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Middle School Teachers' Use of Differentiated Instruction Strategies

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Walden University
2020

Abstract

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MEd, Troy University, 2010

BS, Georgia Southern University, 1988

AA, East Georgia College, 1984

Project Study Submitted in Partial Fulfillment

of the Requirements for the Degree of

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Abstract

The administrators at the study site were concerned that teachers struggle with differentiated instruction (DI) in their classrooms, which involves strategies to support students' levels. Thus, the purpose of this qualitative case study was to learn what DI strategies teachers used at the study site. The conceptual framework of Tomlinson on the differentiated strategies for content, process, the product according to the students' readiness, interests, and learning environment guided this study. The research question was intended to reveal the DI strategies teachers used to educate students with different ability levels. Nine individual educators were interviewed for this research project with questions compiled from the Teacher Keys Effectiveness System (TKES) Standard 4, and answers from participants were recorded and professionally transcribed. The data were analyzed using direct content analysis, an inductive method with the TKES Standard 4 subsections as a framework for organizing the themes. The findings indicated that 7 of the 9 participants shared a variety of strategies, and none of the 7 voiced concerns or problems with any strategies; however, 3 of the 9 participants discussed the lack of enrichment and accelerated strategies being implementing in classes. Therefore, a project was developed to share several strategies teachers can use to differentiate instruction that may address the concerns regarding enrichment and acceleration. The findings may lead to positive social change through a series of professional development programs that help obtain more content areas correlated strategies to increase student learning.

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Dedication

As I reflect on this journey, I have to thank God first. Without God, nothing is possible, but with God, all things are possible. This page is dedicated to all those special individuals in my life who believed in me and supported me all these years. My parents, William and Ruthie George, both retired educators—Dad, a principal and my first boss and Mom, a teacher and my first teacher in daycare and kindergarten. Their love and support can't be measured. All I ever wanted to do was to make them proud. I owe them my all. Next, I dedicate this page to my son Jalen, my Christmas morning baby. Not only is Jalen my son, but I actually look to him for some strong advice. I got in a pivotal moment of my writing and Jalen advised me with these words: "Momma, you have written many successful papers; why stress out over something you already know how to do?" Those words still resonate with me. I have to dedicate this page to my nephew son, because he loves me, and I love him as he was my own. He always let me know that he is proud of me. Michele, my sister who loves me unconditionally and Anthony, more than a brother-in-law, but a brother that always had a word of encouragement and inspiration. Jeffery and Stine, my brothers whom I truly believe prayed for me and have only wanted me to make it on this journey. Sadly, Stine passed away before I obtained my degree.

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reasons, some of the employees I got to know over the years came and left, I love them all. They made me feel so welcomed, even if I was there every night studying. To my other places of study, such as my "Starbuck's Family," thank you. You also treated me with kindness and allowed me to work sometimes morning to night. GSU library, thank you so much for providing me a place to study. I also have to give a shout out to Ms. Tarshell Ellis, GM, and Director of Hampton Inns. Many times, I needed a place to study and write. I found a home away from home at Hampton Inn in Statesboro, Georgia.

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To my study school, I dedicate this to all your wonderful administrators and staff. Thank you! The study would not have been completed without your support.

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Table of Contents

iii

List of Tables

List of Figures

Section 1: The Problem

The Local Problem

Middle school teachers are often faced with challenges of how to meet the needs of all students in classrooms where students are at diverse ability levels (Tomlinson & Jarvis, 2009, 2014; Wu, 2013). Teachers teach a wide range of ability levels, which requires lessons that meet the readiness levels of each student (Tomlinson, 2003). This study addressed the problem that middle school administrators at the study site did not know what differentiated instruction (DI) strategies teachers are using to support students' multiple ability levels. In 2012-2013, the Georgia State Department of Education (GaDOE) initiated a mandate to use DI to address the challenge of large and diverse classes. As part of this mandate, principals evaluate teachers on DI implementation each year (GaDOE, 2014). The evaluation instrument, the Teacher Keys Effectiveness System (TKES), is comprised of 10 standards, and DI represents Standard 4 (GaDOE, 2014). TKES became law on July 1, 2014, after Georgia passed House Bill 244 in response to the state's "Race to the Top" grant (GaDOE, 2014). The purpose of TKES was to provide classroom teachers with meaningful feedback on their teaching abilities through an annual evaluation (GaDOE, 2014).

Despite the Georgia mandate, the principal at the research site did not know how well the middle-school teachers were using DI strategies for multiple ability levels (Principal, personal communication, October 6, 2015). However, the principal was aware that teachers were struggling to use DI because of challenges such as multiple ability levels and large class sizes. Additionally, it was unclear what PD administrators would

supply to ensure teacher proficiency in DI. To address this gap in knowledge and

practice, I explored middle school teachers' use of DI strategies and knowledge to create

a professional development (PD) project.

This study examined middle school teachers' use of DI strategies for multiple

ability levels. It was unknown to the principal what strategies teachers use to differentiate

instruction. The building principal indicated that he knew his teachers were struggling to

use DI (Principal, personal communication, October 6, 2015). The problem this study

addressed is that local Georgia middle school administrators did not know what DI

strategies teachers were using to support students' multiple ability levels. The gap in

practice was the lack of knowledge of what DI strategies teachers used. It was unclear

what professional development (PD) administrators would supply to ensure teacher

proficiency in DI (Principal, personal communication, October 6, 2015).

Standard 4 represents the variety of research-based DI strategies all middle school

teachers should be using, which are evaluated by the TKES. Interviews were conducted

using the TKES Standard 4 along with other related literature as a guide for the interview

process to assess teachers' use of this standard. Open-ended questions were asked to

reveal DI strategies that teachers used. Table 1 provides a list of strategies for DI based

on Standard 4 state evaluations that principals conduct. For example, according to TKES

Standard 4.1, teachers differentiate content, process, product, and learning environment.

To differentiate the content, teachers use a variety of content objectives for different

students who shared findings with the class. To differentiate the learning process,

teachers may use manipulatives or one-on-one assistance because not all students work at

the same pace and provide some students with enrichment as well as accelerated

activities. Finally, to differentiate the products, teachers can assign a variety of products

such as visuals, including videos, power points, posters, graphic organizers, charts, digital

performances, and plays.

Standard 4 represented the variety of research-based DI strategies all middle school teachers should have been using, but it was unknown if they were. Tomlinson (2003) asserted that teachers teach a wide range of ability levels, which required lessons that met the readiness levels of each student. Some teachers struggled to effectively implement DI strategies because of challenges such as multiple ability levels and large class sizes (Principal, personal communication, October 6, 2015). The DI strategies that teachers should have known were those that aligned with the DI standards evaluated by TKES. Interviews were conducted using TKES Standard 4 along with other related literature as a guide for the interview process to assess teachers' use of this standard. Open-ended questions were asked to reveal DI strategies that teachers used.

Table I 1below lists the sample performance indicators for TKES evaluations. The indicators range from standard 4.1 through standard 4.6. Each indicator outlined what Principals looked for as teachers are evaluated.

Table 1

Sample Performance Indicators for Teachers Key Effectiveness System Evaluation

Standard 4 Differentiated Instruction	The teacher challenges and supports each student's learning by providing appropriate content and developing skills that address individual learning differences.
4.1	Differentiates the instructional content, process, product, and learning environment to meet individual developmental needs.
4.2	It provides remediation, enrichment, and acceleration to further student understanding of material.
4.3	Uses flexible grouping strategies to encourage appropriate peer interaction and to accommodate learning needs/goals.
4.4	Uses diagnostic, formative, and summative assessment data to inform instructional modifications for individual students.
4.5	Develops critical and creative thinking by providing activities at the appropriate level of challenge for students.
4.6	Demonstrates high learning expectations for all students commensurate with their developmental levels.

Rationale

Evidence of the Problem at the Local Level

The purpose of this study was to understand what DI strategies teachers were using to support students' multiple ability levels at the study site, which the administrators did not know. The principal at Chamber Middle School (CMS, a pseudonym) stated that the teachers have some knowledge of DI, and many of them have participated in PD, but the teachers expressed consistent struggles implementing DI strategies(Principal, personal communication, October 7, 2015; personal communication, November 16, 2015). Additionally, the principal and superintendent agreed that teacher knowledge of DI strategies remained a challenge(personal communication, October 7, 2015; personal communication, November 16, 2015). However, it was unclear to CMS administrators what DI strategies teachers were using and if they were effectively implementing DI to address students' ability levels, though they felt that large class size was an issue in DI(Principal, personal communication, October 6, 2015). This could affect how teachers' strategies meet the evaluation based on the TKES Standard 4, which has been in effect since the 2012-13 school year (GaDOE, 2014). The

Based on the need for better knowledge of teachers' strategies, There is a problem at the local level, according to the Chamber Middle School (a pseudonym) (CMS) administrators who stated concerns related to the problem of not knowing which DI strategies teachers used for multiple ability level students. While not the focus of this study, it should be noted that administrators felt that part of the problem of differentiating was the large class size. The focus of this study was on the teachers' strategies. CMS

teachers face the challenge of meeting many individual needs within a large class, often 30 students, at this school(Principal, personal communication, November 16, 2016). The special education classes had two teachers with a class of about 16 students. Non-academic courses had up to 35 students with one teacher. In addition to these class sizes, many of the instructional strategies associated with DI often require more extended amounts of time other than the 45 minutes per class allotted at CMS (Dack & Tomlinson, 2015; Darrow, 2015; Dikici, 2014).

Evidence of the Problem in the Professional Literature

The Georgia middle school administrators at the site of this study did not know what DI strategies teachers were using to support students' multiple ability levels. DI is a combination of many different theoretical perspectives but is mostly based on Tomlinson's work, which suggested that teaching a classroom is like organizing a small country so that it works for everybody (Tomlinson & Imbeau, 2010). Thus, it becomes a daunting task for teachers to differentiate instruction with many diverse learners (Tobin & Tippet, 2014). However, even though students may have differences that require individualized instruction, the classroom pedagogy can still be manageable using DI strategies (Thompson, 2013). These strategies can be taught through PD, but designing PD is challenging when teachers are unfamiliar with DI and are unsure of how to implement strategies (Watts-Taffe et al., 2012). DI fosters a complexity for some teachers to master and feel prepared to use (van Geel et al., 2019), meaning that a well-designed PD is based on a concrete understanding of DI. The problem at the study site was that middle school administrators did not know what DI strategies teachers were using

because teachers did not have consistent information on what strategies they needed to use, making it challenging to meet the needs of the teacher. According to the administrators, part of the problem was a lack of professional development specifically designed to meet the needs of the teachers. This is a problem because teachers were not able to get consistent research-based information on the DI strategies they were supposed to be using. The administrators, therefore, could not be sure that the teacher knew what strategies they were supposed to be using. The teachers in this study had some PD on DI; however, as teachers implemented strategies, they were met with challenges within their classrooms (Principal, personal communication, October 7, 2015). Teachers who needed extra help differentiating instruction could do so using a professional development plan. Designing PD is challenging when teachers are unfamiliar with DI and are unsure of how to implement strategies (Watts-Taffe et al., 2012). DI fosters a complexity for some teachers to master and feel prepared to use (van Geel et al., 2019). Designing PD for these teachers could be more effective if the PD designer knew what DI strategies teachers currently know and use. The research findings of van Geel et al. (2019) reiterated that a well-designed PD is based on a concrete understanding of DI.

Many teachers are unclear regarding which strategies may work more effectively than others, so there may be a need for training in schools to use effective DI strategies (Aldossari, 2018). Even though teachers may have some understanding of DI, additional PD can help them improve (Maeng & Bell, 2015; Robinson, Maldonado, & Whaley, 2014). For example, a study showed that only one of the seven teachers surveyed was appropriately using DI strategies (Maeng & Bell, 2015). Teachers need to assume that

one or two students with diverse ability levels would be in their classroom, which

requires learning DI strategies to reach a wider range of ability levels (Kizas, 2016;

Washburne, 2015). However, teachers struggle to find the right DI strategies to

implement in their classes that have student diversity (Gaitas & Martins, n.d.). These

studies provided evidence that highlighted the fact that although teachers may have

known some DI strategies to be effective, they did not know more or better strategies to

be proficient in DI.

  Therefore, it is important to have PD for DI. Part of the problem that it is unclear

what strategies teachers are using is that there is not sufficient professional development

for teachers to provide them with the appropriate strategies. Middle school administrators

at this study site do not know what DI strategies teachers are using to support students'

multiple ability levels. The importance of PD for DI is stated often in the research (Slavit

& Mcduffie, 2013; Wan, 2017). Positive student outcomes have been attributed to

teachers participating in PD on DI (Connor et al., 2014).

  These studies pointed out that teachers needed PD if they are to succeed in

implementing DI. The study was conducted to understand the current use of teacher's

differentiated strategies so that appropriate PD could be formulated to teach the

differentiated instructional strategies that teachers did not already know, but needed to

know to pass their TKES evaluations. Teachers need to assume that one or two students

with diverse ability levels would be in their classroom, and this means that teachers could

benefit from learning DI strategies to reach a wider range of ability levels (Kizas, 2016;

Washburne, 2015). Teachers struggle to find the right DI strategies to implement in their

classes that have student diversity (Gaitas & Martins, n.d.). Therefore, this study was conducted to understand teachers' differentiated strategies so that appropriate PD could be formulated to teach the DI strategies that teachers needed to know to pass their TKES evaluations. In summary, there is research that suggests that teachers may not know effective DI strategies and it is unclear what DI strategies teachers do know. This study was designed to document what DI strategies teachers do currently know.

<div align="center">**Definition of Terms**</div>

In this study, the following terms were used operationally to inform different aspects of the study.

Differentiated instruction (DI): DI is a teacher's response to learners' needs guided by general principles of differentiation such as respectful tasks, flexible grouping, ongoing assessment, and adjustment. Teachers can differentiate content, process, product according to student's readiness interests, and learning profile through a range of instructional and management strategies such as multiple intelligences, taped material, tiered lessons, and varied questioning strategies (Tomlinson & Allan, 2000).

Middle schools: Middle schools deliver diverse programs and beliefs. They also strive for school programs with a child-centered philosophy, a suitable core curriculum, learning activities designed around the team or unit-based concept, and teaching strategies explicitly designed for young adolescents (Alexander & George, 1981; Cawelti, 1988).

Middle school teachers: Middle school teachers teach students, usually in sixth to eighth grade. They aid students in building on the basics they learned in elementary

school and prepare them for the more advanced curriculum they will face in high school (Bureau of Labor Statistics, U.S. Department of Labor, 2019).

Significance of the Study

The study's Georgia middle school administrators at this study site did not know what DI strategies teachers are using for students' multiple ability levels. This study can provide administrators at the study site with an understanding of teachers' knowledge of DI strategies so that PD could address teachers' needs in terms of DI strategies to pass the TKES. The study provides information about the teachers' knowledge and gaps in knowledge about DI, which can be used to design a PD to meet the readiness levels and interest of teachers. For example, if the teachers requested more strategies for TKES Standard 4.2 but fewer for TKES Standard 4.5, then the PD can be focused more on Standard 4.2 strategies. The significance of this project study involves providing more DI strategies for teachers to use with all learners. The results are significant in providing Georgia middle school principals with a list of strategies teachers used to differentiate instruction. Additionally, this study led to creating a PD plan that allows teachers to implement strategies more effectively.

Research Question

Middle school administrators at the study site did not know what DI strategies teachers are using to support students, which The gap in practice was that without knowledge of teachers DI strategies use, Georgia administrators were unclear what professional development (PD) should supply to ensure teacher proficiency in DI (Principal, personal communication, October 6, 2015). There was a need to design a PD

unit that would help teachers use DI for multiple ability levels. The research question addressed this need for better understanding of the strategies teachers currently used:

The research question is: What DI strategies do middle school classroom teachers use for multiple ability levels in their classrooms?

Review of the Literature

This section begins with a description of the DI conceptual framework based on the writing and research of Tomlinson (2001, 2003). Because of the different content areas taught by the participating teachers, the rest of the review has two major sections: general and content-specific DI strategies. The general DI section includes relationship-building, ability differentiation, choice-boards, game-based learning, and technology. The content-specific DI section includes science strategies, literacy strategies, math strategies, and social studies strategies. The literature review ends with an implications section.

The literature was reviewed by a comprehensive evaluation and assessment of relevant research from scholarly, peer-reviewed journals, dissertations, and books that were identified through online searches of databases such as Boolean searches in ERIC, Education Research Complete, and Google Scholar. Many relevant articles between the years 2013 and as possible 2019 were included. Walden University and Georgia Southern University Libraries provided a wide variety of information from peer-reviewed articles. The following keywords were used: *General DI strategies: relationship building, DI for ability levels, DI choice board, DI game-based learning, DI and technology, DI and literacy, DI and science, DI and social studies,* and *DI and math.*

Conceptual Framework

Teachers' use of DI strategies at CMS was the focus of this study, looking beyond DI as a list of strategies. The conceptual framework of this study on DI was focused on the work of Tomlinson and four elements of DI: content, process, product, and learning environment (Tomlinson, 1999). In differentiating content, teachers examine facts, concepts, and generalizations for student learning (Tomlinson & Allan, 2000). In the differentiating process, teachers provide clarity for the learner by implementing activities and instructional strategies (Tomlinson & Allan, 2000). In differentiating products, students create a portfolio or took a rigorous examination to demonstrate the final results (Tomlinson & Allan, 2000). The conceptual framework provided a lens through which to view DI strategies, helped ground an understanding of the TKES Standard 4 that was used to inductively categorize the standards, and helped organize the literature review on different DI strategies. The conceptual framework of DI was presented to provide teachers with a blueprint of understanding the concept and how to effectively implement the strategies used (Tomlinson & Allan, 2000; Tomlinson & Imbeau, 2010; Tomlinson & Jarvis, 2014; Tomlinson, & Moon, 2013). Long before Tomlinson (1999), educators have sought appropriate instructional strategies to teach students of mixed abilities (Washburn, 1953). Even though the term *differentiated* was not used at the time, teachers were required to differentiate instruction because their classrooms consisted of students in kindergarten to high school in a one-room school setting (Washburn, 1953). Tomlinson (2003) described DI as a new way of thinking about teaching. In this new way of thinking, DI occurs when teachers put individual students' needs first (Tomlinson, 2001).

Teachers who use DI effectively by putting individuals first influence students' growth and motivation (Tomlinson & Imbeau, 2010). Therefore, incorporating DI along with meaningful instruction means that teachers have solid educational objectives and curriculum while adjusting materials and instruction for specific children (Tomlinson, 2003).

The conceptual framework of DI describes the process that teachers undertake when engaged in DI. Currently, teachers relinquish the traditional role of teachers as authoritarians, and they take on roles as academic facilitators (Tomlinson, 2003). Facilitators engage in promoting and encouraging students to take a more proactive role as architects of their learning (Tomlinson, 2006). Part of the framework assumes that student engagement requires educators to respond responsibly to the interests of students, cognitive levels, and readiness (Hall, 2002). This usually requires that teachers formulate a strategic plan for classrooms that account for their multiple ability levels (Landrum & McDuffie, 2010). As part of this strategic plan, teachers use instructional practices and strategies for their current students (Tomlinson & Heig, 2006). Teachers who have used the conceptual framework of DI differentiate effectively by facilitating learning for all students, implementing a rigorous structure, and effective strategies to meet the needs of the different abilities in each class (Tomlinson & Imbeau, 2010).

Teachers use a variety of strategies to implement DI (Tomlinson & Imbeau, 2010). The concept map in Figure 1 shows the DI strategies teachers used to differentiate content, process, and product (Tomlinson & Allan, 2000). The first step of the concept map represented the beginning of the process of using DI. Teachers respond to learners'

needs guided by general principle strategies of DI, such as respectful tasks, flexible

grouping, and ongoing assessment and adjustment. The next step of DI is for the teacher

is to decide what to differentiate. There are four strategic areas: (a) content of a lesson,

(b) the process of the lesson, and (c) the products of learning from the lesson, and (d) the

learning environment. The next step illustrates how a teacher adjusts these aspects of the

lesson depending on the students' readiness, interests, and learning profile. Thus, teachers

can use a variety of strategies that help students to reach their potential (Tomlinson &

Allan, 2000).

Differentiation of Instruction

is a teacher's response to learner's needs

guided by general principles of differentiation, such as

respectful tasks

flexible grouping

ongoing assessment and adjustment

Teachers can differentiate

Content

Process

Product

according to student's

Readiness

Interests

Learning Profile

through a range of instructional and management strategies such as

multiple intelligences	tiered lessons	4MAT
jigsaw	tiered centers	varied questioning
taped material	tiered products	strategies
anchor activities	learning contracts	interest centers
varying organizers	small-group instruction	interest groups
varied texts	group investigation	varied homework
varied supplementary	orbitals	compacting
materials	independent study	varied journal prompts
literature circles		complex instruction

Figure 1. Concept map of differentiating instruction. Reprinted from *Leadership for Differentiating Schools and Classrooms* by Tomlinson and Allan (2000). Reprinted with permission.

The next step of DI in Figure 1 for the teacher is to decide what to differentiate. There are four strategic areas: (a) content of a lesson, (b) the process of the lesson, and (c) the products of learning from the lesson, and (d) the learning environment. The next step illustrates how a teacher adjusts the content, process, and product of the lesson depending upon the students' readiness, interests, and learning profile. To summarize, when teachers differentiate the content, process, product, and learning environment according to a student's readiness, interests, and learning profile, teachers can use a variety of strategies that help students to reach their potential (Tomlinson & Allan, 2000).

The purpose of the research was to learn the DI strategies that CMS teachers used to differentiate instruction for their students. The conceptual framework of DI was the organizing principle behind the TKES Standard 4, making it a good fit to address the purpose of the study and create the research question, which were focused on documenting which DI strategies teachers know for each subsection of the TKES Standard 4. For example, during the interviews, teachers answered questions concerning their ways of modifying the content, process, and product (substandard 4.1) to meet the needs of different ability students in their classroom. The conceptual framework also influenced the literature review because it stipulates that there are general strategies and different strategies based on the content area, which was used to search for and organize articles in the literature review. Finally, the conceptual framework influenced the project study in that the outcomes document the DI strategies that teachers know from the TKES Standard 4 substandard, revealing areas of the TKES Standard 4 where teachers may not have appropriate strategies. This information could form the basis for a project.

Literature Review

There are two main sections in this literature review: the general DI strategies, and a range of DI strategies for different content areas. The general DI section includes relationship-building, ability differentiation, choice-boards, game-based learning, and technology. The content-specific DI section includes science strategies, literacy strategies, math strategies, and social studies strategies. The literature review ends with an implications section. The purpose of this review was to inform the documentation of the strategies that teachers might share during the interview for each of the substandard for TKES Standard 4. These include general strategies such as content, process, and product in addition to significant evidence that there are content-specific strategies, which applies to the teachers in this study from a variety of content area classes. Thus, to be prepared to understand and analyze the data, this literature review was conducted to examine teachers' use of general and content-specific DI strategies.

Teachers' understanding of differentiated instruction. DI is a way of thinking about students that recognizes their unique learning preferences (Tomlinson & Murphy, 2014). Educators think about DI to improve or enhance the strengths of students (Tomlinson & Imbeau, 2010). DI is not using a single strategy but rather an approach to instruction that implements multiple strategies (Watts-Taffe et al., 2012). For example, Watts-Taffe et al. (2012) conducted a study on Watts-Taffe, Laster, Broach, Marinak, Connor, & Walker-Dalhouse (2012) conducted a study where they interviewed and observed two elementary classroom teachers whom the researchers determined were teachers who firmly understood DI and used multiple strategies in their classrooms. The

Massachusetts teacher had three years of experience while the Pennsylvania teacher had 15 years of experience. The results of the study indicated that both teachers were effective in differentiating for students and increasing students' knowledge within a classroom that had multiple ability levels. Both teachers took the crucial first step; they began their instructional planning by examining their students' strengths and weaknesses with formative classroom assessments as well as summative assessments (Watts-Taffe et al., 2012).

Understanding of DI was reflected in the many DI strategies they used in their classrooms. The third-year teacher in Massachusetts used strategies that involved (a) sharing students' own experiences in relation to characters and events in the text, (b) modeling think-a-loud lessons for students, (c) using open-ended questions to create a lively discussion of the text, (d) coordinating appropriately leveled materials, and (e) conducting small cooperative groups that gave each student opportunities to share or listen more attentively (Watts-Taffe et al., 2012). The 15-year classroom teacher in Pennsylvania used the following DI strategies: (a) incorporating a variety of graphic organizers, (b), using intervention and assistance from a reading specialist, (c) utilizing gifted services for students who required more advance assignments, (d) comparing and contrasted paragraphs using scaffolding techniques, and (e) engaging discussions with questions and answers (Watts-Taffe et al., 2012).

When used effectively, DI can increase student knowledge. For example, Connor et al. (2014) monitored the test scores of 27 third-grade classrooms serving 315 students in two observation sessions. Both sessions involved engaging students in content literacy

lessons. The results of the study indicated that students made gains in scores on vocabulary and reading comprehension assignments. Therefore, DI promotes student growth, making it important for teachers to understand how to use DI strategies.

In quality DI lessons, the content objectives of the lessons are clear to the student, and the teachers and the objectives are different for different students (Watts-Taffe et al., 2012). Teachers who are effective at using DI respond quickly to the needs of the learners along the path to the learning objective (Watts-Taffe et al., 2012). For instance, Chien (2012) studied 33 elementary English teachers' in Taiwan and found that diverse students responded well to lessons that are successfully differentiated with DI strategies such as choice boards, modified materials, and a selection of genres. These strategies were used to align with pre-assessment. In terms of process, this teacher focused on concepts based on students' interests and knowledge as well as varying the learning environment, such as allowing students to work in pairs (Chien, 2012; Tomlinson, 1999). In terms of product, this teacher encouraged students to write summaries, design murals, and create maps to demonstrate their growth and proficiency in learning. The next section of the literature review discusses how DI may be a challenge for teachers to understand and implement.

One of the challenges with DI is that some educators are unsure about the definition of the term DI and how to effectively use it in their classrooms (Watts-Taffe et al., 2012). For example, many teachers saturate instruction with a variety of strategies, hands-on activities, and creativity (Lorenzutti, 2016). But teachers may struggle in implementing DI because differentiation is a complex concept for teachers and requires more teacher training and resources (Mills et al., 2014). The study of Robinson,

Maldonado, and Whaley (2014) has commonalities with my project study on DI because it also studied teachers' use of DI. Robinson et al. conducted a case study focusing on nine teachers from elementary, middle, and high school. The research examined participants' use of DI, and the influence DI had on multi-ability students in their classrooms. Teacher data was collected through the process of interviews, surveys with 17 open-ended questions, and classroom documents relating to differentiating instruction. The survey asked teachers to provide their definition of DI, how they felt about using DI in the classroom, and why they felt DI should be implemented in classrooms (Robinson et al., 2014). The participants in this study collectively agreed on the importance of DIStudents achieve more when students can connect their learning with their personal experience, so teachers believe that DI is essential to learning (Robinson et al., 2014). But incorporating DI takes time and needs to be implemented in all classes, so teachers need more training on DI (Robinson et al., 2014). Teachers have requested a more hands-on and engaging PD that emphasizes classroom management techniques and implementation of DI, providing a broader understanding of the concept of DI (Robinson et al., 2014). Finally, the study suggested that students achieve more when students can connect their learning with their personal experience and teachers believe that DI is essential to learning (Robinson, Maldonado, & Whaley, 2014).

