modify the type of content delivered, the assessments being conducted, the sequence of content delivery, and/or various other learner characteristics (Fareeha & Abdul, 2018). With contemporary classrooms becoming increasingly diverse, educational authorities, teachers, and school administrators are looking for teaching and learning strategies that cater of a variety of learning profiles. A paradigm that is gaining ground in many educational circles is differentiated instruction. This model proposes a rethinking of the structure, management, and content of the classroom, inviting participants within the learning context to become engaged in the process, to the benefit of all. While the model has been accepted and implemented, there remains room for theoretical support to give it momentum. A recent, comprehensive analysis of the literature in this area examines differentiated instruction within the context of increasing academic diversity (Pearl, 2006).

According to Tomlinson & Edison (2003), Within the "multiple and heterogeneous" primary school classrooms that have young age students with academic diversity, the implementation of "differentiated instruction (DI)" is truly valuable and useful in achieving its goals when considering individual differences and teaching within a student-centered philosophy. Children in a classroom have different knowledge and skill levels, and they progress at different rates.

Differentiated instruction is an approach and philosophy of education that aims to address and meet the students' diversity. Considering the purpose of the approach Tomlinson (1999) suggests a comprehensive and concise definition: "differentiation consists of the efforts of teachers to respond to variance among learners in the classroom. Whenever a teacher reaches to an individual or small group to vary his or her teaching in order to create the best learning experience possible, that teacher is differentiating instruction" (Aliakbari & Haghighi, 2014: p. 1). The classroom level which this study will focus upon is Primary school classrooms that are traditionally diverse in terms of academic ability and achievement level of the students. Differentiation, i.e., the adaptation of instruction to students' different educational needs, is often promoted as a solution for responding to this type of diversity. Differentiated instruction is an approach

that enables teachers to plan strategically to meet the needs of every student. This concept is rooted in the belief that because there is variability among any group of learners, teachers should expect student diversity and adjust their instruction accordingly. Tomlinson, 1999, 2001a; Tomlinson et al., 2003 as cited in (Smit & Humpert, 2012).

China is a country developing at high speed in the world today, and the role of education in its development is paramount, since education is the basis for national development. As researchers observed in primary schools in one province, China is significantly investing in education since the youth generation will play significant role in continuing the current rapid development throughout the country. Providing for the success of this generation, who will need broad shoulders to take on the responsibility of the nation's development, it is the responsibility of teachers to educate young children by recognizing and affirming individual difference in the classroom, especially in primary schools, since primary school age is the foundational age for later achievement. Primary school teachers need to be aware of children and their diversity by recognizing how to meet the learning readiness, learning profile, and learning interest of all children (Wu & Chang, 2015). Differentiated instruction, which adapts different methods to meet students' varying needs in the classroom, is the best method. Many scholars place the importance of differentiated instruction in their study journals, books, and conference papers; I, as the researcher, also agree with the importance of differentiated instruction, but it is difficult to implement appropriately in the classroom. Teachers need a definable and repeatable process that will scaffold their efforts as they work toward becoming teachers who can effectively meet the diverse needs of the students in their classrooms. Differentiated instruction provides a definable, repeatable process necessary for teachers to succeed. Therefore, this research focused on the practices and challenges fifth grade teachers face in implementing differentiated instruction of English and mathematics in Mingde (Xiao Xue) Primary School.

Statement of the Problem

Most young children in their first year of school can look around their classrooms and easily point out who among them can already read well, who can draw neatly inside the lines, who struggles with counting, and who likes to find the most repulsive, yet fascinating, bugs. Throughout their school education, students also remain aware of their own differences related to learning readiness, interests, and learning profiles (Tomlinson, 2010). Educators have been intrigued and challenged by this diversity but have not always adequately responded to the varied needs of students. Instead, teachers tend to rely on the teach-to-the-middle, or one-size-fits-all approach, expecting all students to do the same activity, work at the same pace, do the same homework, and take the same test.

Typically, the result is frustration on the part of many students—those who find the work unchallenging and boring, those who find the work too challenging, and those whose learning styles or strengths are not engaged. Furthermore,

there is frustration on the part of teachers because they are not reaching every student. Thus, in their search to create genuinely challenging and engaging learning experiences for their students, many teachers have discovered that they can better meet the diverse needs of their students by differentiating instruction (Tomlinson, 2010).

Although meeting the needs of all learners seems logical and appropriate, it is not without its critics. In fact, some have said that differentiation is too difficult to implement and, therefore, is an ineffective strategy and should no longer be suggested as a means for supporting the diverse needs of students in the classroom (Delisle, 2015).

