One Size Does Not Fit All: Understanding Differentiated Instruction in Elementary Mixed-Ability Classrooms

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Abstract

Differentiated instruction (DI) serves as an umbrella term for various approaches that educators adopt to ensure that students can access the curriculum through multiple avenues, ultimately achieving the vision of equitable classrooms across educational institutions (Tomlinson, 2014). Using a qualitative research approach, this study aimed to answer the following key question: How do teachers understand and utilize differentiated instruction to meet students’ individual needs in mixed-ability elementary classrooms? Data from semi-structured interviews with two Ontario certified teachers revealed that differentiated approaches are highly regarded and are utilized to ensure the holistic development of all students, evidencing its significant impact on student learning and motivation. However, findings also showed that the definition of DI is at times misunderstood. The way in which teachers conceptualize DI may hinder its implementation or provide a false sense of inclusivity in the classroom. Furthermore, the participants identified varied challenges when endeavouring to differentiate their instruction, including lack of staff support, lack of resources, and time constraints. In order to alleviate these challenges and consequently accentuate the benefits of DI, teachers need to be proactive and seek professional development in DI. Participants also noted the school administrators’ support as crucial to achieve successful implementation of DI.

Key Words: differentiated instruction, student diversity, multiple intelligences, student success, learner variance
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Chapter 1: Introduction

1.0 Research Context

“When we find out who our students are, we can support them in their learning.”

(Ontario Ministry of Education, 2008, p. 3)

If our students are to thrive and excel through their educational journeys, as teachers, we must create conditions that promote engagement and the motivation to learn, acknowledging that each child learns differently and expresses themselves in a multitude of ways in response to “various stimuli” (Edwards, Carr, & Siegel, 2006, p. 583). While a one-size-fits-all approach has been traditionally reinforced (Lewis & Batts, 2005), the drive away from it is becoming prevalent, leaving today’s teachers faced with the fundamental question, “how [do I] reach out effectively to students who span the spectrum of learning readiness, personal interests, and culturally shaped ways of seeing and speaking about and experiencing the world?” (Tomlinson, 2014, p. 1). One significant way in which educators can respond to learner variance is through the implementation of differentiated instruction (Tomlinson, 2014).

Differentiated instruction (DI) can be defined as “engag[ing] students in instruction through different approaches to learning, by appealing to a range of interests, and by using varied rates of instruction along with varied degrees of complexity and differing support system,” (Tomlinson, 2014, p. 3-4) with the intentions of reflecting the readiness levels, interests, and learning profiles of the students (Tomlinson et al., 2003). Some examples of DI include flexible grouping, learning centers, independent contracts, adjusting questions, thematic units, compacting, independent study, and tiered assignments (Lewis & Batts, 2005). Hence, DI is a learner-centered approach, marked by flexibility and adaptability, as educators strive to recognize and respond to the diversity in their classrooms (Dixon, Yssel, McConnell, & Harden,
2014). Conducting a diagnostic assessment of the different readiness levels, interests, and learning profiles allows educators to act on this knowledge, providing students with choices on how to best represent and express their learning through content, process, and product dimensions (Tobin & Tippett, 2014). As summarized by Santangelo and Tomlinson (2012):

> Effective differentiation is grounded in teachers’ understanding of, and appreciation for, students’ unique needs as well as their commonalities; comfort with the meaning and structure of the discipline(s) they teach; and proficiency with appropriately and creatively modifying important classroom elements such as curricula, instructional strategies, resources, learning activities, assessments, and the learning environment (p. 310).

Consequently, the DI approach counteracts the one-size-fits-all approach, and thus, educators are marked with the responsibility of responding to diverse groups of students.

1.1 Articulation of the Research Problem

Although educators are endeavouring to ensure an overall equitable and inclusive learning environment that adheres to the needs of their diversified student body, they inevitably encounter various difficulties that impede on the process (Edwards et al., 2006). Such difficulties include misconceived beliefs and thoughts, governmental and/or administrative burdens (Logan, 2011; Tomlinson, 1995), uncertainty in recognizing and meeting all the needs of their students (Edwards et al., 2006), lack of time, education, and support (De Neve, Devos & Tuytens, 2015; Dixon et al., 2014; Lewis & Batts, 2005; Tobin & Tippett, 2014), all of which may potentially deter teachers from differentiating their instruction to the fullest. Therefore, the research problem that is being addressed is how teachers are utilizing DI in their classrooms, how they conceptualize DI, in addition to the facilitating factors and/or barriers that may affect their ability implement differentiated practices. At the end of their study regarding educators’ perceptions
and use of DI practices, Santangelo and Tomlinson (2012) stated that “future research should seek to qualitatively understand the nature, meaning, and impact of [teachers’] beliefs and practices” (p. 325). This aspiration has been articulated as a result of the numerous studies taking a quantitative lens to the problem, rather than a qualitative one. My study attempts to fill this gap, by taking a qualitative approach to explore this important topic and will be explored in more depth in chapter two.

1.2 Purpose of the Study

The overarching purpose of this study is to broaden understandings of the ways in which we can become responsive to students’ needs and identities through the differentiation of one’s instruction. In carrying out the literature review, it became apparent however, that DI is a complex practice, one that is understood differently by many educators and scholars worldwide. Roe (2010), one of many academic scholars in this area, exclaimed that a refinement of its definition is needed, as the differing views may serve to be problematic in its actual implementation or lack thereof. Thus, this study sought to qualitatively investigate this problem further and serves to solidify its importance within the field of education, addressing the ways in which educators’ views on DI affect its overall implementation in the classroom. As well, the overwhelming majority of the related literature reflects mostly non-Canadian voices. Hence, this study seeks to identify whether there is a consensus amongst Canadian educators, in comparison to their international counterparts.

Additionally, as a teacher candidate and future educator, my hopes are to contribute to the existing body of academic literature in the areas of equitable education and essentially, utilize the findings to expand my practice. Zeichner (1995) claimed that the majority of teachers view the world of academic research as external to their profession, believing it is produced for the benefit
of those who are conducting and writing the research. In contrast, many researchers see teachers’ views and knowledge of education as irrelevant, unrelated to classroom practice. However, in order to create an equitable environment and classroom whereby students are given the opportunity to learn and benefit from their experiences, educators must remain up to date with the research, wherein they are acknowledging the strategies that are seemingly working for others, in their pursuit to differentiate their own instruction. Thus, the enactment of research-informed teaching is crucial and serves as one of the many ways to creating a class filled with lifelong learners.

1.3 Research Questions

Through a qualitative research method using semi-structured interviews and a thorough analysis of the current literature, this study aimed to answer the overarching research question: How do teachers understand and utilize differentiated instruction to meet students’ individual needs in mixed-ability elementary classrooms? Due to the question’s broad nature and numerous possibilities, areas such as teachers’ attitudes and/or beliefs were explored to see how these factors affect the implementation of DI in their classrooms. A number of sub-questions were used: (1) Do teachers’ beliefs and attitudes about teaching impact their ability to implement differentiated instructional practices? (2) How are teachers implementing DI in their classrooms? (3) How are teachers ensuring each child is given a fair assessment of their learning while implementing DI? These sub-questions are considered in order to acquire a deeper and reflective understanding of the research problem, in attempt to answer the main research question.

The findings of this study are contextualized and interpreted within the research, highlighting areas of similarity, contrast, and null data (absent information). Many of the strategies that the participants used while differentiating their instruction are also brought forth in
order to create a community of shared collaboration within the academic research field. While conducting my research, I strived to respect the spirit of Indigenous perspectives, such as trust, respect, sense of community, and to honour all forms of knowledge (Pyrch & Castillo, 2001). In other words, I ensured that the participants felt a sense of ease in expressing their thoughts, through the exertion of a comforting and welcoming demeanour on my end. I aimed to conduct the research with my participants, rather than on them (Heron & Reason, 2001). Seeing as they were also looking to expand their own practices and knowledge bases regarding differentiated instruction, the results and findings were shared with them. At all points throughout the study, the participants contributed to and assisted in building my knowledge as the researcher, which may consequently build the reader’s knowledge as well.

1.4 Background of the Researcher/Reflexive Positioning Statement

As a Caucasian, middle-class female growing up in the Western world, I was unaware of the inequities prevalent in the educational system, in other words, teaching in such a way that reflects the one-size-fits-all model. It was not until I attended post-secondary education, that these injustices became clear to me and challenged my biased thinking, hence, contributing to my desire to make a change. It is critical to note that this topic is of importance to me because as a practicing educator, I believe fostering an equitable environment is the key to ensuring the learning and well-being of all students. Each child learns differently and embarks on their own path to learning, which is dependent on their needs, abilities, and interests. With the appropriate and necessary assistance (accommodations and/or modifications), a child is given the opportunity to flourish and progress through their development to their fullest potential. Thus, by getting to know one’s students on both personal and academic levels, making changes to
everyday instruction and curriculum becomes easier and is in turn, highly beneficial in the larger picture.

I take a social constructivist stance, as I believe that learning takes place through the interactions with others, making each individual a teacher and simultaneous learner in their own way. The teacher-student relationship is imperative to success, as the teacher learns from the student, in terms of their needs, interests, and abilities. This consequently provides a responsive environment, wherein the student is enabled to learn from the teacher. For this reason, I have chosen to situate my study on the topic DI, as this is one of the many ways in which educators can reach all students, regardless of the diversified needs prevalent in the classroom.

1.5 Overview of the Study

This qualitative research study is organized into five chapters. Chapter one, the current chapter, describes the research context and problem, the purpose of the study, the research questions and my positionality as the researcher. In chapter two, the literature review, various key components of differentiated instruction are defined and explained in order to provide the background knowledge and an understanding of what DI entails. Next, teacher beliefs and misconceptions are brought forth, in addition to the common barriers to implementing DI, with the purpose of examining how international counterparts experience DI practices in their classrooms and how it relates to my Canadian participants. Success stories are also examined. The chapter wraps up with the importance of teacher education programs in better preparing and equipping teacher candidates with the knowledge and resources. Chapter three presents the research methodology, including the research approach, procedures, data analysis processes, ethical considerations, and overall strengths and limitations of the study. The ways in which the participants were chosen and recruited, including a rationale, are also discussed in chapter three.
Chapter four presents the research findings, contextualized within the research explored in chapter two. Chapter five explores the implications of my research for the educational community, for my professional identity and practice as a simultaneous researcher and educator. Recommendations are also discussed for various educational stakeholders, concluding with areas of further research.
Chapter 2: Literature Review

2.0 Introduction to the Chapter

Differentiated instruction is a term that has been in use for many years and its practice has been valued greatly by educators worldwide (Ontario Ministry of Education, 2010). Although it is not a novel term, it has become progressively pertinent in schools with diversified student bodies (Watts-Taffe et al., 2012). However, with its name, comes great ambiguity, as it can be interpreted from many different perspectives. Roe (2010) claimed that to some, DI may be a philosophical claim, whereas others may interpret it as a process or assessment method. Through my literature review, I aimed to show that DI is an umbrella term, in that there are many aspects to it in relation to students’ learning (that is, readiness, interests, learning profiles) and its phases (process, content, product). As Tomlinson (2014) maintained, “teachers in differentiated classrooms accept and act on the premise that they must be ready to engage students in instruction through different approaches to learning, by appealing to a range of interests, and by using varied rates of instruction along with varied degrees of complexity and differing support systems” (p. 3-4). Thus, it is important to note that DI is not synonymous with individualized instruction, as it addresses learner variance through proactive (rather than reactive), flexible teaching, and is seen as a “multi-faceted professional learning strategy” (Ontario Ministry of Education, 2008, p. 3).

Howard Gardner, an American developmental psychologist, is widely known for his theory on multiple intelligences (MI). The MI theory asserted that there are multiple pathways (eight intelligences: logical-mathematical, linguistic, musical, spatial, bodily-kinesthetic, interpersonal, intrapersonal, naturalist) to knowledge, and students achieve this knowledge through their preferred mode (Gardner, 1983). While students may excel in some areas, they may
falter in others. Thus, it is vital that teachers recognize the individual differences between their students, and differentiate their instruction accordingly, in order to connect with their students on personal levels (Edwards et al., 2006). Although there is a standard and regulated curriculum that teachers in Ontario are required to teach, it is rare that every single student in a class will learn it in the same way, and perform it at the same exact level. Thus, educators must remind themselves that if all students are to learn the same subject material, they must use their own professional discretion and flexibility, making modifications and/or accommodations to classroom materials and lessons. Consequently, DI evidently finds its place within this theory.

When critiquing and analyzing the research in this field, numerous themes arose, as the various authors discussed and presented similar aspects and/or findings regarding DI. These themes are as follows: teachers’ beliefs and misconceptions about DI, barriers to implementing DI, success stories, and the importance of teacher education programs in preparing teacher candidates in the future implementation of DI. Prior to discussing these themes, it is vital that an overview of DI be provided, including its key characteristics.