The study of Ismajli and Imami-Morina (2018) focused on understanding, applying, and meeting the needs of all students using interactive strategies. A descriptive measure was used and implemented based on the three supporting areas of DI, content, process, and products for each student (Ismajli & Imami-Morina , 2018; Tomilinson,

2014). The study participants consisted of 200 students, 30 teachers, and 30 parents from public and non-public schools (Ismajli & Imami-Morina, 2018). The research tool used in collecting the data was in the form of questionnaires for teachers and learners while interview data was collected from parents in the study (Ismajli & Imami-Morina, 2018). The research findings through descriptive analysis demonstrated that primary schools differentiated instruction on levels that were not conducive to the learner and those differences between public and non-public schools were far less visible (Ismajli & Imami-Morina, 2018).Studies have shown that teachers require more training in planning differentiated lesson plans focusing on those individual differences (Ismajli & Imami-Morina, 2018; Tomlinson, 2014). In terms of Tomlinson's DI framework of content, product, and process, more attention has been given to the product instead of the process or content (Ismajli & Imami-Morina, 2018). Thus, Through the interviews conducted, data showed that parents were supportive to the differentiated approach. Even though trainings for educators in Kosovo concerning DI was in action, the study indicated educators require more training and PD to fully understand the implementation and application of DI (Ismajli & Imami-Morina, 2018). This can lead to teachers using more interactive strategies, which helps students learn Ismajli and Imami-Morina (2018) cited that a greater chance of promotion and learning happens among students when interactive strategies are more readily used. Ismajli and Imami-Morina (2018) concluded that an improved quality of teaching

Brevik, Gunnulfsen, and Renzulli, (2018) contended that DI is a powerful concept in education. The researchers conducted a qualitative study using three hundred and

twenty-two Norwegian student teachers as participants. The purpose of the study was to examine the student teachers' usage and understanding of DI working with higher-level learners. Brevik, Gunnulfsen, and Renzulli (2018) selectively used the term, higher level instead of gifted learners, because gifted students were not the focused group in the study. The methods Brevik, Gunnulfsen, and Renzulli (2018) used for the study consisted of purposeful sampling, data collecting, conducting group interviews, data sources consisting of documents, and audio recording. Group interviews were designed as cohort groups with 10-20 focus groups. Questions and surveys were created to prompts answers (Brevik, Gunnulfsen, & Renzulli , 2018). At the beginning of each 45 to 50 minutes lectured periods of the student teachers' focused groups, the first few minutes were used to collect data from questions and answers about DI. For validating accuracy, Brevik, Gunnulfsen, and Renzulli (2018) used different methods to gather data such as triangulation consisting of cross-case checking and member checking that consisted of utilizing participant feedback within the study (Brevik, Gunnulfsen and Renzulli, 2018; Creswell & Poth, 2018). The researchers recognized that mMost teachers know the importance of differentiating instruction, and many teachers are committed in meeting the needs of all learners; however, the problem is how to meet these individual needs effectively (Brevik, Gunnulfsen, & Renzulli, 2018; Tomlinson, 2014). Brevik et al. (2018) conducted a study on Norwegian teachers who worked with higher-level learned and found concerns of student teachers grasping the concepts of differentiation and understanding how to effectively use DI for higher achieving secondary students. The study demonstrated a lack of confidence in student teachers' using DI throughout their

classroom with all students (Brevik et al., 2018). Therefore, educational programs and teacher training needed to be focused on student teachers' needs to understand the importance and how to effectively implement DI for high-achieving students. For future perspectives, teacher trainers could look at implementing more observation in teachers' classrooms along with conducting more communicative groups allowing participants to continue the research and voice concerns in relation to DI (Brevik et al., 2018).

Stollman., Meirink, Westenberg and van Driel (2019) noted that there is much research on DI in the Netherlands and abroad. DI is looking at those differences based on content, process, and product, proactively or reactively (Stollman et al., 2019; Tomilinson, 2014). Stollman et al. (2019) conducted a study exploring the perceptions of teachers and DI. DI is a complex task for teachers regardless of the numerous trainings (Stollman et al., 2019; Tomilinson, 2014; Wan, 2017). In this study, teachers found DI to present challenges for secondary school teachers. The interpretation for many secondary teachers in the study meant producing a lesson plan for each student, all 25 to 30 students in each class, with only about 10 min preparation time for the whole class (Stollman et al., 2019).

Even though many of the teachers saw lass sizes can make DI challenging, though teachers recognize that DI is important and has positive effects on student achievement (Brevik et al., 2018; Stollman et al., 2019). Additionally, teachers have different styles of teaching, and training for some teachers can be a one-size-fits-all method of instruction (Stollman et al., 2019; Tomilinson, 2014).

General differentiated instruction strategies. This section of the literature review includes some of the DI strategies mentioned in the TKES Standard 4. For example, Littles and McCoach (2014) examined strategies of DI, such as choice, support, and one-on-one engaging activities. Research has shown that The research was conducted with four middle schools of 2,150 students and 47 teachers (Littles & McCoach, 2014). The participants in the study schools were divided into treatment groups and control groups. The results indicated teachers that spent the amount of time differentiating the instruction experienced higher achievement with students (Littles and McCoach, 2014). The study of Littles and McCoach was a compelling study because of the large numbers of participants. This study also showed that student achievement can be increased through DI strategies.

Sornson (2015) also found that DI strategies can increase student achievement. This research study administered the Essential Skill Inventories (ESI) to elementary level teachers. The study involved 31 Kindergarten, first, and second-grade teachers from Mississippi and Michigan. The findings were that teachers cited many gains and noticeable improvement from utilizing DI strategies such as frequent assessments, recognizing the different ability ranges, collecting data, and building strong and caring relationships with students (Sornson, 2015).

DI strategies represented important elements that effective teachers use to engage and motivate students (Akram & Zepeda, 2015). Akram and Zepeda (2015) developed and validated Self-Assessment Instrument for Teacher Evaluation (SITE II). The data

was collected from 279 English and maths teachers of grade 10 in 40 Okara public schools. The researchers found the tool to be valid and reliable and suggested that

In the next sections, I present a range of DI strategies from the literature. First, general DI strategies include relationship-building among teachers and students, ability differentiation, choice boards, game-based learning, and technology. The final sections are on content-specific DI strategies, including literacy, science, social studies, and mathematics.

Relationship-building. Articles about DI have highlighted specific measures to develop student and teacher relationship-building (Tomlinson & Moon, 2013). One key to fostering a learning environment that promotes academic success among students is relationship-building. For example, Farrell (2015) found that teachers used strategies that included focusing on relationships, open communications, and strategic support. These strategies led a school within a school district with high needs and low socioeconomic status to the highest assessment scores in the district according to the data (Farrell, 2015). In summary, relationship-building strategies have been found to help increase academic achievement.

Tomlinson discussed healthy interactions between parents, students, community, school, and teachers who obtained an understanding of what is being taught. Additionally, achievements within and beyond the classroom can happen from healthy interactions among parents, students, communities, schools, and teachers (Thompson, 2012). Strong teacher-student relationships have had a positive effect on learning as well as school climate, parent relationships, and social justice (Comer & Ben-Avie, 2010).

Teachers who have better relationships with their students and parents are better teachers in general (Comer & Ben-Avie, 2010). DI allows a teacher to recognize and teach according to the individualized student's gifts and uniqueness that their parents and community value about them (Morgan, 2014).

Tomlinson (2010) suggested that teachers need to honor interests, starting points, and work ethics of students at their readiness levels. For example, in Hathaway and Jaquith's (2014) study teachers attempted to personalize assignments according to student interests. Hathaway and Jaquith (2014) used the Teaching for Artistic Behavior model that involved the use of choices designed to differentiate. According to the researchers, personalization encouraged students to take control of their learning (Hathaway & Jaquith, 2014). In the study, a fifth-grade male student shared his appreciation for this model because it allowed for patience and a chance for him to revise his work, focusing on his interest level of learning (Hathaway & Jaquith, 2014). Teachers who want to have positive relationships with their students may have the goal of raising students' confidence in their abilities. If so, teachers may try the personalization strategy.

Tobin and Tippett's (2014) study indicated that DI enhanced the confidence of students in science class after teachers applied the key components of the DI model (Tomlinson, 2001). The study of Tobin and Tippett (2014) focused on DI for science with six science teacher participants for the PD, and the results were positive. Teachers were given a variety of DI strategies that teachers implemented. From the collected data, questionnaires, auto recordings, and writing prompt, the results demonstrated students taking more ownership of their learning and being more confident about their

achievements (Tobin & Tippett, 2014). Teachers may need to attain a degree of understanding of the interests of their students when personalization is implemented (Ertem, 2013).

A teacher-student relationship in the classroom can be helpful for strategic planning because it purposefully allows teachers to learn about each student's interests. The interests of students provide information for teachers to differentiate the content, process, and product (Tomlinson, 1999; Tomlinson & Imbeau, 2010; Trinter, Brighton, & Moon, 2015). Learning interests of individual students can help motivate learning.

Ability differentiation. Ability differentiation is also a part of DI strategies. Effective teachers focus on students' ability levels to help them be successful regardless of disability. Darrow (2012) conducted a study on one anecdotal example of this accomplishment involving a disabled student. A student, with no legs and arms, asked to join a high school orchestra. The director of the orchestra focused on the drive of the student as potential ability and located a special computer to help the student with learning the music (Darrow, 2012). Because the director effectively focused on the student's desire as an ability, the student was accepted in the orchestra and used a special software as a learning tool (Darrow, 2012). Using that special computer software, the student could compose an original composition that was played at a spring orchestra concert (Darrow, 2015). A differentiated classroom where teachers demonstrate a strong interest in understanding each student's level of ability can instill hope and provide opportunities for those students to achieve (Tomlinson, 2001).

In terms of how to differentiate, Tomlinson (2001) noted that content, process, and products should be the fundamental three areas for differentiating a lesson in a classroom setting. For example, teachers with a multiple ability class might have low, medium, and high difficulty products for a class assignment. The following paragraphs include research regarding differentiating content, process, and products according to ability.

The first way to differentiate pertains to the specific content (Morgan, 2014). The content standards should ultimately remain the same for all students, but there may be remediation steps needed for some students (Tomlinson, & Jarvis, 2014). Reviewing previous learned content may be a necessary practice for teachers with students before the actual lessons are taught (Trinter, Brighton, & Moon, 2015). Teachers can have students choose from the standards for individual learning projects. For example, a teacher might differentiate by allowing students to choose what content objectives to focus on in their research project (Tomlinson, & Moon, 2013). A variety of tools can be used to deliver the content; for example, videos, literature, work journals, smartboards, chrome books, graphic organizers, cooperative groups, and other hands-on manipulatives (McMackin & Witherell, 2010; Tomlinson, 1999). For example, students who have difficulty with math problems may be helped with the use of manipulatives. In contrast, higher ability math students might benefit from computer-based drill of already understood concepts.

When teachers differentiate the process of learning, they demonstrate the understanding of students' interests and strengths in learning (Taylor, 2015).

Differentiating the process answers the "how" in learning (Taylor, 2015). For example, in a social studies class, students may research, watch videos, conduct interviews, and perform skits or plays concerning the related area of study (Ediger, 2016; Lucey, 2015; Tomlinson & Jarvis, 2009). These activities can be varied in terms of the abilities of students by assigning different roles according to their assessment data and strengths. Differentiating the learning process may involve using a variety of materials, activities, and formative assessments (Tomlinson & Imbeau, 2010).

In differentiating the product, teachers ask students to demonstrate their understanding of what they have learned. There are many ways for teachers to assess or monitor progress by allowing students to choose and complete different product formats such as quizzes, tests, using write and wipe off whiteboards, creating a model, or choosing a product design based on the learned content (Tomlinson & Moon, 2013). These formats can be used as a formative assessment in which the teacher observes as the student is working. These formats can also be used as summative assessments that may inform remediation for future lessons.

Altintas and Ozdemir (2015) conducted a case study that found when creative differentiated strategies were added to the content, process, product, and learning environments there is a noticeable increase in students' academic achievements. Those differentiated strategies cited were creative thinking and curriculum elaboration (Altintas & Ozdemir, 2015). The purpose of the research was to investigate the use of a differentiated approach in math for gifted and non-gifted math students (Altintas & Ozdemir, 2015). Altintas and Ozdemir's (2015) study consisted of 57 gifted and 60 non-

gifted fifth and sixth-grade students from a public school and private school in Istanbul. The findings indicated that the private school had a slightly higher increase in student achievement than the public. Altintas and Ozdemir (2015) observed that gifted students benefited more from the use of a differentiated approach called the three-stage Purdue model. Feldhusen and Kolloff (1986) discussed stage one that involved necessary critical thinking skills, such as fluency, originality, and imagination. Next, stage two elaborated on more advanced thinking, logical inference, and creative problem-solving. Lastly, stage three defined the independence stage that focuses on individual learning (Altintas & Ozdemir, 2015). This study concluded that the DI strategies, including the Purdue model, were effective and suggested that both public and private schools equip more of its teachers with DI strategies.

Choice boards. Differentiating through choice boards allows students to select appropriate activities that fit their learning interests beyond the minimum standards (Tomlinson, 2001). Choice boards such as the example in Appendix B usually consist of a poster board with a grid that allow the students to choose which assignments they prefer (Tobin & Tippet, 2014). When students are given the opportunity to make their own decisions in an academic setting, students gain a deeper understanding of the lesson at hand. Choice board activities can reflect a large spectrum of academics. Teachers can implement choice boards in all classes (Tobin & Tippet, 2014; Tomlinson, 2014). Choice boards may be organized around differentiation goals such as levels of critical thinking, comparing, and contrasting, hands-on activities, visual activities, and reasoning activities (Tomlinson & Moon, 2013). Choice boards encourage engagement and invite

motivational techniques that can help students become lifelong learners (Tomlinson & Moon, 2013).

    Game-based learning. Assessment is a vital part of DI, and game-based technology can produce instant feedback in the form of both formative and summative assessments. In a Bill & Melinda Gates Foundation/Scholastic survey of 40,000 teachers, 92% said formative assessments are important in measuring student academic achievement (Phillips & Popovic, 2012). Teachers or the games themselves can change the game to match a student's ability as the game is played. The computers also provide data to the teacher regarding student performance, so teachers can create the most effective differentiated plan of intervention to help students to succeed.

    Some research indicated that game-based learning can engage students in the classroom (Lorenzutti, 2016). Game-based learning can sometimes result in learning outcomes in content areas (Plass, Homer, & Kinzer, 2015). For example, Lorenzetti's (2016) research used game-based learning to make learning engaging while repeatedly exposing students to vocabulary words at least 12 times over one week with positive results. Some of the games used in the study were called keep or toss, chopstick take, word wall crawl, speed words, and changing register (Lorenzutti, 2016). A word knowledge matrix was designed to analyze each game by using eight aspects of word knowledge: phonological form, orthographic form, conceptual meaning, part of speech, register or appropriateness, lexical field, and collocations. Lorenzutti (2016) felt that using a tool to analyze classroom games helps to assess the overall effectiveness of the game and provides positive reasoning for the implementation.

Game-based learning can involve several aspects of gaming such as video technology, board games, hand-held devices, and digital table designs. The research study of Hsien-Sheng, Cheng-Sian, Chien-Yu, Chih-Chun, & Jyun-Chen (2014) involved 49 Taipei elementary school fifth graders ranging from eleven to twelve years old on digital surface multi-touch tabletop collaborative games. The students were divided into two classes taught by one teacher. One group of participants was assigned as the experimental group using multi-touch tabletop collaborative games, and the other students participated in the control group that was assigned to personal computers (Hsien-Sheng et al., 2014). The results indicated that the experimental group outperformed the control group in longer retention of the concepts taught which demonstrated the effectiveness of digital game-based learning and collaborative learning (Hsien-Sheng et al., 2014).

Game-based learning can inspire critical thinking, active learning; help students overcome challenges, scaffolding, and students interacting with others (McCall, 2016). Game-based learning enable students to learn challenging tasks that are necessary for them to gain knowledge (McCall, 2016). McCall's (2016) research-informed teachers about using historical video gaming within their history classes.

Research evidence suggests that the traditional techniques of assessments may be substituted with game-based assessments, which offer many potential positive effects on students' mastery, motivation, and understanding of a lesson (Phillips & Popovic, 2012). game-based learning adds personalization and motivation to learners while providing teachers with immediate computerized analysis of students' strengths and weaknesses

(Ertem, 2013; Phillips & Popovic, 2012). Well-designed games can serve as a differentiating vehicle to move students forward without them even being aware of the lasting effects (Phillips & Popovic, 2012; Tomlinson, 2003).

Neuroscientists have researched how games help to generate chemical dopamine in the brain that stimulates the act of learning (Phillips & Popovic, 2012). Phillips and Popovic (2012) administered a survey at the Joan Ganz Cooney Center, concluding that 60% of K-8 teachers who implemented digital gaming within the classrooms noticed their students were more engaged, cooperative, and focused in the classroom. Fifty-six percent of the teachers in Cooney survey recognized a significant improvement with students that were usually in the lowest percentile. Because more than 97% of children aged 8-17 play video games regularly, there is reason to believe they will appreciate game-based learning (Phillips & Popovic, 2012). Gaming can intrinsically motivate students where awards and certificates extrinsically motivates (Phillips & Popovic, 2012).

Technology. Unlike the students from past generations, digital natives as Hicks (2011) describes them have been exposed to technology since birth and respond positively to using technology for learning. Tools of technology such as chrome books and iPads have become more prevalent within educational institutions of the United States and other countries of Organization for Economic Cooperation and Development. Search engines and computers alone have transformed regular classroom practice.

Lourenco, Goncalves, and Elias (2015) explored educational strategies and DI by incorporating technology as a resource in special education. The study did not indicate the number of participants in this study, but the study was conducted within Brazil's

educational system (Lourenco, Goncalves, & Elias, 2015). The research pointed out that technology served as an ally to assist students with disabilities and special education. The research indicated that teachers who effectively use technology to differentiate in special education are aware of the ability levels and ranges of their students (Lourenco, Goncalves, & Elias, 2015).

If teachers decide to use DI and technology, they have a lot of opportunities and choices in terms of hardware and software (Janzen, Perry, & Edwards, 2017). Teachers may use technology, which is programmed to automatically adapt to meet the needs of different students. For example, when students successfully master a standard, technology may provide more rigorous and enriching opportunities for students to research more complex content and work independently (Cavanagh, 2016). Students that do not master the standards may be encouraged to use forms of technology to stage a more rigorous intervention in reviewing those missed standards. For instance, if students unsuccessfully mastered a map test locating important geographical features, teachers may assign a variety of map games or activities to help students practice this skill to restudy and practice before retesting (Janzen, Perry, & Edwards, 2017).

Technology has a vital role in automatically differentiating content for students because it can identify the different abilities and track student growth. Teacher efficiency increases with technology, enabling teachers to collect and analyze student data (Cavanagh, 2016). Technology helps to quickly breakdown massive amounts of information in a shorter amount of time so that DI can be quickly implemented to help students. Using internet-based technology in the classroom helps provide the tables and

charts that make student data after formative and summative assessments less challenging to read and review (Cobb, 2010).

Content area differentiated instruction strategies. Effective strategies and a new way of thinking for teachers can make ordinary barriers look like opportunities for success (Tobin & Tippett, 2014). In the following sections, I focus on academic content areas of science, literacy, math, and social studies. The teachers who participate in my study will specialize in one of these areas.

Science strategies. It may be difficult for teachers to implement DI in science. The findings from Maeng and Bell's (2015) research are based on a descriptive study of seven secondary science teachers. It was found that only one out of the seven were successfully implementing DI. This case study research observed and interviewed science teachers from a combination of four different schools. Out of the 20 potential teachers, seven were chosen by principals, superintendent, and district coordinators because of their effectiveness in DI. Two of the participants were men and the other five participants were women ranging from 3 to 36 years of teaching experience. The findings of the study indicated that only one out of the seven teachers were regularly incorporated DI using a variety of methods (Maeng & Bell, 2015). The study recognized the one teacher's use of frequent formative data to plan differentiating lessons. The study revealed that most of the participants were not regularly preparing for differentiating and lacked differentiated formative assessments that should be done frequently (Tomlinson, 2003). Maeng and Bell (2015) suggested additional PD for the teachers, administrators, and school officials to obtain a deeper understanding of DI (Maeng & Bell, 2015). Maeng and Bell (2015)

study indicated that PD for science teachers should involve modeling the components of effective DI, time to plan with feedback, as well as practice with feedback. The research emphasized the importance of feedback and communication from students involved in DI classes (Maeng & Bell, 2015).

Differentiated Instruction, when understood, can be an integral part of a science teacher's tool kit (Maeng, & Bell, 2013). Proficient science classroom teachers focus on student-centered activities by encouraging students to actively engage in their learning (Maeng & Bell, 2015). Science classes have the potential to cultivate an enormous amount of hands-on activities such as experimenting, dissecting, and observing (Tobin & Tippet, 2014). As science teachers emphasize student-centered strategies, students receive a deeper understanding of the content standards, which is consistent to the philosophy of DI (Maeng & Bell, 2015). Science teachers' instructional objectives help to develop conceptual understanding within students (Smith, Trygstad, & Banilower, 2016).

Research evidence indicates that teachers that do get quality PD in DI can understand the process and implement DI in planning science lessons, create lessons to engage students by actively addressing each student's readiness, styles of learning, and interests (Tobin & Tippet, 2014). Tobin and Tippet's (2014) study involved administering PD to participants that were general science teachers from an urban elementary school in western Canada. Five science teachers with classes of diverse students from 3rd through 5th grades participated in the PD. The three days of PD were saturated with teachers engaged in discussions. Day one focused on processing the rationale and foundations of DI, along with taking a survey regarding how often

participants engaged in different DI activities in They were involved in think-pair-share

activities, deep reflections in response to DI scenarios, and actively using graphic

organizers with a variety of levels. Day three of the PD was a recap of the first two days,

allowing teachers time to plan a science lesson. Teachers created choice boards to use

with students (Tobin & Tippett, 2014). In this study, Tobin and Tippett (2014)

emphasized their desire to examine teachers' knowledge and the teachers'

implementation of DI in science. Their findings indicated that the teachers did gain

knowledge and were able to successfully implement in their classrooms (Tobin &

Tippett, 2014).

       Teachers who use DI address the needs of learners by modifying lessons or

assessments when needed (Tomlinson, 2003). For instance, if a science unit contains an

experiment of a frog dissection, teachers may follow a procedure of introducing the life

cycle of the frog through an interactive DVD using the Smartboard where each step of

the metamorphous of the frog is discussed from a tadpole to a frog (Huntsberry, 2015).

For some students, the teacher may set aside time for them to work on the Smartboard in

small groups to provide additional hands-on time with the materials (Huntsberry, 2015).

In contrast, students that excel may use an online tool to dissect frogs at each stage of

metamorphosis (Tobin & Tippet, 2014). DI allows teachers to address the instructional

needs of all students within a classroom setting, sometimes before, during, and after a

lesson.

       Science teachers to use DI for different approaches to teaching, such as tactile

learning. For example, if a science teacher is teaching a unit on plants, he or she could

use the "Intelligence That Plants Can Pass On" activity (Laughlin & Foley, 2012). The DI aspects of this lesson are demonstrated when students can learn using art, music, and other subject areas not limited to science, including social studies, math, language arts, and reading (Laughlin & Foley, 2012). The lesson begins with play dough, but it is not about playdough. It is about all the ingredients that go into producing playdough. For example, it is surprising to learn that playdough is made from natural resources such as soil, grains, minerals, and vegetables. As an extension of the lesson, students discuss the dye that makes colorful play dough, which leads to more DI as students research the history of dyes and use children books on dyes (Laughlin & Foley, 2012). This lesson could lead to a history lesson by inviting a Native American to class to bring stories of using dyes, and the origins of dyes, which helps to introduce students to gardening as students participate in planting and harvesting edible food items from their garden (Laughlin & Foley, 2012). In short, DI encourages teachers to use engaging lessons that connect content areas.

Literacy strategies. Literacy and DI can offer students a more personal approach to address literacy needs and interests of students individually (Little, McCoach, & Reis, 2014). The research of Hodges and McTigue (2014) focused on the development of literacy centers (LCs). The results found these centers to be engaging for students working in collaborative teams, analyzing data, and critically thinking. The mission of LCs is to allow students to take control of their learning, emerging as the teacher, and the teacher becomes the facilitator (Hodges & McTigue, 2014). As the facilitator, the teacher provides differentiated opportunities helping students monitor their progress and become

self-sufficient. Incentives are used to motivate students and promote learning within the LC as students create small communities among their peers. In inclusive classroom settings, LCs can be useful in helping teachers differentiate because the teacher can support a struggling student while the rest of the group does the activity independently. LCs are designed to be student-centered, where students work independently, in collaborative teams, or in pairs (Hodges & McTigue, 2014).

In an LC, students work in different capacities of the centers, such as authors, readers, writers, researchers, illustrators, teachers, peer helpers, and learners (Hodges & McTigue, 2014). A variety of LCs is considered appropriate for middle school ages, such as gallery walks, iPads, Smartboards, and a variety of computer learning (Hodges & McTigue, 2014; Minshew & Anderson, 2015). For example, a gallery walk consists of observing pictures that have been posted on walls and locating print from media resources to match the pictures.

Math strategies. Math can be an enormous challenge for students, which presents challenges for math teachers. The National Center for Education Statistics (2011) reported that students are struggling with basic math skills showing that only 40% of fourth-graders and 35% of eighth-graders are at or above the proficient level. Poncy, Fontenelle, and Skinner (2013) conducted a study using detect, practice, and repair (DPR) for differentiating for students that struggled with basic math facts. During the detect phase, students were encouraged to move from problem to problem at the click of the metronome set at 30 beats per minute. During the practice phase, students experience a technique called cover, copy, and compare. Students were asked to complete as many

basic facts in a 1-minute math "sprint" (Poncy, Fontenelle, & Skinner, 2013). DPR represents a collection of procedures that were created to target individualized learners. Using differentiating techniques provide instructions that will meet all learner's basic needs (Poncy, Fontenelle, & Skinner, 2013). Participants in the study included 11 fourth - grade students ages eight to ten attending an elementary school in north-central Iowa (Poncy, Fontenelle, & Skinner, 2013). Ten of the 91% of students were Caucasian, and one student was Asian. Seven were female, and four were male. One of the students received special education services in mathematics. The study was performed during the latter month of the students' fourth grade school year. DPR was successful for many students (Poncy, Fontenelle, & Skinner, 2013).

