

Literature Review: Differentiation in Education

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Abstract

The purpose of this literature review is to explore the nature of differentiated instruction in education. Through the duration of the graduate course Interpreting Educational Research, I extensively researched the topic of differentiated instruction. My belief is that differentiated instruction is an expected approach to teaching and learning, because teachers offer choice of authentic and relevant activities that engage and motivate all learners of all academic abilities and ways of learning. Differentiated instruction calls for teachers to reflect upon their practices and methods in order to make changes as needed to provide a quality education for all. The purpose of this paper is to review the research relevant to and supporting differentiated instruction. What is/is not differentiated instruction? Why does differentiation work, and what does differentiation look like? These questions are addressed in the paper. The relevancy of differentiated instruction in education is discussed, and a suggestion for further research is noted.

Education is an integral component in my life. As a lifelong learner, a current teacher, and a professional in the field of education, I consistently strive to reach, expand, and then again reach my full potential both academically and professionally. As a First Nation woman working on a Manitoba First Nation reserve, I persevere to attain a higher level education in order to become a positive role model and to serve as an active and committed representative within my community. Equally important, I want to play a role in the excellent level of education that Wanipigow School has and continually aspires to offer. Teachers who are strong leaders and who strive to succeed along with their students are needed in First Nations schools. These teachers must reflect upon and adapt their teaching methods in order to cater to the needs of the students, so as to decrease school dropout rates while increasing the number of high school graduates each year. My passion lies in math education, and I strongly believe that math curricula must be delivered as a balanced approach, one that incorporates both traditional teaching methods and differentiated instruction and learning. Likewise, differentiated instruction should be employed in all subject areas. All students deserve a quality education, which may then lead to a brighter future with more opportunities in careers and life in general. Differentiating instruction in today's classrooms, particularly on Manitoba reserves, is a fundamental building block to a quality education that may lead to a positive and productive future for First Nations students.

Defining Differentiated Instruction

Children entering today's schools possess qualities that reflect diverse backgrounds, encompassing differences in race, ethnicities, cultures, and family histories. Coupled with these qualities is the variance of learning profiles, learning styles, abilities, and interests. As more children with diverse backgrounds complete the profile of today's classrooms, it is imperative that educators plan to work to meet the needs of all students. To respond to the ever-increasing number of diverse students, there is a call to differentiate instruction.

What Differentiated Instruction Is

Carol Tomlinson (2001), a leading expert in the field of differentiated instruction, stated that "a differentiated classroom provides different avenues to acquiring content, to processing or making sense of ideas, and to developing products so that each student can learn effectively"

(p. 1). This approach requires active and continuous planning on the teacher's part that considers and reflects understanding of student differences, and that accommodates the various ways that students learn. To accomplish this approach, teachers must be knowledgeable in the theory and research of contemporary education (Tomlinson, 2015a). Tomlinson also stated, "Differentiated instruction is a systematic approach to planning curriculum and instruction for academically diverse learners. It is a way of thinking about the classroom with dual goals of honoring each student's learning needs and maximizing each student's learning capacity" (as cited in Osoafor & Okigbo, 2013, p. 556). To differentiate instruction, then, depends significantly on teachers' professional knowledge and ability to ensure that what they do in their classrooms involves meeting the needs of all learners. The approach takes both expertise and insight. Because each child is different, so then are the ways in which they learn; as such, teachers must recognize what opportunities for learning are appropriate for each child within the classroom and how to provide those opportunities.

Osoafor and Okigbo (2013) suggested that differentiated instruction means creating multiple parts of a learning outcome, "so that students of different abilities, interests or learning needs experience equally appropriate ways to absorb, use, develop and present concepts as a part of the daily learning process" (p. 556). This enables students to take greater responsibility and ownership for their own learning and provides opportunities for peer teaching and cooperative learning. In their study, Osoafor and Okigbo (2013) wanted to determine whether differentiated instruction would improve the understanding and performance of Nigerian students if employed by biology teachers. They determined that in a setting with students who had previously received only a traditional style of instruction led by lectures, there were significant improvements made by all students who received differentiated instructional methods. The findings helped to define differentiated instruction and further support differentiated instruction as a means to deliver a quality education.