### 2.1 Defining DI: Student Readiness, Interests, and Learning Profiles

The frequently cited Carol Tomlinson is a leading researcher in the area of DI. As a result of her work and insights regarding DI, many researchers in the field have built their studies surrounding her concepts and DI’s key components (Tomlinson, 2014). In order to fully comprehend the nature of DI and what it intends to accomplish, educators are required to assess and understand a student’s readiness level, interest level and their learning profile (which encompasses their learning styles and preferences) (Tomlinson, 2014). By doing this, they are then able to provide accommodations and make modifications to the subject content, process and products (Logan, 2011). With this in mind, the first characteristic of the learner that is often cited
within the research is student readiness (Dixon et al., 2014; Logan, 2011; Santangelo & Tomlinson, 2012; Tobin & Tippett, 2014; Tomlinson et al., 2003).

2.1.1 Student readiness

Readiness can be defined as the “basic knowledge, understanding and skill that a student has” (Logan, 2011, p. 6) in certain areas of the curriculum. In other words, lessons and/or materials should reflect the child’s current level of mastery, with the encouragement of bringing them beyond this level (Tomlinson et al., 2003). This coincides with the work of Lev Vygotsky (1978), a Russian psychologist, who is known for his theory of the zone of proximal development (ZPD). The ZPD is characterized by what a child is able to do independently, versus what they can do with adult assistance, bringing them to a higher level (Vygotsky, 1978). Therefore, teachers are encouraged to differentiate their instruction by ensuring that students are working one level above their current level of mastery, as they should always be presented with a moderate challenge (Edwards et al., 2006; Nicolae, 2014; Smit & Humpert, 2012; Tomlinson et al., 2003). As emphasized by Nicolae (2014), “a child who is not challenged in this way fails to reach the highest stages of thinking or reaches them with great delay” (p. 428). Thus, this key component of DI includes stimulating the students with materials, resources, and lessons that gradually increase in levels of difficulty, appropriate to their individual needs (Santangelo & Tomlinson, 2012; Smit & Humpert, 2012).

2.1.2 Student interests

The second component of DI that is emphasized is student interests. This area reinforces the notion that students’ levels of motivation, engagement and achievement will be enhanced if they are presented with materials or activities that reflect their personal interests. If students are partaking in something that interests them, it is likely that their competence and levels of
autonomy will increase; also developing a positive attitude regarding the material they are attempting to learn and master (Tomlinson et al., 2003). This is where the provision of student choice comes into play, as students should be encouraged to choose what interests them, while at the same time, remaining within the curriculum objectives and subject areas (Tomlinson et al., 2003). This may involve the students choosing how to showcase their understanding (final product), choosing how to go about learning the material (process, e.g. groupings), or choosing the content in which they will retrieve the information (e.g. the activity, resource, material, etc.) (Santangelo & Tomlinson, 2012). Thus, a teacher is differentiating their instruction, with all students learning the same material from the curriculum, but in different ways, while remaining attuned to their individual interests (Tobin & Tippett, 2012). Consequently, students are permitted to make connections between what they already know and have a passion for, to what they are learning during instruction (Santangelo & Tomlinson, 2012). Therefore, the importance and place of interests is rationalized within a DI framework.

2.1.3 Student learning profiles

The third and final component of DI is learning profiles. Student learning profiles can be defined as how a student prefers to learn, that is, how they will remember, utilize and manipulate what they learned (Sousa & Tomlinson, 2011). This is influenced by a variety of factors. Factors may include personal ones such as culture, gender, emotions, learning style, intelligence preference or physical needs, in addition to environmental factors such as classroom lighting, seating arrangements, temperatures, or time of day (Tomlinson et al., 2003). For this reason, as a crucial aspect of DI, educators are encouraged to understand the ways in which students learn, and plan effective instruction that coincides with these needs. As explored by Logan (2011), students tend to excel when the instruction coincides with their learning style and patterns.
Hence, educators are encouraged to adjust the context of the classroom in connection with students’ individual needs. Overall, readiness, interests, and learning profiles are three vital components of DI that must be proactively considered when planning instruction, if one is to successfully implement DI in its entirety (Tomlinson et al., 2003).

2.2 Teacher Beliefs and Misconceptions about DI

One aspect of my study is to bring forward the ways in which Canadian teachers understand and utilize DI, and whether their beliefs and feelings about it affect their practice. Prior studies have discussed teachers’ beliefs regarding DI, which further promote the myths that have circulated and remained alive within the field of education. The following are myths that were highly emphasized throughout the literature.

2.2.1 DI as governmental and administrative burden

The first misconception emphasized in the research associated with teacher beliefs, is the notion that requiring educators to implement DI in their classrooms is a governmental burden thrown upon them, with the purposes of building the school’s reputation (Logan, 2011; Tomlinson, 1995). In the qualitative study conducted by Tomlinson (1995), teachers were given mandated instructions that they were to abide by in regards to implementing DI. Tomlinson found that teachers in her study felt they were only doing this, in order for their school to climb to the top of the ladder. One teacher claimed, “I think we’re only doing this because somebody thinks we have to show people we’re up on the latest thing and changing all the time” (Tomlinson, 1995, p. 82). Teachers also believed that the concept of differentiated instruction was a current trend and it would soon phase out, as an emphasis on something new would come out and teachers would be required to do the new “thing” (Tomlinson, 1995, p. 82). They alleged that this changed year by year, and that it was just a theme for that year (Tomlinson, 1995). Thus,
from Tomlinson’s study, it is apparent that these teachers were keeping this myth in play, which may consequently affect their practice, if they are not stabilizing it in their thoughts and permanently embedding it into their daily classroom routines.

### 2.2.2 Failure to identify importance of DI

The second misconception prevalent throughout the literature reviewed for this study is the belief that teachers do not see the need to implement DI (Dixon et al., 2014; Logan, 2011; Tomlinson, 1995). This aspect seems to correlate with the lack of understanding that teachers have regarding DI, thus failing to identify the importance of implementing DI and its beneficial impacts on student learning (Santangelo & Tomlinson, 2012). It has also been found that teachers often fail to recognize the needs of students in their classrooms, which leads to the absence of modifications and accommodations being made to the curriculum (Nicolae, 2014). This provides implications for teacher education programs, and what is needed to prepare pre-service teachers more effectively to recognize and act on learner variance that they will encounter in their future classrooms. This is a common theme also noted that will be discussed in a latter section of this chapter. Moreover, in the quantitative study conducted by Dixon et al. (2014), they concluded that, “teachers who do not recognize ways to differentiate or who do not feel capable of instructing different groups at the same time struggle with differentiated instruction” (p. 113). This then begs the question as to whether teachers’ self-efficacy levels affect their practice. Interestingly, Dixon et al. (2014) confirmed this, as their results indicated that those teachers who possessed a higher level of personal, self-efficacy and teacher-efficacy differentiated their instruction more often, thus revealing the differentiation through quantitative measures. This aligns with the findings presented by De Neve et al. (2015) and Wertheim and Leyser (2002), wherein teachers who felt autonomous (i.e. in control of the busy environment)
were more likely to feel self-efficacious, leading to their willingness to implement DI practices. In this case, they were more open to the idea of changing classroom materials and resources and the overall curriculum, in order to meet the learner variance and diverse needs of their students (De Neve et al., 2015; Wertheim & Leyser, 2002). Based on these findings from De Neve et al. (2015) and Wertheim & Leyser (2002), it is clear that teachers’ beliefs regarding DI and how they feel about their ability to implement it can certainly affect their practice and overall student achievement.

2.2.3 Student identification

The third misconception involves seeing the students that require additional assistance as having “deficits” or “problems,” as well as, that the issue inevitably resides within that child (Santangelo & Tomlinson, 2012; Smit & Humpert, 2012; Tomlinson et al., 2003). Smit and Humpert (2012) revealed that teachers who viewed these students learning styles as problematic consequently saw the task of DI as time consuming and were unmotivated to change their instructional strategies. Santangelo and Tomlinson (2012) also argued that educators tend to perceive students who gear away from the ‘norm,’ as either “struggling [or] advanced” (p. 311), as a burden to classroom teaching. Similarly, in the research done by Tomlinson et al. (2003), they implied that if a teacher sees these differences as deficits in the child, they will consequently fail to address the learner variance in their classroom, as they may be apathetic to assist these particular students in their endeavour to learn the class material. Although these similar findings were apparent in the two aforementioned articles, in contrast to these findings is a finding by Logan (2011). Logan (2011) found that teachers who find themselves rejecting the adoption of differentiated instruction in their classrooms are doing so because they feel this will emphasize differences and the notion of “otherness.” Thus, these teachers are not implementing
DI as a result of believing it will hurt the students and single them out (Logan, 2011). This seems to be an area of debate within the research on DI, with inconclusive findings regarding how teachers perceive student differences in relation to the implementation of DI. Regardless, if teachers are to successfully meet students’ academic needs, then the prior misconceptions and myths described need to be dispelled (Nicolae, 2014). Only then, teachers are permitted to develop a better understanding of what it means to respond to students on individual levels and allow them to flourish in their academic development (Nicolae, 2014).

2.2.4 Success stories

Although the teachers in the studies described above perceived DI in a negative light on many occasions, it is important to note that not all teachers feel this way. There have been numerous success stories with DI (De Neve et al., 2015; Dixon et al., 2014; Edwards et al., 2006; Lewis & Batts, 2005; Smit & Humpert, 2012; Tobin & Tippett, 2014; Tomlinson, 1995). Many teachers acknowledge the importance of DI and understand its corresponding components, such as readiness, interests, and learning profiles. In fact, Edwards et al. (2006) found that teacher candidates varied their teaching questions and tasks based on these components, thus evidencing their understanding of how DI works and what is required to implement it. Despite any barriers that the participants in Tobin and Tippett’s (2014) study came across, they were still motivated to enhance their practice and build their skills with regards to using DI. Furthermore, in many of these success stories, the common theme of team work and collaboration arose, whereby teachers claimed they were more confident to differentiate their instruction when they received support from co-workers, and were able to share ideas, resources, and materials (De Neve et al., 2015; Dixon et al., 2014; Lewis & Batts, 2005; Smit & Humpert, 2012; Tomlinson, 1995). Lewis and Batts (2005) described a group of teachers who were given a boost in
confidence when they shared activities with one another after attending workshops about DI. In addition, Smit and Humpert (2012) stated that, “teachers demonstrating a rather high inclination to employ DI feel that they are supported by their school team, whereas teachers in teams that use DI less frequently consider their teams to be less collaborative with respect to pedagogical issues” (p. 1159). Therefore, taking this information into consideration, an aspect of my study looks at whether Canadian educators experience similar or dissimilar experiences with regards to what encourages or facilitates their implementation of DI and that affects their individual practice.

2.3 Barriers to Differentiated Instruction

With the presence of a wide array of misconceptions, barriers related to implementing DI evidently arise. Within the majority of the articles used for this literature review, at least one barrier was mentioned that hindered teachers from differentiating their instruction. First and foremost, the misconceptions in the prior section can all be classified as barriers to DI, as they may ultimately prevent a teacher from carrying out DI in their classroom, due to their preconceived notions. With that, the most prevalent barrier noted in the research was a lack of time to differentiate instruction (Edwards et al., 2006; Lewis & Batts, 2005; Logan, 2011; Tobin & Tippett, 2014).

2.3.1 Lack of time

Tobin and Tippett (2014) observed and interviewed five elementary science teachers with the purpose of identifying what they perceived as barriers when attempting to differentiate their instruction. Although these teachers recognized that DI is crucial and were motivated to carry it through, the results indicated that there were various constraints including lack of time. This shadows the results found in Lewis and Batts (2005), whereby teachers expressed that they
were unwilling to alter the way they taught in order to differentiate their instruction for the fear of time and not getting everything done. In this case, it seems feasible that Edwards et al. (2006) would conclude the notion that teachers are inclined to teach in ways that they are familiar with as a result of their own educational experiences (with the absence of DI). Teaching in this manner (one-size-fits-all) is time-permitting and comes from a place of comfort. However, it most likely disregards the key components of DI and does not derive from research-informed teaching. It is also important to note that once it is successfully carried out in the first year, it becomes easier with each consecutive year of teaching and teachers are permitted to utilize what they have done in the future (Lewis & Batts, 2005). Thus, from these findings, it is evident that teachers should be provided with adequate training and the applicable resources and materials to overcome this barrier. This coincidentally leads into the final common barrier noted in the research: lack of support from administration.