Suanrong and Herron (2014) investigated PD for 22 math teachers in grades 5-10. The researchers evaluated the effectiveness of the workshop for improvements in skills and attitudes of doing DI by integrating more technology in math. Twenty-two math teachers were selected from high-needs districts and the principal's endorsements (Suanrong & Herron, 2014). The participant's data was analyzed based on frequent assessments, concerns, proficiency, and confidence. The study concluded that the 4-week PD was effective for most of the participating teachers, improving their mathematical skills and math teaching practices with DI (Suanrong & Herron, 2014).

Social studies strategies. Social Studies instruction has been considered the non-essential academic subject for numerous school systems (Ciullo, 2015). Hearing terms used, such as *boring* is not unusual for social studies classes (Anderson & Cook, 2015). Time, content unfamiliarity, high priority demands for math, science, and language arts

are a few reasons that social studies are not taught or emphasized more in some schools or classrooms (Ediger, 2016). Ediger (2016) discussed the importance of teaching social studies with more involvement, more profound levels of instruction, instead of quick memorization. Ediger (2016) noted that social studies teachers should strategically design lessons to focus on standards. In terms of DI, this means that frequent assessments are pivotal to incorporate in lesson planning because content readily changes as well as students' knowledge for each unit (Ediger, 2016; Lucey, 2015; Tomlinson & Jarvis, 2009). DI respects the learning needs of all students for all different content when teachers implement DI appropriately without distorted the process (Lucey, 2015; Tomlinson, 1999, 2001, 2003).

The case study of Anderson and Cook (2014) examined two 10th grade U. S. history teachers who implemented a differentiated designed approach in a war unit for eight weeks. The history teachers integrated various sources, observations, instructional strategies, and reenactments within the lessons (Anderson & Cook, 2014). This study included two tenth-grade history teachers, from an approximately 2, 500-student K-12 public school district in the upper Midwest. The teachers were Caucasian and female, with seven and twenty-one years of experience (Anderson & Cook, 2014). Each high school within the study served approximately 1,146 students from grades 9 through 12. The demographics of these schools were made up of 91.5% Caucasian, 5.2% American Indian, 1.1% African American, 1.1% Asian, and 0.5% Hispanic (Anderson & Cook, 2014). In this study, students also represented a wide spectrum of socioeconomic levels with 33% of the students qualifying for free or reduced lunch (Anderson & Cook, 2014).

Each one of the history instructors taught an average of thirty to thirty-five students per class that represented a wide range of diversity from students without disability to higher advance students (Anderson & Cook, 2014; Darrow, 2015). Anderson and Cook (2014) noted that the teachers were more consistent with DI at the start of their units only to experience less DI towards the end of the 8th-week unit.

From the early beginning of the lesson, the teachers demonstrated a clear understanding that DI was more than just understanding the definition; but DI was about dismantling each vital component of DI: content, process, and product (Anderson & Cook, 2014; Darrow, 2015; Tomlinson & Jarvis, 2009, 2014). At the beginning of the units, the teachers followed DI factors closely by allowing students to have a choice in presenting assignments, whether through music, poetry, or simulation; however, as the unit progressed, the teachers returned to more of a traditional style of transmission in teaching (Anderson & Cook, 2014). The study indicated that towards the end of the unit, the teachers did not trust students to work independently.

Anderson and Cook (2014) listed five barriers to the DI process: (a) traditional transmission of social studies; (b) heavy emphasis on breadth and teaching content; (c) large class sizes; (d) lack of teacher prep, planning, and work time; and (e) five courses taught per day that consisted of an average of 35 students with only one planning period. The study of Anderson and Cook (2014) concluded that factors such as large class sizes and planning were challenges. The teachers struggled with the traditional transmission and breadth of content the most. At the beginning of the unit, teachers recognized the benefits of differentiation as students were engaged in their learning processing

developing products for presentations; however, by the end of the unit, participating

teachers gradually had returned to a more traditional teacher-centered class and focused

heavily on covering all the content (Anderson & Cook, 2014; Porter & Nell, 2012).

Differentiating social studies may introduce the use of several engaging

techniques, such as using mnemonic strategies and close read techniques that could

enhance differentiating instruction in social studies classrooms (Lubin & Polloway,

2016). Social studies and language arts share similar roles because both subject areas

involve reading, vocabulary, and comprehension. Mnemonic instruction (MI) provides a

unique support system for learning social studies lessons. Table 2 below contains some

mnemonic examples. MI allows social studies students to organize timelines, countries,

people, and concepts. The linguistic, spatial, visual, physical response, and verbal

methods are five classes of mnemonics addressed in a study by Lubin and Polloway

(2016). Linguistic mnemonic involves using new and familiar words to assist with

learning new concepts. The spatial group connects new concepts to familiar places and

patterns. Visual mnemonics utilize pictures or visuals to associate with the learning

target. The physical methods use body parts and movements in remembering concepts,

and the verbal method uses the process of storytelling to help students retain information

(Lubin & Polloway, 2016).

Table 2

Mnemonic Examples

Mnemonic	Explanation
Mr. Green	Seven characteristics of all living animals: movement, reproduction, growth, respiration, excretion, environmental sensitivity, and nutrition.

CAM SEA (pronounced "calm sea")	Which represents the six classes of invertebrate animals: Cnidarians, Annelids, Mollusks, Sponges, Echinoderms, Arthropods
King Harry's deeds brought deep cheer to millions.	These stands for the metric prefixes and base unit. Kilo-, Hecto-, Deca-, base, Deci-, Centi-, Milliii. First.
Washington Adams Just Made Many Admirers	Sixteen American Presidents: George Washington John Adams Thomas Jefferson James Madison James Monroe John Quincy Adams.

Note. Information in the Table is found in Lubin and Polloway (2016).

Critical Summary

This literature review began with a review of the research articles about DI in general (Tobin & Tippet, 2014; Tomlinson, 2001; 2003, 2014) and advanced through sections on DI strategies in different content areas. The review revealed two major themes in that there is a body of literature about general DI philosophy and another body of literature regarding specific DI strategies. Thus, the literature review is separated into two sections, general and content. The general DI section included relationship-building, ability differentiation, choice-boards, game-based learning, and technology. In the general DI research, there is evidence that it is known that relationship-building between the teacher and the students was crucial to the effectiveness of differentiating for students (Merriam, Kelly, Kelman, & Rusin, 2016; Sornson, 2015; Tomlinson & Moon, 2013). The content-specific DI section included science strategies, literacy strategies, math strategies, and social studies strategies Teachers' used to DI.

The articles contained research on they need additional PD (Maeng & Ball, 2015), and there are a wide variety of strategies that support the implementation of DI (Watts-Taffe et al., 2012). Unexpected findings included that there are teachers required more training in DI (Anderson & Cook, 2014; Robinson, Maldonado, & Whaley, 2014).

Overall, most of the studies were small (Watts-Taffe et al., 2012). The following paragraphs summarize the details of some of the articles.

The first section of the research presented that there are multiple strategies that teachers use to differentiate instruction (Tomlinson & Imbeau, 2010; Tomlinson & Murphy, 2014; Watts-Taffe et al., 2012). As the research made clear, DI is not a single strategy (Watts-Taffe et al., 2012). Differentiated instruction is a way of thinking about classrooms of children and meeting them at their readiness level (Tomlinson, 2014; Tomlinson & Murphy, 2014). I found that professional journals provided a saturation of information expounding on the multiple strategies to differentiate instruction. This finding could be readily seen in the strong large study of Watts-Taffe et al. (2012) where classroom teachers strongly demonstrated their understanding of DI using multiple strategies. These teachers had multiple lists of strategies to use (Watts-Taffe et al., 2012).

This review included articles that focused on the essentials for effective DI (Tomlinson, 2014). Studies indicated relationship-building between teachers and students was integral in the success of students (Sornson, 2015, Tomlinson & Moon, 2013). Farrell (2015) was a small but in-depth study that noted that the three Canadian teacher participants used strategies that included the following: focusing on relationships, open communications, and strategic support. Farrell (2015) noted that as teachers used these strategies within a school district with high needs and low socioeconomic moved to the highest assessment scores in the district according to the data. In summary, relationship-building strategies have been found to help increase academic achievement (Robinson, Maldonado, & Whaley, 2014).

In contrast, several studies had convergent findings where teachers desired more trainings, more hands-on, and engaging PD to help with areas of class management techniques and implementation of DI (Brevik, Gunnulfsen, & Renzulli, 2018). According to (Robinson, Maldonado, & Whaley, 2014), teachers struggled to understand DI or to know DI strategies that were effective, and these findings highlighted the need for more teacher training. A study by Maeng and Bell (2015), highlighted some struggles as only one out of the seven teachers who were recommended as quality DI teachers were actually implementing DI.

There were a few general DI strategies including choice boards, games, and technology. Several of the studies through choice board activities and how these activities can reflect a large spectrum of academics where teachers can implement choice boards in all classes (Tobin & Tippet, 2014; Tomlinson, 2014). Some small studies reviewed game-based learning in the classroom (Lorenzutti, 2016). Lorenzetti's (2016) research used game-based learning to make learning engaging while repeatedly exposing students to vocabulary words at least 12 times over one week with positive results. Technology was another tool that was found to be useful for my study and Lourenco, Goncalves, and Elias (2015) explored educational strategies and DI by incorporating technology as a resource in special education. The research pointed out the importance of technology and the place it served with in a differentiated classroom (Lourenco, Goncalves, & Elias, 2015). These were a small group of limited studies but represent the most common strategies used for DI.

The next section of research in the literature review content-specific areas and DI, including science strategies, literacy strategies, math strategies, and social studies strategies. For the content areas, similarities concerning more teacher training were visible throughout (Maeng & Bell, 2015). It was found that only one out of the seven were successfully implementing DI (Maeng & Bell, 2015). DI, when understood, can be an integral part of a science teacher's tool kit (Maeng & Bell, 2013). Proficient science classroom teachers focus on student-centered activities by encouraging students to actively engage in their learning (Maeng & Bell, 2015). Science classes have the potential to cultivate an enormous amount of hands-on activities such as experimenting, dissecting, and observing (Tobin & Tippet, 2014). As science teachers emphasize student-centered strategies, students receive a deeper understanding of the content standards, which is consistent with the philosophy of DI (Maeng & Bell, 2015). However, research evidence indicated that teachers that do get quality PD in DI could understand the process and implement DI in planning science lessons, create lessons to engage students by actively addressing each student's readiness, styles of learning, and interests (Tobin & Tippet, 2014). Tobin and Tippet's (2014) study involved administering PD to participants that were general science teachers from an urban elementary school in western Canada.

One unusual research finding was in the content area of science. In one of the articles, the study conducted used DI for different approaches of teaching, such as tactile learning (Laughlin & Foley, 2012). The DI aspects of the science lesson learned with the integration of art, music, and other subject areas not limited to science, including social

studies, math, language arts, and reading (Laughlin & Foley, 2012). Lubin and Polloway

(2016) shared similarities to the science study because teachers used social studies study

use engaging lessons that connected other content areas. Social studies and language arts

share similar roles because both subject areas involve reading, vocabulary, and

comprehension. Mnemonic instruction provided a unique support system for learning

social studies lessons (Lubin & Polloway, 2016). I allow social studies students to

organize timelines, countries, people, and concepts. Linguistic, spatial, visual, physical

response and verbal methods are five classes of mnemonics addressed in a study by

Lubin and Polloway (2016). Teachers created choice boards to use with students (Tobin

& Tippett, 2014). In this study, Tobin and Tippett (2014) emphasized their desire to

examine teachers' knowledge and the teachers' implementation of DI in science. Their

findings indicated that the teachers did gain knowledge and were able to successfully

implement in their classrooms (Tobin & Tippett, 2014). Using differentiating techniques

provide instructions that will meet all learner's basic needs (Poncy, Fontenelle, &

Skinner, 2013).

The conclusions based on the literature review demonstrates that there are many

different general and content-specific DI strategies for teachers to use in their classrooms.

The literature also demonstrated that in one case six out of seven teachers were not using

DI well in Maeng and Bell's study (2015). This and in indication for a need for PD

overall combined suggest that teachers need help with DI. The sheer quantity of strategies

available indicate the need to know what strategies teachers already know. This study

will investigate what strategies teachers know in order to guide the development of PD. It

would be non-sensical to provide PD for strategies that teachers already know. In contrast, if there are areas of the TKES Standard 4 that teachers do not have strategies for, then it would be prudent to develop PD for those strategies.

The gap in the literature is not determining what of all of the many strategies a group of teachers may know, do they know. In order to provide appropriate PD, it is necessary to know what the teachers do and don't know. The following methods section will describe the interview protocols designed to determine what strategies teachers know related to each of the sub-standards in the TKES Standard 4.

Implications

The study findings will be shared with the administrators. The administrators may use the results of the study to plan a PD. The findings will be shared with the middle school teachers in the school. The findings of my study may possibly lead to the development of a PD project designed to help teachers with strategies to use for differentiating. Based on the findings, I will be able to notice what areas of the TKES Standard 4 the teachers have strategies for and areas where they may benefit from strategy instruction. The study findings are necessary to ascertain what the teachers know and what they need additional instruction for regarding DI strategies. Indeed, the principles of DI may be used to design a PD based on the findings of this research that is differentiated for the teachers according to teacher's readiness, interests, learning style as well as environment (Tobin & Tippet, 2014; Tomlinson, 2014). These trainings could be designed with built-in time for teachers to practice learned strategies aided by a personal development facilitator or consultant (Hodges & McTigue, 2014).

Summary

This literature review addressed two areas of DI strategies: general and content specific. It revealed a wide variety of DI strategies and the need to determine what strategies teachers know in order to meet the TKES Standard 4. The methods section detailed how data was collected regarding what strategies teachers do know, and the following results were used to determine the project in the final sections. Sections 2, 3, and 4 of this dissertation addressed the methodology of the study, the results, the project literature review, and the project along with reflections on the learning process.

Section 2: The Methodology

Since House Bill 244 became law on July 1, 2014, Georgia teachers have voiced concerns regarding the contents of Standard 4, which addresses the implementation of DI strategies (Grigsby, Helfrich, & Deissler, 2015). However, eI conducted this qualitative study to address the lack of knowledge of administrators at the study site. The problem this study addressed was that middle school administrators did not know what DI strategies teachers are using to support students' multiple ability levels. The gap in practice is that without knowledge of teachers DI strategy use, it is unclear what professional development (PD) administrators should supply to ensure teacher proficiency in DI (Principal, personal communication, October 6, 2015). Even though Georgia has mandated its use, middle school teachers' use of DI strategies is unknown (GaDOE, 2014). To examine CMS teachers' use of DI strategies for multiple ability levels, I chose to conduct a qualitative case study.

Qualitative Research Design and Approach

The research design of this study is a qualitative case study, which helped address the research question "What DI strategies do middle school classroom teachers use for multiple ability levels in their classrooms?" Case studies provide a method to a gain a deeper understanding of specific practices (Miles, 2015). A case study starts with exploring multiple areas that include the subjects to study, the number of participants, the location of the study, the feasibility of the interview site and then decisions concerning the topic, formulating the questions, and then narrowing the study to the main focus area

(Bogdan & Biklen, 2007). Case studies can vary in complexity, sometimes includes

multiple cases or sites. This project study focuses on the teachers at one site, CMS.

By conducting a thorough interview session with teacher participants, a researcher

may better connect and build a relationship of reciprocity (Merriam, Kelly, Kelman, &

Rusin, 2016). It is important for the researcher to build a relationship with the participants

so that they will get more accurate and honest responses from the participants. During

these connections, the researcher and teacher participants developed a trustworthiness in

a comfortable climate setting being opened to discuss the use of DI strategies (Merriam et

al., 2016; Ravitch & Carl, 2015). Merriam, et al. (2016) explain how developing a strong

connection and relationship building can be meta cognitive in nature. Relationship

building is not just limited to a classroom only between teachers and students; but it

engages learners within any sector of study (Merriam et al., 2016).

Case studies provide a method to a gain a deeper understanding of specific

practices and the opportunity to explore those practices (Miles, 2015). Case study

research methods include in-depth interviews that can capture the complexity of the

phenomena of interest with open-ended questions and follow-up questions (Miles, 2015;

Stark & Torrance, 2005; Ravitch & Carl, 2015).

Bogdan and Biklen (2007) described a case study as being like a funnel. The

beginning of the research is compared to the wide part of the funnel where the researcher

explores a multiple of areas that include the subjects to study, the number of participants,

the location of the study, the feasibility of the interview site and over time, decisions are

made concerning the topic, formulating the questions, and then narrowing the study to the

main focus area (Bogdan & Biklen, 2007). Case studies can vary in complexity,

sometimes includes multiple cases or sites. This project study focuses on the teachers at

one site, CMS. The case study approach was appropriate for my project study because I

wanted to know about the one bounded case of CMS. The study was focused on

documenting what strategies teachers at the study site are using for DI. Because the

GaDOE has issued a mandate for all public-school teachers to use DI, my study may

provide valuable guidance on steps to help teachers implement DI strategies. A case

study allows researchers to gather information from the actions and experiences of groups

of people (Miles, 2015), which helped me focus on the participants' use of DI strategies

by interviewing them.

Case study approaches can have potential weaknesses among the qualitative

research approaches (Douglas, 2014). For instance, generalizability can be an issue in

case study approach, as the researcher decides on a study of typical situations or unusual

situations (Bogdan & Biklen, 2007). Additionally, reliability is a concern (Creswell,

2009); therefore, I used triangulation by using interviews as well as peer debriefing and

member checking to improve the credibility of my study. Further, limited generalizability

was not a concern for this study because the purpose was to provide information to the

study site regarding their teachers' use of DI strategies (see Johnston, 2013; Stark &

Torrance, 2005).

Alternative Research Approaches

Quantitative design. The information received from a quantitative study can be

powerful for understanding phenomena (Yilmaz, 2013). Though a quantitative survey

could have identified teachers' use of different DI strategies, there was no existing survey and it is beyond the scope of this project study to design one. Additionally, it is more difficult to use quantitative methods to gather data on the thoughts, experiences, and emotions of individuals. Qualitative interviews allow the researcher to collect comprehensive answers and to ask follow-up questions for anything the researcher does not understand in an answer.

Qualitative design. The case study approach was best in comparison to other qualitative designs (Bogdan & Biklen, 2007; Creswell, 2009; Miles, 2015). Qualitative research traditions can include a descriptive study, case study, field research, ethnography, participant observation, biographical method, life history, oral history, narrative inquiry, phenomenological research, ethnomethodology, symbolic interactionist study, grounded theory, and action research (Yilmaz, 2013). The research approach uses interviews, conferences, audio recorders, field notes, and conversation and researchers interpret the meaning given by the participant (Ravitch & Carl, 2016).

A phenomenological design was considered because it represents a philosophical as well as a methodology approach (Pfadenhauer & Berger, 2013). A phenomenological design would have allowed me to explore the lived experiences of these teachers. However, this research was not focused on the entire human experiences of these teachers such as their feelings or their perceived role in the school (Bogdan & Biklen, 2007); therefore, the phenomenological design was not used.

Grounded theory could have been another qualitative design for this study because it is used to explore a phenomenon of interest carefully for a long period of time

to develop a theory that explains that phenomenon (Bogdan & Biklen, 2007; Creswell, 2009). However, this was not appropriate due to time constraints, minimal access to participants, and no access to the participants' classroom students that would be necessary to fully understand their implementation of DI strategies. Furthermore, in this study I was not seeking to construct a theory (Creswell, 2009).

Ethnography was another qualitative design that would have allowed me to collect information through observations and interviewing participants, but it involves more detail, theory, and reflection (Bogdan & Biklen, 2007; Creswell, 2009). The main point of ethnography is to depict a culture from the perspective of its members by studying cultural groups over prolonged periods of times in a natural setting (Creswell, 2009). But in this study, it was not necessary to study the participating teachers for a long time in their natural classroom setting to discover the teachers' use of DI strategies; therefore, this design was not appropriate. The case study design was the most appropriate for discovering teachers' use of DI strategies.

Research Setting

Nine teachers were interviewed at a local middle school. The school is part of a school complex that was completed in 2015 with connecting elementary and high schools that commonly share extracurricular events such as band concerts and sporting events. Table 3 contextualizes the teachers' practice based on the diverse student body documented. This research setting was selected because of the concerns teachers have shared with the principal and superintendent regarding problems using DI strategies.

Table 3

CMS's 2015 Student School Population

Grade level	Total grade	Asian/Pacific Islander	Black	Hispanic	American Indian/Alaskan Native	Multiracial	White non-Hispanic
6	173	1	46	37	0	2	87
7	184	1	62	30	0	4	87
8	153	1	43	25	1	2	81
Total	510	3	151	92	1	8	255

Note. N = 510

Tables 4 and 5 represent the consolidated student performance comparison

summary from the Georgia Milestones End of Grade test, school year 2015-16, and 2014-

15 for the school district of CMS. The tables show the school year, subject area, and the

number of students tested. Each student was measured, and their test scores fell in the

following categories: beginning learners, developing learners, proficient learners, and

distinguished learners. This is evidence that there is a range of learners at CMS. Overall,

the students are roughly one-third in each of the beginning, developing, and proficient

learners' categories with very few in the distinguished learner category.

Table 4

Percentage of Students with Test Scores at Four Levels of Achievement 2014-2015

School Year	Subject	Number tested	Beginning Learners	Developing Learners	Proficient Learners	Distinguished Learners
2014-15	English	461	34.1%	32.8%	31.0%	2.2%
	Math	462	21.9%	37.0%	31.6%	9.5%
	Science	463	30.2%	31.5%	32.8%	5.4%
	Social Studies	463	30.2%	42.3%	20.3%	7.1%

Note. Data retrieved from https://gaawards.gosa.ga.gov

Table 5

Percentage of Students with Test Scores at Four Levels of Achievement 2015-2016

School Year	Subject	Number tested	Beginning Learners	Developing Learners	Proficient Learners	Distinguished Learners
2015-16	English	512	36.1%	36.1%	25.8%	2.0%
	Math	491	25.9%	40.7%	25.3%	8.1%
	Science	478	38.5%	34.7%	22.4%	4.4%
	Social Studies	512	41.2%	36.7%	17.0%	5.1%

Note. Data retrieved from https://gaawards.gosa.ga.gov

Participants

A major factor of qualitative research is to purposefully select participants who clarify the problem and research questions (Bogdan & Biklen, 2007; Creswell, 2009). Quantitative research involves typical random sampling of large numbers of participants; however, qualitative research obtains participants through a selection process of recognizing the setting, the events, and the process (Creswell, 2009). In this study, I selected participants from a rural Georgia school I had a relationship with. I determined that the teachers were struggling to differentiate for students, and both the principal and superintendent gave me approval to use the school as my study site. I also talked with the superintendent and explained what I needed and the study I would be conducted. He also agreed to allow me to use his school for my study. In my brief conversation with them, I shared the concerns of DI and how many teachers I knew struggling with its implementation. After the response I received posing the question, "Are your teachers struggling with DI?", I felt this Georgia school where teachers struggled to implement DI would be feasible for my study.

To get the school district's approval, the only requirement was to ask for permission and approval. I met with the principal and superintendent at that time, face to face to get permission to use their school. The first superintendent that originally approved of my study retired, I met with the one who succeeded him and received approval again. Our meeting only lasted about thirty minutes where I shared my study and ask them for permission to use their school. I was granted permission in the office that day. Both administrators were also presented with a written consent an attached letter that is located in Appendix C. I followed up the meeting with a thank-you e-mail, and I continued to e-mail throughout the process to stay in touch.

To get Walden's approval, I was required to complete the proposal and then submit the institutional review board (IRB) application for approval. Next, I had to meet the necessary requirements for IRB, which included getting letters. I created the letters using the sample letters on the IRB website including a letter of cooperation for the school district to sign and an informed consent letter for the participants to sign.

After getting approval from the administrators and Walden University's IRB to conduct my project study, I attended a general faculty meeting at CMS and briefly described my study. The purpose of my attendance was to invite teachers to take part in the research study. From the 36 regular education teachers at CMS, I asked for participation in hope for nine teachers evaluated by TKES. I obtained my intended sample of nine educators who were from subject areas of English language arts, instructional coaching, math, administrative, science, social studies, music and performing arts ranging from Grades 6 through 8. I recruited nine participants to have a

small enough number for an in-depth data collection and analyses but enough to get a clear understanding of issues (Ravitch & Carl, 2016). Chamber Middle School is located in a rural area. The school is part of a school complex that consist of a high school, and elementary school. The small rural farm town is a diverse community with a high percentage of Hispanic as well as white and black students.

I used a systematic process in completing my project study and interviews. First, teachers were informed that participation was a voluntary process via the meeting, e-mails, and consent form. Second, teachers could volunteer either in person or by replying to e-mail. Third, I attended a faculty meeting where volunteers received a consent form requiring each participant's signature and an explanation of procedures for the study. Fourth, interested participants were able to e-mail scanned signed documents or leave signed consent forms for me to collect at the school's front office within 2 weeks after the faculty meeting. During that time, I sent two reminder e-mails. I resubmitted to IRB asking to request for volunteers again until I received the last three.

Once all consent forms had been collected, I worked with participants to set up interview times. All the interviews were held to 1 hour or less in a free meeting room of a local library. The actual names of the participants were changed to pseudonyms for confidentiality. Each pseudonym corresponds with the participants choice as well as the number ranking of the interview. All pertinent documents are filed in a secured locked area in my house. All electronic documents are filed in a password-protected file on my personal home computer.

At the beginning of the interview process, I showed appreciation to each teacher participant by presenting them with a $20.00 gift certificate from TJ Max and a decorative teacher's bag. The teacher's bag contained pens, pencils, notepads, water, candies, tissues, hand sanitizer, stickers, and a motivational poem. I chose to give the teacher participants items that would be useful for them.

Additionally, before each interview the consent form was reviewed and confirmed through an electronic statement of signature from the participants who agreed to participate in the study. I reminded the participants that their participation was voluntary and that they could refrain from participating at any time. In addition, the participants were reminded that their responses were confidential and that pseudonyms would be used to conceal their identities and school name. They were also assured that all information received would be placed in a locked area with passwords for protected files for electronics used.

The table in Appendix D illustrates how each of the interview questions connect to each of the sub-standards in the TKES Standard 4. These are the sub-standards that teachers are evaluated on each year. Different DI strategies align with each of the sub-standards. The conceptual framework of DI was infused in each of the Standard 4 sub-standards. For example, the most obvious integration of the framework and the standard was in sub-standard 4 that referred to the teacher differentiating the content, process, product, and the learning environment; these components are central to the concept map of DI in Figure 1, which was previously outlined on page 14 in this research study.