Chamberlin and Powers (2010) discussed the research concerning the core principles that guide differentiated instruction. The first tenet of differentiated instruction is for teachers to identify clearly what students must learn about a particular subject, which links assessment to curricular outcomes and to instruction. Next, teachers must attend to student differences. While doing this, they are accepting students as they are, while simultaneously challenging them to reach and then to expand their full potential. Further, students participate in respectful work as they are challenged at an appropriate academic level. Working at an appropriate level promotes critical thinking. Moreover, teachers and students work collaboratively while maintaining a balance between the teacher-led and the student-led roles. Additionally, teachers are flexible; they use groups and whole-class discussions interchangeably. Students are placed in groups that are based on their readiness levels, interests, and/or learning profiles. A final tenet of differentiated instruction calls for teachers to be proactive as opposed to reactive. Initially, teachers prepare lessons beforehand that consider learner differences, which ultimately saves time and effort to adjust instruction when all aspects of the lesson do not work out. As well, space, time, and materials are used flexibly to suit the needs of students. When combined, these principles of differentiated instruction can guide teachers as they incorporate this practice into their teaching repertoires.

Differentiated instruction is a critical component in the education of all students, and it is important that all teachers consider and use it in order to deliver a quality education. This approach to teaching requires active planning and continuous assessment of one's own practice, while continuously providing opportunities for different avenues to acquire and apply knowledge that is meaningful for students. As teachers engage in this reflective practice, it is imperative to distinguish between what differentiation is, as outlined in this section, and what it is not.

What Differentiation Is Not

While most research has focused on what differentiation is, it is also important for teachers to distinguish what it is not. This enables teachers to be more insightful as they prepare to implement differentiated instruction in their professional repertoire. Chamberlin and Powers (2010) stated that “differentiated instruction is not synonymous with individualized instruction in which the teacher varies instruction for every student” (p. 114). This approach can be extremely time consuming and may eventually lead to teacher burnout. Further, a commitment to differentiating instruction does not mean that a teacher has to follow that approach for each class. Whole-class instruction of certain concepts is integrated as well, as long as there is a meaningful purpose and it is well balanced. In a typical classroom, instruction may be differentiated one-third to one-half of the time. Moreover, differentiation in instruction does not result in an unbalanced workload for students, such that gifted students are expected to complete more assignments while students who are struggling do less work. Rather, all students work on activities that are at a suitable level for them and include opportunities for critical thinking. Finally, there is not just one way to differentiate instruction. The actual implementation is as varied as the needs of students in the classroom. Differentiated instruction is not a recipe for teaching, or a single strategy; rather, it is a process that is as varied as the number of students in a classroom.

A common misconception about differentiated instruction is that it is extremely complicated. When addressing differentiation, Strahan, Kronenberg, Burgner, Doherty, and Hedt (2012) noted, “Many educators mistakenly think that differentiation means teaching everything in at least three different ways – that a differentiated classroom functions like a dinner buffet. This is not differentiation, nor is it practical” (p. 3). This misbelief about differentiation is what discourages teachers from even considering the possibility of incorporating it into their teaching pedagogy.

It is imperative that administration teams are themselves conversant with differentiated instruction, and that they properly inform and effectively train teachers to deliver genuine differentiated instruction. While differentiated instruction may initially seem difficult to implement, it is the duty of all teachers to ensure that they work to their full professional potential as they educate each child to achieve to the best of his/her ability. Differentiating instruction is a means to fulfill one’s duty as a teacher. There is substantive research available for access by teachers as they learn the use of differentiated instruction in education.

Research Supporting Differentiated Instruction

Differentiated instruction has proven to be successful for student learning. Vygotsky’s (1896-1934) socio-cultural theory of learning and the zone of proximal development are two theories that strongly support the use of differentiated instruction (Vygotsky, 1986). The socio-cultural theory is particularly relevant with respect to teaching, schooling, and education because it is based on the belief that in order for learners to develop cognitively, they must be exposed to social interaction in a cultural context. Vygotsky’s theory is crucial for differentiation because it approaches education not as a product, but as a process. With its attention on social interaction, this theory views the student-teacher relationship as collaborative, and the learning experience as reciprocal. It is evident that this theory has implications for differentiation. As teachers use differentiation in their classrooms, they build a classroom community wherein interaction and cooperation are required, and the students’ cultural contexts are included in instruction and learning.