Differentiated instruction benefits students at all levels of education (Lightweis, 2013). When differentiation is implemented with fidelity, students are able to explore concepts and ideas to a greater degree than they would with a more traditional approach to teaching (Archambault et al., 1993). In fact, the implementation of differentiated instruction can benefit students neurologically since the philosophical approach of differentiation recognizes the ways in which the brain functions. Each brain is unique, and each brain is looking through its own individualized lens to make patterns and build schema, creating new neural pathways in the context of an emotionally safe environment (Sousa & Tomlinson, 2011). The researcher has been a teacher in a college of teachers' education, and in universities, since 2010. According to my own observation in different schools, I noticed during practical sessions, and other related situations, that schoolteachers were not ready to implement differentiated instruction, and they were not familiar with the concepts. Studying the practices and challenges of implementing differentiated instruction may help us to know the barriers in implementing differentiated instruction; thus, this study will focus on assessing practices and challenges of implementing differentiated instruction of English and mathematics in Mindge Primary School.

1.2. Research Questions

This research will answer the following research questions.

1) What is the current state of differentiated instruction implementation in Mingde Primary School?

2) How are teachers implementing differentiated instruction in their classrooms?

3) What strategies and practices which teachers are using to implement differentiated instruction?

4) What are challenges that teachers face while implementing differentiated instruction?

1.3. Research Objectives

The purpose of this research is to assess the strategies, practices, and challenges teachers face with differentiated instruction implementation in English and ma-

thematics classes in Mingde Primary School in Shaanxi province. This goal will be achieved through analyzing the findings from a series of interviews.

1.4. Significance of the Study

Student ability in untracked primary classrooms may vary widely, which poses a challenge for teachers. This variability does not only occur in schools with a policy of full inclusion, but in all classrooms that are formed based on student age (Tomlinson et al., 2003) as cited in (Deunk et al., 2018). As discussed in the background section of this study, the importance of differentiated instruction is accepted by many scholars, and various researchers have investigated the topic at different times and have confirmed its value for successful learning. But the findings of different studies show that its difficulty lies in the implementation process. Therefore, the findings of this study will help educators, teachers, authorized bodies, students, and researchers to know the challenges that hinder successful implementation of differentiated instruction.

2. Review of Related Literature

This chapter reviews the existing literature relevant to the topic of differentiated instruction and its practice, as well as challenges in implementing in primary school settings. The first section deals with the literature concerning conceptual clarification of differentiated instruction, in general, followed by a section focusing on the findings which specifically address implementation of differentiated instruction. The chapter concludes with a discussion of the theoretical models in this study.

2.1. Conceptual Framework

The term differentiated instruction was introduced in the late 1990s by Carol Tomlinson, who describes differentiation at its most basic level as instruction "shakes up" what goes on in the classroom so that students have multiple options for absorbing information, making sense of ideas, and expressing what they learn.

Tomlinson (2005), a leading expert in this field, defines differentiated instruction as a philosophy of teaching that is based on the premise that students learn best when their teachers accommodate the differences in their readiness levels, interests, and learning profiles. A chief objective of differentiated instruction is to take full advantage of every student's ability to learn (Tomlinson, 2001a, 2001b, 2004, 2005). In addition, she points out that differentiation can be pursued in a variety of ways and, if teachers are willing to use this philosophy in their classrooms, they will find a more effective practice that responds to the needs of diverse learners (Tomlinson, 1999, 2005).

Tomlinson (1999) maintains that differentiation is not just an instructional strategy, nor is it a recipe for teaching, rather it is an innovative way of thinking about teaching and learning. To differentiate instruction is to acknowledge var-

ious student backgrounds, readiness levels, languages, interests, and learning profiles (Hall, 2002). Differentiated instruction sees the learning experience as social and collaborative; the responsibility of what happens in the classroom is first the responsibility of the teacher, but also of the learner (Tomlinson, 2004).

In the video Creating Multiple Paths for Learning (1997), Carol Ann Tomlinson, noted differentiation expert, says that differentiating instruction means that the teacher anticipates the differences in students such as, readiness, interests, and learning profiles. As a result, this creates different learning paths so that students can learn as much as possible, as deeply as they can, without undue anxiety, because the assignments might be too taxing, or boring, because they are not challenging enough. She cautions, however, that differentiated instruction is not individualized instruction. Students may have two or three learning options for some days, but never 21 or 35 different options. "Differentiation can be accurately described as classroom practice with a balanced emphasis on individual students and course content," writes Tomlinson & Imbeau (2010). The need for the balanced emphasis is evident through the diversity students bring to the classroom. "Students differ as learners in terms of background experience, culture, language, gender, interests, readiness to learn, modes of learning, speed of learning, support systems for learning, self-awareness as a learner, confidence as a learner, independence as a learner, and a host of other ways" (p. 13). Most importantly, these differences will "profoundly affect how students learn and the nature of scaffolding they will need at various points in the learning process".