The interview protocol consisted of open-ended questions aligned with the TKES intended to elicit the ideas of the participants (Bogdan & Biklen, 2007; Creswell, 2009). The interviews were recorded digitally on my phone and a digital recorder. An online service professionally transcribed audio recordings and were paid to create the professionally typed transcripts. The service demonstrated professionalism and confidentiality protecting the identity of the participants.

Data Collection

At the beginning of the interviews, I reviewed the informed consent forms again with the participants and reminded them that they could withdraw from the study at any time. At the faculty meeting and in the informed consent forms, an explanation of the process that would be followed for the interviews was outlined. Participants received gift bags and gift certificates as tokens for participating in the study.

I met individually with each participant and expressed a warm greeting to each of them. We entered into a room in the public library that gave privacy. After a short moment to settle in, each interview began by asking the teacher to define DI. Each of the participants framed the definition in their own words; however, all nine participants' answers shared similar meanings such as DI being an understanding that all students were different, so they require different plans or teaching in a way to respect the needs of all learners.

Teachers were then asked to elaborate on the major components of DI, content, learning process, products, and learning environment. In the interview, questions were framed such as "We'll start with content. How do you differentiate your content?"

Immediately, teachers discussed strategies used to differentiate the content, process, product, then learning environment. No additional questions other than those on the interview script were asked in the interview. I listened carefully and prompted for additional information by asking simple questions such as "Can you provide an example?"

Role of the Researcher

I am a middle school social studies teacher at a suburban school a half hour away from CMS. I have been teaching over 29 years and attending a significant number of trainings of DI and creative learning. I have also conducted many training sessions. I am an educational consultant with a passion for education. I have obtained several degrees in the area of education such as psychology and education, middle grades certification, master's degree in education, and teacher leadership degrees. I come from a teacher family where my father is a retired principal and my mother is a retired teacher. I am also a musician and have incorporated musical strategies to help students learn. I am a teacher advisor for the state of Georgia where I work along with the state superintendents to discuss issues of teachers in local levels. I have a passion in education, and I believe all students can and have a right to learn.

Even though I know the principal and superintendent on a personal level, I understand the rules and guidelines of professionalism. I communicated with the administrators professionally, and only used general information, pseudonyms, and evidence-based findings with them. I strived to be aware of and constrain my bias that teachers struggle to use DI because of poor classroom management skills. When teachers

described difficulties, I listened carefully and asked questions that pertained to my study. I allowed participants describe their perspective as I listened to the teachers. The teachers shared strong perspectives from multiple sides of teaching. Even though there were challenging times where I wanted to speak or share my perspective, I worked diligently not to state any DI strategies based on my point of view. I continued to remind myself that my job was to listen during the interviews and learn as much as possible about my study. As I collected data, I maintained a warm and professional relationship with all interviewees. I documented my experiences throughout the process.

Data Analysis Results

As I waited for the transcripts to be returned from the transcription service, I listened to the interviews, reviewed documents, and organized other vital material resources for the study, as suggested by Creswell (2009). To gain a clearer understanding of the data collected, I continued to read and reflect on the recorded information focusing strategically on the tone, depth, and clarity of the participants' interview responses. Once the data had been carefully organized, I proceeded to code the data with key word phrases (Bogdan & Biklen, 2007; Creswell, 2009).

To be transparent, it is important to know that this study began as a deductive thematic analysis but transitioned to a deductive direct content analysis (Braun & Clark, 2006). As I coded, it became clear that there was extreme variability in the strategies reported, most of them being mentioned by just one participant. I used qualitative coding methodology as defined by Creswell (2009). I coded the interview data to identify teachers' reported use of DI strategies. I chunked together the codes, identifying repeated

topics and creating columns with headings that related to each of the topics found. I created a "qualitative codebook that consisted of a table or record that contained the codes for my data" (Creswell, 2009, p. 187). I highlighted the different codes with colors. I organized the codes into the tables and included quotes from the participants as evidence to support each code.

It was intended that coding would generate themes or categories which appear in the research as major findings in the sections of the study (Creswell, 2009, p. 189). However, there were no themes emerging because the participants were not all discussing the same strategies but instead a wide range of strategies. This analysis transitioned to a direct content analysis (Hseih & Shannon, 2005) using the TKES Standard 4 as the predetermined categories for the many strategies shared.

Throughout the process of analyzing the data, I continued to be mindful of reliability, validity, and generalizability (Creswell, 2009, p. 190). Qualitative validity involves continuously checking codes for accuracy, which would include revisiting and revising the master code list definitions as I coded more of the data and gained a clearer understanding of the code overall (Creswell, 2009). Qualitative reliability refers to the consistency of applying codes across the research, which would include reviewing the codes I applied.

The variability in the data was extreme; most strategies were only mentioned by one participant. Therefore, it was impossible to generate inductive themes from this data. As a result, the data analysis method changed to an inductive direct content analysis (Hsieh & Shannon, 2005) method in which the strategies were organized by the pre-

existing categories of the TKES Standard 4 sub-standards. The six sub-standards had some standards that included multiple elements, so those were further broken down into categories that were sensible. For example, the assessment standard included three different types of assessment: diagnostic, formative, and summative. Therefore, these were used as three different categories.

To triangulate my data, I had interviews and two peer debriefers. I did not conduct member checks to ask the participants if my codes were an accurate summary of the data. Given the straightforward nature of the teachers' descriptions of strategies and the ease of assigning code words to the strategies, it did not make sense to do member checking. I asked three teachers, two of whom were retired teachers to be my peer debriefers helping me with the triangulation of my study (Creswell, 2009; Marklund & Taylor, 2015). One teacher had completed some qualitative research. She was a very accomplished teacher who obtained over ten certifications in the areas of literacy. My debriefers assessed the information of my study. Specifically, they looked at the codes that I had generated, read the descriptions of the codes, and read quotes from the interviews that the codes were generated from. Many of the codes had one participant quoted. The peer debriefers read the quotes and determined if they agreed with the code and description I had assigned to the quotes. I did not have any discrepant cases to note and report. My peer debriefers did not cite any discrepancies from the information. My debriefers were strongly familiar with the challenges teachers have with using DI that in Georgia the Department of Education has mandated for teachers to use (GaDOE, 2014).

Results

  Qualitative research is an emergent process. This research has had to adapt to the data it collected. For transparency it is important to note that this data was intended to be analyzed inductively using a thematic analysis approach, but this was not an appropriate fit for the data emanating from this study. A thematic approach assumes that there will be common topics discussed by several participants. In this study, it would mean that teachers discussed many of the same strategies and therefore the themes would be the common strategies they discussed. The data included a large amount of variability.

  In this study, this means that one strategy would be discussed by only one teacher. Each teacher shared different strategies from one another. As a result of this variability in the data, a new analysis approach was deemed more appropriate: direct content analysis (Hseih & Shannon, 2005). This is a deductive approach that begins with categories (not emergent themes) based on research or other policy (Hseih & Shannon, 2005). This study is organized based on the TKES Standard 4 and the six sub-standards will serve as the categories to organize the variability in the strategies. Ultimately, it is interesting to note that teachers had so many different strategies. It is a policy question if it is beneficial to have more strategies, or if for each category sub-standard the state of Georgia would prefer the teachers to know a set of common strategies.

  This data analysis organizes the strategies teachers shared into each of the six sub-standards listed in the below Table 6 The table is further organized transforming these six into twelve categories. Within these six sub-standards there are sometimes distinct parts that make up a new category. For example, note that for the first sub- standard there are

four distinct parts: (a) content, (b) process, (c) product, and (d) learning environment.

Therefore, these four will be reported as four categories within the Standard 4.1. For

Standard 4.2, remediation is treated as one category. Enrichment and acceleration are

treated as one category because they are so similar. For Standard 4.3, there is one

category for flexible grouping. For Standard 4.4 there are three categories as three

distinct types of assessment are discussed: (a) diagnostic, (b) formative, and (c)

summative. For Standard 4.5 three is one category for creative and criticial thinking. For

Standard 4.6 there is one category for high expectations with developmental strategies.

Therefore, as illustrated in Table 6 below in total there are twelve categories: four parts

sub-standard one, two parts to sub-standard two, three parts to sub-standard four, and one

for the remaining sub-standards.

Sample. There were a diverse sample of participants that volunteered for the

study. 8WA was a music teacher veteran with over 30 years of teaching choirs, directing

plays, and musical performances. He had had experiences from national, state, and local

levels. He teaches music, voice, and is a gifted pianist. Ken, Don, and Vickie are all math

teachers. Previously having a background in business, Ken had 15 years of experience as

a high school business education teacher and now teaches math in the 7th grade at CMS.

Don is a math teacher of less than 10 years. Rural schools are limited in the numbers of

teachers available to teach multiple of classes (Tomlinson, 2014; VanTassel-Baska &

Hubbard, 2016; Wu, 2017). Vickie has multiple roles as a math teacher and an assistant

principal with over 20 years of teaching experience. Ann and J.LO taught in the areas of

English language arts. Ann had over 10 years of teaching and J.LO had over 15 years

experience teaching. Science teacher 5 OG had over 5 years' experience had a non-educational science background before teaching. Chica and Ozzy both taught social studies. Chica had over 15 years and Ozzy, a former football scholar and coach, had almost 30.

Table 6

Categories from Analysis According to TKES Standard 4 Substandards

4.1	Differentiates the instructional content, process, product, and learning environment to meet individual developmental needs.	I. II. III. IV.	Content strategies Process Strategies Product Strategies Learning Environment Strategies
4.2	Provides remediation, enrichment, and acceleration to further student understanding of material.	V. VI.	Remediation Strategies Enrichment & Acceleration Strategies
4.3	Uses flexible grouping strategies to encourage appropriate peer interaction and to accommodate learning needs/goals.	VII.	Flexible Grouping Strategies
4.4	Uses diagnostic, formative, and summative assessment data to inform instructional modifications for individual students.	VIII. IX. X.	Diagnostic Assessment Strategies Formative Assessment Strategies Summative Assessment Strategies
4.5	Develops critical and creative thinking by providing activities at the appropriate level of challenge for students.	XI.	Critical and Creative Thinking Strategies
4.6	Demonstrates high learning expectations for all students commensurate with their developmental levels.	XII.	High Expectations with Developmental Level Strategies

TKES Substandard 4.1 Content, Process, Product, and Learning Environment

It should be noted that in this data there was a wide variety of responses and not many teachers expressed the same ideas. There are many themes that may only have one response. Given this reality in the data, these results do not identify themes based on the frequency of times participants discussed the same topic. Instead, the strategies are organized into the categories of the TKES Standard 4 sub-standards. The categories that organize the strategies shared are according to the TKES Standard 4 in the above Table

XX. The categorized strategies answer the research question that sought to document the

strategies that teachers share for DI according to the TKES Standard 4 organization. The

categories for this section include *content strategies, process strategies, product*

strategies and learning environment strategies. These are fully discussed in the below

paragraphs with quotes from the data and details on how many participants expressed the

strategies.

      For the category *content strategies*, five teachers (J. LO, Vickie, Don, Ken and

Chica) shared strategies for differentiation of content. The five strategies shared by four

teachers in the *content strategies* category were sentence starters, modeling and

scaffolding, individual and choral reading, drill and homework differentiation, and

content standards as baseline for instruction. J. LO used sentence starters to help students

with organizational patterns and supported them by modeling and scaffolding. J. LO also

discussed using individual and choral reading. Vickie discussed math lessons having

different drill and homework components. Ken and Don discussed using the content

standards as a baseline for determining instruction. For example, Ken stated, "With our

standards, you have a baseline of what they need to learn. So usually we try to instruct

just above the baseline, a little above the baseline. So for the lower kids, they can get the

baseline."

      For the category *process strategies*, seven teachers(Ozzy, J.LO, Vickie, Don,

Ken, Chica, 8 WA)shared strategies. The five strategies shared in this *process strategy*

category included using specific resources, remediation and acceleration, learning styles,

choosing seats, and having a weekly routine. Three of the nine interviewed teachers (OG,

Ann, and Don) mentioned using specific resources, such as textbooks, technology, and teacher notes. OG focused on using technology instead of textbooks. In contrast, Ken had plans for remediation and acceleration in place. Ken stated,

> Then with the other kids that were not successful, we have them remediate on the test that they were not successful on the Friday before. They're like doing a test analysis or doing test corrections. We have them do accel activities and things like that to try to help them grasp that concept.

Vickie discussed catering to learning styles. For example, she said,

> You know, some kids are more auditory. Some kids are more tactile. Some kids are more visual, so mixing that up, making sure that there's a little piece of that in their everyday, and then also sort of catering to those kids and what reaches them best.

Finally, other strategies mentioned by participants included letting students choose their seats (Chica), remediation (Ken), and having a weekly routine (Ozzy).

For the category *product strategies* there was one strategy of using rubrics that three teachers (Ozzy, Vickie, & Ken) mentioned. Ken focused on providing choices in materials but requiring that everyone meet the same rubric. "So follow your rubric, but be as creative as you want. As a result, you get a lot of different varieties of products when it comes to that," said Ken. Another strategy mentioned by three other teachers (Chica, Ozzy, and Ann) was the use of creative projects. Two teachers (Don and Ozzy) focused on providing choices of assessment types such as tests, quizzes, exams, and instructional activities. While other teachers including 8WA, Chica and JLo included projects,

resources books, and performance tasks for their students. "Sometimes, it's really based on student choice. Sometimes I have to have a specific product that matches my learning target for the day," stated Chica. In summary, there were seven strategies for the category of *product strategies* including rubrics, providing choices in materials, creative projects, choices in assessments from tests or quizzes or projects, requiring projects, resource books, and performance tasks.

In the area of differentiating *learning environment strategies* included nine strategies shared in the *learning environment* category including group work, seating choice, inclusion, enrichment, remediation, peer teaching, workstations with movement, basic supplies, planning and pacing lessons. Some of the strategies focused on organizing students in workstations or seating choices for DI, "We also have the luxury of having a classroom open, so we can divide kids up into maybe two groups. One group will go with one teacher, and then I'll keep the other group. And vice versa, we'll split it up that way", stated Ann. In addition, "So, we're in a group setting. I have tables and desks. I have, my tables are actually have assigned seats, but they're seated basically heterogeneously", stated Don.

TKES Substandard 4.2 Remediation, Enrichment and Acceleration

Remediation strategies. For the category of *remediation strategies*, there were seventeen different strategies shared. These included interactive notebooks for student analysis, individualize learners, Peer Remediation and Peer Institution, small group, tiger time, talking to students about concerns and actions, before the summative, targeted, question, active 12-15 max, spot the imposter, tutorial time, strategies to use for DI,

inclusion class, breakdown language, swirling, modeling, computer activity, and resource

teacher. Interactive notebooks had two teachers (Vickie and Chica) mention it,

individualize learners had two teachers talk about it, and the rest of the strategies were

discussed by one teacher each.

Interactive notebooks for student analysis had three teachers mention it. One

teacher, Vickie, described it, "A lot of times I would when they would analyze. A lot of

times they would analyze their own mistakes. So, they would have their own notebook;

Yeah, they always have a notebook, a portfolio of work".

Chica added to this interactive notebook strategy by discussing a desire for her

student to be successful as she stated,

My learners that really need to write it down and process it, we are going to write

it together. We are going practice. We're going redo and try again, and then we'll

go back, and we'll make up that grade because I want them to feel successful. If

they put in the extra work on remediation, I want that grade to show that for them.

The second strategy, individual learners, making learning more personal was

discussed by two teachers. Ann said, "Okay, remediation; I just have to go back and see

cause it's so individualized when remediating. Just talking to the group, or if it's just one

person, "okay, what part about it did you not get".

The remaining strategies were talked about by one teacher each. The terms *Peer*

Remediation and *Peer Institution* referred to students working in pairs. One teacher, 8WA

stated, "Peer explanations a whole lot better 'cause sometimes they can do it. Learn from

each other, yes A lot better than I can explain it. Because they can take it and put it in the

vernacular the slang that they use." Small group settings were another strategy. The fifth

strategy, Tiger time, was a time for students to ask for help in redoing assignments. The

sixth strategy was talking with students about their concerns and actions such as J. Lo

said, "Sometimes I'll ask them, "Well, what will help you understand this? Is it

something that you can watch? Is it something you can do? Do I need to explain it a

different way?"

The seventh strategy before the summative was mentioned by Vickie who wanted

the remediation to happen before the summative assessment or activity instead of after.

The eighth strategy: Targeted, Quick, Active 12 min -15 max, was mentioned by Vickie

who wanted to have remediation target the problem, get to the root of problem, and

quickly work the problem or reteach. To account for the typical 12-15 attention span she

would keep students actively engaged in working the situation. The ninth strategy, also

from Vickie, was called spot the imposter and included misconception or incorrect

answers into review problems. The tenth strategy, tutorial time, was time was set aside

for students to review and relearn the material on a one on one basis.

The eleventh strategy, strategies to use for DI, included activities that one teacher

used in helping students to learn. "We use a lot of Virtual Nerd, Google Classroom, those

are just videos that the kids watch. We use Quizlet. We use quizzes. Again, they're all

just straightforward practice. We also use IXL as a remediation tool where the kids

practice", stated Don. The twelfth strategy, inclusion class, uses a variety of learning

styles.

The thirteenth strategy, breakdown language, was used by OG who tried to use words that are more "student friendly" to understand the standard. "Break it down into language that they understand. Because even I sometimes, will look at a standard, and I'm like, I don't know what that says. So how do I expect my students to understand what we're really trying to figure out." The fourteenth strategy, SWIRL, is an acronym for speaking, writing, illustrating, reading and learning that a whole school ties to incorporate in every lesson was mentioned by OG.

The fifteenth strategy from Ann was modeling; another area of remediation where a lesson is presented or demonstrated for the student. The sixteenth strategy, computer activities, was mentioned by Ken who stated, "We use I-Excel, we use Kahn Academy, we use different things like that so that they can go in and practice. Because sometimes with some of the kids that rote learning is what they need." The seventeen, resource teacher, was mentioned by Ken who said they can "give them a different view or a different perspective" and discussed trading students with another teacher for remediation.

Enrichment and acceleration strategies. For the category of *enrichment and acceleration strategies* there were seven strategies shared. These strategies included: tech day, google classroom, speed classes, and then there is a category of lack of enrichment and acceleration and lack of real world, extension, and increase rigor. In terms of acceleration, the strategies mentioned were included in enrichment such as by providing extra assignments in Google Classroom and just speeding up the curriculum.

The first strategy tech day which was defined by the various forms of technology used to teach students mentioned two of the nine teachers Ozzy and 8WA. The rest of the strategies were shared by one teacher each. The second strategy, Google Classroom, was defined by Ozzy as a computer engine that allows teachers to plan ahead and lets students to work progressively forward, expanding their knowledge without waiting for the whole class to complete the assignment. It includes tests and digital activities. Ozzy mentioned the third strategy, advance classes that go faster.

The next two strategies are odd in that they are essentially complaints about a lack of strategies. J.LO teacher mentioned the fourth strategy, which is addressing the lack of enrichment and acceleration. J.LO mentioned the fifth strategy, was a lack of providing an opportunity for real-world application activities.

Vickie mentioned the sixth strategy, exploring qualitative and quantitative data collection as an enrichment activity. "They had to collect different types of data, but they got to decide the data that they collected, so they actually wrote their survey questions. These kids were exploring qualitative and quantitative data as 7th graders. It was pretty impressive", stated Vickie. One teacher mentioned the seventh strategy, extension. Chica stated, "Those who see that they have it, they go with an extension of that activity or move on to the next content standard that is required that grade." Chica mentioned the eight strategy, increase rigor. "I try to give some higher-level articles or higher-level artifacts for the kids to look at. Use the world databases for historical, actual artifact", said Chica.

The remaining ideas mentioned are not truly enrichment but rather enjoyment. They include gaming including board games and computer games and was mentioned by OG. Also brain break, was also mentioned by OG. Playing music quietly in the background was also mentioned by OG.

TKES Substandard 4.3 Flexible Grouping Strategies

There were nine strategies mentioned in the *flexible grouping strategies* category. It should be noted that these teachers did not describe the definition of flexible groups which is having groups that were changed according to the needs of the students in the groups. Instead the strategies they shared for this category are primarily mixed ability groups. These strategies included starting with ability level group, strengths and weaknesses group, hold group members accountable, encourage students that are struggling then celebrate their success, incentive system for flexible group, peer teaching and helping, inclusion group, concrete learners, and seating chart.

The first strategy ability level grouping was mentioned by five of the nine teachers. Ability level grouping was generally defined as working in small groups with multiple ability levels. J.Lo, Ann, and Ken had some cautions about this. For example, Ken said, "You do have high, middle, and low students in one group, you have to have the right type of high student for it to work. Because not every student that is supposed be high functioning is one who likes to help or who likes to be assisting." The second strategy, strength and weakness grouping planned instruction according to the readiness level of students: high, low, and medium. The third strategy, group members holding group members accountable for their part of a flexible group work. The fourth strategy,

encouraging students that are struggling then celebrate their success, mentioned one

teacher. J. LO described a mixed group activity when a struggling group that included a

special education student was struggling but then won the game, and the teacher

videotaped the celebration.

The fifth strategy, incentive system for flexible group, mentioned by 50G

included a point system for students who volunteer to help one another. The sixth

strategy was mentioned by 8WA and was peer teaching and helping. The seventh strategy

mentioned by Ann involves having a specific inclusion group that usually have a

paraprofessional assigned to them, and peer helping. The eighth strategy, concrete

learners referred to groups that need materials. Chica stated, "Yes. Flexible grouping

happens every day… I've learned that my students with disabilities typically are very

concrete. So, when I give them a map, and I say, Spain is always here. Every day of the

week, Spain is right here. They get it just like that." The ninth strategy, seating charts,

according to Ozzy enabled him to organize students into multiple ability seating

organizations. "You don't want to have four number ones in one group.", stated Ozzy.

TKES Substandard 4.4 Diagnostic, Formative, and Summative Assessment

Diagnostic assessments. The three strategies mentioned were pre-assessment,

small groups, and instructional strategies. The first strategy was mentioned by two

teachers and is pre-assessments which are done before any lessons on a topic commence.

Don stated, "Before every unit we take a pre-assessment. We actually use our pre-

assessment data. So, we take our pre-test usually about a month in advance so we can

plan our next unit." 50G also mentioned he gives a pre and post-test. The second strategy

was small groups. Three teachers discussed this code. Ann stated, "Well it's basically like I said, we look at the data and it helps us to put 'em in groups. Okay, they've got it, accelerate, enrichment." J.Lo agreed with this separating students process. The third strategy mentioned by 7Strategy and 50G was using quick instructional assessment strategies such as ticket out the door, thumbs up and down, sticky notes. OG stated, "And I do a ton of short checks. I may not give it as a formative quiz, but every day I try to say, hey, I need to know where you're at. If it's a thumbs up, thumbs down. If it's a, put your sticky note on this side or this side."

Formative assessments. There are three strategies included in the *formative assessment strategies* category including basing interventions on data, quick assessments, and self-analyzing. The first code was mentioned by six teachers and involves basing interventions off of the data from formative assessments. Ken and Ozzy both mentioned taking formative tests early to plan instruction. "We assign them their practice based off of their data", stated Ozzy. "I tried to do mini lessons over things that students didn't get," said J.LO. Chica used the interactive notebooks for data. Two teachers talked about using verbal formative assessments. Chica said, "For formative assessment, I do a lot of turn and talk. Turn to your group and explain to them what you wrote on your paper. Why is it correct?" Another teacher 8WA mentioned asking the group to reply aloud to formative questions.

For the second strategy, quick assessments, Vickie discussed that she wanted to do the assessments quickly so that she could quickly begin teaching. Vickie says she looks at, "which questions they missed the most. And what was the percentage. And so

we take those questions and we put them on the problem of the day that they do each day." The third strategy is self-analyzing where students check their own understanding of a standard. Vickie said that students "had to really explain what they did in the process. "I multiplied wrong. I said nine times seven was 49. Then, if they had a certain percentage of that particular standard, they did not meet mastery," then they had to check the incorrect responses.

   Summative assessment strategies. The *summative assessment strategies* consist of three strategies including pre-assessment, production, mini lessons, and using data to form small groups. The first strategy of pre-assessment was unusual because a pre-assessment is not a summative assessment. For the one teacher OG that mentioned it this is because he uses the same exact test at the beginning and the end of the year. So he uses the same assessment for a pre-test and a summative assessment. OG stated, "So, at the beginning of the year I do a pretest, and then at the end of the year I give the exact same test. The students don't know that." The teacher 8WA was the one who mentioned the second strategy of production was specifically interested in using a performed play as a means of assessment. The third strategy, mini lessons, was mentioned by one teacher, J.LO, who talked about using summative assessments to indicate what she still needed to go over with mini-lessons. She was using summative as a formative assessment. J.LO said, stated, "If I saw a majority of student still struggling by the time we got to the summative on a certain skillset, we would have a mini lesson later over it." The fourth strategy was using data to form groups, and was mentioned by one teacher Ann. Ann

explained that after a summative assessment the students that did not meet the standard

would be put in a small group to relearn the standard.

TKES Substandard 4.5 Critical and Creative Thinking Skills Instruction

There were ten strategies for the category of *critical and creative thinking skills*

instruction included tech day, Instagram, creative writing, SWIRL, multi-intelligence,

inquiry, minute Monday, not very creative, provide evidence, and student centered. Tech

day was mentioned by three teachers including Ozzy, Don, and OG. This was a day set

aside to incorporate technology. "Using games and add visual strategies developed from

technology", stated Don. The next code, Instagram was mentioned by thee teachers. They

used Instagram to provide images that accompanied a lesson. Ozzy stated, for water

shortages, "they drew a world, I mean blue, nice little globe. It had a spigot coming out of

it and one drop." For some Instagram activities J.LO explained that students were asked

to generate a caption for an image. Ann described the next code, creating writing as a

difficult task for students. Ann said, "students have a very difficult time pulling ideas out

of their own heads, being creative. They just don't know how to be creative with their

writing. In contrast, Chica thought it was an opportunity for artistic students, "We have

some amazing artists out there, but they don't tell you because they're too shy. When you

give them that chance to put it on paper, I mean it's like their whole world lights up."

The fourth strategy is the acronym SWIRL which stands for: speaking, writing,

illustrating, reading, listening. SWIRL is something the county of schools tries to

integrate in all lessons. It was mentioned by one of the participants J.LO. The fifth code

is multi-intelligence, that includes trying to incorporate different modalities of learning

such as logical, visual, and musical. J. LO is the only teacher that mentioned this. The sixth code is inquiry. One teacher mentioned this code. J. LO said, "Well we've had the shift is now inquiry, and so really flipping it on the students. What I'm seeing with the social studies classes now is they're starting with an image, and so they're having to do visual literacy." The seventh code is Minute Monday that Ann described as one minute where students try to write more words each week within one minute.