### 2.3.2 Lack of administrative support

In the qualitative case study carried out by Tomlinson (1995), it was found that minimal to no DI was being implemented as a result of the perceived barriers these teachers faced. The most often cited barrier related to administration (Tomlinson, 1995). This is defined as “…decisions made or actions taken by central office or building administrators” (Tomlinson, 1995, p. 81). Teachers in this study felt they were suddenly given the requirement of implementing DI, without staff development and the provision of resources and materials (Tomlinson, 1995). This finding is mirrored in Smit and Humpert (2012) and Roe (2010), whereby teachers often felt that the administration did not provide enough support, encouragement and/or professional development opportunities. For this reason, Tomlinson (1995) suggested that, “…administrators should present specific classroom initiatives as
interrelated means to accomplishing central instructional goals so that teachers do not feel pulled in many directions” (p. 86). Hence, administrative support is crucial, if teachers are to successfully implement differentiated instruction in their classrooms.

Overall, it seems the bulk of the research in DI discusses the many barriers and misconceptions that are prevailing in the field of education, thus evidencing the paucity of research that indicates the facilitating factors. For this reason, since “…few studies offer insights into which factors facilitate teachers’ application of DI,” (De Neve et al., 2015, p. 39) the current study will seek to fill this gap by discovering the many factors teachers perceive as being beneficial and assist in their endeavour to modify and adapt their curriculum to meet all needs in the classroom. In order to do this however, requires much professional training and education, leading into the final theme: the importance of teacher education.

2.4 Role of Teacher Education in the Implementation of DI

Teacher education programs are those, which prepare and provide knowledge to pre-service teacher candidates (TCs), as they practice to become educators and manage their own classrooms. Unfortunately, a common theme that arose within the research is that teacher education programs are failing to provide adequate training and knowledge to TCs in relation to DI, although they are expected to implement it (Dee, 2011, De Neve et al., 2015; Edwards et al., 2006; Lewis & Batts, 2005; Santangelo & Tomlinson, 2012). Edwards et al. (2006) conducted a study involving TCs and teacher educators (i.e. instructors/professors); they found that teacher educators were providing the knowledge to their students regarding DI and how to implement it, and as a result, TCs were able to grasp the importance and showed they were prepared to use differentiated strategies (Edwards et al., 2006). However, once actually in the field, TCs were less likely to carry it out, as they struggled with putting the theory into practice (Edwards et al.,
Correspondingly, Dee (2011) collected work samples from TCs as they planned lessons in their practicum placements. Dee (2011) found that the TCs believed their lessons did not require differentiation or if it did, they confused their terminology and solely referred to making single one-time modifications and/or accommodations for the multiple intelligences present in the classroom, as a successful approach to differentiate their instruction. As well, TCs seemed to have an underdeveloped understanding of differentiation, as they used the words differentiation, accommodations, modifications and adaptations interchangeably (Dee, 2011). Consequently, if TCs are implementing DI, but have misunderstood its purpose and definitions, or simply believe their lessons do not require differentiation, then exclusion is essentially occurring for those students that require different gateways into learning the same material (Dee, 2011). For this reason, the significance of teacher education becomes prevalent.

Santangelo and Tomlinson (2012) cited the importance of improving teacher education, allowing students to receive an enhanced understanding of DI strategies and how to meet learner variance in various ways. Dixon et al. (2014) also summarized this well when they stated:

Learning how to differentiate instruction for mixed-ability classes is important for teachers during their teacher preparation programs. Because the primary goal of differentiation is ensuring the teachers focus on processes and procedures that provide effective learning for varied individuals (Tomlinson & McTighe, 2006), teacher education programs need to be actively engaged in preparing future teachers toward this goal (p. 114).

Hence, if teacher candidates are to improve the learning of all students and meet the needs of diverse learners, teacher education programs must model the approach rather than merely speaking about its philosophy and theoretical foundations (Edwards et al., 2006;
Santangelo & Tomlinson, 2012). In this sense, teacher educators should use their students (i.e. teacher candidates) to model DI by utilizing and modeling certain strategies such as flexible grouping, learning centers, adjusting questions, tiered assignments, and/or independent contracts (Lewis & Batts, 2005). If one partakes in DI, then they are most likely going to be better suited to carry it out in their own classrooms.

### 2.5 Conclusion and Further Directions

Differentiated instruction is a complex approach that derives various teacher beliefs and feelings regarding its practice. It is clear that the ways in which teachers perceive DI translates into the implementation of DI, but sometimes let the barriers and myths that accompany DI drive their practices or lack thereof. As defined by the Ontario Ministry of Education (2010), DI is not the same as individualized instruction, which may imply that many teachers may view it this way. However, DI delves much deeper than this, as it is a proactive approach and is incorporated into all activities and lessons that take place in the everyday classroom. The most prevalent myths that were kept alive through teachers’ beliefs were seeing students as having learning deficits, seeing DI as a governmental and/or administrative burden and failing to see the importance of DI in their classrooms. In relation to these were the perceived lack of time and lack of administrative support, which hindered their willingness to differentiate instruction for their students. With this, the importance of teacher education arose in numerous accounts, which can ultimately serve to dispel these myths and turn barriers into facilitating factors. It is important to note however that, many success stories were also evidenced, whereby teachers implemented DI that benefited their own professional development, as well as their students’ academic development. Overall, DI is an area in the field of education in which numerous studies have been done, however, there are still gaps requiring fulfillment.
As these studies are mainly American or European in origin, it is unclear as to whether Canadian teachers are supported in different ways, and may view DI in a different light. Therefore, my study seeks to better understand DI through a Canadian lens. Moreover, an additional area that is missing is the ways in which teachers understand DI and how they define it (revealing their personal voices). Within this key question is how elementary teachers are utilizing and approaching *assessment* within DI. In order to plan instruction and deliver the curriculum in ways that are meaningful and differentiated, teachers must continually assess each student individually (Lewis & Batts, 2005). The ways in which teachers carry out assessment and how they ensure each child is given a fair assessment of their learning while differentiating instruction, is absent in the bulk of the prior studies. Thus, part of my study seeks to acknowledge and present the teachers’ voices in regards to assessment within DI, their perceptions of DI, and how they utilize DI. Lastly, facilitating factors in relation to teachers’ application of DI are considered, as this is also an area that is faltering in the current research, with much more emphasis on the barriers and constraints of DI.
Chapter 3: Research Methodology

3.0 Introduction to the Chapter

A key goal of my study was to bring forth the ways in which Canadian teachers understand and utilize DI, how they assess their students while implementing DI, and whether their beliefs and attitudes about it affect their practice. Prior studies to this one have discussed teachers’ beliefs regarding DI, which further promote any myths (see chapter two) that have been circulating and are remaining alive within the field of education (Logan, 2011; Nicolae, 2014; Tomlinson, 1995). Accordingly, this study seeks to identify whether the beliefs of the elementary teachers who will be interviewed are aligned with the results of those studies.

The purpose of this chapter is to describe the research methodology of the study. The research approach and procedures are discussed, along with the ways in which the data was collected and analyzed. In doing so, participant information is provided, giving the reader a clear sense of the selection procedure and rationale. In relation to the participants and researcher, ethical considerations are examined that are imperative to the study’s overall approach. Finally, the chapter concludes with methodological strengths and limitations that inevitably affect the study.

3.1 Research Approach and Procedures

In order to develop my pedagogical knowledge and development as a practicing teacher and to make sense of the nature of DI, undertaking this inquiry-based, research driven approach to learning seemed to be the best fit. Consequently, this study is qualitative in nature, situating the contemporary literature on DI within the informal, semi-structured interviews that were carried out. In other words, that which has been found in the research conducted by others provides leeway into the rationale for this study and the types of questions that were asked of the
According to Jackson, Drummond, and Camara (2007), “qualitative research is primarily concerned [with] understanding human beings’ experiences in a humanistic, interpretive approach” (p. 21). Given my study’s research area and purpose, which is to understand the ways in which educators understand and utilize DI in their classrooms, conducting qualitative semi-structured interviews provided me with insights into personal experiences needed to answer my overarching research question. Observing or collecting survey or questionnaire data is not feasible, as I am not aiming to statistically assess an issue or attempt to influence and produce a certain outcome (Jackson et al., 2007). As well, a quantitative approach would not allow room for elaboration by participants, potentially hindering the holistic comprehension of human experiences. On the contrary, “qualitative research involves an interpretive, naturalistic approach to the world. This means that qualitative researchers study things in their natural settings, attempting to make sense of, or interpret, phenomena in terms of the meanings people bring to them” (Denzin & Lincoln, 2011, p. 3). Thus, taking on a qualitative approach, which utilizes interviews, is largely applicable in this case, as depth is required through open-ended questions, in order to target the research problem and questions in their entirety.

3.2 Instruments of Data Collection

In addition to the document analysis process, that is analyzing the literature on DI, the data was collected primarily through semi-structured interviews. It is important to note that semi-structured interviews provide researchers the opportunity to “gain insight into how people attribute meaning to their worlds in social interaction” (Grindsted, 2005, p. 1015). Therefore, this method choice enabled participants to discuss the ways in which they attribute meaning to the notion of DI and the importance it plays within their educational and professional practice. In
doing so, a natural setting was chosen to conduct the interviews, where there was minimal to no distractions, allowing participants to think clearly and respond to the best of their ability (Creswell, 2013; Turner, 2010).

Participants were recruited to take part in these interviews, whereby they were asked a variety of open-ended questions (Refer to Appendix B), designed to elicit a meaningful answer. The questions that were asked were grouped into the following themes: demographic/background information, teacher beliefs and understandings, teaching practices, facilitating factors or challenges, and next steps. This allowed for personal experiences to be accounted for in various areas, with the intentions of connections being drawn between them for a comprehensive outlook on the situation.

Each interview was approximately thirty to forty-five minutes and was audio recorded. Using the audio files, the interviews were transcribed verbatim on Microsoft Word files, for purposes of ease when analyzing the data and comparing the informational contributions presented in each interview. Once the transcriptions were produced (which were saved to my password-protected computer device), all audio files were destroyed. With the help of the transcriptions, themes were derived and conclusions were drawn, in reference to the existing literature presented throughout this paper.

3.3 Participants

The subsequent section is an account of the procedure that I followed to select and recruit my participants for this study. Each participant is introduced through miniature biographies, essentially allowing the reader to draw connections between the findings and the participants.

3.3.1 Sampling criteria

In reference to the research problem regarding the lack of Canadian voices, the two
consenting participants that I interviewed for purposes of this research study were Ontario certified teachers, currently employed in the profession. Given my concentration (primary/junior qualifications) within the Master of Teaching program and purpose to broaden my knowledge and development as a teacher, these participants were required to be primary or junior school teachers, teaching anywhere from kindergarten to sixth grade. As the focus was on teachers’ use of DI in elementary, mixed-ability classrooms, the participants were required to have the knowledge, education and/or experience with differentiating their instruction and have demonstrated a commitment to this particular area of teaching. Without this experience, the research purpose would not have been fulfilled, which is to see how Ontario teachers understand and utilize DI to meet students’ individual needs in mixed-ability classrooms and how this affects their overall practice. Hence, the sampling method evident in this research study is criterion-based sampling, with the purpose of “obtain[ing] qualified candidates that will provide the most credible information to the study” (Turner, 2010, p. 757).

3.3.2 Participant recruitment

Given the small-scale nature of the study, participants were sought and recruited through existing contacts, networks and personal connections. In this sense, convenience sampling was also utilized, whereby participants were chosen based on what was conveniently available through these networks (Frankfort-Nachmias & Nachmias, 2007). In the beginning steps of the recruitment procedure, teachers were sent a message via text-message or through a social networking communication platform, in order to invite them to participate in my research study. Participants were given a general description of the area of focus and what the research process entails. If participants agreed and wished to know more, I engaged them in further discussion regarding the study and the consent form (see Appendix A), along with the research questions
were sent to them. Finally, once this consent form was signed, a time, place, and date were arranged in favour of the participant and thus, the interviewing process commenced.

3.3.3 Participant biographies

In order to provide a better sense of the participants, their teaching backgrounds and why they were chosen, the following are brief biographies regarding the two participants that were utilized for this research study.

Chris is an elementary school teacher who has been employed for just over two and a half years. Chris simultaneously obtained his Masters of Science in Education, in addition to his teaching certificate. He has mainly taken on the role of a long-term occasional teacher, teaching a wide range of students from grades two to six. He has taught every subject except French, with respect to his teaching qualifications and has his specialty in Science. Due to this extensive experience with many different student bodies and experience with differentiating his instruction, Chris was chosen as a participant to fulfill the study’s requirements and overall research questions.

Amy is a regular grade four and five teacher, employed within an Ontario school board for the last five years. She has taught and currently teaches all subjects aside from French. As with Chris, Amy also has experience with a wide range of grades, ranging from four to seven, in addition to teaching special education in the primary grades. She obtained her Bachelor of Education in a one-year program that focused heavily on the use of technology in the classroom, hence bringing a unique lens to her differentiated approach. The interview I conducted with Amy was done via Skype due to locational constraints. However, all efforts were made to ensure that both the participant and I were in quiet environments with minimal distractions.
3.4 Data Analysis

As put forth by Creswell (2013), the data analysis process “involves organizing the data, conducting a preliminary read-through of the database, coding and organizing themes, representing the data, and forming an interpretation of them” (p. 179). Hence, this process inevitably led itself in a circular motion, as the beginning steps of this study entailed the act of reading, analyzing and critiquing the literature on DI, ending with the process of contextualizing the findings of the present study within the larger research literature. This is otherwise known as the data analysis spiral, as each activity involved in the process is intertwined (Creswell, 2013). In order to do this, a colour coding method was utilized during the literature review process, whereby similar themes were pinpointed and grouped accordingly. This allowed me to present the findings in a comprehensive and organized manner throughout the review. It is important to note that the data analysis process for both the review and interview findings entailed winnowing – the act of discarding some information deemed not necessary or of relevance to the study’s purpose (Wolcott, 1994). As such, during the process of reducing the data into themes, information was purposefully lost.

In the initial phase of interpreting the interview transcripts, I took on the act of coding, which is succinctly defined by Saldana (2009) as the act of ascribing “a word or short phrase that symbolically assigns a summative, salient, essence-capturing, and/or evocative attribute for a portion of language-based or visual data” (p. 3). However, prior to coding, I conducted a preliminary read-through of both transcripts in order to gain an understanding of what has been conveyed. The overall quality, thorough understanding, and validity of the findings were ensured through acts of repetition, that is, re-reading and reviewing the transcriptions over and over. Following this, for each datum, I assigned an in vivo (using the words of the interviewee
verbatim), descriptive (using a word to summarize what was said) or value (a subjective account of what was said) code in order to make sense of the information (Saldana, 2009). It is important to note that the research questions were used as an interpretive tool when coding and grouping the information as a way to keep me attuned to details and to remind me of the focus of my study. Moreover, while coding, I jotted down various analytic memos as a way to document my thinking and essentially, have a “conversation with [myself] about [my] data” (Saldana, 2009, p. 32). The codes were later refined and redacted to ensure consistency and ease into the process of creating categories. The codes and memos were used conjunctively to seek emergent patterns, which led into the creation of categories, hence arriving at overall themes. The interviews were also compared against each other for commonalities and areas of conflict. Once this process was completed, the participants’ responses were contextualized within the contemporary literature.

Throughout the data analysis process, Tomlinson et al.’s (2003) wish for “investigating and addressing pervasive teacher beliefs, as those beliefs impact awareness of student variance and the curriculum and instruction teachers plan and deliver to diverse students,” (p. 125) was fulfilled. Thus, the process was focused solely on the way Canadian participants understood and perceived DI, the way they utilized it in their classrooms, how they ensured their students were equitably assessed, the facilitating factors, and the overall relation it bears to the findings in chapter two. This was done through a form of data representation, in this case, in text form.

Essentially, making meaning from what is found is characteristic of this approach and is of great concern, as it is hoped that the participants’ perspectives are represented truthfully and accurately (Bogdan & Biklen, 2007). Each contribution “has the potential of being a clue that might unlock a more comprehensive understanding of what is being studied” (Bogdan & Biklen, 2007, p. 5). Thus, the analysis process was taken with an open mind and willingness to discover
new insights. With that, null data was also considered, wherein information that the participants did not mention was acknowledged and analyzed for its potential significance.

3.5 Ethical Review Procedures

Within any research study, it is vital that ethical issues are considered and agreed-upon procedures are undertaken to protect myself, along with the participants, in order to minimize any risks. First and foremost, it is crucial to note that the University of Toronto’s ethical review board has granted permission to student researchers, such as myself, to proceed with conducting semi-structured interviews under the parameters given to the Master of Teaching Program at the Ontario Institute for Studies in Education. These standards are as follows: the data collection process (the interviews) took place outside of school hours and off school parameters and did not involve classroom pupils or the observation of and discussions with these students. In regards to the data collection, it was only collected and utilized for research purposes from adults who have received and given informed consent, after reading the letter of consent. Prior to the interview, participants received any information that was imperative to their participation and were given ample time to review it and respond with consent or not.

It was imperative that an atmosphere of trust and comfort was established with the interviewees. Participants were informed that their participation was voluntary and at any point throughout the interview or following the interview, they had the right to withdraw and their transcription would be discarded safely (Creswell, 2013). If there were any questions they were uncomfortable with answering, they were informed that they had the right to refrain. As well, they were informed that their confidentiality would be treated seriously and granted, as their privacy was validated. All names are used in the form of a pseudonym and their contributions remain anonymous. Finally, participants were informed that the transcript would only be viewed
by the researcher (myself) and my researcher advisor for external audit purposes. Participants were given the right to review the transcript from their interview and were given the opportunity to refine or retract any statements prior to the data analysis process, reflecting a member-checking validation process (Tracy, 2010).

3.6 Methodological Strengths and Limitations

With any research study comes its foreseeable strengths and limitations. While every effort was made to ensure the validity of the findings, this study inherits two limitations that may affect the findings and its overall ability to be generalized. Firstly, the constrained sample size (two participants) may yield limited information, as well as potential invariability in their responses, leading into the second limitation. Due to the geographical boundaries in which I am located and connections with educators, this study is merely focusing on participants in Ontario. While the ideal situation is to interview teachers outside of Ontario, it is not feasible, given the nature of the study’s requirements and time constraints. Thus, it is unknown as to whether or not Ontario-based teachers would respond differently from teachers situated outside of the province, but within Canadian borders. Moreover, as a result of the study’s qualitative nature, utilizing semi-structured interviews, it seems that the likelihood of response bias, more specifically social desirability bias, may prevail. Social desirability bias can be defined as the way in which a participant purposefully responds, with the intentions of generating a response that he/she believes will please the researcher (Frankfort-Nachmias & Nachmias, 2007). Hence, knowing that they are participating in a study that will reveal their personal voices, although anonymous, may result in the tendency to underreport or alter their true beliefs and experiences.

This qualitative study sought to shed light on Canadian voices, more specifically Ontario voices, as a result of its lack in the current literature regarding DI. For this reason, a prevalent
strength within this study is its primary role in filling the gap and situating the research elsewhere, geographically. Furthermore, although the interviewing method yields limitations, it also presents its methodological strengths. Firstly, since these interviews were structured in a manner where the interviewer and participant sit within close proximity to one another (face-to-face), the interviewer is in a position to probe the interviewee to expand on their answers or to clarify what they meant while answering a certain question. Alternatively, the participants may even reveal a perspective that was unforeseen by the researcher, but beneficial to the research problem and questions. Therefore, as stated by Turner (2010), “Interviews provide in-depth information pertaining to participants’ experiences and viewpoints of a particular topic” (p. 754). This crucial element of qualitative research may not be permitted within alternative research methods, such as quantitative surveys, which usually entail closed-ended responses and limited space to expand on one’s answers.

3.7 Conclusion

Qualitative research begins with the use of the current literature, which leads itself into the development of the overarching research problem and questions guiding the current study. In order to obtain the information required to target the problem, data collection must precede, in this case, interviews, which reveal patterns and/or reoccurring themes. Finally, a representational text (research paper) is produced, which “includes the voices of participants, the reflexivity of the researcher, a complex description and interpretation of the problem, and its contribution to the literature or a call for change” (Creswell, 2013, p. 44). As noted, each step has its necessary procedures and ethical standards, for purposes of liability on the researcher’s end, participants’, and any other parties involved. The following chapter presents the findings from the interviews, followed by the interpretation and conclusion.
Chapter 4: Research Findings

4.0 Introduction to the Chapter

In this chapter, I present the research findings from two separate interviews that I conducted with two elementary school teachers in Ontario. Using an inductive qualitative approach to data analysis, the themes that are reported in this chapter are organized thematically. The overarching themes and subsidiary themes, which aim to answer the key question of the study, are as follows: (1) Teachers’ understanding and conceptualization of differentiated instruction (DI): the importance of learner variance on DI, (2) Instructional strategies to differentiate instruction: accommodations to the process of learning, to the product (assessment overview) and to the classroom environment, and technology integration in the classroom as a means of differentiating instruction (3) Differentiating instruction that aims to meet students’ needs, interests and learning profiles: students needs and exceptionalities, student interests, and multiple intelligences within students’ learning profiles (4) Challenges to DI: need for additional staff support, lack of technological resources, and time constraints on planning and teaching instruction, (5) Benefits of DI on students’ educational outcomes: student success and engagement, and (6) Influence of prior experiences on the participants’ understanding and implementation of DI. Many of the themes have several sub-themes as a way to group and categorize the information effectively. In addition to outlining and making meaning of what has been found across the participants, the findings will also be compared and contrasted with the prior research in the field of DI.

4.1 Teachers’ Understanding and Conceptualization of Differentiated Instruction

In an attempt to address the ways in which the participants understand and conceptualize DI in their everyday teaching, the key question of my study, the participants were asked to define
DI in their own terms, in conjunction with how they approach their teaching and their students’ learning. As stated in chapter three, this was done deliberately as Tomlinson et al. (2003) suggested that teachers’ beliefs inadvertently affect the way in which they deliver their instruction and respond to the various students’ needs in their classrooms. Hence, I examined how the teachers’ definition of DI related to their approach to teaching and learning, with the purpose of attempting to answer the subsidiary question posed at the beginning of this study: How do teachers’ beliefs and attitudes about teaching impact their ability to implement differentiated instructional practices? Additionally, Roe (2010) claimed that scholars define DI in an abundance of ways, yet I have found that there seems to be paucity in the academic literature of the ways in which teachers define DI, evidencing a lack of voice on their end. With that in mind, I strive to present the voices of my participants within this section.

Amy defined DI as being a teaching approach whereby students are provided with the appropriate tools to succeed with respect to their individual needs. Hence, she recognized what each student needed in terms of classroom resources, in order to flourish and the importance they served in creating a classroom that catered to their needs. She stated, “I think it’s like an equity thing. So not every student needs the same thing to achieve because everybody is different.” Amy seemed to recognize that a one-size-fits-all approach would not work in her classroom due to the differing needs of her students. This finding resonates with Edwards et al. (2006) finding when they stated that, if students are taught in one firm way, they will ultimately “have fewer opportunities to learn and hence, [they will receive] a poorer quality of education” (p. 583). In fact, Santangelo and Tomlinson (2012) also asserted that in order for a teacher’s differentiation to be efficient and successful, they must acknowledge the students’ needs in their classroom and how to best respond accordingly.
Amy also spoke to the pedagogical approaches she valued that ensured her students were successful in their learning. She shared that she strived to ensure that all her students’ needs were met in order to achieve academically through the differentiation that she employed. Although she valued traditional methods of learning such as tests and pencil-to-paper tasks for purposes of further schooling preparation, she also believed her students would benefit from collaboration and student-led exploration as a way to learn. By recognizing that the students would benefit from collaboration, and understanding that the same test being administered to all students would not always be feasible, there seems to be a relation between Amy’s beliefs and how she defined DI, in that she strived to provide a learning environment whereby the students would be successful through the implementation of different approaches to learning.

Chris, my other participant, communicated his approach to teaching in a different manner than Amy, referencing students’ sense of security and comfort as an all-encompassing concept. He articulated that he made every effort to ensure that his students were taught in a space that was inclusive, where risk-taking was prevalent and learning was something that was enjoyable. When further asked how he defined DI, he stated:

What [DI] means to me is just being knowledgeable and sensitive to the needs and the learning styles of your students, so this can include getting students out of their seats for activities, providing plenty of visuals for them, and allowing them the opportunity to discuss their ideas and answers with their peers.

With this definition in mind, one can see how his inclusive pedagogy comes into play when he discussed how he conceptualizes DI. As defined by Florian and Linklater (2010), inclusive pedagogy is an “approach to teaching and learning that involves the creation of a rich learning environment characterised by lessons and learning opportunities that are sufficiently
made available to everyone so that all are able to participate in classroom life” (p. 370). Chris stated plenty of examples in the prior quote, of the ways in which he ensured that his students received the opportunity to embark on the many different pathways to learning, reflecting his inclusive stance. Also, it is noteworthy to mention that Chris made reference to learning styles, which according to Tomlinson (2014), is a vital component of DI and falls within the category of learning profiles. Tomlinson (2014) stated that, “Learning profile[s] ha[ve] to do with the ways in which a learner learns…Some students need to discuss concepts with peers to learn them well. Others work better alone and through writing rather than group discussion” (p. 19). It is interesting to see Chris conceptualizing his view of DI in a highly similar manner to an experienced researcher in this area.

Although Chris focused on big ideas such as student security and inclusivity, and Amy honed in on pedagogies such as exploration and collaboration, they both arrived at a consensus of the meaning of DI. Their definitions both entailed the notion that one must meet students’ needs and ensure the overall success of their students through the act of differentiating their teaching instruction. An important finding related to ensuring that the various needs of the students are met for the sake of academic achievement is learner variance. I examine the participants’ beliefs on these concepts more closely in what follows.

4.1.1 The importance of learner variance on DI

Amy and Chris both shed light on the importance of learner variance in their classrooms. They demonstrated their dedication to getting to know each student for who they are and how the knowledge they gain about their students functions as an asset to their teaching instruction. In fact, Chris stated:

There’s this quote I heard a long time ago, probably stuck with me. It goes, everybody is
a genius, but if you judge a fish by its ability to climb a tree, it’ll live its whole life thinking it was stupid. So you know, you can’t teach one way and expect everyone to learn the same way.

Within any given classroom, it is unlikely that all the students will learn and perform at the same level and rate (Dixon et al., 2014). Edwards et al. (2006) explicated this further when they stated, “Brain research has shown that individuals respond differently to various stimuli; therefore, the more teachers learn about their students, the more able they are to design experiences that foster learning” (p. 583). This statement by Edwards et al. (2006) goes excellently with the importance of learner variance that Chris brought to light when he shared the quote that guides his teaching philosophy.

Amy also mirrored Chris’ thoughts when she affirmed that the learners of the present day are highly diversified, hence reinforcing the importance of differentiating her instruction to meet current demands. Along similar lines, Nicolae (2014) argued that if a teacher is going to effectively teach in a classroom with diversified needs, they must acquire a progressive and optimistic outlook towards differentiation and appreciate the knowledge they gain regarding their diverse learners, as it will likely turn into beneficial outcomes for the students. Chris showcased this positive attitude when he demonstrated his commitment to reflective teaching, in that he aimed at getting to know each student on an individual basis. He reinforced the idea that differentiating for the various different learners in the classroom was a difficult task at first. However, with practice and dedication, it became easier, especially when the focus was geared towards knowing one’s students and how they learn as individuals. The participants in Lewis and Batts’ (2005) also expressed that although generating certain differentiated tasks may be time consuming and challenging during the beginning of a teacher’s career, these are tasks that they
will be able to use and build on in the future and the coming years ahead of them. Hence, my Canadian participants showcased similar findings as the American participants from North Carolina in Lewis and Batts’ (2005) project. However, this counteracts findings by Tomlinson et al. (2003), that showed that “it is likely that teachers are uncertain about how to make sense of “otherness” of student experiences different from their own (Delpit, 1995; Paine, 1990) [and] reflect only minimal amounts on students as individuals (Callahan et al., 2003)…” (p. 134). Contrary to this finding by Tomlinson et al. (2003), the two participants in my study have expressed extreme concern for their students and wished to support them in any way that best suited their academic needs in an inclusive and equitable classroom. Therefore, my study seems to add new insights into this issue of teachers’ uncertainty with student variance, bringing a unique lens and answers my overarching research question: How do teachers understand and utilize DI to meet students’ individual needs in mixed-ability primary and/or junior classrooms? It seems that both Chris and Amy have identified diversity as a guiding principle in their endeavour to differentiate. The presence of the inevitable learner variance in their classes drove their passion to differentiate, as a way to meet the several needs and learning differences.

4.2 Instructional Strategies to Differentiate Instruction

Both participants made reference to the various accommodations and modifications that they make to their instruction and accommodations for students through the process, product and environmental domains, all of which are critical components of DI (Tomlinson, 2014). According to the Ontario Ministry of Education (2004), an accommodation is defined as “special teaching and assessment strategies, human supports, and/or individualized equipment required to enable a student to learn and to demonstrate learning” (p. 25). As for modifications, they are defined as:
…changes made in the age-appropriate grade-level expectations for a subject or course in order to meet a student’s learning needs. These changes may involve developing expectations that reflect knowledge and skills required in the curriculum for a different grade level and/or increasing or decreasing the number and/or complexity of the regular grade-level curriculum expectations (Ontario Ministry of Education, 2004, p. 26).

In what follows, four sub-themes are examined according to the DI components (the process, product, environment) in light of the definitions above. The final sub-theme that is discussed relates to technological integration in the classroom, a new dimension in addition to the DI components.

4.2.1 Accommodations to the process of learning

Both Amy and Chris discussed various accommodations they made to the process that allowed their students to grasp the material. They both referred to providing plenty of visuals for the students that could benefit from this provision. This finding was also reported in Tobin and Tippett’s (2014) study, where participants utilized visual modes as an alternative way to learn. In addition to visuals, Amy shared that she provided certain materials such as graph paper or manipulatives that permitted the students to effectively engage with the content. She had the students engage with manipulatives when partaking in mathematics lessons, as a way to explore and absorb the concepts in a hands-on and sensory manner. It seems that this relates back to her teaching pedagogy (i.e. exploration) that was discussed in the first theme of this chapter, further underpinning the notion that the participants’ teaching pedagogy affected the way in which they differentiated their instruction. Moreover, unlike Amy, Chris discussed accommodating the bodily-kinesthetic learners by providing many opportunities to move around the classroom to retrieve information from anchor charts or to retrieve certain resources. He also indicated that he
provided opportunities for peer engagement as a way to discuss the answers for a question before providing it to the whole group. The teacher stated that it was done in such a way as to ensure the inclusive classroom he strived to create and to ensure that his students felt safe and supported. The accommodations provided by the participants seem to further reinforce the prior argument that the way in which the participants approach teaching and learning reveals itself in the differentiation that the teachers take on.

Nevertheless, from these individual findings, it seems that both Amy and Chris prioritize their visual and bodily-kinesthetic learners. This leaves a sense of wonder: do the participants only gear the differentiation towards certain students? Interestingly, these findings mirror Dee’s (2011) research:

Preservice teachers assume that the use of manipulatives, or the incorporation of kinesthetic activities into lesson plans, qualify as a satisfactory response to the mandate to differentiate. Comments such as, “my lessons are hands-on” and “I use manipulatives in most lessons” persist throughout the work samples (p. 65).

The pre-service teachers in Dee’s (2011) study also relied on the multiple intelligences outlined by Gardner (1983). An argument that can be made is that Amy and Chris are still learning and finding ways to differentiate their instruction, given their limited years as certified teachers. This is significant because it seems that although both participants strived to differentiate in ways that could reach all their students, their given strategies reflected only a certain type of learner. Perhaps further research is warranted that seeks to identify and explore the relation between years of practice and the level and degree of differentiation that occurs in the classroom.

4.2.2 Overview of assessment: Accommodations and modifications to the product

The provision of various product choices was predominant across both participants as a
way to accommodate and hold learners accountable for demonstrating what they have learned. The product is a medium in which students utilize to demonstrate their understanding and learning of a certain topic or curricular area that serves as an assessment to the teacher (Santangelo & Tomlinson, 2012). Both Amy and Chris discussed a number of strategies: having their students engage in drama experiences (“acting it out,” in Amy’s words) to showcase their learning; asking students to visually represent their knowledge by drawing pictures; writing reports; and doing a dance or using the computer to write out their thoughts. Amy spoke about speech-to-text applications, that allowed students to speak aloud and the application would write it out for them. In terms of modifications, Amy discussed shortening the lengths of tests and both Amy and Chris discussed simplifying the language and vocabulary used to ensure student comprehension.

Interestingly, Chris captured the essence of this differentiation when he stated, “As long as I get the information or what I’m looking for, I give them that opportunity to do however they want. So you know, I’m looking for their understanding, not just their presentation mode.” On the contrary, Roe (2010) noted that the teachers in her study were highly fixated on the product that it devalued the process. Similarly, Smit and Humpert’s (2012) participants seldom referred to assessments. The findings in my study appear to not match the findings derived from Roe (2010) and Smit and Humpert (2012), as my participants emphasized the need to differentiate the product and offer their students various pathways to showcase their knowledge.

Moreover, when discussing the use of computers in the product domain, Amy said the following:

Without the technology with this particular student, I probably would have gotten one sentence [out of him]…so giving him this laptop and getting a full paragraph,
then I can actually make an assessment. It does [affect the mark] because then there’s nothing to assess if you don’t have the differentiation.

In this case, Amy recognized that without the differentiation, it was likely that she would have had insufficient work to assess for this particular student. According to Tobin and Tippett (2014), a participant “found that when she applied the DI framework to her teaching and planning that her students were creating higher quality products that richly reflected their learning and therefore yielded better assessment data” (p. 433). Therefore, it seems that this is not just a thought that Amy had, but rather has been stated by participants in prior studies.

With regards to assessment as a driving force in delivering instruction (Smit & Humpert, 2012), Tomlinson et al. (2003) and Lewis and Batts (2005) both highlighted the importance of ongoing assessment as a diagnostic tool. In this sense, ongoing assessment is imperative as a way to understand and get to know the students and their academic and personal needs. Both participants in this study emphasized this type of assessment through observation or informal conversations with students. The participants shared that, through these observations, they came to a more comprehensive understanding of how their students learned and how they would go about assessing their students. With this and the product differentiation in mind, these findings bring forth strategies that two elementary teachers in the Canadian context utilize for assessment purposes in their teaching practice and in their endeavour to differentiate. The findings of this study add to the scarce body of research on assessment, which is overshadowed by the underlying components of DI, such as adapting the content, process, product and environment. Although scholars such as Smit and Humpert (2012), Tomlinson et al. (2003) and Lewis and Batts (2005) made reference to assessment and cited its overall importance, there was seldom information regarding how teachers assess their students within a DI framework. Thus, this study
aimed to shed light on how elementary teachers assess their students and the ways they utilize assessment in their classrooms to ensure an equitable and fair learning for all of their students.

4.2.3 Accommodations and modifications to the classroom environment

Both the learning and physical classroom environment was an area that only Chris made reference to when discussing how he differentiated his instruction. Santangelo and Tomlinson (2012) defined the environment as the “routines, procedures and physical arrangement of the classroom” (p. 314). With reference to a particular procedure for the physical arrangement, Chris discussed how certain materials were intentionally not kept in the students’ desks, as he wished to ensure that his students were always moving and needed to get out of their seats to retrieve materials. This would ensure that they were always stimulated and would not fall into a state of boredom that would impede on their learning success. Another procedure he spoke about was assigning roles to students, such as the ‘group messenger’ that would communicate on behalf of the group. This way, students would be assigned roles according to their personalities and abilities, therefore taking ownership and pride in their learning. From the data, it seems that Chris understood his role, one that is mentioned by Smit and Humpert (2012), whereby educators must foster a classroom environment in a way that is conducive to the needs of their learners and will aid in ensuring overall student success. As well, in Santangelo and Tomlinson’s (2012) study, it was found that the participants had a high regard for structuring a positive learning environment for their students. It is interesting to note that Amy did not speak about this component in her classroom.

From the overall theme of instructional strategies, both participants shed light on the various accommodations and modifications they made to the process and product, with one participant discussing the environment. However, it is noteworthy to point out the null data.
More specifically, the participants did not discuss the content component of DI. Although they mentioned simplifying the vocabulary, they seldom mentioned of how the content is differentiated. According to Tomlinson (2014), the content is a vital aspect that must be differentiated, which is the knowledge that students must gain from a segment of study. This may be in the form of providing graphic organizers or using videos to deliver the information.

4.2.4 Technology integration in the classroom as a means of differentiating instruction

With the scarcity of technology mentioned in conjunction with DI in the literature reviewed for this study, it was thought provoking to note the prevalence of technological integration that was mentioned by both of the participants. With consideration of the current year, 2017, technological innovations and rising inventions may be a contributing factor or rationale for why the participants heavily referenced the use of technology in their classrooms to differentiate their instruction. Both participants spoke about using smart boards or otherwise known as interactive whiteboards, when delivering lessons. These also served as exploratory and engaging materials for students, as they were able to first-hand touch the screen and use the features to engage in their learning. As well, Chris mentioned that he used tablets, whereas Amy discussed the use of laptops. With the use of a laptop, Amy was able to see the learning unfold before her eyes. Amy shared that when she provided a laptop to a “particularly unmotivated student”, the words came stumbling out and he produced a paragraph that demonstrated his learning. For this reason, I argue that further research should be conducted in the area of technological integration as a way to differentiate instruction and to see how educators view the technology in accordance to their students’ success and whether they agree or disagree with its usage.
4.3 Differentiating Instruction that Aims to Meet Students’ Needs, Interests and Learning Profiles

In discussing the ways in which the participants in this study differentiate their instruction, there seemed to be a consensus on utilizing students’ needs, interests and learning profiles as guiding forces. This finding resonates with Tomlinson et al. (2003) who stated, that if students are going to be taught in a classroom that is equitable in nature, students must be taught in ways that match their “readiness levels, interests, and learning preferences” (p. 120). Although the participants did not make any direct references to readiness skills, it seems that they spoke about needs instead, as a way to portray their learners’ capacity to learn and grasp the learning material. The following sub-themes discuss each aforementioned component in more detail and reflect the beliefs and practices that the participants spoke about.

4.3.1 Student needs and exceptionalities

In my study, both participants emphasized that their students with Individual Education Plans (IEP) are the ones in which they tended to gravitate towards first. An IEP is a document that outlines the student’s strengths and needs and the accommodations and/or modifications that are put in place to support that student (Ontario Ministry of Education, 2004). Chris rationalized his view by stating, “Because they always require a different approach to better understand the content.” Amy on the other hand stated that it was, “because of the law, you have to.” It is likely in this case that Amy was referencing the IEP that holds educators accountable to provide the necessary accommodations and modifications. Amy proceeded to assert that her English Language Learners are another group of students that she tended to prioritize and also the students with Attention Deficit Hyperactivity Disorder, characterized as a behavioural exceptionality. Taking these responses into account, it seems that both participants
conceptualized DI as a reactive approach rather than proactive. In other words, seeing DI as being required when there are students that have exceptional needs that are different from other students. Tomlinson et al. (2003) emphasize the importance of DI being proactive, in that “a lesson will, from the outset, address learner variance,” (p. 132) rather than attempting to make adjustments in the moment for particular groups of students. Similar findings were presented by Smit and Humpert (2012), wherein their participants tended to adjust and adapt tasks for students’ overall needs, however, it was not on a regular basis. Similar to making accommodations for visual and bodily-kinesthetic learners, this finding may also imply that although the participants viewed DI as being an approach to reach all students and their individual needs, their practices did not entirely reflect their view.

Tobin and Tippett (2014) also reported that teachers are inclined to conceptualize DI as being an approach only for students that have difficulties with the material and lesson at hand. For this reason, it seems that this is a trend within the findings from prior research, as my participants are in alignment with their global counterparts from Tobin and Tippett’s (2014) study. Perhaps the overemphasis and great responsibility placed on teachers to meet the needs of their students that are identified as having an exceptionality or extraordinary need takes center stage. According to Ontario Regulation 181/98 (the Education Act), “school boards [must] provide…special education programs and services for their exceptional pupils” (Ontario Ministry of Education, 2017, para 1). Within this regulation, an IEP must be devised for students requiring the services, which contains accommodations or modifications in order to meet the outlined objectives for that student (Ontario Ministry of Education, 2017). Like Amy mentioned, the law requires teachers to respond accordingly and hence, Chris and Amy may be incorporating this aspect into their endeavour to differentiate.
4.3.2 Student interests

Although Amy and Chris did not make major references to students’ interests, they did speak about incorporating experiences into their teaching that students enjoyed doing, such as drama, or allowing students to showcase their learning in the manner they felt best suited their style of learning. Throughout the academic literature regarding DI, interests is a prevalent theme that warrants attention and serves as a vital component in one’s attempt to differentiate their instruction. Authors such as Logan (2011), Santangelo and Tomlinson (2012), and Tomlinson et al. (2003), all stress the importance of utilizing students’ interests. When a student’s interests are taken into consideration and incorporated into lessons or activities, it is more likely that this student will be motivated to participate and sets the stage for connections to be made between what is already known and what is yearning to be learned.

4.3.3 Multiple intelligences within students’ learning profiles

Both of my participants recognized the uniqueness of their students by speaking about their individual ways of learning. Throughout the interviews, Chris spoke about using the various multiple intelligences (MIs) as a way to understand how his students learned and as a way to compile profiles on his students. As previously defined, a learning profile is one that compiles the ways in which students prefer to learn in efficient and effective ways and is characterized by one’s “intelligence preference, gender, and culture” (Tomlinson et al., 2003, p. 129). Amy briefly mentioned that she considered the multiple intelligences when differentiating her instruction and made reference to incorporating visuals in her teaching. To reiterate from chapter two, Howard Gardner (1983) presented the multiple pathways to knowledge in his attempt to make sense of how students prefer to learn. He stated that visual intelligence is one of the many ways in which students prefer to learn. However, Chris emphasized its use slightly more than Amy. He stated,
What I do at the beginning of every year is, I go online, I find a learning styles questionnaire and...make it appropriate to their grade level and just hand it out at the beginning of the year. Have them fill it out. You know, you’ll get maybe not the deepest understanding, but you’ll get a generalization and from there, you can work with that. Using this information, he attempts to create heterogeneous groupings that allow all students to use their strengths to work collectively as a group. Therefore, the mesh between DI and Gardner’s (1983) theory of multiple intelligences became evident within the interviews, as the manner in which the participants attempted to differentiate their instruction, stemmed in part from knowing the different multiple intelligences and which ones their students may align with. Within the prior research reviewed for this study, the use of MIs was only prevalent in Dee’s (2011) study, where participants used the different intelligences as a basis for differentiating their instruction. Therefore, my research adds to the fields of MI and DI, evidencing their interconnected nature. However, much more is needed in this area, as the data is not extensive enough to draw generalized conclusions.

4.4 Challenges to Differentiated Instruction

Amy and Chris revealed various challenges they perceived to hinder their endeavour to differentiate instruction, including: need for additional staff support, lack of technological resources and time constraints on planning and teaching instruction. As shown throughout the literature review, challenges to DI were widespread across participants from different studies in various parts of the world. To reiterate, the predominant challenges entailed lack of time that was sourced in numerous studies and a perceived lack of administrative support only emphasized in Tomlinson (1995). Interestingly, the lack of administrative support was not experienced by the participants in my study. Both Amy and Chris said that their administrative teams were
extremely supportive and they worked as a team to deliver differentiated practices. The Ontario Ministry of Education (2010) is pushing for DI practices to be employed in Ontario school boards, thus this finding by Tomlinson (1995) may be no longer present in the current day. This may be the reason that the teachers in my study are getting administrative support. Nonetheless, several challenges were identified and are examined in more detail in what follows.

4.4.1 Need for additional staff support

The need for additional staff support in the classroom was more prominent in Amy’s data. In her words, she voiced the following:

Having extra hands in the classroom, having an [educational assistant] or having a second teacher come in and out to assist me, I think that’s the biggest thing because I can’t scribe for one kid while I’m listening to a kid over here. It’s like impossible, it’s impossible. Me and thirty children to differentiate for each one, so honestly, I think the extra support in the classroom is what keeps me going and makes me want to keep doing differentiated learning. I need other people to help me. That’s what it is.

In this excerpt, Amy emphasized the large class size she had, which Nicolae (2014) also sourced as a challenge of differentiated instruction. Finding ways to support the learner variance of a large class can certainly be a daunting task if the necessary supports are not put in place for teachers. Participants in Tomlinson’s (1995) study expressed a similar concern, that they required additional assistance in the form of more staff in their classroom in their endeavour to differentiate. Since Chris did not focus on this challenge, I wonder if the sizes of their classes differed substantially, or whether Amy had more students in her class that needed specialized support in comparison to Chris. Nevertheless, this finding presented by Amy has implications for school boards; these will be discussed in the final chapter.
4.4.2 Lack of technological resources

Although my participants thought that technology was important when differentiating their instruction, they also found that it was a challenge considering its scarcity in their schools. In addition to large class sizes, Nicolae (2014) also made reference to a lack of resources as being a challenge for teachers when wishing to differentiate. As aforementioned, both of my participants referred to technology integration in their classrooms as being a major stepping-stone in the right direction to differentiating their instruction. Technologies such as smart boards, laptops and tablets were frequently mentioned as appropriate and necessary tools to further student learning. However, both participants said that there was “not enough to go around in their schools.” As stated prior, Amy realized that student achievement could be improved if students were provided with a technological tool that would allow them to learn in a way that worked better for them. However, if she had more of them to disperse amongst her students, she believed she could further differentiate her instruction to a larger degree and it would benefit her students to a greater extent. Similarly, Chris also expressed that the tablets he used were shared between all the teachers in the school, hence he needed to wait his turn to use them. Although Tobin and Tippett (2014) cite that many teachers in their study refer to the issue of a lack of resources in their teaching practice, it is unclear as to which resources they seemed to lack. As previously mentioned, technology is an area that was not cited in the literature reviewed for purposes of this study. For this reason, this research adds insights into the challenges faced by other educators in Canada and internationally. A question that remains is: With more technology placed in schools, can educators make more of an effort to differentiate and to what extent will their students benefit from it? Future studies could focus on this question to explore similarities and differences across contexts.
4.4.3 Time constraints on planning and teaching instruction

In addition to class size, and availability of technology, another challenge that emerged from the data was time constraints on planning and teaching instruction. Both participants expressed that it was time consuming to locate different approaches to reach all of their students. In fact, Amy mentioned that it was difficult to find time to assist one student, while staying attuned to the rest of the class and their individual needs. In Lewis and Batt’s (2005) study, one of the biggest challenges and barriers they found that was discerning among teachers’ experiences with DI was planning time. It is common grounds that teachers will find they lack the time and place to plan and find ways to differentiate that will meet the needs of their diversified student body. “As true of these teachers’ classroom lives…the teachers’ time available for offering assistance were limited by competing distractions as they responded to personal needs and educational gaps of their students” (Roe, 2010, p. 147). Thus, the similarities with my participants and those found by other scholars are evident.

4.5 Benefits of Differentiated Instruction on Student Educational Outcomes

The participants were asked about what they felt encouraged them in differentiating their instruction and the benefits they perceived arising from it. The most prevalent theme that arose was student success and engagement throughout my participants’ responses.

4.5.1 Student success and engagement

Both Chris and Amy highlighted that a key motivation on their end was to ensure the engagement of their students through a DI framework. Tomlinson et al. (2003) suggested that, “Teachers should ask themselves: What motivates this particular student and how do I design work that is responsive to these motivations?” (p. 129). This aspiration on behalf of Tomlinson et al. (2003) was most certainly granted in the responses by the participants in my study. Amy
noticed extreme academic gains in certain students by using this framework. Without the differentiation, she was convinced that her students would receive incomplete grades and it would further accentuate learning problems in the classroom. Likewise, by differentiating in ways that match the needs of the students, Chris believed that it would encourage his students and consequently, result in a higher engagement level. This however, is not a new finding. Tobin and Tippett (2014) found that their participants reported positive responses on behalf of the students. The students seemed more engaged and were more inclined to participate in lessons that were differentiated, rather than forced upon them in traditional ways, where one single task is assigned for all students with virtually no consideration for the students’ individual needs. Thus, my study’s findings relating to student success, reinforce prior findings that DI is an approach that should be adopted in the classroom, as it provides alternative pathways to learning and likely results in beneficial educational outcomes for students (Ontario Ministry of Education, 2010). In other words, if students are provided with learning opportunities that they can successfully engage in and in turn benefit from, they are likely to make academic gains in their educational careers, which may set the stage for future learning.

4.6 Influence of Prior Experiences on the Understanding and Implementation of DI

A major commonality that emerged from both interviews was the possibility that the teacher education programs and professional development opportunities, heavily influenced participants’ conceptualization of DI and how they carried it out in their classrooms. Dixon et al. (2014) assert that teacher education programs serve a vital role in preparing teacher candidates to face the various abilities and needs they will come across in their classrooms and how to do so effectively. When my participants discussed the ways in which they differentiated, they referenced back to their educational and professional experiences to rationalize their response.
For instance, Amy spoke about the technology use in her classroom and stated that she felt comfortable with this method. She said, “The biggest one for me is technology because I was trained that way and I’m comfortable with it and I find it really works.” Amy stated that she attended a teaching program that was situated solely around the use of MacBooks. From her descriptions, it seemed that she used technology in her classroom as a result of how she was taught and spent most of her practice teaching experiences. As for Chris, he emphasized that in his teacher education program, he took part in various activities where the multiple intelligences were highlighted. Also, he shared that he was grouped with his classmates according to the multiple intelligences theoretical framework. He further reinforced that all of what he knew about DI came from the knowledge and experiences he gained from his teacher’s college. Amy also identified professional teacher development courses as a source for her knowledge about DI. According to Dixon et al. (2014), “equally important to the learning and practice of this strategy is professional development focused on how to differentiate and why differentiation is necessary in today’s schools” (p. 122).

It seems both participants were actively engaged in learning how to differentiate through prior education and experiences, and utilized those as a guideline in their current practices. While past literature states that teacher education programs are failing to adequately equip their students to differentiate, the opposite seems to be true in my study. The participants utilized much of what they learned through these experiences in their classrooms and continue to build on them through years of practice.

4.7 Conclusion

Through the analysis process, six overarching themes emerged from the data. The first theme that emerged was the teachers’ understanding and conceptualization of DI. Throughout
the interviews and in the contextualization of the findings for the purpose of this study, it was found that both participants demonstrated a sincere dedication to differentiating their practice. Differentiation for the two elementary teachers aimed at ensuring that students were given the opportunity to succeed, by using careful and considerate practices. Moreover, while there were some noted differences between Amy and Chris, they were not substantial. Both participants aligned quite closely in their beliefs and practices regarding student diversity, otherwise known as learner variance within a DI framework (Tomlinson, 2014). There was an ultimate relation between the ways in which the participants viewed education and how they defined DI. Both participants expressed findings that aligned closely with the already existing literature, with one area that contrasted in regards to teachers from other studies not being able to come to terms with learner variance. This was not the case with the participants in my study, as they valued differences and aimed to do what they could to meet individual needs.

A discussion concerning the teachers’ instructional strategies that they implemented within a DI framework guided the second theme of the study. Both participants noted that they made several accommodations and modifications to the process and product domains, such as the provision of different types of materials or incorporating movement, as a way to ensure the success of their students. Their implementation strategies in regards to DI also supported the existing research. Chris also made reference to the learning environment and how he structured it in such a way that would elicit deeper involvement on the students’ behalves. Furthermore, various assessment methods were also brought forth such as dramatizing, drawing pictures, and utilizing a computer to type their thoughts. It is also noteworthy to mention that it was surprising to see how both participants relied so heavily on technology as a differentiation tool in their classrooms, as this was an area that was also scarce in the research reviewed for this study. This
study thus contributes this lens to the field of DI and to the literature that discusses the ways in which educators meet their students’ individual needs.

The third major theme concerned student needs, interests, and learning profiles. In this theme, although the participants recognized the importance of utilizing students’ needs, interests and learning profiles as a way to differentiate, misunderstandings were brought to light on the participants’ ends. The way they described their practices did not align with how Tomlinson (2014) described DI. Instead, they mirrored the way the participants in Smit and Humpert’s (2012) and Tobin and Tippett’s (2014) studies reacted. Further, students’ interests and multiple intelligences as learning styles were emphasized as key driving forces and go hand in hand with what other scholars have found.

For the fourth major theme, difficulties and/or challenges were brought to light that the educators were forced to face and acknowledge. Counteractive to that which was found by Tomlinson (1995) regarding a lack of administrative support when attempting to differentiate, both Amy and Chris felt otherwise. They both felt supported and that they could rely on their administrative team whenever it was needed. However, the ones that rang true for them was the need for additional staff support, lack of resources and time constraints. These difficulties were all shared in other studies and seem to be issues that educators worldwide have in the past or still face today. However, it is important to note that when discussing a lack of resources, both Amy and Chris referred to technology. This aspect is missing in the literature reviewed for this study. Nonetheless, there were certainly benefits that were observed by the participants when differentiating their instruction, which structured the next theme that followed.

In the fifth major theme, it was found that the participants noticed a growth in student engagement and student success when implementing DI in their classrooms, citing these as
benefits to the educational approach. When instruction is suited to students’ individual and collective learning needs and overall interests, the level of engagement is bound to rise as the learning becomes enjoyable and is at a level that is within reach of the student. Authors such as Tobin and Tippett (2014) and Tomlinson et al. (2003) both acknowledged this notion and reinforced the finding through their studies.

For the sixth and final theme, findings revealed that the influence that the participants’ teacher education programs had on their current teaching practices and how they approach DI in their classrooms was prevalent. With Amy emphasizing her technological practices and Chris highlighting his MI approaches, there were evident connections made back to their programs and the feelings of comfort that were brought about by using approaches they were familiar with. This is not surprising, as Dixon et al. (2014) stressed the importance of teacher education programs and the role they play in preparing teacher candidates to become certified educators who will respond to the inevitable learner variance they will encounter and the strategies they use to do so.

As seen from the above discussion, there is some alignment between what other researchers have found and my study’s findings, as well as areas of contrast. This study broadened my knowledge regarding the ways in which a DI framework was approached in two Canadian teachers’ practices and how they made sense of it. I hope that the findings will also be beneficial for other educators that strive to improve their practice through the use of DI. It is also important to note that in addition to the implications derived from these findings, the participants also recommended various pieces of advice for teacher education programs and pre-service teachers, which will be further explored in chapter five. Thus, chapter five will provide an overview of the key findings and their significance, in addition to examining broad implications
for the educational research community and narrow implications for my professional identity and practice. Recommendations and areas for further research will also be discussed.
Chapter 5: Implications

5.0 Introduction to the Chapter

Throughout the span of two years, my research study endeavoured to answer the key question: How do teachers understand and utilize differentiated instruction (DI) to meet students’ individual needs in mixed-ability elementary classrooms? By carrying out interviews with two Ontario elementary teachers, findings were derived through data analysis procedures and contextualized within the contemporary literature. The purpose of this chapter is to summarize the key findings of the entire study with regards to their overall significance and the implications they bear for the broader educational community. Narrow implications are also discussed, pertaining to my simultaneous practice as an educator and researcher. Thereafter, recommendations are provided that stem from the significance of the key findings and their narrow and broad implications to the field. The chapter concludes with suggestions of further research.

5.1 Overview of Key Findings and Their Significance

The findings in this study revealed that the teachers understood and conceptualized DI as being an approach whereby students are provided with many different avenues to learning in accordance with their individual needs. However, while their initial responses focused on the idea of ensuring the success of all students in their classes through exploration, collaboration, and promoting a sense of comfort for their learning to flourish in the classroom, as we progressed in the interviews each of the participants tended to mainly describe certain types of learners. For instance, when discussing the process of learning, the participants’ direction shifted to providing accommodations and modifications for certain students, such as those with Individual Education Plans, Attention Deficit Hyperactivity Disorder, English Language
Learners, and the bodily-kinesthetic and visual learners. This is significant because according to many scholars in the field of education, taking an approach situated on DI is one that is proactive, in that it does not strive to provide adaptations merely to certain students over others. Rather, it addresses learner variance from the outset, ensuring that each student is able to engage with the material in the manner that best suits their needs and abilities (Tomlinson et al., 2003). Thus, there seemed to be a disconnect between their initial definitions of DI and their subsequent description of their practices, in that although they wished to support all students, they geared towards assisting specific students instead.

Another significant finding relates to the strategies that participants used to assess their students’ learning and growth within a DI framework. Both participants discussed allowing their students to dramatize or dance out their learning, visually represent their knowledge, write reports, or use technological devices to type and/or utilize speech-to-text applications. Additionally, the environment was also given consideration in how it would be best structured to ensure student success. These findings show that the participants understood that implementing differentiated practices entailed the consideration of the environment and the product dimensions of DI. They recognized alternative ways their students could best represent their learning in accordance with their preferred modes. However, it was found that in addition to speaking to the process, product and environmental dimensions of DI, the participants placed the least value on the content. Tomlinson (2014) regards content as a vital component of DI, in that the classroom material and the knowledge the students gain from a segment of study is differentiated. This finding corresponds with the key finding discussed above regarding how the participants defined DI and how it was manifested in their classrooms. In other words, without considering all aspects of DI (i.e. content, process, product and the environment), is it truly being implemented? This is
significant because it provides critical implications for devising a uniform definition of DI and understanding its many facets.

Thirdly, although there were aspects of DI that were absent in the discussions with the interviewees, it was found that the participants acknowledged the importance in differentiating their instruction according to students’ needs, interests, and learning profiles, all of which are vital components of DI. Additionally, the participants discussed that the multiple intelligences outlined by Gardner (1983) were useful to consider when getting to know their students on individual levels and their subsequent learning profiles. In doing so, the educators were acknowledging the various aspects of a child, and teaching in a manner that was holistic.

An additional key finding regarded the use of technology as a means of differentiating instruction. With Amy discussing the use of laptops, Chris highlighting the importance of tablets, and both emphasizing the integration of smart boards, they both recognized the importance in having these devices present in the classroom. Amy knew that if she had an available laptop, her unmotivated students would be able to produce work that showcased what they knew (in the product domain of DI) and thus, she would have something to assess. Chris stressed the importance of smart boards and seeing his students be more motivated as a result of being able to engage with the content in a hands-on manner. With tablets being available to all students, Chris expressed that their engagement levels would rise and thus, more learning would take place in comparison to paper-to-pencil tasks. However, with the lack of funding and availability of these resources in their schools, both participants expressed the dent it put in their practice. They noted that with increased availability, there would be more chances to differentiate their instruction and engage their students in the material in a different manner from paper-to-pencil tasks. In other words, by differentiating their instruction to offer course material through technological modes,
their students would gain the knowledge in a different manner that is more conducive to their learning styles, and/or how the students would go about showcasing what they know through these devices. Thus, the importance of technology in the classroom is rationalized by the participants and consequently, hints at its overall effectiveness within a DI framework.

In addition to lack of funding for technological resources, there were numerous other challenges that the participants identified as playing a role in the implementation of DI. These challenges included a need for additional staff support in the classroom and time constraints on planning and teaching instruction. In finding ways and adopting strategies that would ensure that all the students are being reached, the participants felt they were losing time to cover the curriculum. For this reason, they felt the need to have additional staff support in the classroom, which would aid in the process of differentiating and release them of having to carry out various different tasks at once. For instance, the teacher and additional staff member may share the responsibility of providing accommodations for the students. This is important because understanding and coming to terms with these challenges provides vital implications for the educational community as a whole. Furthermore, although these challenges were articulated as interfering, they did not take center stage. Both participants were motivated to differentiate their instruction as a result of seeing gains in student success and overall engagement in the classroom. As with their educational pedagogies, both Amy and Chris endeavoured to find ways that would offer alternative pathways to learning, as they knew this would help their students flourish in their personal and academic development.

The final key finding of the study indicated that the way in which the participants understood what DI meant and how they carried it out in their classrooms was influenced by what they learned in their teacher education programs and professional development experiences.
With Chris utilizing the multiple intelligences and Amy gearing towards the use of technology, both participants made it evident that these practices came from a place of comfort, as they were trained in using these tools or devices and subsequently, used them in their own classrooms as well. This signifies the importance of the role of teaching programs in adequately preparing teacher candidates to enter the field and be able to face the student diversity that will inhabit their classroom. As a result of this finding, recommendations are explored in a subsequent section in this chapter.

5.2 Implications

5.2.1 Broad: The educational community

The findings of this study elucidate various implications for the educational community as a whole. More specifically, these findings can be used to make further progress in developing teachers’ practices and reframing their mindsets regarding DI. First and foremost, although it was evident that the participants valued equitable classroom conditions and brought student variance to the forefront of their practices, they seemed to falter in the area of understanding whom the DI is intended for. Perhaps the teachers in my study did not yet hold an intricate and extensive definition of what DI meant, with an evident inattention being given to some facets of DI (e.g. the content differentiation). However, this is not unique to my participants, as this finding has been backed up by other scholars, where DI is misunderstood in its entirety and undertaken in different ways (Roe, 2010; Tomlinson, 1995). In fact, Santangelo and Tomlinson (2012) made a thought-provoking point when they stated that, “the classroom is a system with necessarily interdependent parts. When one of those parts is weak or absent, the system as a whole suffers” (p. 1161). Although Chris and Amy understood the essence of DI, they pinpointed and prioritized certain areas over others.
For this reason, I argue that it is important for all pre-service and in-service educators to truly understand what it means to take on differentiated teaching methods, in order for DI to be facilitated in a holistic way. When it is understood differently amongst educators, it is likely that the outcomes of the differentiation will become fragmented, as it did with Amy and Chris. With a uniform understanding amongst all educators, differentiated practices in the classroom can serve as a tool through which students are permitted to learn to their fullest potentials and are granted opportunities in their learning that would otherwise be absent in a one-size-fits-all classroom environment. As explicated by Florian and Linklater (2010), in order to foster a genuine inclusive space, the lessons and activities that are taught must be within reach to all students, rather than thinking about how it may be difficult for some and how to ‘fix’ it for that lesson. For this reason, when DI is accurately understood, it serves to reinforce the value of catering to students’ readiness levels, interests, and learning profiles (such as the multiple intelligences), whereby students are more likely to be motivated and thoroughly engaged. As Amy and Chris identified, they noticed extreme gains in their students’ levels of engagement and overall success when they were given the tools to succeed.

Further, the teachers in my study illuminated a plethora of different challenges that impeded their practice. Likewise, the literature also discussed the different types of challenges that affected other educators worldwide. Although the challenges such as the need for additional staff support, lack of resources, or time constraints did not weigh heavily on Amy and Chris, in other words, did not affect their overall drive to differentiate, barriers such as these can very well distress other educators elsewhere. For this reason, it is important that all personnel within the field of education become aware of these challenges and understand the affect they can have on the implementation of DI. I believe it is important to develop an overall educational community
where there is an acknowledgment of certain factors that facilitate the implementation of DI, as well as the barriers that manifest themselves in the attempt to teach a group of diverse learners. As well, if educators wish to truly differentiate their instruction, they must hold positive attitudes surrounding DI. As Dixon et al. (2014) discussed, if a teacher does not feel self-efficacious in their abilities to differentiate, it is likely that they will stray away from it. Thus, understanding the different barriers can provide a place where reflective practices can embark and conversations can arise in order to understand how these challenges can be overcome.

Lastly, the emphasis on technology throughout this study was evidently established. Through the use of tablets, laptops and smart boards, the participants’ students were matched with a device that enabled them to equitably engage in the classroom content and truly exhibit their knowledge. Hence, I believe this key finding reinforced the importance of having various different tools in the classroom when attempting to differentiate one’s instruction and reminds educators that technology has the potential to serve as a highly valuable tool in mixed-ability classrooms. In this case, knowing one’s students and acknowledging the breadth of diversity they bring to the classroom can become an asset to everyday instruction and can empower educators to match instruction to students’ overall readiness levels, interests, and learning profiles.

5.2.2 Narrow: Professional and personal practice

Taking this study’s findings into consideration, I realized that as a teacher, I must reflect on and understand my own pedagogical and philosophical stances on education prior to attempting the implementation of differentiated practices in my classroom. I believe that you teach who you are. In other words, what you believe and the values you carry will showcase itself in your teaching. For this reason, understanding how I view DI is critical to its consequent implementation and how I make sense of the learner variance that will inhabit my future
classrooms. At this point in my academic career and teacher development, I have acquired much knowledge through the literature regarding what DI means and its overall nature in a classroom setting. However, taking what my participants have said into consideration, as a researcher, I feel the need to seek out additional information and resources to aid in the endeavour to differentiate.

Taking additional qualification courses or partaking in professional development workshops once I am in the field will do a great service in contributing to my knowledge base and allowing me to adopt enriched differentiated practices. Moreover, my study reinforced the importance of truly getting to know one’s students and understanding where they stand in all facets of their development. By doing so, this permits me to differentiate my instruction according to their readiness levels and needs, interests, learning profiles and to the overall environment, as per the DI components (Tomlinson, 2014). Like Chris in my study, I have recognized the importance of adopting practices where I can get to know my students as individuals and beginning this from the start of the school year. By establishing these relationships with my students, it is hoped that they will gain the sense that I endeavour to teach in ways that suit their needs and that I am a partner in their journey to lifelong learning.

5.3 Recommendations

Ascending from the implications of the key findings, a number of recommendations are developed and brought forth for pre-service and in-service teachers, administrators, professional development opportunities and teacher education programs.

Pre-service and in-service teachers should take the time to truly reflect on their understanding of DI and whether it matches with that which has been articulated by experienced scholars in the field (e.g. Tomlinson, 1995, 2003, 2014). This may take the form of journaling, conversations with other educators and/or reading books or online resources regarding DI.
Although it may seem that teachers are differentiating their instruction, the way in which they conceptualize it, may hinder on the actual implementation of these practices and consequently, may provide a false sense of inclusivity in the classroom. For this reason, both beginning and experienced teachers should engage in research-informed teaching by seeking out additional academic literature or resources that will aid in providing a better understanding of DI and how it can be best exhibited in their everyday practices.

Stemming from the findings, there are a number of different recommendations for school administrators, more specifically principals. As emphasized by both participants, their school administrators were extremely supportive and played a vital role in the overall functioning of their schools. I suggest that having a school administrator that advocates for DI in the classes and its overall implementation can make a difference in the school’s endeavour to achieve equity. Thus, I suggest that school administrators provide their staff with professional development opportunities, such as workshops or a professional learning community dedicated to DI, in order to gain further skills and knowledge regarding how to differentiate and the overall importance it serves in ensuring the success of all students. In this case, it is hoped that educators can find ways to differentiate their instruction that best suit their students and overall class, hopefully alleviating the barriers (e.g. need for additional staff support or time constraints) that are felt by teachers. Moreover, with one of the principal’s key responsibilities being to oversee the school’s budget, critical decisions should be made regarding what works best for the teachers in their school and providing the resources accordingly. For instance, in my study, both Amy and Chris voiced the need to utilize technology in their classrooms as a way to ensure that all students can equitably access the classroom content, however noted the lack of funding (emphasizing another barrier). Thus, knowing this and understanding how this may benefit the students, school
administrators may choose to allocate their funding to the provision of more technological devices in the school.

In addition to the recommendations for teachers and school administrators, teacher education programs can also play a vital role in aiding teachers in their endeavour to differentiate. In light of Amy and Chris acknowledging the role their teacher education programs had on their differentiated practices, I align with the views of Santangelo and Tomlinson (2012), in that I recommend that a growing emphasis be placed on the need of modeling. In order to ensure that teacher candidates receive a comprehensive understanding of how to differentiate their instruction, they may very well benefit from having the opportunity to observe their own teacher educators modeling exactly how to do it. In doing so, they can take note of what is being done to address learner variance from the outset and how this can be adapted in their own classes. Through this measure, it is hoped that they will enter their classrooms feeling confident in their ability to address student diversity and the wide spectrum of learning abilities in the classroom. Additionally, regular and/or additional qualification courses or workshops should be devised in teacher education programs that provide a strong and sole emphasis on DI, rather than having small portions of it allocated in other courses. This way, teachers are able to extensively explore all facets of DI and recognize how to truly take on the various strategies embedded within DI in their own classrooms. In the interview, Amy articulated that she wished she were given a hands-on guide to DI and how to adequately implement it in her classroom. With a course reserved exclusively for DI, her aspiration is likely to be fulfilled.

5.4 Areas of Further Research

Throughout the process of analyzing the interview data, I noted various areas that warranted additional attention. Firstly, although my participants strived to create equitable
classroom conditions where all their students could learn and succeed, their vision of differentiated practices tended to reflect only certain types of learners. In this case, I speculated in chapter four that their beginner statuses as teachers may have played a role in how they understood DI and how they could best implement it in their classroom. However, this speculation is inconclusive and cannot surely account for this phenomenon. Therefore, other researchers may direct their attention to examining the quantitative relation between years of practice and degree of differentiation that occurs in the classroom, as a way to see if their novice status played a role. Moreover, it was interesting to note the scarcity of the role of technology within a DI framework in the literature reviewed for this study, yet it became highly patent in the emerging data from the interviews. With limited data and a small sample size for this study, it would be interesting to understand how educators elsewhere in the world integrate technology in their classrooms and whether they use it as a tool to drive student success. Future research should answer the question: How does technology enhance DI and how might it contribute to the success and engagement of various different types of learners? Finally, with a great emphasis placed on the MIs from both participants, the data did not yield extensive insights into how the different types of MIs are considered and used to differentiate accordingly. With prior research done in the area of MIs (e.g. Gardner, 1983), ultimately explicating its importance in the field of education, I suggest that future research look into the interconnectedness of MI and DI and how other Canadian educators utilize their knowledge of MIs to address the inevitably of learner variance.

5.5 Concluding Comments

The overarching goal of this study was to seek how teachers in Ontario understand DI and how they use the DI framework in their classroom. While this study offered a small glimpse
into the experiences of two educators, their thoughts, beliefs, and practices add insights into the field of education and more specifically, areas regarding DI. Overall, the participants’ beliefs about the role of education seemed to have an influence on their instructional strategies to differentiate. However, they seemed to misunderstand whom the DI was intended for. For this reason, there is a need for the educational community to collaborate and come to a common understanding of DI and for educators such as myself, to reflect on their individual practices and expand their knowledge of its practice.

Using the benefits (e.g. student success and engagement) and challenges (e.g. lack of time and resources, and need for additional staff support) that were disclosed in this study by prior scholars, in addition to my participants, can aid educational stakeholders nationwide to reformulate the way in which they view DI and how they can best support the undertakers of DI. Understanding the place DI has in education, along with the benefits and challenges that were mentioned earlier, is one of the first steps in the right direction. In other words, the findings of this study are significant because they delivered various grounds for how teachers in Ontario view their students and how they cope with the variability in needs in their mixed-ability classrooms. Seeing how they conceptualize DI and the misunderstandings that prevailed, matters to the educational community as a whole and to teachers as individuals. Thus, the findings in this study can hopefully contribute to improving how students nationwide can be taught in ways that match their learning styles. It is important to remember that ‘one size does not fit all!’
References


Appendix A: Letter of Consent for Interview

Dear _______________________________,

I am a student in the Master of Teaching program at the Ontario Institute for Studies in Education at the University of Toronto (OISE/UT). A component of this degree program involves conducting a small-scale qualitative research study. My research will focus on teachers’ understandings and utilization of differentiated instruction (DI) in mixed-ability, elementary classrooms. I am interested in interviewing teachers who have the knowledge, education and/or experience with differentiating their instruction. I think that your knowledge and experience will provide insights into this topic.

Your participation in this research will involve one 45-60 minute interview, which will be transcribed and audio-recorded. I would be grateful if you would allow me to interview you at a place and time convenient for you, outside of school time. The contents of this interview will be used for my research project, which will include a final paper, as well as informal presentations to my classmates. I may also present my research findings via conference presentations and/or through publication. You will be assigned a pseudonym to maintain your anonymity and I will not use your name or any other content that might identify you in my written work, oral presentations, or publications. This information will remain confidential. Any information that identifies your school or students will also be excluded. The interview data will be stored on my password-protected computer and the only person who will have access to the research data will be research coordinator, Angela MacDonald. You are free to change your mind about your participation at any time, and to withdraw even after you have consented to participate. You may also choose to decline to answer any specific question during the interview. I will destroy the audio recording immediately after the interview has been transcribed. There are no known risks to participation, and I will share a copy of the transcript with you shortly after the interview to ensure accuracy.

Please sign this consent form, if you agree to be interviewed. The second copy is for your records. I am very grateful for your participation.

Sincerely,

Melbo Avgousti
melbo.avgousti@mail.utoronto.ca
Course Instructor’s Name: Angela MacDonald  
Contact Info: angela.macdonald@utoronto.ca

Consent Form:

I acknowledge that the topic of this interview has been explained to me and that any questions that I have asked have been answered to my satisfaction. I understand that I can withdraw from this research study at any time without penalty.

I have read the letter provided to me by Melbo Avgousti and agree to participate in an interview for the purposes described. I agree to have the interview audio-recorded.

Signature: ________________________________________

Name: (printed) ____________________________________________

Date: ______________________________________
Appendix B: Interview Protocol and Questions

Thank you for agreeing to participate in this research study, and for making time to be interviewed today. This research study aims to learn about the usage of differentiated instruction (DI) in Ontario elementary school classrooms for the purpose of broadening my knowledge and understanding of its implementation. I am interested in seeing how educators view and understand DI, and the strategies or methods they employ in their classrooms. This interview will last approximately 45-60 minutes, and I will ask you a series of questions divided into five sections, beginning with your background information, leading into your beliefs and understandings regarding DI, how it is carried out in your classroom, any facilitating factors or challenges you may face while differentiating your instruction, and finally, any concluding remarks you wish to make regarding the next steps for teachers. I want to remind you that you may refrain from answering any question, and you have the right to withdraw your participation from the study at any time. As I explained in the consent letter, this interview will be audio-recorded. Do you have any questions before we begin?

Demographic/Background Information:
1. How many years have you been working as a teacher?
2. What grade(s) or subject(s) do you currently teach and have taught in the past?
3. At which institution did you obtain your teaching certificate? What type of program was it?

Teacher Beliefs & Understandings:
4. Can you describe your approach to teaching and learning?
5. Can you explain what differentiated instruction means to you?
6. While practicing to become a teacher, do you recall learning about “differentiated instruction?” If yes, can you talk about some of the things you remember learning about it and what your instructors may have emphasized about it?
   a. If yes, can you talk about some of the things you remember learning about it and what your instructors may have emphasized about it?
7. Where have you learned most of what you know about differentiated instruction today?

Teacher Practices
8. What does differentiated instruction look like in your everyday teaching?
   Probing Question: Can you talk about some of the strategies, methods and/or resources you use when differentiating instruction?
9. In terms of assessment, could you describe some of the ways in which you assess your students while implementing DI?
10. When differentiating your instruction, is there a particular group of students that you have in mind? If so, could you explain how you determine or choose whom may need it?

**Facilitating Factors/Barriers or Challenges**

11. While differentiating your instruction, is there anything that encourages or supports you? If yes, what are some examples? If no, could you explain why you think that is?

12. Have you found any benefits in implementing DI with your students?

13. Would you say that there are any challenges in implementing DI?
   a) If yes, what are some examples?
   b) If no, could you explain why you think that is?

14. If participant answered yes in previous question, ask: How do you think the education system might further support you in overcoming these challenges?

15. Some of the barriers and challenges that other teachers have faced when attempting to differentiate their instruction are: lack of time and lack of administrative support. Would you agree or disagree with this?

**Next Steps:**

16. If participant said they do not recall learning about differentiated instruction in question 6, ask: You stated earlier that you do not recall learning about differentiated instruction in your program, is there any advice you would offer to current and future teacher education programs in regards to the teachings of differentiated instruction?

17. What advice can you offer to others who may be in the beginning steps of implementing DI in their classrooms or perhaps to those already implementing it?

18. Is there anything else you would like to share that I have not touched on or asked you about?

Thank you for your time and participation in this research study.