Essentially, the aim of differentiating instruction is to maximize the growth of all students by meeting them where they are. Thus, Tomlinson & Imbeau (2010) suggest that teachers continually ask, "What does this student need at this moment in order to be able to progress with this key content, and what do I need to do to make that happen?" (p. 13).

Dr. Tomlinson, when illustrating the need for differentiation in our day, states, "In order to teach academically diverse populations effectively, schools will have to move from standardized instruction to personalized instruction. Our best knowledge of effective teaching and learning suggests clearly that teacher responsiveness to race, gender, culture, readiness, experience, interest, and learning preferences results in increased student motivation and achievement…[in] An increasingly complex society in which nearly every career and profession requires problem solving and flexible thinking means that students must learn to be critical thinkers, problem solvers, and producers of knowledge (rather than just consumers of knowledge)" (Tomlinson, 2005: p. 23).

Tomlinson not only tells us why differentiated instruction is beneficial, but also, she goes all the way to define as to how differentiation is done, emphasizing that differentiated instruction is a way of thinking about teaching and learning. She also developed a model that guides instructional planning in response to

students' needs.

2.2. Beliefs That Guide Differentiated Instruction

Differentiation is a teacher's proactive response to a learner's needs. These needs can be cognitive (needs for knowledge, meaning, and intellectual stimulation) and emotional—such as the need for belonging and connection, the need to feel respected and accepted, and the need to feel secure and important.

According to Tomlinson & Imbeau (2010: p. 39) the important thing teachers should remember is that learners come to school not to seek mastery of math or literature, but rather to address more basic needs first. They also describe the more basic needs as needs for affirmation and contribution. Once these basic needs have been met, learners focus on purpose, challenge, and power (Tomlinson & Imbeau, 2010: p. 28).

It's developed the important strategic guidelines that help teachers to improve their acceptance in employing differentiate classroom elements for student readiness, interest, and learning profile. The guideline supports the following guiding principles of differentiated instruction:

✓ Learners are respected by providing them with work that focuses on the essential knowledge, understanding, and skills targeted for the lesson.

✓ Students are kept intellectually challenged while providing appropriate support so that they are successful.

✓ Class time includes opportunities for flexible grouping, whole group work and individual work.

✓ Assessments are ongoing so differentiation for individuals remains informed and responsive to changes in development.

✓ Curriculum is coherent, important, inviting, and thoughtful. Teachers respond to student needs in a variety of ways. They address some needs and ignore others; they understand unique needs of some individual students, and they also generalize student's needs.

2.3. Classroom Management for Differentiated Instruction

Classroom management is a key factor for successful implementation of differentiated instruction (Cunningham, 2015). Teachers must have a grasp on routines and procedures (Tomlinson & Imbeau, 2010) in order for students to be able to simultaneously work on different assignments and activities or even participate in learning contracts. A culture of mutual respect is essential in a differentiated classroom. Additionally, it is helpful if the teacher has a firm grasp on cooperative learning. This allows students to understand how healthy groups function and can serve as a basis for a home team (Tomlinson & Imbeau, 2010) while the teacher explores the use of flexible grouping. Noise management is essential when students are working in small groups. Excitement will build as students are engaged in tasks that address their interests, learning profile, and readiness levels. A system to handle noise will be a key ingredient in managing a

differentiated classroom (Cunningham, 2015).

2.4. Challenges on Implementation of Differentiated Instruction

Differentiated instruction is inherent in quality instruction. Teachers understand that not all students learn the same way but it is a challenge to understand how to meet these different learning needs (Prain et al., 2013). Such challenges often impede teachers from implementing DI in their classrooms. Research has found that some of these challenges are the result of adverse attitudes of general education teachers, a deficiency of knowledge, and lack of administrative care (Jones et al., 2012; Orr, 2009; Roiha, 2014). Teachers differentiate to help each child learn and progress with methods that are specifically tailored to the child academic needs. In a perfect classroom situation, differentiation ensures that students master essential skills. This is part of the problem, no ideal situation can exist for a long period of time. Below is an outline of some of the drawbacks to differentiated instruction (Hollenweger, 2011).

2.4.1. Class Size

The value of differentiated instruction lies in the grouping of students by academic ability and need. The ideal size for learning groups is three to five, no more than seven. Therefore, a class of 30 students would necessitate four or more groups, which is hard for a lone teacher to manage and lead effectively.

2.4.2. Professional Staff

One teacher cannot instruct in a differentiated manner, especially a larger class size. A teacher might design activities and plan lessons, but implementation will require the help of a classroom assistant, at least on a part-time basis. Team teaching may work, but if the class has two struggling groups of students, more one-on-one help will be needed. Many schools cannot afford two or more staff in a classroom at one time.