The eighth strategy is the recognition that one teacher is not very creative because Ken described themselves as procedural and not creative but rather, "If you give me a recipe, I can follow it. I know to do this and then this and then this and then this." The ninth strategy provides evidence and Don explained that critical thinking the most important issue because, "That's the hardest thing to get them to understand. Don't give me an answer or response that doesn't make sense. Show me evidence. Claim the evidence, or reasoning." The tenth strategy is student centered mentioned by 8WA who contrasted her program with others that were less student centered and therefore less creative.

TKES Substandard 4.6 High Expectations Commensurate with Developmental Level

Data for the category *High Expectations Commensurate with Developmental Level* was incomplete because it was the last question of the interview and there was not sufficient time for a complete answer. There were three strategies shared: expecting students to work and take responsibility for their own learning, respect students learning styles and readiness levels, and incentives.

The first code, expecting students to work and take responsibility for their own learning was mentioned by four participants Vickie, Don, J. LO, and 8WA. 8WA shared, "I do not expect you to be the best. But what I do expect is for you to do your best. Because it would be ridiculous for me to expect for you to always be the best. You can achieve to be better all the time." Chica stated, "I make sure that we never settle, and I push, push, push. The other piece for this high learning expectations is that every day is a new day. If you fail a test today, guess what? Tomorrow is a new day. You don't have to fail it tomorrow." The second strategy was to respect students learning styles and readiness levels. Four teachers mentioned this including OG, Chica, J.LO, and Ozzy. OG stated, I do the learning styles because you want different students who have these amazing artistic abilities to be able to use them." The third strategy, incentives, involved rewarding students was only mentioned by Ozzy.

Summary

Learning about the strategies that teachers used and applied when differentiating instruction was the purpose of the research study. The study's Georgia Middle school teachers were required to use DI, which is state mandated, but the problem was that it was not known what DI strategies teachers used (Principal, personal communication, October 7, 2015; GaDOE, 2014) The research findings instructed that DI is a philosophy, a way of thinking about students that constantly recognizes their unique learning preferences (Tomlinson & Murphy, 2014). The findings of the study highlight the importance of educators thinking about DI to improve or enhance the strengths of students (Tomlinson & Imbeau, 2010). The research literature explained that DI is not

using a single strategy, but rather an approach to instruction that implements multiple

strategies (Watts-Taffe et al., 2012). I found that the CMS used a multiple of strategies in

this study.

The research question asked about what strategies the teachers at CMS are

currently using. The interview questions were designed to address each of the six sub-

sections of the TKES Standard 4. The findings of the study answer the question of what

strategies the teachers know in relation to Standard 4. The answer is that they know a

very wide variety of strategies. Indeed, most of the strategies were mentioned by only one

teacher. This makes summarizing these findings very difficult because they are so varied.

One subsection of Standard 4 dealing with acceleration and enrichment stood out as a

problem area. This was because six of the nine teachers shared dismissive strategies such

as allowing the students to work on drill computer programs and the other three teachers

voice significant concern over the fact that they did not have strategies for acceleration

and enrichment. This will form the basis for the project described in the next chapter.

Importantly, the data revealed that there was significant variability in the data in

that many strategies were only shared by one teacher. There were only four strategies that

three teachers expressed the same strategy: using rubrics, using creative projects, tech

day, and Instagram use. Four teachers shared some variation of expecting students to do

their best work. Several strategies were shared by two teachers, but most strategies were

shared by one teacher. This is consistent with the literature review that included articles

on many different DI strategies and recommended multiple strategies (Watts-Taffe et al.,

2012) but makes it very difficult to summarize or find patterns amidst the data. It makes

it difficult to know if teachers were meeting the sub-standards of TKES and if they would

pass. It is logical that if each teacher does very different strategies for the TKES,

principals will have a challenging time evaluating if they are indeed meeting each

substandard.

One concept that crossed several sub-sections of Standard 4 and strategies was a

focus on the standards. This could be found in the literature as well. Ediger (2016)

emphasized that teachers should focus on standards and determine what students were

meeting them or needed extra help. Tomlinson and Jarvis (2014) also emphasized that the

content standards should guide instruction and how teachers use DI to differentiate.

Tomlinson and Moon (2013) discussed activities that allowed student to choose standards

to work on. Ken and Don discussed using the content standards as a baseline for

determining instruction. For example, Ken stated, "With our standards, you have a

baseline of what they need to learn. So usually we try to instruct just above the baseline, a

little above the baseline. So for the lower kids, they can get the baseline." On the other

end of the spectrum, Chica stated, "Those who see that they have it, they go with an

extension of that activity or move on to the next content standard that is required that

grade." In summary, the standards play a central role in determining what students should

know and how they are differentiated for.

Another concept that can be found in the literature and in the data was choice.

Hathaway and Jaquith (2014) discussed how teachers allowed students to personalize

their learning according to their interest and gave them choices. Tobin and Tippett (2014)

shared effective ways teachers used choice boards. Hodges and McTigue (2014) used

choices as part of literacy centers. In the data, the concept of choice showed up primarily in terms of differentiation of learning products. Teachers discussed giving students rubrics but then allowing them to choose how to present their learning. "So follow your rubric, but be as creative as you want. As a result, you get a lot of different varieties of products when it comes to that," said Ken. Four of the teachers discussed using a variety of choices of tests, quizzes, presentations and other creative products. Choice was also discussed in terms of differentiation of learning environments. Teachers allowed students choices of their seat, in their learning center, and their groups. Overall, choice was evident in the literature and in the data regarding differentiation of the products and learning environment. A third concept that was present in the literature and in the findings was that of technology use, particularly to provide advanced learning opportunities.

In the literature, Tobin and Tippet (2015) talked about assigning advanced learners to use an online tool to dissect animals. Cavanaugh (2016) discussed using technology for advanced learning. Suanrong and Herron (2014) talked about using technology to enhance math class. The data included teachers using i-XL a math online program for drilling math problems. Ozzy and 8WA both had tech day in their classrooms where students had different technology tools, they could choose to use for enrichment purposes. To meet the creativity standard several teachers cited using technology. Three mentioned using a tech day and three others mentioned using Instagram. They used Instagram to provide images that accompanied a lesson. Ozzy stated, for water shortages, "they drew a world, I mean blue, nice little globe. It had a

spigot coming out of it and one drop." For some Instagram activities J.LO explained that

students were asked to generate a caption for an image. Given the prevalence of

technology in society, it is logical that teachers would use it for differentiation.

The last concept that can be found in the literature and this data is the need for PD

for providing enrichment and acceleration for high achieving students. Brevik,

Gunnulfsen, and Renzulli (2018) found in their study that teachers felt a need for PD for

differentiating for high achieving students. Preciado-Babb et al. (2016) included data

from teachers indicating that prior to the PD they felt a strong lack of experience with and

lack of knowledge of enrichment strategies. When taught the bonusing strategy they felt

more equipped. In addition, lack of enrichment is a documented problem for rural

communities such as the study site (Horsley & Moeed, 2018). Indeed, teachers in rural

communities experience disadvantages such as limited resources such as technology and

curriculum; schools also lack the best qualified instructors to tackle the needs of

advanced learners (VanTassel-Baska & Hubbard, 2016).The data included two of seven

strategies that were not strategies but rather complaints that indicated a lack of strategies

for enrichment. Indeed, in this study, three of the nine teachers were very expressive

about their desire that more attention be spent on meeting the needs of high achieving

students. J.LO explained the problem in her statement,

> Yes. I feel like we almost leave them out. I feel like we spend a lot of time on
>
> remediation because we are so focused on we've got to get to proficiency, we've
>
> got to get to that mastery of the standards. We might provide them with the
>
> content, like oh you can take this class now, as an eighth grader instead of in high

school. I mean if they're already ready for the content, why can't we give them

extra? Not extra work, but extra extension, take it further.

Several of the ideas mentioned in enrichment were simply attempts to make the

classroom more enjoyable such as the use of games or playing of music during learning.

Chica had several specific ideas regarding challenging students and increasing the rigor

of assignments for some students, but overall the strategies were designed to give

additional work to students.

In summary, there were some overlaps between the research literature and the

data including the use of content standards, choice, technology, and the need for means

and time to provide enrichment for students that need it. Some other findings were that

teachers in this study used pre-assessment data to guide their instruction that is found in

the research to be helpful for differentiation (Chien, 2012). Indeed, teachers used

formative and summative assessment to guide instruction as was found to be effective in

the literature (Watts-Taffe et al., 2012). Finally, participants and the literature both

expressed the need to have students take ownership of their learning (Tobin & Tippet,

2014). The next section discusses the project, which builds on the finding that teachers

desired and seemed to lack sufficient strategies for enrichment and acceleration.

Section 3: The Project

Georgia middle school administrators at this study site did not know what DI strategies teachers were using to support students' multiple ability levels. The significance of this study was that it would document what strategies teachers were using, and possibly point to areas of the TKES Standard 4 sub-standards where teachers might need additional PD. Creswell (2012) expressed that case studies allow participants to communicate deeply through interviews and surveys as ways of gathering information to receive a better understanding about a subject. The results showed that there is not a common set of strategies that teachers are using to do DI, and there are not clear substandard areas of weakness. There were a wide variety of strategies that teachers shared in response to the interview questions. Very few strategies were mentioned by more than one participant in the variety of strategies from participants' responses. Each participant shared their unique strategies in response to each question. There were very few ideas that were mentioned by more than participant. For example, five of the nine participants shared the idea that DI strategies are supposed to be meeting students' needs. Beyond this, each interview question yielded a list of different strategies.

Additionally, only four teachers mentioned the use of rubrics when answering Interview Question 4 on the substandard differentiation of products that included tests, quizzes, technology such as Google slides, paper money, and hands-on projects. In terms of any of the substandards that teachers might need PD for, the only one was for the substandard regarding enrichment and remediation. Teachers had remediation strategies, but three of the nine teachers expressed strongly that they lacked enrichment strategies.

Section 3 presents a brief description of the project study and the project goals set on a carefully constructed timeline to accommodate the learning outcomes. This section focuses on the rationale for the project study. The section also presents a scholarly review of literature to support the study.

In this study, I learned about the strategies that middle school teachers used with students of multi-ability levels. I asked each participant 16 questions developed from TKES standard four for DI. After examining the interview data, it was also clear that the participants could define DI and understood the importance of implementing DI within their classrooms. The participants recognized the necessity of differentiating the overall aspects of a students' learning, content, process, and product according to the readiness level, interests, and the learning environment of students. It was also clear from the participants' answers that effective teaching of the standards starts with strong teacher knowledge of the standard, which helps lead to student mastery of the standard. The teachers expressed that they used frequent formative assessment to provide data to plan appropriate lessons for students. Teachers stated that they also used the summative assessments to guide their instructional decisions. Teachers recognized the importance of administering pre-assessments or diagnostics in efforts to learn the readiness levels of their students (Gilson, Little, Ruegg, & Bruce-Davis, 2014).

Further, the conclusion of my data indicated the concern for a lack of acceleration and enrichment implementation within the classroom. One of the participants discussed how it was a concern to her that teachers seemed to focus less on enrichment and acceleration, and few participants talked about not being very creative. None of the

teachers discussed using acceleration and enrichment as a primary reason for a lesson. Instead, teachers discussed having more work ready on Google Classroom when students completed their regular assignments. This is a problem because using enriching motivating approaches at the outset has been shown to decrease remediation (Yahuke & Shroyer, 2014).

Section 3 presents a brief description of the project study and the project goals set on a timeline to accommodate the learning outcomes. This section also focuses on the rationale for the project study. Additionally, this section presents a scholarly review of literature to support the study.

Rationale

The GaDOE has required that all public-school teachers be evaluated under TKES. In the TKES process, Standard 4 includes six substandard that define different areas of DI. Together, these six substandards indicate the basic areas that all public-school teachers in Georgia are tasked with using in the classroom. There may be multiple strategies that teachers use differentiate instruction for students; however, common researched-based strategies could offer a more structured framework as teachers use DI (Ekinci & Acar, 2019).

Performance standards relating to DI show that the teacher supports all the students' learning by providing suitable content and utilizing skill, which address individualized learning disparities. In addition, the performance indicators at the Level III are:

- Standard 4.1: Differentiates the instructional content, process, product, and learning environment to meet individual developmental needs.

- Standard 4.2: Provides remediation, enrichment, and acceleration to further student understanding of material.

- Standard 4.3: Uses flexible grouping strategies to encourage appropriate peer interaction and to accommodate learning needs and goals.

- Standard 4.4: Uses diagnostic, formative, and summative assessment data to inform instructional modifications for individual students.

- Standard 4.5: Develops critical and creative thinking by providing activities at the appropriate level of challenge for students.

- Standard 4.6: Demonstrates high learning expectations for all students commensurate with their developmental levels. (Littles, 2019)

For each of the six substandard, I expected that there would be common research-based strategies that teachers are using, but this was not the case. Because of the data demonstrating the variability of strategies, the PD project suggests several research-based strategies for each of the six substandards.

In the project, there will be a half-day presentation and activities focused on these strategies for each of the six substandards. In some cases, there are several parts to the substandards, so several strategies will be recommended. Additionally, advance content skills of literary analysis and persuasive writing, with questions and rubrics to check for understanding along with administering pre- and post-performance assessment was important to incorporate in the project (VanTassel-Baska & Hubbard, 2016).

The researched-based strategies provided in the PD may strengthen the pedagogical practices for teachers and support with challenging areas of DI as teachers respond to the needs of learners. The PD promotes a more engaged and differentiated learning experience for teachers, providing them with effective training and common strategies (Ekinci & Acar, 2019). The strategies are beneficial to helping teachers to differentiate for students as well as build cohesiveness and structure throughout the school. In addition, the remainder of the project PD focused on acceleration and enrichment. This is because in the results of the study indicated that two of nine participants had serious concerns with the lack of acceleration and enrichment strategies within classrooms. The other seven teachers shared different strategies but none of them were strong. The data indicated that there was a need for additional learning in this substandard. Thus, The PD concluded with areas that focus on acceleration and enrichment strategies; however, the beginning of the PD will share some common researched-based strategies for all teachers. These common researched-based strategies consist of higher-level questioning, student discussions, concept-oriented instruction, critical and creative thinking skills, problem-based learning, independent study, cooperative and flexible grouping, vocabulary instruction, acceleration, and enrichment (Little, 2018).

Review of the Literature

The Georgia middle school administrators at this study site did not know how well the middle-school teachers were using DI strategies for multiple ability levels (Principal, personal communication, October 6, 2015). However, the principal was aware

that teachers were struggling to use DI because of challenges such as multiple ability levels and large class sizes. Additionally, it was unclear what PD administrators would supply to ensure teacher proficiency in DI. To address this gap in knowledge and practice, I explored middle school teachers' use of DI strategies and knowledge to create a professional development (PD) project.

what DI strategies teachers are using to support students' multiple ability levels. The purpose of this project study was to learn what strategies CMS middle school teachers used to differentiate instruction. The state of Georgia has implemented DI, standard four, as one of the main essentials to evaluate teachers in assuring that DI is being implemented in the classrooms across Georgia public schools (GaDOE, 2014). Georgia has mandated that teachers use DI (GaDOE, 2014), but it was unknown what strategies teachers were using for DI. Additionally, the state of Georgia has implemented DI Standard 4 as one of the main essentials to evaluate teachers in assuring that DI is being implemented in the classrooms across Georgia public schools (GaDOE, 2014). Thus, the purpose of this project study was to learn what strategies CMS middle school teachers used to differentiate instruction to help develop PD. Effective PD allows teachers to better differentiate in their multiple ability classrooms and provide teachers with adequate training to strengthen their instructional practices (Dixon, Yssel, McConnell, & Hardin, 2014; Kazemi, Ghousseini, Cunard, & Turrou, 2016; Whitworth & Chiu, 2015). Effective teacher training impacts student achievement (Blazar & Kraft, 2017). From the data analysis, I have a better understanding of strategies used. I will

design a differentiated PD, as outlined in Section 2, providing participants more autonomy relevant to their educational needs.

Diversity lesson plans are required to be written in respect of multiple differences (Bautista, Bull, Múñez, & Ng, 2016). Just like their students, participants of PD also have different learning interests and needs. Effective PD supports the needs of educators by providing support, resources, and a strategic plan for moving teachers and students ahead (Bautista et al., 2016). To meet the need for DI in classrooms, teachers should have tailored PD instead of just traditional formats such as in-service days, after school workshops, lectured programs, and nonengaging activities; researchers have suggested a more differentiating approach to PD that involves a continuous training integrating choice that targets direct areas of instruction (Slavit & McDuffie, 2013).

To develop this project, I researched the topic of PD and DI. I used the educational data bases Education Source, Eric, and Multidisciplinary Data bases ScienceDirect, Sage Premier, ProQuest Central to find peer-reviewed journal articles published within the last 5 years. I used the following search terms: *Professional Development (PD), Professional Development and Differentiated Instruction (PD and DI), Backward Design and Professional Development (BD and PD), Enrichment Strategies and Professional Development (ES and PD),* and *Acceleration Strategies Professional Development (AS and PD)*.

Professional Development

CMS teachers attend and obtain several hours of PD training throughout their teaching career. PD prepares teachers to learn and receive innovative ways to help their

students be successful (Slavit & McDuffie, 2013). Meaningful PD provides time for

teachers to collaborate and engage with others, which can increase understanding of

concepts for teachers (Whitworth & Chiu, 2015). Meaningful PD can also foster

academic growth and a sense of community (Slavit & McDuffie, 2013) as well as answer

educators' questions and provide safe spaces to ask questions educators might be afraid

to ask because of colleagues' opinions (Bautista et al., 2016). PD is more feasible and

effective when teacher participants are encouraged to contribute to the design elements

(Bautista et al., 2016; Slavit & McDuffie, 2013). This is especially true when elements

focus on their individual needs as educators. This could lead to more improvement and

higher achievement for their students (Beers & Butler, 2016; Slavit & McDuffie, 2013;

Yurtseven & Altun, 2017). Further, PD is more conducive and successful when all

participants contribute to the workshop. Providing opportunities for teachers to freely

work collaborate can strengthen the climate for the whole school.

Autonomy is also an important part of PD. Effective PD occurs when teachers are

allowed and directed to initiate their own PD (Slavit & McDuffe, 2013). For example,

Slavit and McDuffie (2013) conducted a study on two secondary math teacher

participant, involving a variety of data collected in the form of videos, field notes, emails,

teachers, and students' written work (see also Yurtseven & Altun, 2017). Slavit and

McDuffie found that as teachers and teacher leaders initiated the PD process, teachers'

external knowledge was expanded, and their internal attitude shifted in ways that helped

them to grow and provide support to help their students succeed. Thus, when teachers are

given autonomy to initiate the PD process, a more positive approach toward the PD may develop (Slavit & McDuffie, 2013; Whitworth & Chiu, 2015).

Despite the benefits of PD, for some teachers PD has a negative connotation when a full day of training focuses on components unrelated to what teachers need within their classroom (De Neve, Devos, & Tuytens, 2015; Whitworth & Chiu, 2015). PD is usually administratively planned with mandatory attendance for all participants, which results in nonapplication of the learned information and a lackadaisical attitude (Schuler, 2015; Wu, 2017). When teachers are not involved in the planning process of PD, many teachers become unmotivated participants who experience fatigue and frustration and conclude that the PD was ineffective to their needs (Schuler, 2015; Wu, 2017). The negative attitudes of teachers may contribute to lower levels of proficiency, as noted by administrators during evaluations and observations (Schuler, 2015; Wu, 2017). But directing and encouraging teachers to design and plan their own PD may help build more continuity and growth within the school (Slavit & McDuffie, 2013). Growth starts with a changing mindset, especially for many rural schools (Tomlinson, 2014; Wu, 2017).

Allowing teachers to have more input can build a healthier school climate. Many teachers look at PD or workshops as a waste of time that could have been spent in the classroom. If teachers are given the opportunity to control the narrative and engage in the planning session of the PD, these opportunities may increase the motivation for teachers, which will eventually lead to better student outcomes. Therefore, it is important to differentiate PD according to teachers' individual needs just as it is important to

differentiate for students. For example, Bengo (2016) defined a differentiated PD

approach for Canadian math teachers called *math coaching*, which helped math teachers

improve teaching practices and encourage academic growth in students. Teachers learned

about three common elements involved with math coaching: cognitive coaching, which

involves the process of thinking and behavior; content-focused coaching, which targets

content areas; and instructional coaching, which is focused on equality, choice, voice,

dialogue, reflection, praxis, and reciprocity (Bengo, 2016). The cognitive coaching

focused on the process of thinking and behavior (Bengo, 2016). Content-focused

coaching targeted a certain content area (Bengo, 2016). Instructional coaching focused on

equality, choice, voice, dialogue, reflection, praxis, and reciprocity (Bengo, 2016). Bengo

presented positive results as the coaches were trained and able to aid teachers. Coaches

were required to stay current with curriculum and instruction in efforts to respond to

teacher's issues (Bengo, 2016).

The teachers were more receptive to such enrichment activities through job

embedded training instead of a general workshop because of the more direct impact for

teachers' readiness (Bengo, 2016). Thus, meeting teachers at their readiness level is just

as important as meeting students at their readiness levels because both are learners

(Tomlinson, 2014; Cvetković & Stanojević, 2017).

Another aspect to consider in developing PD is teachers' perceptions of the topic.

Instructional coaching focused on areas of equality, choice, and voice. These areas allow

effective assistance to teachers. Even teachers, require a differentiate PD. Meeting

teachers at their readiness levels possibly help teachers differentiate Instruction at a level

where teachers understand, then move beyond. The next paragraph highlights the

perceptions of teachers in reference to DI. Cvetković and Stanojević (2017) conducted a

study that involved over 300 teachers from six elementary schools, . The study addressed

the theme of teachers' PD and the role of a teacher based on cultural and social aspects of

the individual teachers (Cvetković & Stanojević, 2017). identifying factors that

influenced teachers' perception of personal and professional identity as well as teachers'

beliefs in relationship to experience and qualifications. For instance, teachers with more

years of experience felt more qualified in performing duties versus novice or teachers

with fewer years (Cvetković & Stanojević, 2017). Cvetković and Stanojević concluded

that teachers' personality traits have a major influence in the role of teacher's personal

development and identity, which influences their pedagogy. Cvetković and Stanojević

(2017) stated that innovation, enrichment, and creativity enhance the quality of education

for all. Therefore, these factors as well as innovation and creativity are important when

designing PD (Cvetković & Stanojević, 2017).

PD can be useful in helping teachers learn how to develop and actively apply

relationship building strategies with their students (Cvetković & Stanojević, 2017). The

results of this study has a powerful correlation to my data where 9 participants with years

of experienced individuals had elevated duties as instructional coach and assistant

principal; one retiree and they returned to teach chorus, and a former business instructor

teaching math, and coach that taught social studies teacher. By working with such a large

spectrum of professionals that readily volunteered for the study, demonstrated that they

had a more comfortable mindset with DI, then a novice or first year teacher.

The intentions of PD are to support teachers and increase student achievement (Whitworth & Chiu, 2015). PD serves as an avenue to activate growth by working collaboratively with others in results of meeting individual needs (Whitworth & Chiu, 2015). PD can introduce participants to a larger selection of resources and strategies providing educators with more up to date norms and trends throughout the world (Whitworth & Chiu, 2015). PD can prepare teachers to connect locally, regionally, and globally through collaborative efforts within a school setting. In a PD, teachers are exposed to a variety of activities and rigorous methods of teaching that's beneficial for all students, regardless of abilities, meeting each one at a readiness level then expanding beyond (Gilson, Little, Ruegg, & Bruce-Davis, 2014; Tomlinson, 2014). Effectively designed development programs can provide more support to teachers, which then can develop a better attitude among teachers to use the learned skills within their classrooms (Valiandes & Neophytou , 2018). Valiandes and Neophytou (2018) conducted a study to explore the components of PD programs, especially regarding DI. PD can be unwelcoming to some teachers because of traditional styles that can be completely boring and repetitive in nature in relation to what teachers already know and do (Valiandes & Neophytou, 2018).

Even though training is beneficial and required, the attitudes and moods of many teachers can be negative towards PD, which results in nonproductivity and less to no implementation in classrooms with students (Valiandes & Neophytou, 2018). Valiandes and Neophytou designed a PD to produce changes in both attitudes and practices of participants to address the potential negative attitudes that come from using traditional

styles, which results in unproductivity and a lack of implementation of learned skills in the classroom. The study consisted of 14 teachers from the educational district of Nicosia that taught Greek language to fourth graders, who participated in a series of activities such as lesson observation, interviews, and intense discussions (Valiandes & Neophytou, 2018). The teachers felt the PD provided them with beneficial information to DI because it taught them differentiated methods for their content areas and provided them with pedagogical approaches to instruction (Valiandes & Neophytou , 2018). The PD also provided teachers with an opportunity to collaborate, communicate, have constant onsite support, receive follow-up training sessions and help during implementation, develop personal and professional skills, and self-reflect and evaluate effective PD (Valiandes & Neophytou, 2018). Effective PD has been beneficial for teachers and students to reach success (Valiandes & Neophytou , 2018).

Based on the literature in this section, a one-size fits all PD does not work in motivating teachers, just like a one-size fits all lesson does not always motivate a student to learn (Valiandes & Neophytou, 2018). Teachers are also more motivated to learn when they are given opportunities to participate in the PD (Beers & Butler, 2016; Yahuke & Shroyer, 2014). This study by Valiandes and Neophytou (2018) explored the components of PD. The section indicated that PD is a major component in preparing teachers; however, just like students. Teachers desire a PD that is differentiating and allows them to participate through collaborative methods and receive continuous support.

Professional Development and Differentiated Instruction

A differentiated PD program targets the needs and the readiness of the teachers (Blazar & Kraft, 2017; Valiandes & Neophytou, 2018). The participants received resources that consisted of power points, handouts, and lecture notes. Many have viewed these traditional PD trainings as boring, repetitive, and not helpful (Blazar & Kraft, 2017). Efforts should be implemented to meet teachers at their readiness levels as teachers strive to meet students (Blazar & Kraft, 2017; Tomlinson, 2014). Effective PD trainings should also mirror that DI mindset (Gilson et al., 2014; Tomlinson, 2014). All teachers can learn; however, they do not all learn the same way (Blazar & Kraft, 2017). Differentiated PD gives teachers a respectful way to learn (Beers & Butler, 2016; Tomlinson, 2014;).