Likewise, Vygotsky’s zone of proximal development is another grounded theory for differentiation, because it refers to the level of development attained as learners engage in social behaviour (as cited in Subban, 2006). Learners can progress only in relation to their zone of proximal development. They learn independently if a teacher or expert first guides them, and

if instruction incorporates existing knowledge prior to the delivery of new information. Furthermore, according to Vygotsky, language and speech are tools that humans use to learn and to live within their social environments. Consequently, scaffolding instruction can be an appropriate strategy to reach and then to expand the range and complexity of learning outcomes within the zone of proximal development. The zone of proximal development relates to differentiated learning because while teachers instruct and challenge students at their appropriate levels, they are aware of and working within each student's level or zone of proximal development, which promotes learning, and then they are continuously expanding that student's zone to a higher level of learning. Clearly, Vygotsky's theories support differentiated instruction.

Howard Gardner's (1983) theory of multiple intelligences holds that students learn through various intelligences (as cited in Subban, 2006). The eight intelligences are logical-mathematical, verbal-linguistic, musical, visual-spatial, bodily kinesthetic, interpersonal, intrapersonal, and naturalist. Children's natural learning styles should be taken into account when determining or assessing their learning profile and then responding to that profile with appropriate pedagogy. The principles of Gardner's multiple intelligences theory have important implications for a differentiated approach to teaching.

The findings in brain research also have significant implications for differentiated instruction. Brain-based research is relevant to education because a brain's ability to process, store, and retrieve information relies on the environment in which the student is situated, the challenges proposed, and a student's ability to make meaning of the information through connections that are relevant to his/her life (Tomlinson & Kalbfleisch, 1998). Consequently, teachers should nourish classroom-learning environments that are safe and non-threatening. Moreover, students should be appropriately challenged to think critically at a level that is attainable to them, not too easy or too difficult. Overall, the skills and content should be meaningful to the students' personal experiences.

Tomlinson (2015b) argued in favor of differentiation. Recent work in neuroscience and psychology reveals two findings that should be central in educational planning (Tomlinson, 2015b). The first is that all brains are malleable, meaning that when teachers teach as though all students are capable, they (both students and teachers) become ever more capable of addressing increasingly complex concepts. The second is that teachers who believe in the capacity of each learner will demonstrate to students that they can achieve their goals by working hard while simultaneously knowing and taking advantage of their own strengths. With such an approach, all students achieve better results, because teachers no longer believe and teach as if only some students are smart, and others are not. Considering this research, it is critical for teachers to believe that every student is capable of learning, and that each student can be successful.

Combined, Vygotsky's socio-cultural theory of learning and zone of proximal development, Gardner's theory of multiple intelligences, and the implications of brain research provide substantial support with respect to differentiation and its positive effects on student learning.

Delivery of Differentiated Instruction

According to Tomlinson (2001), "In a differentiated classroom, the teacher proactively plans and carries out varied approaches to content, process, and product in anticipation of and response to student differences in readiness, interest, and learning needs" (p. 7). Tomlinson (2001) clearly articulated what differentiated instruction entails. A significant element of differentiated instruction is the performance of teachers, and their self-efficacy. It is apparent that teachers must have not only the potential, but also the belief in oneself, in order to deliver a quality education.

Self-efficacy and how it affects teacher delivery of differentiated instruction were elaborated by Dixon, Yssel, McConnell, and Hardin (2014): "Self-efficacy beliefs are an assessment of one's capabilities to attain a desired level of performance in a given endeavor" (p. 115). Self-

efficacy, with respect to education, encompasses the teachers' ability to judge their capabilities to reach specific outcomes both professionally and with their students, which includes their ability to engage and motivate all learners. Dixon et al. noted that self-efficacy beliefs apply to the effort that teachers invest in teaching and goal setting, and their ability to persevere and remain resilient when situations become difficult. Therefore, it is critical for teachers to believe in themselves and in their abilities for self-improvement. Dixon et al. (2014) asked the following questions to determine the self-efficacy beliefs of their teacher-participants:

To what extent can you use a variety of assessment strategies? To what extent can you provide an alternate explanation or example when students are confused? How well can you implement alternative strategies in your classroom? How much can you do to adjust your lessons to the proper level for individual students? To what extent can you gauge student comprehension of what you have taught? How well can you provide appropriate challenges for very capable students? (p. 124)

To agree that these questions are important, and to answer positively, would imply a strong sense of self-efficacy, which is precisely what teachers need in order to be strong advocates for differentiated instruction.