2.4.3. Resources

Differentiated instruction requires that a variety of materials and resources be available for students with differing learning styles. For example, some students may learn a skill by practicing at a website, some may need to learn through the use of manipulatives and hands-on activities, and others may need to see a videotape of a skill being practiced. Whatever the method, these strategies require that teachers have a great number of available resources.

Administrative Support

Differentiated instruction means quality instruction, but it may look like organized chaos at times. Traditional principals who like for students to be at their desks and work quietly may not like how a classroom looks if students are moving from one activity to another, interacting and getting up often. Teachers need to enlist the support of their administrators by sharing often about student progress. If test scores are going up and students are making progress, it will be easier to get the principal approval.

2.4.4. Parental Support

Support from parents is an absolute must for differentiated instruction to have an impact because students can reinforce at home lessons learned in the classroom. Teachers will need to communicate often with parents about what their child is learning and how their child learns best. If a particular method seems incomprehensible to the parents, they may not be able to help their child and may undermine progress.

2.4.5. Teachers' Attitudes

A teacher plays a vital role in how students perform in a classroom (Dee, 2011; Troxclair, 2013). While it is not the only factor that influences student achievement, it may have a significant impact (Woodcock, 2013). Teachers who work in classrooms that have students with mixed skill levels have reported harboring various attitudes regarding the students in these classrooms (Dee, 2011). Many teachers feel that they are not prepared for the responsibility of educating students with mixed skill levels (Fuchs, 2010). Teachers have also reported that they feel the pressure of assessments when students with disabilities are in their classrooms (Pearcy & Duplass, 2011). They feel that it is difficult to cover the entire curriculum and meet the needs of all students (Pearcy & Duplass, 2011). Students in classrooms with teachers who have negative attitudes, and who do not feel prepared to teach students with various learning needs, may struggle to achieve their full potential both academically and socially (Smith & Tyler, 2011; Troxclair, 2013). Teachers need to be fully trained to understand the implications of having special education students in their classrooms (Woodcock, 2013). Students who have individualized education plans (IEPs) are entitled to certain modifications and accommodations as set in these legally binding documents (La Salle, Roach, & McGrath, 2013). Some teachers may perceive that students with disabilities in the general education setting should be learning at the same pace as other students in the classroom, but those teachers need to understand that such students may not learn at the same rate or in the same way (Wu, 2013). Teachers must have the attitude that every student in the classroom is important because the attitude of a teacher plays a vital role in the success of each student (Male, 2011; Troxclair, 2013). Students should be able to trust that a teacher is doing what is best for each person in the classroom (Wu, 2013). A teacher's negative feelings can have a tremendous impact on behaviors, student learning, and the overall success of the inclusion program (Fuchs, 2010). In making sure that every student feels important, the teacher must get to know each student and their learning styles and levels (Herrelko, 2013). The teacher needs to be able to work with each student's level and not give work that is too hard or too easy (Wu, 2013).

2.5. Theoretical Framework

A theoretical framework refers to the theory that a researcher chooses to guide him/her in his/her research. Thus, a theoretical framework is the application of a theory, or a set of concepts drawn from one theory, to offer an explanation of an

event, or shed some light on a particular phenomenon or research problem. Vygotsky's learning theory of the zone of proximal development was the theoretical framework basis for this study. According to Vygotsky (1978), the zone of proximal development is the difference between what a student can accomplish independently and what they can accomplish with the help of others. Vygotsky believed that students have the potential to learn, but that potential cannot be reached unless they are assisted by someone who uses strategies to meet their learning needs. Teachers can help students reach their zone of proximal development by providing activities that help foster a connection to new information (Subban, 2006). Vygotsky believed that a teacher's job was to create an environment that helped students reach their zone of proximal development. Teachers can help students make these connections through DI by providing encouragement through activities that interest the students or that the students feel they can be successful completing.

Several educators, researchers and school administrators view the social constructivist learning theory engendered by Russian psychologist, Vygotsky (1896-1934), as central to instructional enhancement, classroom change and redevelopment (Blanton, 1998; Flem, Moen, and Gudmundsdottir, 2000; Goldfarb, 2000; Kearsley, 1996; Riddle and Dabbagh, 1999; Rueda, Goldenberg, and Gallimore, 1992; Shambaugh and Magliaro, 2001; Tharp and Gallimore, 1988). Sociocultural theory, drawing on the work of Vygotsky and later Wertsch, has significant implications for teaching, schooling, and education (Tharp and Gallimore, 1988).