Beers and Butler (2016) conducted a case study on the implantation of a differentiated PD for a high school in New York. The purpose of the study was to improve teaching and learning (Beers & Butler, 2016). Beers and Butler gathered student data that focused on teachers' communication of objectives, engagement, and understanding. Beers and Butler noted that administrators and teacher leaders of the high school employed the district's evaluative instrument called *learning walk* which was aligned directly with components of the district's formal evaluation checklist for DI. These components included evaluations of (a) content areas, (b) the learning process, (c) support, and (d) flexible groups (Beers & Butler, 2016). Teacher leaders were trained to administer the PD to other teachers using methods of modeling instead of limiting the PD to lecturing (Beers & Butler, 2016). Teachers that continued to struggle with the skills

were required to remain in the same focus group until the skill was mastered (Beers & Butler, 2016). The process followed a continuum of instruction, observation, support, and rigor (Beers & Butler, 2016). As a result of the study, data demonstrated improvement in teachers use of strategies from the fall of 2013 to the spring of 2015 Beers & Butler, 2016). Administrators conducted more than 1,600 walkthroughs, which was more than into previous years (Beers & Butler, 2016). Improvements were noticed in communicating with students, meeting district guidelines, and student engagement (Beers & Butler, 2016). Thirty-five teachers volunteered for additional training and 100 teachers demonstrated proficiency in communicating objectives (Beers & Butler, 2016). The results of Beers and Butler's study demonstrated the effectiveness of a PD for teacher training. PD with a DI approach is not only effective when developed at K-12 institutions but also when designed by higher education institutions (Beers & Butler, 2016).

Kansas State University Professional Development Schools (KSU PDS) partnership model provides a differentiated approach to the traditional PD for teachers of K-12 (Yahuke & Shroyer, 2014). The collaborative research provided by KSU PD allowed all educators opportunities to grow, learn, and participate (Yahuke & Shroyer, 2014). Because of constraints throughout the school year, KSU PDS provides PD opportunities year-round. The faculty and students of KSU integrated a support system for academia and populations in education, providing additional enrichment activities for school and community (Yahuke & Shroyer, 2014). The KSU PDS approach has motivated teachers to improve learning in their schools and classrooms (Yahuke & Shroyer, 2014). Participating schools of KSU PDS have been awarded national honors

during the 25 years since the partnership was first developed (Yahuke & Shroyer, 2014).

KSU PDS demonstrates the importance of providing PD opportunities year-round

(Yahuke & Shroyer, 2014). PD programs are vehicles to extend the knowledge base for a

long-term, continuous process, which should include the lifelong learning of educators

(Yahuke & Shroyer, 2014). Add summary and synthesis to fully conclude the paragraph

and connect back to your study.

Chin-Wen (2015) focused on DI workshops for 13 Taiwanese elementary school

English teachers. The findings highlighted two areas where theoretical concepts, lesson

demonstration, and hands-on activities were implemented in the workshop but, the

implementation of the three areas lacked a clear introduction of each component (Chin-

Wen, 2015). The English teachers demonstrated competence in designing choices for the

DI activities; however, the teachers demonstrated a weakness in developing deeper

understandings of the lessons and designing activities for diverse learners (Chin-Wen ,

2015). Finally, the workshop lacked a variety of instructional strategies of choice (Chin-

Wen, 2015; Wan, 2017). Chin-Wen (2015) discussed that PD should be more practical

instead of theoretical. It should focus on all elements of DI that include differentiating

content, process, and product and learning environment of the students the teachers teach

. When using practical materials, teachers learn through observation, demonstration, and

participation in practicing instruction strategies (Chin-Wen, 2015). Chin-Wen (2015) also

encouraged strong professional dialog among teachers, so they can learn from each other.

Chin-Went suggested that PD should be continuous, focusing on all aspects of DI

because of the diversity in classrooms. The study results indicated more DI strategies

should be included in PD and that it should also include additional demonstrations from expert leaders in DI (Chin-Wen, 2015; Wu, 2017). In summary, the research demonstrated a need for more PD strategies that encompass all diverse learners. The research strongly encouraged dialog and discussions among the participants which emphases the particle way to learn.

In Hong Kong, DI has been cited as one way to target learners of diverse areas. Hong Kong has a history of nondifferentiated educational systems (Wan, 2017). The government in Hong Kong takes education very seriously following the same curriculum for all students. Wan (2017) conducted a differentiated study during a teachers' in-service day. The teacher training involved teachers from 2 primary schools. One participated in a nondifferentiated approach and the other participated with more differentiated strategies (Gilson, Little, Ruegg, & Bruce-Davis, 2014; Wan, 2017). Wan (2017) study indicated that some teachers believed that learning is still a "one size fit all" curriculum.

Teachers that participated in a nontraditional PD reported that time, support, collaboration, and complexity were concerned using DI strategies (Wan, 2017). Although some of the teachers shared concerns, there were some indications of positive attitudes once DI was used (Wan, 2017). Wan (2017) study concluded that many teachers struggled with adjusting to change. The PD served as a vehicle to help teachers gain a positive attitude about DI (Wan, 2017). While DI may be familiar to many in the United States, there are still a significant number of schools that teach a very traditional curriculum (Wan, 2017). Research indicated that Chinese teachers had challenges with accepting DI tenets (Wan, 2017).

Backward Design and Professional Development

Backward design provided an effective bases for understanding (Guskey, 2001;

Guskey, 2014; Hirsh, 2012). Guskey (2014) explained that the best way to plan a PD is to

start backwards. Usually, the process starts from simple to complex where each stage

builds upon the other for success; however, success should be at each level regardless

(Guskey, 2014). Guskey (2014) suggested planning in reverse allowed the primary goal

to be the starting point that drives the PD. Guskey (2014) emphasized that the backwards

approach stressed the results of what the PD should be designed to accomplish first. The

backwards approach to planning this PD ensured the appropriate steps (Guskey, 2014;

Michael & Libarkin, 2016). As Guskey (2014) stated that backward design is putting

destination before the route.

When teachers are allowed to plan or be involve with planning their own PD, they

are more likely to use the strategies learned (Guskey, 2014; Wallace, 2014). Research

evidence suggests that teachers get more out of PD with a differentiated approach where

this approach begins with individuals in mind instead of whole groups or teams (Guskey,

2014). It is valuable for the facilitator to evaluate and be aware of each teacher's unique

readiness levels to meet state standards (Tomlinson, 2009; Gilson, Little, Ruegg, &

Bruce-Davis, 2014; Tomlinson, 2014).

There are several models of PDs that engage participants such as triangulation

design consisting of market research, literature review, and educators' network (Pic,

2015). A backward planning case study design where teachers start with the goal, then

plan backwards (Guskey, 2014). This study followed Carol Tomlinson's workshops and

formats with DI (Tomlinson, 2009). Tomlinson's PD were especially designed to support teachers and provide them program features that add support, engagement, collaboration, and curriculum-based approaches (Valiandes & Neophytou, 2018). Attitudes and practices of educators helped to facilitate changes in teaching practices that included more differentiated teaching (Valiandes & Neophytou, 2018).

Even though teachers have experienced some training with DI and have obtained some strategies, this PD provided a more intensive and rigorous approach that focused on more than knowledge and skills; but the reasoning for strategies and the implication of strategies (Valiandes & Neophytou, 2018). Helping teachers understand the reason behind why teachers differentiate instruction and the key components to use to differentiate instruction, can be useful in teaching children and helping them to succeed as the final product of the study.

The four-training days will follow the process of a PD with enormous teacher engagement examining the content, process, product, and learning environment (Tomlinson, 2011). Time will be allocated for teachers to practice and work through the core principles of DI (Tomlinson, 2011). It is my goal to help teachers learn and practice with more common researched-based strategies including more acceleration, and enrichment strategies based on the data of the study that concluded to be areas of challenge.

Table 7

Common Researcher-Based Strategies

Instructional Strategy	Description	Examples
Higher-Level Questions	Fostering a deeper learning and engagement by asking questions with more complexity to enhance learning beyond readiness	*engage students on the levels of Blooms emphasizing the combination of type of questions, content, process, product, and thinking that drives the narrative and rigor.
Student Discussion	Moving questioning beyond the traditional style where teachers ask the questions and students give a response to the question; students formulate questions from concepts or the content to ask during the "moving discussions"	*talk moves, accountable talk, Socratic seminar (big ideas), teacher step back where the primary responsibility of the discussion is based on the learner.
Concept-Oriented	Promoting the depth of concepts and knowledge	*conceptual thinking, visual learning, patterns and relationships, evaluating, and understanding based on supportive evidence, solving a problem or creating a new product
Critical and Creative Thinking Skills	Analyzing concepts and formulating new ideas; gathering and generating ideas	*classifying, comparing and contrasting, generating possibilities, creating metaphors, reasoning, analogies, cause and effects, inferencing and making decisions
Problem-Based Learning	An approach to curriculum and instruction that can be complexed and challenging; but, engages with real-world learning, working with non- structured in a time frame with designated deliverables.	*Utilizing some of the critical and creative thinking, to solve "real-world" problems, exploration, examining ideas, and hypothesizing
Independent Study	Pursing information around specific topics reflecting on key elements, also offers personal development opportunities to promote deeper thinking.	*metacognition, content indepthness, development of disciplines, focus on more student interests, flexibility, going beyond the school, mentorships
Grouping	Students working together in a particular setting, such as flexible grouping which is common to DI; Grouping will need careful planning based on data	*flexible, whole class, partners, use with a multiple of content and instructional areas, cooperative groupings,
Vocabulary Instruction	Understanding words, definition, or explanation of words; using various of methods	*Word walls, vocabulary circles, completing vocabulary charts, using graphic organizers (Link, 2019) and word games
Acceleration	The speed of learning concepts, moving faster (Khalaj-Le Corre, 2013).	*expansion of a concept after evidence of understanding
Enrichment	Enhancing a concept; adding value to it; expand beyond (Horsley & Moeed, 2018)	*Using any of the instructional strategies and expand the knowledge higher, more rigorous, or creative levels

Note. Common researched-based strategies (Little, 2018)

The chart presents common research-based strategies that may provide teachers with more structured strategies instead of the multiple of strategies my study showed. These researched-based strategies may provide greater support for teachers as they differentiate instruction within their classrooms and support all their students educational experience. The next sub-topic defines the main two areas that two of the nine participants mentioned to be problem factors in this study.

Defining Acceleration and Enrichment

One of the areas two of the teachers expressed strong desire for additional strategies were acceleration and enrichment. Acceleration educationally moves students faster ahead, placing them in a more advance situation (Khalaj-Le Corre, 2013). The advanced curriculum provided students, especially gifted and talented students with a differentiated curriculum allowing them to work at their own pace or readiness level. Some schools may provide, fast promotion, early entrance, advance studies, accelerated classes, early graduation, and even early college placement (Khalaj-Le Corre, 2013).

Where acceleration focused on the speed, enrichment instruction provided a deeper construct of learning through more rigorous and advance materials offering special provisions for students to learn (Khalaj-Le Corre, 2013). The learning experiences of students being enriched may lead to a higher level of creative design, technical engineering, and intellectual studies (Khalaj-Le Corre, 2013). Enrichment activities move students from memorization to motivation helping them to develop an impetus to discover definition and understandings of facts, finds, and formula (Khalaj-Le Corre, 2013).

Horsley and Moeed (2018) conducted a study concerning a lack of motivation from students learning high school science. Among the fifty-six students participating in the survey, there were 100 responses as some students shared more than one response. Many students that excel in their learning, have potential for obtaining leadership jobs. Horsley and Moeed (2018) prepared research to bring awareness and insight to the situation of how students viewed the use of acceleration and enrichment. The results of student surveys and questionnaires indicated that students generally experienced a variety of teaching strategies. In defining the terms enrichment and acceleration, students seemed to immediately share their experiences; but, in the end many of the responses did not actually define the terms (Horsley & Moeed, 2018).

Some students stated that teachers spent extra time, such as tutoring capacity, helping them to learn. Other students mentioned receiving incentives such as chocolate and fossils. Overall, the results indicated lessons were limited to the required content with a lack of enrichment and acceleration to expand understandings (Horsley & Moeed 2018). Several students shared that their needs were not being met. Some students shared concerns that they were not sufficiently learning and that they believed the use of practical and higher-level science experiments could be more educational and entertaining in context (Horsley & Moeed, 2018). This project was situated in New Zealand where the government has mandated that each school board must identify gifted and talented students (Horsley & Moeed, 2018).

Enrichment Strategies and Professional Development

There are several PD projects that have studied training teachers to use differentiation strategies. One example is Preciado-Babb et al. (2016) that conducted a study in math aimed to improve math instruction. The participants involved in this PD learn about an enrichment method called bonusing, a strategy that encouraged growth, motivation, and a positive attitude focused on math (Preciado-Babb et al., 2016). Teachers cited creating bonuses, and enrichment beyond the curriculum, as challenging. Additional tasks involved changing numbers, introducing new terms, complete missing terms in a sequence, applying a concept, finding, and following patterns, and writing descriptions of items (Preciado-Babb et al., 2016). Preciado-Babb et al. (2016) explain that this sample enrichment strategy should be for all students, even students below proficiency.

Fourteen teachers participated in this differentiated PD, and results were retrieved from weekly classroom observation at two urban elementary research schools (Preciado-Babb et al., 2016). The study focused on the implementation of enrichment. Teachers in the study indicated having a lack of experience and knowledge to implement enrichment activities; however, teachers admitted once they learned how to use bonusing, they became more comfortable using it (Preciado-Babb et al., 2016). Some of the teachers hesitated to allow students to create math questions beyond the standard in fear of not knowing how to answer the questions or losing control of the goals of the lesson (Preciado-Babb et al., 2016).

The participants involved in the study made a request for more premade or ready to use bonus tasks because most teachers didn't know how to integrate flexible bonusing in their plans (Preciado-Babb et al., 2016). Teachers said time constraints were a challenge to create and implement more enrichment activities. (Preciado-Babb et al., 2016). Preciado-Babb et al. (2016) concluded that teachers should be able to create bonus tasks with effective training and preparation.

The data discussed time restraints and a lack of creative ideas as factors teachers found as challenges with this PD and why some teachers hesitate to use more enrichment strategies (Preciado-Babb et al., 2016). With effective teacher training or PD programs, which may employ expert presenters, in house trained facilitators, or academic coaches, teachers were better equipped to understand how to develop and employ more enrichment strategies.

Acceleration Strategies and Professional Development

Effective classroom instruction is to improve student's growth and prepare them to become life-long learners (Wanzek, Kent, Swanson, Roberts, & Vaughn, 2015). PD assist teachers in providing students with appropriate strategies in efforts to help students master the curriculum. The purpose of this study was to measure the success in promoting acceleration of content and comprehension through text intervention with 11th grade students in the United States. Wanzek et al. (2015) study was conducted in 41 classes with 23 classes describe as treatment classes.

Fourteen teachers were trained to provide the treatment in the study. Data results showed that the treatment conditioning class performed better (Wanzek et al., 2015). PD

and effective teacher training can enhance the quality of instruction that teachers deliver. PD should use a variety of useful strategies to help accelerate learning for students. This learning can be achieved by using student-centered approaches such as strategic reading graphs, which can enhance learning in any subject area (Wanzek et al., 2015).These classroom-based strategies can be useful for all students to learn as described in the next study with rural learners.

Appropriate classroom-based strategies for accelerated learners can be beneficial (VanTassel-Baska & Hubbard, 2016). VanTassel-Baska and Hubbard (2016) study focused on the educational needs of rural gifted students. Through PD, teachers learned to appreciate the community values of rural learners and how these values motivated as well as shaped the lives of students within family, relationships, and religion (VanTassel-Baska & Hubbard, 2016). Teachers in rural communities are sometimes faced with a few disadvantages such as having resources including technology, supplies, as well as the best qualified instructors to tackle the needs of advanced learners (VanTassel-Baska & Hubbard, 2016). Some teachers know many strategies to use. On the other hand, some teachers lack the understanding of how to design classroom lessons that are able to address students' needs (VanTassel-Baska & Hubbard, 2016).

Teachers in this project study expressed a lack of enrichment strategies. This has been documented in other rural areas such as the study site. Data was retrieved from the National Center for Education Statistics where nearly 10 million students, approximately 20% of all students, in the United States attend school in the 49.9% of school districts that are designated as rural by federal definition (VanTassel-Baska & Hubbard, 2016).

National Center for Education Statistics data states that almost 5 percent of students are labeled as gifted learners in rural communities. These students frequently face isolation within their classrooms and schools because of unchallenging activities in education and a lack of appropriate instruction (VanTassel-Baska & Hubbard, 2016; Endepohls-Ulpe, 2017). In this study, VanTassel-Baska and Hubbard (2016) explained some rural schools' lack funding to provide these learners with more challenging resources and many of the teachers are not appropriately trained or qualified to effectively teach these advanced students. Many of the rural schools are plagued by poverty issues that continues to be unaddressed, even by politicians at all levels.

VanTassel-Baska and Hubbard's (2016) study presents ideas for school officials to use as instructional approaches with rural learners. Some of the listed approaches involved, using critical thinking and problem-solving skills, advance content, project and problem-based learning, higher level questions, structure and scaffolding, independent learning, inquiry techniques, metacognitive tools, role models, such as business leaders, adults, and opportunities of real-life learning (VanTassel-Baska & Hubbard's, 2016). The research suggest that these instructional approaches and strategies are useful for students, especially those that live in poverty areas and have either been identified or need to be identified as advanced accelerated learners. VanTassel-Baska and Hubbard (2016) indicated in the study that once these learners are identified, immediately these students need to receive gifted services because identification without faithful implementation of appropriate interventions over time will produce no effects on learning.

VanTassel-Baska and Hubbard (2016) study involved the assistance of The College of William & Mary's language arts units with gifted learners where the team at William and Mary began a 3-year longitudinal study of using the curriculum in Title 1 schools and inclusive classrooms with all learners. The program study focused on integrating higher level of thinking, reasoning, advance content skills of literary analysis, and persuasive writing, with questions and rubrics to check for understanding along with administering pre- and post-performance assessment (VanTassel-Baska & Hubbard, 2016). These are strategies that will be shared in the PD project from my research study.

Data from the Project Athena study came from 2,113 students in 39 experimental and 38 control classrooms and suggested significant and important gains for both gifted and typical learners. The assessment used the William and Mary language arts curriculum and a variety of standardize tests given such as Test of Critical Thinking and Iowa Test of Basic Skills (ITBS) (VanTassel-Baska & Hubbard, 2016). In a separate study reported in this article, The Jacob's Ladder Reading Comprehension Program was tested for intervention effects which was designed to help students in poverty communities. The Jacob's Ladder Reading Comprehension program involved using a ladder approach where students move from lower steps to higher steps. In all, there were six separate ladders of activities and questions. The results of the Project Athena and Jacob Ladder both showed the improvements of student learning outcomes (VanTassel-Baska & Hubbard, 2016).

The table below outlines five attributes that the study of VanTassel-Baska and Hubbard (2016) viewed as needs for rural gifted learners. The chart is outlined in

appendix D of the study and reproduced below in Table 8 describes the attribute,

description of the attribute, advantages, disadvantages, and solutions.

Table 8

Five Attributes

Attributes	Descriptions	Advantages	Disadvantages	Solutions
1.Supportive Learning Environment	Class- based strategies with in the classroom environment that's crucial for the gifted learner	Relationship building can be easier in finding out which students are stronger or weaker.	Advance students are less likely to have a large peer group	Forms of Grouping, ability levels, most effective; cluster grouping; flexible grouping; virtual learning communities
2.Selecting and Adapting Curriculum	Constructing a curriculum that is essential to rural gifted learners. Questions to be answered: Is the Curriculum researched-based? Does it show advance and accelerated opportunities? Does the curriculum employ organizational skills? Critical thinking? Project-based? Technology?	Motivational and challenging for this rural learner.	Teachers may not have a clear understanding of how to incorporate these skills into the existing curriculum	PD may be useful for teachers in providing these components within the existing curriculum
3.Use of Advance Content	Content that expands the vocabulary, spelling and writing experiences of gifted students; also, dissects the major strands of problem solving, measurement, statistics and probability in math, applying scientific real-world experiences, and research in the social sciences	Allows gifted students to work at a readiness level that mirrors their type of content learning	Lack resources and teacher knowledge of how to expand the content effectively.	PD may be useful and funds to help purchase needed supplies and resources
4.Acceleration	One of the best strategies that consists of moving students ahead faster once that have mastered the required lesson; lifeline for the rural gifted student	Using diagnostics to find the areas in content to accelerate, such as world languages, math, Using Lexile levels for reading readiness	Lack resources and teacher knowledge of how to accelerate for students can be an issue	PD and teacher training in accelerating learning for students could be helpful.
5.Biography to stimulate interest in career and life choices	Exposure to learning about career and life choices from people in the community; involving inquiry-based activities and readings of many important figures in areas such as leadership like, Nelson Mandela, Cara Barton, social workers, politics, science; study their lives and how they can begin a journey	Learning about important leaders; also self- reflect and become inspired to act; provide a strong curriculum, advance work, structure, creating products; metacognitively, creative based learning is increased	Excess to multiple resources; Lack of references to research; including technology	Providing more resources; PD for educators; give excess to materials needed

Note. VanTassel-Baska and Hubbard (2016)

To support the gifted rural learner, a high-quality curriculum based on student interests, readiness, growth is necessary. For students to receive the appropriate strategies, teachers of these students are required to be prepared in content, content pedagogy, and differentiated strategies (VanTassel-Baska & Hubbard, 2016). VanTassel-Baska and Hubbard (2016) discussed in this article professional learning and training for teachers to prepare to teach these rural gifted students using techniques such as online modules and regional collaborative PD sessions through differentiated materials and sources. Professional development opportunities should be ongoing, even partnering with universities gives open opportunities for ongoing training. This article focused on classroom-based strategies for accelerated or gifted learners in rural areas where there is a great need for support in teaching these students (Johnson, 2016; VanTassel-Baska & Hubbard, 2016).

Three of the teachers in this project study strongly expressed a desire to know more acceleration and enrichment strategies. They are not alone. The research such as Endepohls-Ulpe (2017) indicated the challenges that teachers face in implementing accelerated and enrichment studies to their students, especially those that are gifted.

Endepohls-Ulpe (2017) cited that a lot has been done to address the issue; but, many teachers in their classrooms are still struggling to meet the needs of these advance learners. Educators have a major role in identifying these students and providing the lessons that students need to expand on the learned standards (Endepohls-Ulpe, 2017; VanTassel-Baska & Hubbard, 2016).

One of the concerns in this study indicated that acceleration is not very popular among some teachers and parents in fear that it may have an adverse effect on social and emotional level, moving students in a direction faster beyond their grade level or age equivalency (Endepohls-Ulpe, 2017; VanTassel-Baska & Hubbard, 2016).

The teachers that participated in the study volunteered as the sample consisted of 175 teachers (76 male, 99 females; mean age 37, min 20, max 65). Endepohls-Ulpe (2017) stated that 111 teachers came from randomly chosen German grammar schools, the type of secondary school which provided the highest level of school graduation in the German school system. Sixty-four teachers came from secondary modern schools, a school type which is between upper and compulsory level called an intermediate school. 36 were student; but also, supply teachers with 42 Grammar school teachers and 28 modern schoolteachers (Endepohls-Ulpe, 2017).

The instrument used for the study was a questionnaire which contained some questions about personal data, personal experiences with gifted students in areas of acceleration, enrichment, internal differentiation, and early placement. Endepohls-Ulpe (2017) concluded that internal differentiation was rated with the most positive results of the four. Many German secondary school teachers have a negative and un-realistic attitude toward measures of promotion for gifted students such as too much work for the students and teachers, less leisure time for students, emotional draining for teachers and students. These attitudes require more teacher training for internal differentiation and advance teaching (Endepohis-Ulpe, 2017).

Professional Development Design

Professional development provide training that teachers need to make improvements in teaching practices (Ekinci & Acar, 2019). The design of the PD should be taken in consideration to add to the effectiveness of the PD (Ekinci & Acar, 2019). Using surveys, conducting interviews, and creating focus group from teams within a school setting could help to bring forth a motivating and beneficial PD for all educators (Tiveron & Savage, 2018; VanTassel-Baska & Hubbard, 2016).

Ekinci and Acar (2019) conducted a study to provide a model for effective PD by taking the opinions of primary school teachers on PD. Twenty primary school teachers from a district in Istanbul participated in the case study approach. Conducting interviews was the instrument used to collect data (Ekinci & Acar, 2019). Ekinci and Acar (2019) gathered information concerning the opinions of the participants about concepts of PD activities, the process, and the effectiveness of these events.

The opinions ranged from ideals of PD separated in three sub-categories: change, experience, and burnout (Ekinci & Acar, 2019). The views on the processes of PD were put in four sub-categories: physical conditions, technology, academic resource, and training process (Ekinci & Acar, 2019). Finally, Ekinci and Acar (2019) study indicated that the effective PD should be convenience to the needs, right of choice, appropriate content selection, development strategy, active learning environment, and cooperation. The findings concluded effective PD affects a need, goal setting, planning, development process, and evaluation respectively. This development needed to be continuous and supported throughout the year (Ekinci & Acar, 2019).

Tiveron and Savage (2018) conducted a roundtable study to investigate how the participants like to do PD. The finding gathered differentiated methods of PD ranging from face to face, online, conferences, and journal clubs. The participants discussed the effectiveness of attending conferences, and workshops in a way of meeting new people and exchanging ideas with new people. The participants looked to this approach as being intellectually engaged (Tiveron & Savage, 2018).

In the same study of Tiveron and Savege (2018), a participant focused on the PD being more convenient and accessible. The participant was disable; however, she still possessed a desire to learn new skills, receive information, and be engaged in training (Tiveron & Savage, 2018) PD designs should take in consideration of all teachers or educators. Some participants may have disabilities which limit for them to be in certain environments and settings (Tiveron & Savage, 2018). Incorporating more online seminars, professional training, and development could be more conductive to the needs of disable educators as well as cost-efficient (Tiveron & Savage, 2018).

Project Description

My findings indicated a PD workshop was needed to provide participants with more researched-based strategies to use to differentiate instruction. Even though two of the nine participants interviewed expressed concerns with the lack of enrichment and acceleration strategies being used within classrooms, many of the strategies that were discussed lacked commonality. The Middle School teachers involved in the differentiation PD will have the opportunity to work in subject areas collaboratively discussing common strategies, exchanging strategies, exploring strategies within certain

lessons, and developing strategies in subject areas that focus more on enrichment and acceleration.

For the four proposed day sessions, participants had opportunities to engage in collaborative discussions about DI and strategies to differentiate instruction. Daily, each session will include formative assessments that allow participants to evaluate each session and a summative will be provided for an overall evaluation measuring the PD.

Proposal for Implementation and Timetable

The PD was implemented over four sessions during the beginning months of the school year. The PD will be announced early by the administration of the school throughout emails, newsletters, and public service announcement. The table represents the time and schedule for the PD. Table 9 provides a quick view of the four sessions. The table presents a visual picture of how each day will accommodate activities for participants to collaborate and create more strategies to DI. The table shows the presenters for each session.