Ollerton (2014) explained that quality teaching is based upon certain conditions. One condition is that teachers should begin planning with questions such as "How can I get my students to be actively involved with and engaged in . . .?" (p. 46). Other conditions include a teacher's ability to provide stimuli, to offer strategies with open-ended questions, and to provide problem-solving approaches that build upon higher-level thinking. Additionally, quality teachers provide opportunities for project-based learning. These conditions, essential characteristics of a quality teacher, are also compatible with a differentiated approach to teaching. Self-efficacy and teacher performance are therefore crucial factors when delivering differentiated instruction and considering strategies of implementation.

The foundation of differentiated instruction is that teachers take advantage of every student's ability to learn. One way to accomplish that goal is for teachers to determine each student's preferred intelligence or style of learning, which takes into account Gardner's theory of multiple intelligences. To plan with multiple intelligences at the forefront is important to a differentiated approach in planning for content, process, and product or learning outcome. As teachers adopt a praxis that embraces multiple intelligences, they offer opportunity for students to reveal their creative side. Knowing how multiple intelligences improve learning is beneficial for teachers, and acting on that knowledge can reap rewards in student learning.

Kondor (2007) reported that differentiation entails more than just providing extra activities for students. Kondor found that students should be provided with authentic activities that are meaningful to their lives. She also established that offering students choice to construct knowledge in their own ways further meets their learning needs while motivating them to do well. When teachers provide students with the opportunity to make choices in their learning, it not only captures their interest, but also allows students to show their creativity through their learning.

When teachers take a responsive approach to teaching, they create a caring environment and build positive connections with students, which are fundamental to the differentiated approach to teaching. In their research, Strahan, Kronenberg, Burgner, Doherty, and Hedt (2012) found that as teachers take this responsive approach, thus establishing a caring learning environment, students respond by showing an improvement in their performance. Strahan et al. revised an existing logic model for the purpose of guiding the participant teachers through critical stages of responsive teaching. The stages included creating a classroom learning community, learning more about students as individuals, scaffolding instruction, and developing supportive interventions with students – all leading to the students' demonstration of higher

levels of reasoning in the final stage. This logic model for responsive teaching displayed differentiation in action. The model identifies the critical components of differentiation.

Correspondingly, the stages of the logic model in relation to responsive teaching can be applied to a differentiated approach to teaching. For instance, as teachers build a safe and caring classroom environment through positive classroom management, their approach develops trust, which in turn fosters the interpersonal skills necessary for shared responsibility, creating an environment that is fundamental to a differentiated classroom. While teachers learn about students as individuals, they create a respectful connection that nourishes the foundation of the teacher-student relationship necessary for learning. In their study, Strahan et al. (2012) created an interdisciplinary unit called *The Hungry Planet*; some strategies included in the unit were concept maps, vocabulary and inquiry activities, personal reflections, content journals, dialogue sessions, peer tutoring, and digital learning projects. Since responsive teaching is a component of differentiated instruction, the logic model can be adapted for use in contemporary differentiated classrooms.

In another study, Marshall and Horton (2011) found that as teachers gave students more time to explore concepts before explaining them, and especially if students were involved in the explaining process of the lessons, the approach resulted in improved student performance and greater ability to think more deeply about content. On the other hand, when the teacher used only the traditional lecture-based approach to teaching, it did not provide the opportunity for students to reach and then expand their full potential. Further, Marshall and Horton indicated that teachers should provide adequate time for students to explore the concepts in a given lesson and to discuss real-life problems relevant to the topic, prior to explaining. This fosters deeper cognitive levels and improved performance. The results of this study reveal that the time spent on certain stages of lesson planning is critical to the depth of achieved student learning, which is a fundamental component of differentiated instruction.