This theory is based on the premise that the individual learner must be studied within a particular social and cultural context (Blanton, 1998; Flem et al., 2000; MacGillivray and Rueda, 2001; Patsula, 1999; Tharp and Gallimore, 1988). Such a situation is necessary for the development of higher order functions, and such functions can only be acquired and cultivated following social interaction (Blanton, 1998; Riddle and Dabbagh, 1999; Rueda et al., 1992; Shambaugh and Magliaro, 2001). Social interaction is, therefore, fundamental to the development of cognition (Kearsley, 1996; MacGillivray and Rueda, 2001; Patsula, 1999; Riddle and Dabbagh, 1999; Scherba de Valenzuela, 2002). Furthermore, as a departure from other theories regarding cognition, Vygotsky's theory views education as an ongoing process, not a product (Pearl, 2006).

2.5.1. The Zone of Proximal Development

Vygotsky's notion of the zone of proximal development, a central proposition of this theory, refers to a level of development attained when learners engage in social behavior (Blanton, 1998; Riddle and Dabbagh, 1999; Scherba de Valenzuela, 2002; Pearl, 2006). Pearl (2006) cites Vygotsky (1978) as defining the zone of proximal development as the distance between the actual development level and the level of potential development. Hence, the zone of proximal development (ZPD) links that which is known to that which is unknown (Riddle and Dabbagh, 1999). In order to develop the ZPD, learners must actively interact socially

with a knowledgeable adult or capable peer (Blanton, 1998; Kearsley, 1996; Riddle and Dabbagh, 1999; Pearl, 2006). A student can only progress to the ZPD and consequently independent learning if he or she is first guided by a teacher or expert (Blanton, 1998; Riddle and Dabbagh, 1999; Rueda et al., 1992; Pearl, 2006). Accordingly, responsive instruction acknowledges what the learner already knows, before a new skill is taught or new knowledge introduced (MacGillivray and Rueda, 2001 and Pearl, 2006). The learner's skill can only be extended and enriched through meaningful adult direction (Blanton, 1998; Riddle and Dabbagh, 1999; Rueda et al., 1992). The teacher's role becomes one of purposeful instruction, and a mediator of activities and substantial experiences, allowing the learner to attain his or her zone of proximal development (Blanton, 1998; Rueda et al., 1992). Vygotosky's theory provides evidence for teachers about the importance of differentiated instruction.

2.5.2. The Implications of Vygotsky's Theory

Vygotsky's general theory of cognitive development is the framework for this investigation. The areas of social interaction, engagement between teacher and student, physical space and arrangement, meaningful instruction, scaffolding, student ability, and powerful content all become elements to consider within the context of contemporary education. With its emphasis on social interaction, Vygotsky's theory sees the student-teacher relationship as collaborative, with the learning experience becoming reciprocal (Flem et al., 2000; Riddle and Dabbagh, 1999; Shambaugh and Magliaro, 2001; Pearl, 2006). The instructional environment, including the physical arrangement of furniture, would be so structured to promote interaction (Riddle and Dabbagh, 1999). Furthermore, the teacher would so design the lesson that instruction will extend the student to just above the student's current developmental level, building on that which the student already knows, but encouraging the student to move ahead into areas that pose greater challenge (MacGillivray and Rueda, 2001; Riddle and Dabbagh, 1999). In this regard, scaffolding would be an appropriate strategy to access the zone of proximal development (Riddle and Dabbagh, 1999). The teacher would again engage student interest and modify tasks to suit ability levels (Riddle and Dabbagh, 1999). Lesson content will also be meaningful, compelling learner interest and providing a basis for the use of mediating tools like language (MacGillivray and Rueda, 2001; Patsula, 1999). Within this framework, this study investigates the challenges and practices of differentiated instruction.

3. Research Methodology

The intention of this research is to assess the practices and challenges in implementing differentiated instruction in primary school. In order to achieve this research objective, the researcher would collect information from primary school teachers. Accordingly, the planned study design, study population, sample size, methods of data collection, data trustworthiness, methods of data processing, and analysis of results are explained in this chapter.

3.1. Study Design, Participants

To answer this research question properly, qualitative research design of case study would be used. The target population of this study was Mingde Primary School teachers. The school is purposefully selected for the study based on the researchers' personal observations. From among the teachers at Mingde Primary School, two teachers will be selected for this qualitative study by using random sampling from mathematics and English subject teachers who are teaching in the fifth grade. The selection will be based on departments, one from mathematics and one from English.

3.2. Study Area

To understand the research area more clearly, it is necessary to give some background information of the study location in which the study was conducted. Accordingly, the study was conducted at Mingde Primary School which is located in Xi'an city, no. 7, south section of Zhuque Street, Yanta District, Xi'an, mainland China. Xi'an city, is located central China which is about 911 kilometers to the center of the capital of Beijing. Mingde Primary School was founded in 1954. There are 1270 students of which 714 were male and 556 were females, with 68 teachers. (Source: school principal).