Table 9

Schedule for Implementing Professional Development

Schedule	Activity	Presenter
Session 1	*Overview of the PD and the standard 4 *Common-researched based strategies	* Facilitator
Session 2	*Purpose of the PD and Study findings *Relationship Building *Collaborative Subject Level Groups discussing DI strategies, enrichment and acceleration *Observation/Information: Enrichment and acceleration *Choose your station: Different DI Strategies Tech Liaison time with Tech: Work with technology person for emailing, blogging, and website training *Ticket out the door: Formative Evaluation	*Facilitator Administrator Team leaders
Session 3	*Review *Simulation of Implementing differentiating strategies *Group Discussion *Ticket out the door: Formative Evaluation	*Facilitator Administrator Team leaders
Session 4	*Video Scope on DI *Strategies to use Day 1 *Review *Simulations of DI strategies *DI Strategies Booklet	*Facilitator Instructional coach Team leaders

Note. Four consecutive days

Components of the Professional Development

The first session focused on the overview of DI and teachers working to obtaining a clear understanding in relations to common-research based strategies directly pertaining to standard 4, DI and the six sub standards, with greater interest in the area of enrichment and acceleration and their importance to DI. The second session was a brief review of session one; but, deeply focusing on the -research based strategies along with the use of enrichment and acceleration strategies throughout the standard with all students and not just with students that only demonstrated proficiency. Session three consisted of providing teachers with a list of strategies allowing them to practice using new DI strategies. Opportunities were given to participants to research, design, and compile their own enrichment and acceleration resources to build a library of DI strategies that directly relate to the needs of the participants and the needs of their students. Participants were asked to serve as resources for other teachers. The fourth-day PD heavily reviewed the purpose of the PD and addressed the challenges of providing appropriate enrichment and acceleration strategies for all students.

Potential Resources

The PD resources needed for the four-day sessions consisted of basic items such as paper, pens and pencils, folders, smartboard or dry erase board, zip lock bags, dry erase markers, laptop, textbooks, blackline masters, and projector. The smartboard, dry erase board, and meeting room are resources that are available through the school. As facilitator, I brought the other items along with extra paper, pens, and pencils to ensure that the participants had enough. The location of the PD will be determined by the

school's administrators in efforts of providing adequate time, place. If there were barriers, such as a location in an area without special equipment, I would bring in other portable items, such as video players, extra laptops, and a portable dry erase white board.

Existing Supports

The supports consisted of administrators, lead teachers, and instructional coaches. Also, there was a technology expert available to assist teachers if any problems occur with commuters, websites, or other technology. These tech assistants were important as teachers used the equipment effectively with research and participate in between sessions collaborative conversations.

Potential Barriers

Potential barriers for my PD consist of teacher participation, monetary resources for supplies, time, and availability of equipment as well as location. Teacher participation is important for the PD implementation. Depending on the time and place, teachers may have scheduled conflicts. For instance, during the being of a school year, multiple of meeting are occurring. This time may present a problem for full teacher participation. Monetary barriers can be a factor for implementing a PD that would be conducive for all participants. The lack of a sufficient budget creates limitations on the number of participants that can be served with equipment, materials, space to work, and snacks to eat. Time is a factor and it can be a barrier for reserving the location, equipment, and the availability for all to participants to attend. Then, the location can be a potential barrier to provide adequate space and equipped with necessary resources that all participants need to successfully collaborate and engage within the sessions.

Project Evaluation Plan

An evaluation plan included a series of formative assessments with one summative assessment on the last day. This plan is an integral part of the project because it provides data that drives improvement. The evaluation assessed the validity and quality of the project by highlighting the most useful information to satisfy the project's objectives. Each day a formative assessment will be conducted at the end of the session. Commonly referred to as a "ticket out the door" the participants will be given a form they will hand in as they leave. This is a chance to evaluate their experiences. The form had a place for the participants' name, date, and four questions, "What did you learn today that you did not know?" "What did you like about today?" "What went well today"? "What improvements are needed for the differentiation PD?" At the bottom of the form, was a comment box for any comments. It was pertinent that participants' names are on the ticket out the door (see Appendix E) because it is important to understand who understand or didn't understand the lesson for the day, which drives differentiation PD.

The answers to the ticket out the door questions helped to assure participants' readiness levels are being met session by session. Participants were encouraged to give detail answers to the questions. Daily assessments were quick, frequent, and ongoing in differentiating instruction as they provide the facilitator or classroom teachers with data to make any necessary improvements (Smets, Wouter, & Katrien Struyven, 2018). When participants have autonomy of openly expressing their thoughts and viewpoints about the study, it adds to the effectiveness of the study.

For the final summative assessment, a ten-question survey (see Appendix F) was distributed for participants to complete. The survey was designed to be completed anonymously. This ten-question survey included four short answer questions and seven questions to check one of the following categories: strongly agree, agree, neutral, disagree, and strongly disagree. The following questions were asked: (1) The differentiation PD was helpful in providing useful Enrichment and Acceleration Strategies (EAAS) for students I teach. (2) The differentiation PD provided effective EAAS that would meet the standards or curriculum to differentiate the content, process of teaching the content, the product produced, and the learning environment. (3) The differentiation PD taught me the importance of using EAAS with all the students I teach at some time. (4) The differentiation PD allowed me an opportunity to learn and practice EAAS. (5) The differentiation PD was conducted in such a differentiated way that helped me to better understand how to differentiate instruction for my own students. (6) Because the differentiation PD was differentiated, it was conducted in a way that met my needs as a teacher. (7) I would recommend other teachers to participate in a differentiation PD such as this. For the last three open-end questions, you are asked to elaborate and share as much information as needed. (1) How will the library of EAAS you help to create be beneficial to you and your school? (2) How would EAAS benefit all students; not just, advance, or gifted students? (3) As you continue to differentiate instruction, what area of your lesson would you use EAAS the most, beginning, middle, or end? Why did you make this selection? Throughout the differentiation PD, participants will be encouraged to write questions, comments, or thoughts on posted notes that will serve as anonymously

visible artifacts for discussion starters throughout the sessions. Participants will be encouraged to email questions and share other EAAS to continue building the EAAS library, which will be transparent for administrators, instructional coaches, and other teachers to view and use.

Project Implications

The positive social change implications of this PD project include three major points: (a) meeting students' needs in rural communities (VanTassl-Baska & Hubbard, 2016), (b) empowering teachers with DI strategies they can implement (VanTassel-Baska & Hubbard, 2016) and (c) motivating all students to engage in challenging and interesting tasks (VanTassel-Baska & Hubbard, 2016).

EAAS can engage the learner and give the learner a different perspective of understanding material that may be challenging to learn instead of using the traditional methods of learning such as reading a book and completing a worksheet (VanTassel-Baska & Hubbard, 2016). A differentiation PD requires teachers to be actively involved in the development of these EAAS that will possibly be used with all students (Smets, Wouter, & Katrien Struyven, 2018; VanTassel-Baska & Hubbard, 2016).

Section 4: Reflections and Conclusions

Project Strengths and Limitations

In this section, I focus on the project. I will address how the problem might have been defined differently and potential solutions to the problem. Reflective analysis is also presented regarding personal learning and growth as scholar, practitioner, and project developer. I will reflect on and discuss the overall importance of the work and what was learned. Finally, I will describe the potential impact for positive social change at the appropriate level and relay implications for the social change that do not exceed the study boundaries.

This project provides a PD with enrichment and accelerated strategies for the attending participant teachers. The planned PD will be presented early in the school year to prepare the teachers for the school year. Session 1 provides teachers with a strong overview of the PD and list of researched-based common strategies to use with standard four. Section 2 will be a review of session one along with using relationship-building techniques to build a collaborative atmosphere (see Farrell, 2015; Tomlinson & Moon, 2013). Relationship-building techniques are foundational because the facilitator, administrators, and teachers build a working relationship (Tomlinson & Moon, 2013). Another strength for Session 1 is that all participants will be presented with the purpose and results of the study. Session 2 is important because the teachers can practice strategies they have learned. These simulated events will allow participants to engage in hands-on experiences as they practice differentiation strategies. They will engage in differentiation for their team groups before they use the strategy with their students in

classrooms. Session 3 is important for because teachers will learn and practice additional enrichment activities. The culminating activity is to create a booklet of enrichment DI strategies for the participants to use and to share with their colleagues.

Daily formative assessments will give me data on the teachers' ability and understanding of DI and the PD to purposely meet teachers at their readiness level (Gilson, Little, Ruegg, & Bruce-Davis, 2014; Tomlinson, 2014). The rigorous agenda that alleviates the possibility of wasting time is a strength. Appendix A contains the schedule of events filled with interactive activities such as relationship building, self-inventory activities, power points, website, and technology implementation. The PD will invite participants to share, cooperate, communicate, create, and help each other throughout the process (Gilson et al., 2014). Another strength of this PD is that it will include guest presenters. The attendance of administrators, academic coaches, staff, community leaders, mentors, and parent leaders can have a positive effect on the participating teachers (Gilson et al., 2014. Tomlinson, 2014).

The weakness of the PD may be seen in the traditional delivery of the PD that could be enhanced with video, online activities, or Skype presentations. Another weakness of the PD could be that it may require additional time than what is allotted because of the simulations and collaborative group work. As the facilitator, time must be closely monitored. Lastly, the weakness of the PD is that participants will not have time to enact strategies in their classroom and report back to the group as it is planned for 3 consecutive days. If teachers never use the strategies during a lesson within the school year then the PD is not effective (Paolini, 2015; Tomlinson & Moon, 2013).

Recommendations for Alternative Approaches

An alternative to this PD could be a white paper that would explain the current state of literature on differentiation strategies to the school administration and to the teachers in the district. The findings of this study could be incorporated into a white paper to detail what strategies are currently being used in the middle school. However, the main drawback is that the teachers had so many different strategies, which may cause confusion regarding what strategies would be most useful for meeting the different standards. Thus, the white paper could include strategies that are recommended to be used to meet the different subsections of TKES Standard 4. This could be shared with state officials and refined based on their feedback. Providing teachers with a list of strategies that they should be using for each of the subsections could be helpful to teachers who are trying to meet the TKES and principals who are trying to evaluate teachers on the TKES. This study could also encourage state officials to be clearer about what their expectations for DI are for each of the substandards.

Scholarship, Project Development, and Leadership and Change

This study was focused on strategies middle school teachers use for DI. Because of students' differences, some teachers try to differentiate their instruction (Dikici, 2014). The process of using DI encourages teachers to believe that all students can learn, but students do not always learn in the same way (Paolini, 2015).The data demonstrated that the participants were each familiar with the term DI, and they were trying to implement DI in their classrooms in some format. I also learned that CMS teachers use a variety of strategies to differentiate instruction and that many of them are not using the same

strategies. Three teachers strongly expressed a need for more enrichment and acceleration strategies.

In addition to learning about teachers' DI strategies, this project taught me that the process of doing research includes three main points: (a) research requires an idea, (b) research requires strategic planning, and (c) research requires summarization skills. I have grown as a scholar through this doctoral journey at Walden University. I have developed from searching to basic terms to searching for combinations of terms and using reference lists to locate relevant research. I have grown from a novice researcher to a more professional and confident researcher, learning how to look at the information and understand its purpose to determine what is relevant to my research. I have also learned how to eliminate biases that once occurred when I read information.

In terms of designing a PD, I have learned to appreciate others' needs and serve others instead of planning based on my own opinions of what the PD should include. Differentiation involves considering the readiness level of learners, assessing what learners need. Reading the research literature and encountering the data from this study taught me the importance of moving beyond my own ideas. I have researched, read, and written to learn about the topic of differentiation and many related aspects. Throughout the challenging process of revision, I also developed as a scholarly writer. I gained more understanding and increased comfort with reading and understanding data. My increased confidence in understanding research and in conducting research has led me to be more research-based in my design of the PD unit.

As a practitioner, I am a teacher who is informed by my knowledge of the research. I have developed my teaching skills as I learn to consider my students' readiness levels when planning instruction. As a project developer, I have learned from the literature review regarding the development of PD units. For example, Tiveron and Savege (2018) indicated that the throughout the process of conducting a PD the facilitator should take into consideration the participants' learning and feedback on assessments. In Tiveron and Savege's study, a teacher had the desire to participate but had a disability, so they modified the PD to accommodate this person. This reminded me of the importance of differentiating the method to meet all needs of teachers. Further, Ekinci and Acar (2019) explored the aspect of effective PD that incorporates teachers' needs, goal setting, planning, development process, and evaluation. Each of these needs are supposed to be evaluated and considered continuously and supported throughout the school year (Ekinci & Acar, 2019). Thus, my PD incorporates assessment throughout the sessions, but it would be improved if it could last throughout the school year with additional assessment of teachers' needs, goal setting, planning, and other areas.

From this study and the literature review, I also learned about many different strategies for DI, especially acceleration and enrichment. The data revealed the need for more enrichment and acceleration strategies. Therefore, I designed a project focused on enrichment and acceleration. This allowed me to help the teachers to meet the state standards for TKES Standard 4, especially the substandard dealing with enrichment and acceleration, which can then pass their TKES evaluation.

The overall goal of the PD was to provide the teachers with many enrichment and acceleration strategies that helped them meet the TKES Standard 4 and that were research-based from the literature review that can be used immediately to differentiate instruction (Tomlinson, 2014). Also, I have planned this project in respect to the teachers' readiness level and their interests emphasizing the importance scholarly of enrichment and acceleration. To develop this project I learned about formative and summative assessments that could inform the enrichment and acceleration process. As a project developer, my passion for the topic and this study motivated me to produce a high-quality project. I learned from the many peer-reviewed journals and scholarly resources.

In summary, as a teacher this has aided in my understanding and approach of my own classroom. I have improved as a scholarly writer and grown professionally with my understanding of DI, enrichment, and acceleration. I have developed an attitude that embraces the influence of research on practice and PD design. I believe DI is an important topic in education today. As a developer of this project and a teacher, I recognize the importance of using time efficiently, providing interactive activities, assessing teacher needs, and carefully organizing activities.

Reflection on the Importance of the Work

I will continue to explore the PD and develop of strategies to enhance strengths and repair weaknesses. Reflection is ongoing process to learn what strategies are effective. Reflection can initiate personal and professional learning, which helps build

professionalism. In this case of the work done in this study, the reflection will be about several aspects.

The work is important because it includes a review of current research-based DI strategies. This is useful because it is organized into general DI strategies as well as content-based DI strategies. This could be very useful to teachers wanting to increase their repertoire of DI strategies. In addition, the second literature review also includes an extensive review of strategies for enrichment and acceleration because the data demonstrated that teachers wanted more knowledge of those. Therefore, this work is important because it organizes and reviews the current research on DI strategies, with an emphasis on the area of enrichment and acceleration.

This literature review was important for my PD because it helped me to learn from peer reviewed literature. This process provided opportunities for me to read and evaluate studies, which strengthened my critical thinking skills. This process of researching DI strategies increased my own knowledge of DI. I am now equipped with more DI knowledge to better teach my own students. I was familiar with the topic before the study, including attending an introductory workshop. After this learning experience, I am more aware of the topic of DI and the impact it has on education. I have always believed that all students could learn with the correct strategies and approaches. The literature has provided evidence that DI strategies can help all students learn.

This work was also important to my growth as a middle school teacher. I gained more knowledge and understanding as I researched the topic of DI. As I learned, I applied the knowledge and resource of information to my own classroom. I noticed how

my growth impacted my classroom teaching. Specifically, it increased my patience with students and increased my use of assessment to meet their needs. In general, the research has indicated that DI is challenging and takes several years to learn to implement as a teacher. This perspective helped me as a PD project developer because I designed the PD with patience in mind. As a facilitator I will try to avoid criticism of participants and endeavor to be patient and supportive.

This work was also important because I learned to be a better listener. These listening skills are important for research, for using DI in the classroom, and for delivering the PD that I developed. My case study required listening to teachers and document the findings of the strategies other middle school teachers used to differentiate instruction.

The findings of this study are also an important part of the work. The problem of this study was the administrators at this study site did now know what DI strategies teachers were using, or if they needed PD. The findings indicate that the teachers do have many DI strategies but that they are all different strategies. The strategies that teachers shared met the different substandard of the TKES, but using different strategies. This may have implications for the school in that the administrators may want to have some strategies in common across teachers to meet the TKES. The teachers all shared DI strategies and discussed that they were using each of the TKES sub-standards in their classroom on a regular basis. The one area that three of the nine teachers expressed strong interest in learning more about was enrichment and acceleration. This was important

because as the literature review revealed, this is a problem for rural communities

(Horsley & Moeed, 2018). This finding led to the creation of the PD project.

The importance of the PD project is that it may provide teachers with research-based enrichment and acceleration strategies (Horsley & Moeed, 2018). I developed a PD of DI enrichment and acceleration strategies that can be effectively used. Through the use of multiple search engines and many research articles, I have learned strategies that will be helpful to participants in providing more enrichment and acceleration strategies (Horsley & Moeed, 2018) targeting the challenging areas of learning within their classrooms.

Implications, Applications, and Directions for Future Research

The positive social change that could occur from this study could be at the organizational level as the administrators could request that all of the teachers participate in the PD designed in this project study. The positive social change that could happen at the classroom level could come from teachers reading the literature review detailing the many DI strategies or from participating in the PD project. The PD project could be offered and delivered to teachers, but it would depend on each teacher implementing what they had learned in order to be positive social change. A differentiated classroom could lead to a more positive social change as teachers are encouraged to use many different teaching strategies to DI. With these strategies, teachers are able to provide students an opportunity to learn based on their readiness level, ultimately families will be positively impacted by witnessing their child succeed academically.

When a teacher uses a differentiated approach this can decrease student frustration and increase motivation. This well-educated student may continue to become a productive citizen. This citizen may contribute to systemic growth throughout the community they chose to live. A strong productive citizen will possibly help make decisions for the community, in government, education, business, neighborhoods, and other important entities that operates a city.

Methodological implications of this study are primarily that deductive qualitative methods may lead to the development of quantitative methods to catalogue the vast array of DI strategies that teachers may be using. This study began as an inductive qualitative study but there was great variability in the data that indicates there are few common strategies that would be noted as themes in common across the teachers. Thus there is a need for methods that can address the wide variety of strategies. Additional methodological suggestions may include the need for doing larger quantitative studies of the DI strategies that teachers may use in common. It may be that case study interviews are unlikely to capture the strategies that teachers use in common because the focus is on the individual person's classroom. This study found a wide variety of strategies and it may be that there are some that teachers have in common that they chose not to mention in their answers. There are no apparent theoretical implications from this study. It may be that DI is so broadly defined that it is unlikely that teachers would share common DI strategies, but this would not change the theory in any way.

This study indicated that the teachers used a wide variety of strategies. Data showed that some teachers want enrichment and acceleration strategies. The PD project

was developed to address this. Ultimately the empirical implications depend on how the stakeholders continue to develop and implement DI strategies according to the TKES for teachers. It may be that there are a set of common strategies that the stakeholders want teachers to have for each of the sub-standards, but that is not clear. If they did, then they could provide DI PD to disseminate what those common strategies are. The implication requires an understanding that the process isn't dependent upon one person; but student and teacher proficiency levels requires a team effort that's committed to the whole differentiated process.

In terms of recommendations for future practice, it is important to note that many teachers spend time and energy in the remediation mode: reteaching, redoing, and retesting. But EAAS strategies should also have a place in the classroom. Teachers should be trained on planning collaboratively and reviewing data to learn the readiness levels of students to use EAAS activities where appropriate. To support the efforts and serve teachers, it's crucial that administrators take a strong interest in understanding the strategies that their teachers are using to differentiate instruction. Developing more EAAS should be an ongoing process for all stakeholders.

Recommendations for further research includes using the TKES evaluation data to cumulatively acknowledge if there are any DI strategies that teachers are currently using in common. The data in this study revealed a wide variety of strategies and it could be useful to know if there were any common DI strategies that teachers used. Another potential area for research would be to determine if administrators and policy makers would share any common DI strategies for teachers to use for each of the TKES sub-

standards. It might important for people who are evaluating using the TKES sub-standards to know what DI strategies they should be looking for when they observe teachers' practices. Alternatively, it might be important to recognize that there will be a wide variety of DI strategies used and that they are all considered valid.

Conclusion

As I summarize my doctoral journey, I am thankful that I developed as a scholar, practitioner, and project developer across the course of this dissertation. This has provided me with knowledge to help other teachers. I have assessed this project study. I realize there are strengths as well as limitations to this study. I also realize that DI is an ongoing study that can be challenging and complex. It takes years to learn how to differentiate effectively. Reading the research of many scholars has helped to accelerate my understanding and use of DI. Several authors have spent extended time studying DI including Carol Ann Tomlinson. She provided clear definitions of DI and practical guidance on how to implement DI in my own classroom. I believe that I am capable and qualified to share my findings with those in my profession. I believe that with my passion, leadership skills, knowledge, and understanding, I can help teachers use DI in their own classrooms with students that are different. The work of this study will continue as I move forward in my career as a PD provider and design and implement DI PD units for other teachers I will share with teachers how to motivate their students to learn through differentiating instruction, so that all students can learn. The research indicated that many teachers were knowledgeable of DI and implemented DI strategies

frequently within their classrooms. This is a foundation that can be built upon to equip

teachers to use common effective strategies.

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Appendix A: The Project

A Case Study of Middle School Teachers' Use of Differentiated Instruction Strategies
Enrichment and Acceleration Strategies
Differentiated Instruction
Felecia George Prince, Ed.D. Student

Introduction
Purpose
▶ To help teachers gain a clear understanding concerning enrichment and acceleration
▶ To share the importance of using enrichment and accelerated strategies.
▶ To provide teachers with enrichment and accelerated strategies.

Target Audience

▶ Teachers
▶ Administrators
▶ Paraprofessionals

Time Frame
▶ Early school year
▶ Three Day PD

Supplies
▶ Laptop
▶ Writing tools
▶ Resource or Textbooks

Day 1-8:00 am -3:00pm
Today, being the first day, participants will be introduced to standard four and the six sub-standards that follow. Also, participants will learn about common research-based strategies and how those strategies effectively fit each of the six standards.

▶ **8:00am-8:30am: Registration and Breakfast/with music in background**
"Let's get Physical" brief workout
Introduction and Learning Target
Purpose of PD/

▶ **8:30am-9:00am: Differentiated PD: How does that look?**
Introduction and Learning Target

> Common Researched-based Strategies
> Content, process, product, and learning environment
> According to readiness, interest, and learning style.
> "The Class Store"

- ▶ **9:00am-9:30 am: Ice Breaker "Accountable Talk"**
- ▶ **9:30am- 9:35am: Bathroom/Snacks**
- ▶ **9:35am – 12:00pm: Working in collaborative groups: (Grade level/Subject)**
  > Watch a Movie/Video "Differentiated Classroom"
  > Building A Differentiated Classroom: Hands on
  > Review the day: Ticket Out the Door
  > Lunch and End of day

Day 2- 8:00am - 3:00pm

Beginning with relationship building techniques which are foundational in creating an effective differentiated PD that's useful for participants and prepare mindsets for understanding the importance of implementing enrichment and acceleration strategies.

- ▶ **8:00am-8:30am: Registration and Breakfast/with music in background**
  > Self-inventory: "ALL ABOUT ME"!
  > Posted Note: Why are you here? Complacent, Buy-in

- ▶ **8:30am-9:00am: Introduction and Learning Target**
  > Purpose of PD/Enrichment and Acceleration
  > Content, process, product, and learning environment
  >   According to readiness, interest, and learning style.
  > Incentive shop
- ▶ **9:00am-9:30 am: Ice Breaker: "That's Me":**
  > Example: Someone that's traveled out of the country.
- ▶ **9:30am – 9:35am: Bathroom/Snacks**
- ▶ **9:35am – 10:30am: Working in collaborative groups: (Grade level/Subject)**

> Questions in a bag to each group, markers, poster paper,
> and tape
> 6 questions in the Ziplock bag:
> - ▶ **What is Enrichment?**
> - ▶ **What is Acceleration?**
> - ▶ **Common research-based strategies**
> - ▶ **What are similarities and differences in the two terms?**
> - ▶ **What are some challenges teachers may experience by implementing enrichment and acceleration activities?**

► **Do you see that these activities maybe lacking with in a classroom? Why?**

► **10:30am –11:30am: Group Share the Inventories
"Why are the Inventories Relevant"?**

**Review Learning Target; TKES and
Enrichment/Acceleration:**

**What is the difference between
Enrichment and Acceleration?**

===
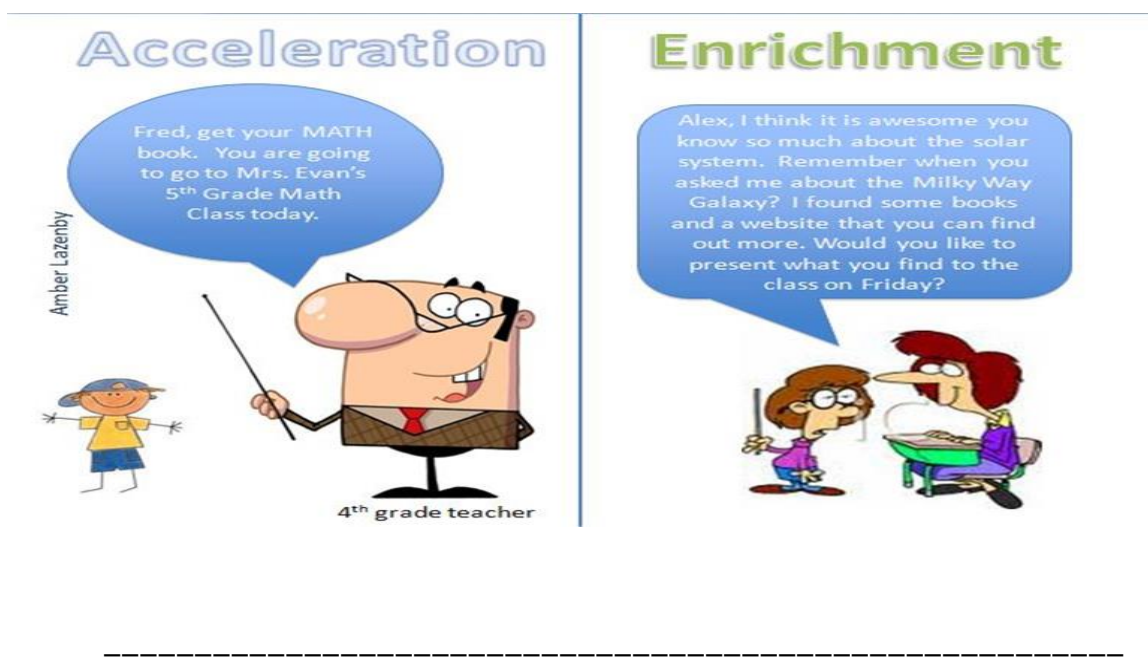
Observing the Picture Below:

What do you see happening in this classroom?
Does this picture represent your classroom?
Do you observe the differentiation, enrichment, acceleration?
**Do you observe any of the content, process, product, and learning
environment being met with in this picture?**

► **11:30am -12:00 pm: Share/Review/Simulate**

► **12:00pm -1:00 pm: Lunch**

► **1:00pm-2:00pm: "Your Choice; Your Station": (Select 3)**
20min. Per station

1."Gaming It"   4. "High Tech"
2."Musical Standards" 5."ART –R- US"
3."Tasty Treat"   6."Plays and Skits"

Work with collaborate group in each station; before signaled to move to another station. Share and Discuss the "It's Your Choice Activity" based on content, process, product, and learning environment.