Strahan et al. (2012) reported a study that examined the classroom practices of five participant middle school teachers who were considered experts by their colleagues, and found that all teachers used strategies that addressed individual needs. The four common characteristics illustrated that all teachers offered personalized scaffolding, provided flexibility to achieve defined results, maintained subject area expertise, and created caring classrooms wherein student differences were viewed as assets and not deficiencies. The reported findings reveal additional strategies that teachers may use to differentiate instruction.

Ollerton (2014) asserted that differentiated learning happens regardless of what teachers do. Ollerton stated that the quality and nature of the stimuli that a teacher offers greatly affect the quality of thinking and the depth of sense making in students. Ollerton further explained that differentiation “happens at as many different levels of cognition and depth of sense making as there are students in a class” (p. 43). He suggested ways to ensure that differentiation is delivered at its best, which includes teachers seeking tasks intended to provoke active student engagement, planning tasks at different depths of learning, providing extension tasks that further develop thinking, and offering problem-solving opportunities through rich mathematical tasks. Ollerton suggested that rich mathematical tasks should be accessible to everyone, while providing challenge and opportunity for children to make decisions, and to promote discussion and communication among students. Each of these elements describes quality teaching, which in turn automatically embraces differentiated learning. Equally important, Ollerton further suggested that a flipped classroom model can be a possible strategy to differentiate learning. In the flipped classroom, students are given responsibility and ownership to teach information and concepts to their peers, with the intention of developing personal qualities such as independence and responsibility for their own learning.

Differentiation in education is an ongoing process that takes planning, dedication, and an open mind. As research has indicated, differentiated instruction is a necessity in education because it is an approach to teaching that addresses student differences such as learning styles, intellectual abilities, and personalities. There are numerous ways that teachers may

differentiate their instruction, because this pedagogy may be approached with the use of a variety of strategies.

Discussion and Conclusion

All classrooms include students with disabilities, students with different races and ethnicities, students with different cultural backgrounds, and students with various academic abilities and learning profiles. Differentiated instruction in education is paramount to student success, because it is an approach to teaching that accommodates the variation of differences in students. Effective teachers use a differentiated approach to teaching in order to deliver a quality education to all learners.

Differentiated instruction is not a recipe for great teaching, but it is a process that integrates several core principles in instruction and learning. There is no single way to teach, and to differentiate means to offer a multitude of ways for students to learn. By providing students with choice, by offering assignments that reflect the variance of learning styles, and by assessing students regularly, decisive approaches to the delivery of a quality education can be nourished. Differentiated instruction requires teachers to use their professional expertise and common sense to build upon their teaching methods, while continuously reflecting upon their practices as they develop self-efficacy. Equally important, in a differentiated setting there is a strong sense of community with positive connections among students and teachers. Additionally, this setting fosters a sense of welcoming, safety, and caring in the classroom environment. Differentiation involves a profusion of possibilities that open up if teachers actively use the approach in their teaching repertoire. Differentiated instruction in today's classrooms can lead to improved student performance, which in turn can lead to more high school graduates. Education is the key to nourishing positive and active citizens in today's society.

After researching the topic of differentiated instruction through the duration of the graduate course entitled Interpreting Educational Research, I have discovered areas that require further research. One area of concern regards teachers who seem to lack the willingness to adopt different techniques, such as differentiation, into their teaching practices. As Ollerton (2014) suggested, "Differentiation is perhaps the most complex and critical issue for teachers to engage with" (p. 43). I believe that there should be more research conducted in the area of teacher motivation to improve student performance through differentiated instruction. As well, more research is needed to determine whether professional development opportunities for teachers on differentiated instruction will, in turn, have a greater impact on student learning.

Because there are many negative social factors affecting First Nations communities, which is the context in which I teach, the school should be the main place to prioritize a positive change; therefore, teachers who are willing and motivated to adhere to change should be teaching in these schools. Because I yearn for a better future for my community, I take my role as an educator very seriously. I hope that as a First Nations teacher working in my home community, I will make a positive impact on many youth, so that they too may one day become positive leaders and make a change for First Nations People.

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About the Author

As a current high school teacher and graduate student working to earn a Master of Education, Chantel Bushie strives to be an active role model within her Manitoba First Nation community of Hollow Water. Her experiences in the field of education have included working as an educational assistant, a former PENT student, and a middle years teacher.