3.3. Method of Data Collection

There are different instruments that can be used to gather information, and different researchers use different instruments depending on the research type and population in which they are interested. From these instruments, the researcher used a semi-structured interview since this method is the best way to get deep information about the topic that the researcher will assess regarding the challenges and practices of implementing differentiated instruction in English and mathematics instruction at this primary school.

3.4. Method of Data Analysis

Based on the qualitative data analysis method, data transcription, data coding, data categorizing, and data labeling will be used for effective data analysis.

3.5. Ethical Consideration

This research follows the ethical standard of obtaining permission from the school principal and study participants, informing them that the data they will contribute is only for research purposes and that consent forms ensure the maintenance of confidentiality.

4. Results

This chapter explains all the major themes that emerged from the interviews. The participants' answers from the interview questions were coded, refined, and then organized into themes. For example, a couple of codes were extracted from

the data in relation to the definition of differentiated instruction. One code revealed concept understanding on differentiated instruction. Another code revealed that the perception of differentiated instruction was difficult, which contributed to a core category of Perception of DI. Codes related how teachers are using differentiated instruction reflect engagement of each student, dividing students into small groups, asking discussion questions, setting up learning stations, and targeting lessons, all of which are core categories of differentiated instruction strategies. Participant responses to queries pertaining to the research question, such as, perceived challenges with differentiation, generated three categories: large class size, varied needs of students, and teacher commitment. Participants also responded to questions related how to overcome challenges, which coded as professional training. Thus, the themes that will be discussed in this chapter include the knowledge gap, perceptions, strategies, large class size, students' varied needs, teacher commitment, professional training, and collaboration. Based on the process of qualitative research the next step is discussion of the results. The researcher discussed these according to coded themes and each research question.

Before discussing the findings, I would like to introduce the teachers and the process of how the interviews were conducted. All teachers were informed that the interviews were only for research purposes to ensure confidentiality. The participating teachers came from the Mingde Primary School and taught English and mathematics to children in fifth grade. The chart below provides information about their language, educational background, and length of teaching experience.

Teacher	Grade	Teaching school	Teaching experience	Subject
Ms X	5	Mingde primary	6	Mathematics
Ms Y	5	Mingde primary	5	English

Following research approval, the interview process was organized on a set schedule, with signed consent forms, and was conducted in the Chinese language on January 2/2020 in the morning, from 8:30-12:00 in the Principal's room at Mingde Primary School.

4.1. Concept Understanding

The interview results show that there is not enough understanding of the concept of differentiated instruction. As stated in the research methodology, the participants of this research were English and mathematics teachers from Mingde Primary School. Their responses to the question of defining differentiated instruction were as follows, beginning with the English teacher:

"Differentiated instruction is way of doing different teaching styles so that all students understand equally. In each class, there are different types of students with different needs, interests, learning styles, and motivations. I think differen-

tiated instruction is, understanding the difference of each student's needs and acting accordingly. I am trying to use this in my teaching, but differentiated instruction is difficult." According to her definition, differentiated instruction is doing what works best for the student to meet their learning goal. So, it means, considering different learning styles, and then just using teaching experience, and professional knowledge, combined with looking at the multiple learning styles, to develop a creative approach to meet that goal.

The second interview was done with a mathematics teacher about the definition of differentiated instruction, and her experience with differentiated instruction. Since the term is new to me, she said, I need to know it in Chinese, then translate it into Chinese, and she said, "Well, I know that in my class there are different types of students, I come up with the same teaching, but I always focus on the attention of students from the beginning by showing different pictures, videos, diagrams, games, and the like because the class is too large and the time is limited." As the interview shows that there was a clear difference in the understanding of the term differentiated instruction between English and mathematics teachers.

4.2. Perception

A second theme derived from coding the data was perception. Perception plays vital role in an individual's everyday life; when one perceives things positively, whatever the situation, he/she can strive to achieve or vice versa. Both teachers reported that differentiated instruction was difficult; but that does not mean that they were not practicing differentiated instruction in the school. In their report they indicated that differentiated instruction needs support, professional training, and appropriate class size, but they did not focus on their commitment. Their answer was, "Yeah, I am not the teacher I wish to be, and I am doing as much as I can to treat the interests of every student in my class, but I do not take differentiating as easy task, because it is a very hard task, especially with the current generation because students' interests and learning styles change day to day and class size limits time."

4.3. Strategies of Differentiated Instruction

Another theme was the strategies that teachers were applying in the teaching/learning process to ensure every student's acceptance level. There was a question about how they were teaching their students in the classroom and their level of ability to get students' attention. The English teacher explained that, "Yes, the subject that I am teaching is English, and it needs different strategies, and I am using different methods like games, stories, computer created activities, voices, and songs before starting the lesson, then I get their attention and start the day's class."

The mathematics teacher reported that motivation is the first thing for the teaching and learning process. "I believe that learning is more difficult than

teaching. Therefore, we should work to motivate every student before beginning class by using different strategies, I mean using differentiation and working with everyone's needs make the students think more and know that the teacher cares about them, which adds to their motivation. My strategy is to first divide class students into different groups; I believe that my children learn what they see, because my picture is my memory, and I always give activities to do in each group, so that they talk about what they feel, and comment to each other about the lesson and all methodology."

Large Class Size

Another theme derived from the code was how large class size was a challenge for implementing differentiated instruction. They reported in the interview that they were giving less attention for individualized learning, and that they were facing challenges of classroom management, the varied students' performance, and limited time. Their response was, "Well I can say that the challenge is large class size since there are around 45 - 50 students in one class, and for each lesson, the allotted time is 50 minutes, so, within those minutes, treating each student according to their own interest is a little bit difficult." The mathematics teacher also noted that all her classes are greater than 40 learners per class. "It is extremely difficult to support learners with differentiated activities, and extra assistance, and I feel worried to say I am applying different instruction from individualized instruction, but I have different techniques in the classroom for students' attention like games, storytelling, group work, and attention getting activities."

Commitment

Since different studies report that teacher commitment plays a vital role in the teaching and learning process, it is especially important to treat students according to their varied interests with differentiated instruction. Teacher education is charged with preparing teachers for the complexities of the classroom and is held responsible when candidates are insufficiently prepared to respond to its daily demands (Deck, 2018). Commitment was another theme derived from the codes and teachers were asked about how much they are committed to applying differentiated instruction rather than complaining about large class size. The mathematics teacher reported, "Yeah, I know that teacher commitment is important, and I am working as much as possible, but not at my best potential because the students need day to day difference, given that the responsibility is broad and the content extensive. However, I am not ignorant of the student side, and I would rather focus on their need and work toward it." The English teacher report stated, "Well, commitment is the thing that reveals the best character of a good teacher since I am teaching English. There is no resource problem even though the student number is high, and I am committed to applying a student-centered approach. The nature of English as a subject forces me to do this because I should know the students' needs and learning styles. From the beginning, being a teacher is a commitment to understand students' needs, their progress in day-to-day lessons, and prepare appropriate methodologies for every

student, but I agree that differentiated instruction is difficult to apply in a large class."

4.3.1. Professional Training

The last theme for this study derived from the code related to the interviewee comments about further improving their practice of differentiated instruction in their school; they reported as follows. The English said, "Continuous training in the areas of instruction is needed, as well as assistant workers collaborating better, creating awareness workshops to motivate teachers, working closely with experienced teachers, and mentoring each other. Since we are talking about student learning style and interest differences, we teachers also have different teaching methodologies, thus working closely is a good strategy."

Mathematics teacher reported that, "Well-differentiated instruction is a very important type of instruction to address all students' interests, needs, and learning styles. Thus, for the future, class size and continuous resource support should be considered. We should also change the perception of differentiated instruction."

4.3.2. Discussion

It is now time to discuss the findings of the data as presented in part one. As stated in chapter one of this research, the main intent was to assess the practices and challenges of implementing differentiated instruction in Mingde Primary School. Based on this objective, detailed qualitative survey results were analyzed in part one of this chapter. In this section, I will pursue a detailed discussion of this qualitative survey concerning the practices and challenges of differentiated instruction implementation in this primary school. Related research findings for triangulation are presented.

This chapter is divided into different sections that represent the main findings and which reflect the research questions set forth. First, teacher understanding about differentiated instruction, including how they were defining differentiated instruction, and their perceptions. Then, how differentiated techniques and strategies are being used. The third part explains the perceived challenges that teachers typically face and their suggestions for overcoming these challenges.

4.3.3. Teachers' Perception and Concept Understanding

As presented in the literature review and in the findings, there is variation in understanding of the concept, differentiated instruction, depending on the teachers' mother tongue. The English teacher was able to give a general explanation of differentiated instruction relatively well with clear comprehension. On the other hand, the mathematics teachers struggled and often confused the term with individualized instruction. These findings are consistent with the research provided by Fiona (2016) which concluded that there is a difference of understanding regarding differentiated instruction among teachers. Teachers perceive differentiated instruction as difficult, right from the beginning, due to individual differences. Thus, they face challenges during implementation of differentiated

instruction. This finding is that the major challenges of differentiation include limited preparation time, large class size, teachers' heavy workload, lack of resources, teachers' lack of skills in differentiation, and teachers' lack of motivation to differentiate (Suprayogi et al., 2017).

The study is also consistent with Iranda Bajrami, a study which focused on the importance of differentiated instruction for diversity. The result was that teachers and school administrators had a varied, negative perception of differentiated instruction (Bajrami, 2013).

4.3.4. Differentiated Strategies Being Used by Teachers

Through the responses of the interviewees, it was evident that they were using different instruction strategies in their classroom, which was a good thing that I observed from their responses. They use different strategies like games, stories, computer created activities, voices, and songs to motivate students before starting the class. It was positive to see that interviewees were using different techniques to address students' needs. They also divided students in small groups and motivated students to participate in different activities. This finding is like Lefever (2009) who used different strategies, such as a majority of the students using pair and group work, while the rest of them used stations and centers. Likewise, that study showed that most of the language teachers interviewed also gave students assignment options to demonstrate their understanding and worked within the students' interests. As Wright (2005) reminds us, using Howard Gardner's theory of multiple intelligences is a simple, straightforward, yet effective way to deal with mixed ability groups in a positive way. We know that variety is key in teaching, and Gardner's list reminds us that students learn and understand in different ways.

The most common forms of differentiation that emerged from the study are dividing students into small groups, giving students assignment options, and accommodating student interests. McCarthy (2014) identified that differentiation by product, or having several options for students to choose from, is the most common method. It is also important to remember to have a clear set of expectations, so that students know what is expected of them (McCarthy, 2014).

4.3.5. Large Class Size and Teachers and Stakeholders Commitment

Today, more than ever, teachers are challenged to meet the needs of all students in diverse and mixed-ability classrooms (Valiandes et al., 2018). As indicated in the literature section, large class size is a problem found in this site of study. The study is similar to (Chan, Chang, Westwood, & Yuen, 2002; Scott, Vitale, & Masten, 1998; Westwood, 2002). The major challenges of differentiation include limited preparation time, large class size, teachers' heavy workload, lack of resources, teachers' lack of skills in differentiation, and teachers' lack of motivation to differentiate (Chan, Chang, Westwood, & Yuen, 2002; Scott, Vitale, & Masten, 1998; Westwood, 2002).

Another study that is also similar with the study by de Jager (2017) states that

teachers are not always willing to create differentiated activities since they experience insufficient resources, are pressured to complete a large amount of content in a limited time, are burdened with a heavy workload, teach large classes, and lack sufficient training in adaptive teaching practices (cited in de Jager, 2017).

4.3.6. Overcoming the Limitations

The participants' solutions to overcoming the challenges of using differentiation were reflective of the perceived barriers. Many of the teachers mentioned more continuous professional training, fewer teaching hours, more preparation time, and a teacher assistant when it came to finding solutions to meeting the needs of diverse learners and implementing differentiated instruction.

The above-mentioned study is similar to Fiona (2016). The findings of the study indicated that teachers who worked closely together, or utilized collaboration, and those with a great deal of professional development available to them, such as courses and lectures, were more likely to be responsive to their students' needs, used more differentiation in their lessons, and were open to trying new things. Some of the teachers mentioned that when collaborating, they were able to exchange ideas off one another. The teachers who worked together usually had different strengths and were able to use that to their advantage.

Wright (2005) specifies that creating ambitious differentiated lessons cannot be accomplished overnight; this is a long-term project. Over time, and preferably with a group of teachers, every teacher can prepare differentiated materials and plans, and consider how they will be targeted and monitored (Wright, 2005). Working with others could aid in diminishing the perceived complexity of implementing differentiated instruction. Collaboration, along with continuous professional training, is a technique that should be considered for successful implementation of differentiated instruction.

5. Conclusion

This study was set up to investigate the practices and challenges of implementing differentiated instruction in primary school. This study explored Mingde Primary School teachers' perspectives and understanding about the principles and theory of differentiated instruction, investigated how and why they use differentiation, and what are challenges they faced in differentiated instruction. Despite the limitations that were mentioned in the methodology section, this study has collected rich data on the topic of differentiated instruction in Mindge Primary School. Differentiated instruction is a relevant and timely topic that has the potential to provide important information for teacher educators and school stakeholders.

Three themes were discussed in findings. The first theme is related to the participants' definition and perceptions of differentiated instruction. The perception of participants toward differentiated instruction was discussed clearly in the discussion part of the study. Continuous professional support is proposed by

this researcher to minimize confusion about differentiated instruction. The second theme spotlighted how and why teachers use differentiation in their classes. The key reason differentiation is used in the classroom is because of the vast ability differences among students. The principles of differentiated instruction were used to some extent by all participants in diverse ways. The third finding was that large class and teachers' commitment were barriers to effectively implementing differentiated instruction. The teachers listed what they perceived were challenges in implementing differentiated instruction.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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