► **2:00pm-2:05pm: Break**
► **2:05pm – 2:50pm: Technology Time: Set up a site for resources**
A Tech Liaison will be available to help.

Research Enrichment, and Acceleration Strategies
to present on Day 2 for WHOLE Group Participation
Simulations

Email them to build a RESOURCE SITE
Tech/Support/Blog/Email

▶ **2:50pm – 3:00pm: Review/Ticket out the Door**

Day 3: 8:00am - 3:00pm

▶ **8:00am-8:30am: Arrival; Breakfast/with music in background**

▶ **8:30am-9:00am: Greetings; Review Learning Target for this day:**
   Review of Day 1 with a quick assessment using colored cups;
   Review data results from day 1 survey

▶ **9:00am-10:30am: Simulation of Implementing Strategies**
      Enrichment/Acceleration
      Rubric Designs!!
      Strategy: Share (Bathroom Break is needed)

   (Picture from Day 1 as a Review)

   Participant/Teacher Led/Group Led (Previously Chosen)

   TICKET OUT THE DOOR

▶ **10:30am-10:45am: Bathroom/snacks**

▶ **10:45am- 11:45am: Review Strategies/**
       Share slides of Helpful Resources
       Administrators/Instructional Coach:
       Evaluation, Issues, Discussions, Suggestions
     for Enrichment and Accelerated Strategies to Remember

▶ **11:45am-1:00pm: Lunch**

▶ **1:05pm -2:35pm: Simulation of Implementing Enrichment/Acceleration**
       Strategy: Share (Bathroom Break is needed)

       (Picture from Day 1 as a Review)

       Participant/Teacher Led/Group Led (Previously Chosen)

       Evaluate and Discuss
▶ **2:35pm-2:45pm: Break/Bathroom/Snack**
▶ **2:45pm-3:00pm: Group Discussion of the Day; Sharing strengths and**
       weaknesses

       Ticket Out the Door

       Day 4: 8:00am - 3:00pm

▶ **8:00am-8:30am: Arrival; Breakfast/with music in background**

▶ **8:30am-10:00am: Greetings; Review Learning Target for this day**
       Review of Day 2 with a quick assessment using colored popsicle
       sticks/cups; enrichment and acceleration
       Video: Classroom with Enrichment/Acceleration
       Discuss and Evaluate the video

▶ **10:00am-10:15am: Bathroom/Snacks**

▶ **10:15am-11:30am:Continue to compile a library of standard-based**
enrichment and accelerated activities that can be used in classrooms based
on content, process, product, and learning environment according to
readiness, interest, and learning style.

▶ **11:45am-1:00pm: Lunch on your own**

▶ **1:00pm-2:30pm: Discuss/Review "Simulations"**

Group Discussions using large posters/Add common researched-based strategies to the DI standards.
Acceleration based on content, process, product, and learning style.

- **Share Resource Site of Enrichment/Acceleration**
- **Printed Copies of the Booklet: Enrich/Accel**
- **Teachers/with instructions/videos or illustrations**
- **of the PD with all participants in different**
- **roles/group/Discussion**

▶ **2:30pm-2:40pm:Bathroom/Snack**
▶ **2:40pm-3:00pm: Incentive Shop**
       Evaluation of PD

Professional Development

A Case Study of Middle School Teachers' Use of Differentiated Instruction Strategies

Enrichment and Acceleration Strategies

Differentiated Instruction

Felecia George Prince, Ed.D. Student

Session 1 Schedule

- ► 8:00-8:30am: Registration and Breakfast/with music in background
- ► 8:30-9:00am: Introduction and Learning Target: Purpose of PD/Enrichment and Acceleration; Incentive shop
- ► 9:00-9:30 am: Scavenger Hunt
- ► 9:30 – 9:40: Bathroom/Snacks
- ► 9:40 – 10:30: Self-inventory and interests quiz; The "Me Collage"; Snacks (Bathroom Break)
- ► 10:30 – 11:30 am: Review Learning Target/ TKES and Enrichment/Acceleration
- ► Working in collaborative groups(humdingers)/share/Activity: Agree/Disagree/Maybe/Maybe Not

- ► Questions in a bag to each group, markers, poster paper, and tape
   - *What is Enrichment and Acceleration?
   - *What are similarities and differences?
   - * Give an example or each.
- ► 11:30 -1:00 pm: Lunch
- ► 1:00-2:15: "It's Your Choice": Teachers will choose 3 stations: There will be 20min. Per station
   - "Gaming It"   "High Tech"
   - "Musical Standards"   "ART –R- US"
   - "Tasty Treat"   "Plays and Skits"

Work with collaborate group in each station; before signaled to move to another station

- ► 2:15-2:30: Break
- ► 2:30 – 3:00: Share and Discuss the "It's Your Choice Activity"; DI, Enrichment, and Acceleration. Also/Tech Approach/Support/Email
- ► 3:00 – 3:15: Ticket out the Door

Day 1: Session Starter

▶ Register at the front table by the door

▶ Fix your breakfast from the table

▶ Choose a seat at the round table

▶ Write your name on the "Hello" sticker

▶ Complete the "All About Me" Sheet

"All About Me"

Please answer the questions on your "All About Me" Sheet.

One key to fostering a learning environment that promotes academic success among students is relationship-building. (Farrell, 2015)

▶ What is your full name?

▶ What name do you prefer to be called?

▶ List your favorites:

· Food _____

· TV Shows _____

· Movies _____

· Clothes to wear _____

· Vacation spots _____

· Other fun things _____

_____

Fill in the blanks

▶ When I get mad, I _____

▶ School is _____

▶ The older I get, the more I _____

▶ Something unique about me is _____

▶ I learn best by _____

▶ I hope this PD will provide me _____

_____

Introduction: Categories From Analysis Organized According to the TKES Standard 4 with Sub-Standards

		Analysis Categories
4.1	Differentiates the instructional content, process, product, and learning environment to meet individual developmental needs.	I. Content strategies II. Process Strategies III. Product Strategies IV. Learning Environment Strategies
4.2	Provides remediation, enrichment, and acceleration to further student understanding of material.	I. Remediation Strategies II. Enrichment & Acceleration Strategies
4.3	Uses flexible grouping strategies to encourage appropriate peer interaction and to accommodate learning needs/goals.	I. Flexible Grouping Strategies
4.4	Uses diagnostic, formative, and summative assessment data to inform instructional modifications for individual students.	I. Diagnostic Assessment Strategies II. Formative Assessment Strategies III. Summative Assessment Strategies
4.5	Develops critical and creative thinking by providing activities at the appropriate level of challenge for students.	I. Critical and Creative Thinking Strategies
4.6	Demonstrates high learning expectations for all students commensurate with their developmental levels.	I. High Expectations with Developmental Level Strategies

Purpose of the PD

▶ To help teachers gain a clear understanding concerning enrichment and acceleration

▶ To share the importance of using enrichment and accelerated strategies.

▶ To provide teachers with enrichment and accelerated strategies.

What do you see happening in this classroom?
Does this picture represent your classroom?
Would you describe this classroom as a product
of differentiation?

Target Audience

▶ Teachers
▶ Administrators
▶ Paraprofessionals

PD Schedule

▶ Early school year
▶ Four Day PD

Common researched-based strategies

Instructional Strategy	Description	Examples
Higher-Level Questions	Fostering a deeper learning and engagement by asking questions with more complexity to enhance learning beyond readiness	*engage students on the levels of Blooms emphasizing the combination of type of questions, content, process, product, and thinking that drives the narrative and rigor.
Student Discussion	Moving questioning beyond the traditional style where teachers ask the questions and students give a response to the question ; students formulate questions from concepts or the content to ask during the "moving discussions"	*talk moves, accountable talk, Socratic seminar(big ideas), teacher step back where the primary responsibility of the discussion is based on the learner.
Concept-Oriented	Promoting the depth of concepts and knowledge	*conceptual thinking, visual learning, patterns and relationships, evaluating, and understanding based on supportive evidence, solving a problem or creating a new product
Critical and Creative Thinking Skills	Analyzing concepts and formulating new ideas; gathering and generating ideas	*classifying, comparing and contrasting, generating possibilities, creating metaphors, reasoning, analogies, cause and effects, inferencing and making decisions
Problem-Based Learning (PBL)	An approach to curriculum and instruction that can be complexed and challenging; but, engages with real-world learning, working with non-structured in a time frame with designated deliverables	*Utilizing some of the critical and creative thinking, to solve "real-world" problems, exploration, examining ideas, and hypothesizing

178

Note. Common researched-based strategies (Little, 2018)

Independent Study	Pursing information around specific topics reflecting on key elements, also offers personal development opportunities to promote deeper thinking.	*metacognition, content indepthness, development of disciplines, focus on more student interests, flexibility, going beyond the school, mentorships
Grouping	Students working together in a particular setting, such as flexible grouping which is common to DI; Grouping will need careful planning based on data	*flexible, whole class, partners, use with a multiple of content and instructional areas, cooperative groupings,
Vocabulary Instruction	Understanding words, definition, or explanation of words; using various of methods	*Word walls, vocabulary circles, completing vocabulary charts, using graphic organizers (Link, 2019) and word games
Acceleration	The speed of learning concepts, moving faster (Khalaj-Le Corre, 2013).	*expansion of a concept after evidence of understanding
Enrichment	Enhancing a concept; adding value to it; expand beyond (Horsley & Moeed, 2018)	*Using any of the instructional strategies and expand the knowledge higher, more rigorous, or creative levels

TKES Standard 4: Differentiation
Substandard 4.1

" **Differentiates the instructional content, process, product, and learning environment to meet individual developmental needs** "

Three Common Research-Based Instructional Strategies

Higher Level Questions   **Vocabulary Instruction**   **Problem-based Learning**

TKES Standard 4: Differentiation
Substandard 4.2

" Provides remediation, enrichment, and acceleration to further student understanding of material. "

Three Common Research-Based Instructional Strategies

Enrichment   **Acceleration**   **Independent Study**

TKES Standard 4: Differentiation
Substandard 4.3

" Uses flexible grouping strategies to encourage appropriate peer interaction and to accommodate learning needs/goals. "

Three Common Research-Based Instructional Strategies

Grouping   **Student Discussions**   **Problem-based**

TKES Standard 4: Differentiation

Substandard 4.4

" Uses diagnostic, formative, and summative assessment data to inform instructional modifications for individual students. "

Three Common Research-Based Instructional Strategies

Higher Level Questioning   Critical and Creative Thinking Skills   Concept- Oriented

TKES Standard 4: Differentiation
Substandard 4.5

"Develops critical and creative thinking by providing activities at the appropriate level of challenge for students. "

Three Common Research-Based Instructional Strategies

Problem-Based Learning   **Enrichment**   **Critical and Creative Thinking Skills**

TKES Standard 4: Differentiation

Substandard 4.6

" Demonstrates high learning expectations for all students commensurate with their developmental levels. **"**

Three Common Research-Based Instructional Strategies

Concept-Oriented   **Higher-Level of Critical Thinking Skills**   **Acceleration**

Goals

▶ Define and understand enrichment and acceleration

▶ Provide enrichment and acceleration strategies

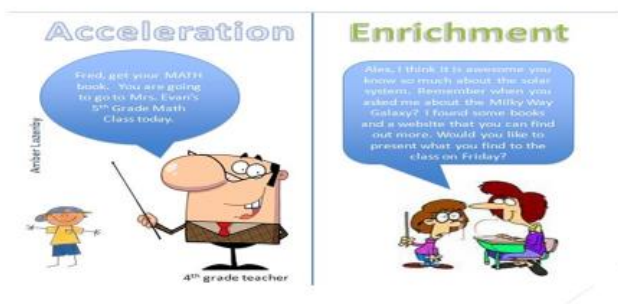▶ Provide time to collaborate, research, and practice strategies for enrichment and acceleration

What is the difference between Enrichment and Acceleration?

▶ **ENRICHMENT**
means that the student is working on a topic in more DEPTH or BREADTH than others.

▶ **ACCELERATION**
means that the student is advancing in a subject more QUICKLY than others.

Day 2:

- ▶ 8:00-8:30am: Arrival; Breakfast/with music in background
- ▶ 8:30-9:00am: Greetings; Review Learning Target for this day: Review of Day 1 with a quick assessment using colored cups; review data results from day 1; Discussion of Day 1; enrichment and acceleration; differentiated;
- ▶ 9:00-9:30: Game of Enrichment/Accelerated Family Feud or Complete an enrichment/accelerated crossword/word find puzzle/
- ▶ 9:30-9:40:Bathroom/snacks
- ▶ 9:40 – 10:30: Take a strong view of common strategies used for DI and Resources for Enrichment and Accelerated Activities: Teacher participants change roles to the teacher leader as I facilitate:

- ▶ 10:30 -10:45: Break
- ▶ 10:45-12:00: Work in teams developing effective strategies for enrichment and acceleration that relates to subject area; encouraged to make an electronic file
- ▶ 12:00-1:15: Lunch
- ▶ 1:15 -2:15: Demonstrate for the whole group how the strategy works. Everyone is expected to participate
- ▶ 2:15-2:30: Break/Bathroom/Snack
- ▶ 2:30-3:00: Group Discussion of the Day; Sharing strengths and weaknesses
- ▶ 3:00-3:15: Ticket Out the Door

Session 2: Good Morning! Breakfast is Served!

▶ **Learning Target for this day:**

What are enrichment, acceleration, and differentiation?

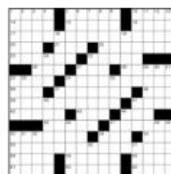▶ Review of Session 1 with a quick assessment using colored cups:

There are 6 sub-standards. Green cup up if you know all 6. Yellow cup if you know at least 3. Red cup if you can't remember.

▶ Review data results from day 1

▶ Discussion:

· Enrichment

· Acceleration

· Differentiated

▶ Game of Enrichment/Accelerated Family Feud or Complete an enrichment/accelerated crossword/word find puzzle/
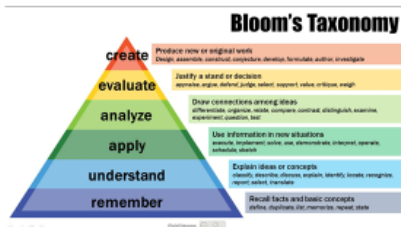

Common researched-based strategies

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Note. Common researched-based strategies (Little, 2018)

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Enrichment	Enhancing a concept; adding value to it; expand beyond (Horsley & Moeed, 2018)	*Using any of the instructional strategies and expand the knowledge higher, more rigorous, or creative levels

Higher Level of Thinking

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LIST FIVE HIGHER LEVEL OF THINKING ACTIVITIES THAT COULD BE USE WITH YOUR STUDENTS:

1.

2.

3.

4.

5.

TALK MOVES

Take a strong view of common strategies used for DI and Resources for Enrichment and Accelerated Activities: Teacher participants change roles to the teacher leader as I facilitate:

1. Which common research-based strategies would be utilized more often with an activity such as Talk Moves?

TEAMWORK!

▶ DEVELOP
▶ DEMONSTRATE
▶ DISCUSS

TICKET OUT THE DOOR

▶ What is a common researched-based instructional strategy?

Day 3

▶ 8:00-8:30am: Arrival; Breakfast/with music in background

▶ 8:30-9:15am: Greetings; Review Learning Target for this day: Review of Day 2 with a quick assessment using colored popsicle sticks/cups; enrichment and acceleration; differentiated

▶ 9:15-9:25:Bathroom/snacks

▶ 9:25 – 10:25:

▶ 10:25-10:30: Break/Bathroom/Snacks

▶ 10:30-11:30: "Simulation"; A differentiated classroom design with enrichment and acceleration

▶ 11:30-1:00: "Potluck" Lunch

▶ 1:00 "The Talk Show of Enrichment and Acceleration"; All will participate; I will serve as Host with participants as panelists; audience, and expert guests/Very interactive discussion

▶ 2:30 – 3:00: Share a slide show of the PD with all participants in different roles/group/Discussion

▶ 3:00 – 3:15: Evaluation of PD

Breakfast is Served!!

▶ Popsicle Review

▶ Got it! Green

▶ Got some of it; but not all of it! Yellow

▶ Need some help with it! Red

Differentiated Classroom Simulation
DO YOU SEE WHAT I SEE?

What do you see happening in this classroom?
Does this picture represent your classroom?
Would you describe this classroom as a product
of differentiation?

TEACHER SIMULATION OF A DIFFERENTATED CLASSROOM

- ❑ Create a lesson.
- ❑ Each team member choose a job.
- ❑ Name things you see that would meet your readiness level, interest, and learning environment for your lesson.

TALK SHOW

▶ **HOST**: FELECIA GEORGE PRINCE

▶ **SPECIAL GUESTS**:
▶   **ALL TEACHER**
▶   **PARTICIPANTS**!!

TALK SHOW QUESTIONS

1. What are some of your interest?
2. What motivates your interest?
3. What are some challenges with differentiated instruction in your classrooms?
4. After learning about some common strategies that should be used in a differentiated classroom, which would work best with your students?
5. Why is differentiated instruction such a powerful matter of the mind?

▶ **Each audience member will create a question for the panelist of expert differentiators.**

Day 4

8:00am-8:30am: Arrival; Breakfast/with music in background

8:30am-10:00am: Greetings; Review Learning Target for this day with a quick assessment using colored popsicle sticks/cups; enrichment and acceleration

Video: Classroom with Enrichment/Acceleration
        Discuss and Evaluate the video

10:00am-10:15am: Bathroom/Snacks

10:15am-11:30am:Continue to compile a library of standard-based enrichment and accelerated activities that can be used in classrooms based on content, process, product, and learning environment according to readiness, interest, and learning style.

11:45am-1:00pm: Lunch on your own

1:00pm-2:30pm: Discuss/Review "Simulations"   Group Discussions using large posters/Add common researched-based strategies to the DI standards. Acceleration based on content, process, product, and learning style.

- Share Resource Site of Enrichment/Acceleration
- Printed Copies of the Booklet: Enrich/Accel
- Teachers/with instructions/videos or illustrations
- of the PD with all participants in different
- roles/group/Discussion

2:30pm-2:40pm:Bathroom/Snack
2:40pm-3:00pm: Incentive Shop
        Evaluation of PD

BREAKFAST IS SERVED!

► WHAT WOULD BE THE CAPTION?

► HOW WOULD YOU DESCRIBE THIS PICTURE?

► WHAT WOULD CREATE THIS REACTION IN YOUR CLASSROOM?

► CAN YOU RECOGNIZE THESE STUDENTS LEARNING LEVELS?

What common research-based strategy or strategies could best represent this picture? **Higher level of Questions, Critical Thinking, Student discussion, Concept-Oriented, Critical and Creative Thinking Skills, Problem-based learning, Independent Study, Grouping, Vocabulary Instruction, Acceleration, and Enrichment.**

MOVIE TRALIERS
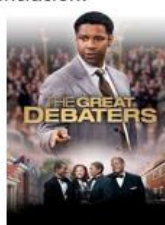## DIFFERENTIATION, MOTIVATION, ACCELERATION, ENRICHMENT

FREEDOMS WRITERS

▶ https://youtu.be/JhXMJlm852A

Discuss this trailer in the areas of differentiation.

GREAT DEBATORS

▶ https://youtu.be/IN2AGZThL-8

Discuss this trailer in the areas of differentiation.

THE LIBRARY OF STRATEGIES
FOR
DIFFERENTIATION   ACCELERATION   ENRICHMENT

CONTENT, PROCESS, PRODUCT

According to the

Readiness

Interest

Learning Environment

More Simulations of Differentiated Instruction:

Video
- https://youtu.be/J8DQugVxHv0

List 5 things you see:
- 1
- 2
- 3
- 4
- 5

CREATING MOTIVATING POSTERS of DIFFERENTIATED INSTRUCTION
DI

Differentiation Class Poster

There will be times when ...
WE ALL DO THE SAME THING.
SOME DO DIFFERENT THINGS.
WE ALL WORK TOGETHER.
YOU WORK ALONE.
YOU CHOOSE FOR YOURSELF.

We differentiate in response to the learner's ...
LEARNING PROFILE
INTEREST
READINESS

DIFFERENTIATED INSTRUCTION

FAIR ISN'T everybody getting the same thing
FAIR IS ... everybody getting what they need in order to be
SUCCESSFUL.

Summarizing

THANK YOU FOR YOUR PARTICIPATION!!

Differentiation Works, but it takes time and patience.

DPD SURVEY
ENRICHMENT AND ACCELERATION STRATEGIES (EAAS)

Felecia George Prince, facilitator

Statements	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
The DPD was helpful in providing useful EAAS for students I teach.					
The DPD provided effective EAAS that would meet the standards or curriculum to differentiate the content, process of teaching the content, the product produced, and the learning environment.					
The DPD taught me the importance of using EAAS with all the students I teach at some time.					
The DPD allowed me an opportunity to learn and practice EAAS.					
The DPD was conducted in such a differentiated way that helped me to better understand how to differentiate instruction for my own students.					
Because the DPD was differentiated, it was conducted in a way that met my needs as a teacher.					
I would recommend other teachers to participate in a DPD such as this.					

For the last three open-end questions, you are asked to elaborate and share as much information needed.

1. How will the library of EAAS you help to create be beneficial to you and your school?

2. How would EAAS benefit ALL STUDENTS; not just, advance, or gifted students?

3. As you continue to differentiate instruction, what area of your lesson would you use EAAS the most, beginning, middle, or end? Why did you make this selection?

Final Comments:

Thank you!

Appendix B: Choice Board Example

Name: _____ "Think-Tac-Toe"
Select and complete activities from the choice board in a tic-tac-toe design. When you complete the activities in a row you may decide to be finished. Or you may decide to keep going and complete more activities.

Design a building using only squares, triangles, rectangles, or circles. Name the building.	Create a power point about a famous landmark in the world.	Use a Venn Diagram to compare and contrast two monuments of your choice.
Draw and design a monument celebrating a person, place, or event of your choice. In your writer's notebook, write about the monument that is the most significant to you.	Pretend you are visiting a monument. Write about your visit. Create an itinerary of your trip, including your travel destinations.	Act out, a famous person using puppets. Create a simulation of the famous person and how he or she felt about their monument.
Draw a picture of the person, standing next to the monument.	Draw pictures or collect pictures of other famous monuments and create a scrapbook of these places. Label each one.	Choose a monument. Study the economics involved in creating the monument. List the researched materials and cost if provided of constructing this major project. Place all your findings in a notebook.

Appendix C: Script for Teacher's Meeting

Greetings (Good Evening),

Thank you, Mr. XXXXX, for allowing me to come today and have a few minutes to speak to your faculty and staff. I appreciate being given permission from Mr. XXXXX, Dr. XXXXXX, and Now, Dr. XXXXXX.

The purpose for my being here today is to ask for your help and support as I complete my doctoral study.

My study is on ways that a variety of teachers use differentiated instruction. We are going to narrow it down, by differentiating ability levels. To make it easy, ability levels will be determined by course grade.

You will be asked for an interview related to the TKES evaluation. Two examples questions are below:

1. Did you do any remediation, enrichment, or acceleration? Give examples of how this was conducted.

2. Can you describe your system for grouping students? Do these groups ever change? Why or why not?

The process will be professionally operated, and I will respect your time when we conduct interviews.

Also, you will be asked to create your own pseudonym to protect your identity.

If you choose to be in the study, you will be required to sign the consent form that has been passed out.

You will be compensated with a $20.00 gift certificate from TJ Max and a decorative teacher's bag filled with pens, pencils, notepads, water, candies, napkins, hand sanitizer, stickers, and a motivational poem (I will show the bag).

Again, thank you in advance.

Felecia

Appendix D: Interview Questions and Alignment with DI Standard 4

	Standard	Question for participant
4.1	Differentiates the instructional content, process, product, and learning environment to meet individual developmental needs.	How do you define DI? Please tell me about how you differentiate four different things to meet individual learning needs. Let's talk about them one at a time. (show paper with list) They are the content, process, product and learning environment. Let's start with how you differentiate content? Next, how do you differentiate the learning process? Next how do you differentiate the learning products? Last how do you differentiate the learning environment?
4.2	Provides remediation, enrichment, and acceleration to further student understanding of material.	I'm going to ask you to tell me about three things you do to help your student understand material or required standards. (Show on paper) These three things are: remediation, enrichment, and acceleration. So first, What remediation do you provide for your students to understand the material or required standards? Second, What enrichment do you provide for your students to understand the material or required standards? Last, What acceleration do you provide for your students to understand the material or required standards?
4.3	Uses flexible grouping strategies to encourage appropriate peer interaction and to accommodate learning needs/goals.	Do you use flexible grouping strategies? Do think flexible grouping strategies can encourage appropriate peer interaction? Do you have any examples from your classroom? Do think flexible grouping strategies can accommodate your learners' needs/goals? Do you have any examples from your classroom?
4.4	Uses diagnostic, formative, and summative assessment data to inform instructional modifications for individual students.	How do you use diagnostic, formative, and summative assessment data to inform instructional modifications for your individual students? Let's talk about one at a time. (Show on paper) How do you use diagnostic assessment to inform instructional modifications? Next, how do you use formative assessment to inform instructional modifications? Finally, how do you use summative assessment to inform instructional modifications?
4.5	Develops critical and creative thinking by providing activities at the appropriate level of challenge for students	What critical and creative thinking strategies do you develop that challenge the appropriate levels of your students?
4.6	Demonstrates high learning expectations for all students commensurate with their developmental levels.	In what ways, do you demonstrate high learning expectations for all your students corresponding with their developmental levels?

Appendix E: Ticket Out the Door

Differentiation PD: ENRICHMENT AND ACCELERATION

TICKET OUT THE DOOR:

NAME_____

DATE_____

1. "What did you learn today that you did not know?"

2. "What did you like about today?"

3. "What went well today"?

4. "What improvements are needed for the differentiation PD?".

All COMMENTS are welcomed:

Appendix F: Differentiation Professional Development Survey

DIFFERENTIATION PROFESSIONAL DEVELOPMENT (DPD) SURVEY
ENRICHMENT AND ACCELERATION STRATEGIES (EAAS)

Felecia George Prince, facilitator

Statements	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
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The DPD provided effective EAAS that would meet the standards or curriculum to differentiate the content, process of teaching the content, the product produced, and the learning environment.					
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2. How would EAAS benefit ALL STUDENTS; not just, advance, or gifted students?
3. As you continue to differentiate instruction, what area of your lesson would you use EAAS the most, beginning, middle, or end? Why did you make this selection?

Final Comments: