

DISSERTATION

LESSONS LEARNED IN AN INCLUSIVE CLASSROOM:
A CASE STUDY OF DIFFERENTIATED INSTRUCTION

Submitted by

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In partial fulfillment of the requirements

For the Degree of Doctor of Philosophy

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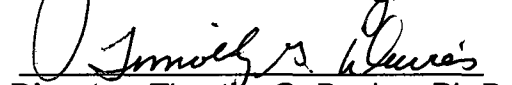
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ABSTRACT OF DISSERTATION

LESSONS LEARNED IN AN INCLUSIVE CLASSROOM:

A CASE STUDY OF DIFFERENTIATED INSTRUCTION

The use of Differentiated Instruction, a teaching methodology that encompasses aspects of brain based learning, multiple intelligences and cooperative learning, is a term heard widely in the realm of education today. Although Differentiated Instruction is used in educational settings more and more, studies that have been conducted about its use have not looked at the issues raised by teachers when implementing Differentiated Instruction or the specific strategies that teachers find most useful when using this methodology. In this case study analysis, teachers were interviewed and observed over a semester at a high school in Western Colorado. The purpose of the study was to fill a gap in research that looks at how teachers at the high school level begin using this methodology in their classroom and the pros and cons of using this methodology in their classrooms when seeing upward of 150 students a day. Results showed that even though the teachers in the study found strategies that were differentiated in style helpful to them in their classrooms, daily activities that teachers must adhere to became trying and cumbersome. Activities that became more difficult when trying to differentiate included planning and management. Both teachers in the study reported feeling a bit overwhelmed when trying to meet the varying needs of the 150 kids that they saw in one given day. Planning lessons differentiated in style and managing students' behavior in the classroom when students were engaged in differentiated activities sometimes caused the teachers to feel anxious and overwhelmed. Benefits of differentiating instruction that were seen with the students included an increase in autonomy and self-esteem. The findings and themes

that emerged from the study are similar to information disseminated by authors and researchers alike that have looked at Differentiated Instruction over the past several years.

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CHAPTER 1: INTRODUCTION

Problem Statement

Meeting the diverse needs of students in the classroom is becoming increasingly difficult with the rise in standards-based education. This, combined with the increased push for inclusive classrooms, has made teachers' jobs more difficult than ever. Teachers today have to face classrooms with more diverse learning styles, which is a direct result of large class sizes and the inclusion of students with disabilities (Lipsky & Gartner, 1997). Over the past several years, many new curriculum reforms have been introduced that have tried to alleviate some of the stress put on teachers while helping meet students' needs. Differentiated Instruction (DI) is one such reform that combines several approaches to meeting students' needs into one cohesive approach. What is so unique about DI is that it takes ideas about how students learn best and matches instruction to their specific learning style. Other ideas that DI pulls from include multiple intelligence theory, brain-based research, and elements of constructivism. DI pulls instructional elements from these researched theories to make one "best-practice" teaching technique (Tomlinson, 2000).

Although DI is not a newly developed technique, and there is no "best-practice" instructional strategy that will solve all of the problems that face teachers and students in a classroom today, DI strives to meet a variety of learning styles and needs in a single heterogeneous classroom. Teachers using the essential elements of DI in the classroom have developed an understanding of student differences, and with that understanding have made adjustments in their instruction in response to those differences (Tomlinson, 1995). With the variety of learning styles in a single classroom being cumbersome for

one teacher to manage, DI offers teachers an instructional strategy to engage all students in meaningful learning.

Research conducted by Pintrich, Cross, Kozmar, and MaKeachie (1986), as reported by Schunk (1992), focuses on student perceptions. These studies show that classroom behavior is becoming increasingly focused on students' thoughts, beliefs, and feelings about events. Their findings contrast greatly with previous ideas about students as passive recipients of information. Schunk (1992) reports that current research portrays students as individuals who are actively involved in their learning. Students' perceptions of the classroom and events in the classroom are formed through experiences students encounter. Positive experiences create positive perceptions of not only learning in the classroom, but perceptions about themselves as learners. Positive perceptions greatly influence motivation, which in turn, effects how well students achieve. The model of DI "rest upon an active, student-centered, meaning-making approach to teaching and learning" (Tomlinson & Demirsky-Allan, 2000, p.18). Making learning meaningful, helping students tie in prior experience, and using a variety of techniques to help students relate key concepts to every day experiences is what is essential in the delivery of differentiation to students (Tomlinson & Demirsky-Allan, 2000).

In this case study, I looked at the experiences teachers had with the development and implementation of DI, as well as DI strategies that the teachers implemented in the classroom. The classroom included students with a variety of needs, abilities, and levels. Teachers in the classroom used DI and applied DI strategies into their classroom as they saw appropriate and based on the lesson they were teaching. The teachers then reported

to me on the process and different aspects of using DI strategies to design and implement their lessons.

With the passage of PL 94-142 in 1975, there has been a call for teachers to take responsibility in educating all students to “achieve equitable and quality educational outcomes” (Lipsky & Gartner, 1997, p. 80). By using DI strategies, teachers are able to challenge all students while using the same state standards and district objectives for all, but are better able to meet students’ individual needs by varying content, process, and product on various assignments (Tomlinson, 2000).

Expanding on the ideas behind PL 94-142, No Child Left Behind (NCLB) that was enacted in 2001 is continuing to put the heat on not only teachers, but administration and districts alike. The push to improve students’ achievement and increase accountability for all is the theme behind NCLB and is forcing districts nationwide to look at how teachers are dealing with the multitude of students with differing abilities and levels in their classroom. With the passage of NCLB, all districts and schools must make Adequate Yearly Progress or AYP. If districts or schools do not meet AYP, they will be placed on watch and could ultimately lose funding. With a loss in funding, people could find their jobs suddenly in jeopardy, which in turn could cause an increase in class sizes and more stress put on staff as a whole.

The consequences of not meeting AYP can be staggering for districts. The need to bring students up to a level where they show growth is even more pressing now than in the past. To measure AYP, states have chosen to test all students in grades three through eight so that parents, communities, and educators can see how students are doing. They also use the testing to find trends amongst certain groups, as well as analyze what good

instruction is doing for our students. When students do not show adequate growth as measured by these tests, schools and districts could lose funding and may find themselves under the scrutiny of the state.

To better prepare schools and districts for these difficult times, President Bush wants schools to teach to the masses using a variety of materials and scientific research on proven methods to increase reading in students that have struggled. This is the exact art of DI. DI provides a way to assist teachers with getting struggling readers and learners to start reading and taking an interest in learning. By tapping into students' interest, ability level, and learning styles, teachers are better able to reach the needs of all students in a meaningful way.

In this study, I was interested in looking at and expanding on existing knowledge about the use of concepts and strategies that are directly linked to DI. In this study I wanted to look at the concepts and strategies that teachers used to start the process of implementation of DI in their classrooms. The information available to date on DI shows that DI can be a “better solution for meeting the academic diversity that typifies [our school population]” (Tomlinson, 1995, p. 28). The limited scope of available research gave me an opportunity to shed some light on a new curriculum reform that is tied to several researchable theories in the field of education.

Purpose Statement

The purpose of this study was to discover how the use of essential elements of DI by classroom teachers, which include readiness, interest, and learning profile, influences students' learning. I looked at how these elements were used within a classroom, implementation strategies, and more specifically how teachers started to utilize DI in the

classroom. This study looked at students and teachers at the high school level, used a qualitative approach, and more specifically conducted a case study of a teacher in the English department and a teacher in the History department at a local high school. I gathered and evaluated information from the students to use as support and feedback from teachers on the usefulness and impact of using DI in their classrooms. There has been little research done in the area of DI, with most of the observational studies conducted looking at students that have been identified as gifted learners. I was interested in discovering how DI is used as an effective learning tool in the classroom. I was also interested in looking at how DI strategies influenced how all students learn. Specific facets that were looked at in this study included: (a) How do teachers prepare themselves to utilize DI strategies in their classroom?, (b) What were the teachers' experiences in developing and implementing DI?, (c) What DI methods were used in this specific case study?, (d) What were teachers perceptions about specific DI strategies that were implemented?, and (e) What parts of DI did the teachers like, dislike, and utilize as effective strategies?

Research questions

The main focus for this research was to look at strategies teachers used to get started in their classroom with implementing something like DI. Sub-questions that were looked at throughout the course were based on teachers' experiences with the elements of DI as they were applied in the classroom. The teachers' experiences with developing and implementing DI strategies in the classroom were also a focus of the study, with specific methods of DI included in the discussions.

Definition of terms

For the purpose of this study, terms to be defined included:

1. Differentiated Instruction (DI): The use of a variety of instructional strategies that are used to support learners with diverse learning needs, abilities, interests, and experiences (Kronberg, 1999).
2. Graphic organizers: A non-linguistic learning tool that provides students with an opportunity to organize information within a learning experience (Marzano, Pickering, & Pollock, 2001).
3. Flexible grouping: Grouping students in a variety of ways to promote cooperative learning by encouraging reflection, communication, leadership, decision-making, conflict resolution, and group effort.
4. Rubrics: A detailed outline of expectations presented by the teacher in a format that encourages students to keep track of progress, provide feedback, create adaptation, and monitor completion of projects.
5. Learning styles: A person's way that he or she "concentrates, processes, internalizes, and remembers new and difficult academic information or skills" (Shaughnessy, 1998, p.22).
6. Concept-based teaching: A style of teaching that encourages students to focus on concepts and principles instead of rote memorization of information.
7. Curriculum compacting: A strategy where students are tested on material to see where their comfort level is so as not to repeat already mastered information when introducing a new concept. Compacting the curriculum is a

great method for students that are advanced or already have prior knowledge of material.

8. Learning contracts: A contract between a teacher and a student that maps out a student's responsibilities on a certain tasks so they are able to work independently through the tasks.
9. Minilessons: After pretesting students and assessing their prior knowledge on a concept, a minilesson may be helpful for students that may need to review a concept to understand it completely.
10. Scaffolding: Any tool a teacher uses to support the learning of a concept. Scaffolding is used as a stepping stone to becoming an independent learner.

Delimitations

The delimitation in the study was that the ability to generalize the findings of the study to other settings due to the sample size. The sample was taken from only two groups of students and two teachers at one particular high school. Based on this sample, findings relate to this particular setting and this particular sample only.

Limitations

The limitations of this study included, but were not limited to the following areas: (a) the researcher was a teacher in the high school the data was being collected from; (b) teachers may report what they think the researcher wants to hear instead of how they actually feel; (c) there was, undoubtedly, days where a substitute was needed and plans were affected; (d) teachers may have difficulty recalling DI strategies that were successful in implementation and those that are not; (e) teachers may have glorified how strategies are used and the usage of them in classroom activities.

Significance of study

The significance of this study was to fill a research gap in the field of education that surrounded the use of DI in the classroom. Although there has been some research done on DI, the research has been sparse and deals mainly with gifted students (Westberg, Archambault, Dobyns, & Slavin, 1993; Poage, S. W., 2000, California Department of Education, 1994; Archambault, Westberg, Brown, Hallmark, Zhang, & Emmons, 1993). This study was conducted in such a manner as to look at teachers and their use of specific DI strategies. The impact that DI had on students was looked at and encompassed a range of students from gifted to students with special needs and second language concerns. I was interested in looking at how DI could benefit all learners by conducting the research in an inclusive setting. Another gap in the research I hoped to fill was how knowing more about students learning styles can assist teachers in delivery of content and instruction. I was looking to fill a gap in research by looking at the delivery of DI at the secondary level. Although there have been articles written about the use of DI in the classroom, research has not been conducted to find out the effect DI has on students or teachers and the teachers perceptions of the successes as well as the obstacles in implementing DI in the classroom.

Researchers perspective

Within this qualitative study that was implemented over a semester, the researcher wanted to discover what teachers saw as essential elements of teaching. DI is an instructional strategy that uses a variety of elements to meet the needs of a diverse

population of students in a classroom. “[T]he aim of differentiating instruction is to maximize each student’s growth by meeting each student where he or she is and helping the student progress. In practice, it involves offering several different learning experiences in response to students’ varied needs” (Burke-Guild & Garger, 1998, p.2). These elements were used with the students and discussed after implementation with teachers to see how useful they felt they were, how they prepared for them, and if they felt the techniques used in class worked as they had planned.

The researcher in the study brought several biases that stemmed from years of teaching. Some of these biases included: (a) working with students with special needs, (b) training on the use of DI in the classroom, and (c) a personal goal to try and help meet the needs of all learner in the regular classroom. To prevent the researcher’s biases from influencing the study to a marked degree, the researcher did not implement any of the instructional strategies or key elements that were used in this study. The researcher acted as an observer who had previously assisted the teachers the year before in differentiating lessons and trained both of them in techniques that were incorporated when implementing DI in their classrooms. The researcher continued to assist the teachers as needed throughout the study to modify lessons. The researcher took no active part in implementation of the curriculum to the students beyond assisting the teachers in designing lessons and choosing strategies to fit the lessons objectives and state standards.

CHAPTER 2: LITERATURE REVIEW

Introduction

An essential element in making our world work is educating our youth. Teacher's roles in educating our youth have changed drastically over the last decade, and teaching today has taken on a whole new emphasis. During the times of the Industrial Revolution came a new path of educating students known as the "factory model." Everyone was to learn in one unified method and the teachers emphasized things such as obedience, orderliness, and respect. In the late 50's and 60's Watson and Skinner emerged with ideas about behavior and its influences on education (Jensen, 1998). Recently, a new idea has emerged that has been lead by technological advances that have given us a way to see how the brain works, and a resurgence of energy has been put into how to educate our youth. Caine and Caine (1991) report that there is evidence showing that "everything that affects our physiological functioning affects our capacity to learn" (p. 80). Emotion, stress, environment, threat, and challenge can all affect how much a student is able to learn. "The brain learns because that is its job. Moreover, the brain has a virtually inexhaustible capacity to learn" (p. 3). A teacher's job is to maximize possibilities and opportunities for learning – to make learning meaningful (Caine & Caine, 1991).

Another emerging theme in education is the idea of taking students learning styles into account when implementing instruction. In a meta-analysis of research conducted by Dunn, Griggs, Olson, Gorman, & Beasley (1995), the researchers found that both low and average achievers earn higher standardized test scores, as well as higher scores on attitude tests when taught through learning style preferences. This meta-analysis was conducted using the Dunn and Dunn Learning Style Model and data was gathered

between 1980 and 1990. The results revealed that students whose learning styles were accommodated for by educational interventions could expect to achieve 75 percent of a standard deviation higher than students whose styles were not taken into account.

Shaughnessy (1998) also reports of another study conducted by the U.S. Department of Education that looked at students in special education. The four year investigation examined national test data and concluded that attending to learning styles of individual students was one strategy that proved to have a positive impact on achievement of students. Although learning style preferences may change over time, there are periods of time where individuals show a strong preference for one style over others. When students' preference is taken into account, a teacher can expect to see students achieving at a much higher rate (Dunn & Dunn, 1993). Providing a curriculum that is rich in meaning and taps into students learning styles by providing a plethora of resources can help students better “[process], [internalize], and [remember] new and difficult information” (Shaughnessy, 1998, p. 141).

With the increased push to educate America's youth in an inclusive environment, teachers and administrators are looking for that one best approach to teaching in a classroom that encompasses a variety of learners. Curriculum and curriculum implementation has become the main focus of how to best reach the needs of all students in one heterogeneous classroom. Defining a curriculum to meet the needs of all students is challenging at best for even the most experienced teachers. Curriculum should be built upon the needs, as well as the interest of the students, but must also be stretched to extend and challenge students to think beyond their comfort zone (Arnold, 1991). Developing a curriculum that aligns with state standards, challenges the gifted, meets the needs of the

average, and takes into account students that are learning disabled can be so overwhelming that teachers fall back on the “one-size-fits-all” approach to teaching. The concern with the “one-size-fits-all” approach to learning is that students’ differences are not taken into account (Eide & McCarthy, 1995).

Research conducted at the Mid-continent Regional Educational Lab (McREL) looked at classrooms that were “learner centered” in nature. In a learner-centered classroom, the “one-size-fits-all” approach to teaching is nonexistent. A learner-centered classroom is one that focuses on knowing and understanding each learner (McCombs & Whisler, 1997). The McREL research, which was conducted over a five year period of time, found that when teachers get to know their students and how they learn best, student achievement is higher and their full potential is enhanced. In a learner-centered classroom, meeting individual needs becomes just as important as curriculum and content.

Historical foundation

As all educators have learned, education is in a constant state of reform. Although change can be difficult and challenging, such reforms have brought about much needed change in the way teachers meet students’ needs in the classroom. Reform in education has been evident from the beginning of time, but the implementation of the Individual’s with Disabilities Act of 1975 (IDEA) brought about a major change in education that has had a lasting impact on education. IDEA requires that all students be allowed to have a free and appropriate public education (Heuermann & Hehir, 1997). For the first time ever, teachers found themselves in a classroom filled with a diverse population of students with a variety of needs. In 1997, President Clinton signed the

reauthorization of IDEA that continued support for students with disabilities in the regular classroom. With the push to include all students in a heterogeneous setting, meeting the needs of all students became challenging at best.

In more recent years, No Child Left Behind (NCLB) has been enacted to hold schools accountable for students' education and gather information to better provide services for students so that no child slips through the cracks. As schools struggle to make Adequate Yearly Progress (AYP), the push for educators to help students that are struggling understand and comprehend is pressing. Teachers and administrators need to show that they are providing a curriculum that meets the needs of all learners, and that all learners are moving towards reaching the standards set by the school and district.

Although test information can be disaggregated and students who are economically disadvantaged, have disabilities, or come from minority backgrounds can be looked at separately, each group, as well as the student body as a whole must be showing gains towards meeting academic proficiency. If not, schools can be identified as a school that is in need of improvement. This leaves administrators and educators wondering how to design their schools to meet the needs of all and show the gains that state legislators are looking for.

One recent methodological approach to meeting students' needs is referred to as Differentiated Instruction (DI). DI combines several approaches to meeting students' needs into one cohesive approach (Tomlinson, 2000). Ideas behind researched theories such as learning style theories, brain research, and multiple intelligences contribute concepts that are behind the foundation of DI. Although there is no one best-practice technique that will solve all of the problems that face teachers and students in a

classroom today, DI attempts to keep students in the regular education classroom learning within a heterogeneous environment. Teachers using DI will notice an improvement in both attitude towards learning and behavior because the model of DI “rests upon an active, student-centered, meaning-making approach to teaching and training” (Tomlinson & Demirsky-Allan, 2000, p. 18). The difference between DI and other curriculum reforms that have been used throughout the years is that “differentiated instruction is not a strategy; it is a total way of thinking about learners, teaching, and learning” (Tomlinson, 2000).

The concept of DI is not something new. The call for differentiating instruction can be seen as far back as the 1890’s when Charles Elliot made a valiant effort to promote liberal education for students (Preskill, 1989). DI is actually a combination of a number of approaches that have proven to be beneficial to students’ achievement. Brain-based learning, multiple intelligences, and new information on how learning styles affect students in the classroom are all components that DI incorporates into a style of teaching that can help all students excel at his/her own rate and learning level (Tomlinson & Kalbfleisch, 1998). To create a successful environment for all students, using just one of the above theories may not be comprehensive enough to reach all needs. By combining components from each theory, DI is better able to target all students by taking into account learning styles, intelligences, and alternative strategies to encourage independent learning.

The increased push to meet students’ needs in one heterogeneous classroom has been profoundly impacted by the increasing standardization required in school districts today. In the face of increasing standardization, schools struggle to hold on to the ideals

of public school education. Teachers, although wanting to sustain education for all students that is active, integrated and participatory, are “curtail[ed] by the standards, assessments, and accountability movement” (Glickman, 2001, p. 46). High stakes testing has taken over and moved across the spectrum from elementary to higher education arenas. The use of DI in the classroom had been criticized by some who do not see a way to teach the standards while differentiating for the varying ability levels in the classroom. As Tomlinson (2000) has observed, there should be no contradiction between standards-based instruction and differentiation. The curriculum drives what we teach, whereas, differentiation tells us how we should teach. With the increase in diversity within the classroom, and the push for accountability and standards-based learning, differentiation just may be the reform that makes teaching and learning successful for all (Tomlinson, 2000).

Options for differentiation of instruction

Differentiating by interest. Tomlinson (2001) reports that there are a variety of strategies that draw on student interests and can be linked to the curriculum. Tapping into students interests makes learning more meaningful by making tasks the students are engaged in more satisfying, personally challenging, and engaging (Tomlinson & Demirsky-Allan, 2000). The goals, as reported by Tomlinson (2001), of interest-based instruction are: (1) to help students identify the match between their own desire to learn and school; (2) to demonstrate connectedness between learning; (3) to use ideas that are familiar to students to bridge ideas less familiar to them; and (4) to enhance motivation to learn. Interest-based instruction is a useful tool in drawing on students existing interests, but it can also assist students in developing and discovering new interests. Interest-based

differentiation taps into students' intrinsic desire to learn. When students have a desire to learn, learning becomes more meaningful for students and motivation to learn is increased (Tomlinson, 2001) (Table 1).

Table 1: Differentiation by interest

Guidelines for interest based instruction	Instructional Strategies	Mode of Expression
Create a chance for students to display their interests.	I-Search	Oral speech, seminar, drama, symposium
Link interest-based exploration with key components of the curriculum.	Orbitals	Creative and expository writing.
Provide a structure that will lead to student success.	Design-a-day	Build, display, or model.
Develop ways for students to share their interests.	Group Investigation	Use art, graphics, paint, photography, illustration.
Be open to students interests.	Jigsaw	Abstract ideas, plans and theories.
Be willing to combine interest-based differentiation with other strategies.	Literature Circles	Group work, activity based.

Note: From Tomlinson, C. A. (2001). *How to differentiate instruction in a mixed-ability Classroom*. Alexandria, VA: ASCD.

Differentiating by readiness. Bloom (1975) has found in research that over 90 percent of students can master what educators have to teach them. He sees the task of educators as being one in which they provide instruction in such a way as to enable students to master the subject. Differentiating by readiness is a tool that educators can use

to identify where students are when introduced to a new topic. By identifying how much prior knowledge students have before beginning a new topic, teachers are better able to start a lesson at an appropriate level to reach the needs of all students in the classroom. The National Research Council, as reported by Tomlinson and Demirsky-Allan (2000), found that in both psychology and brain research that the idea of individuals learning best in accordance with their readiness level is supported. Research that dates back to as early as the 60's that incorporate ideas of Vygotsky shows that students have an optimal time for learning to take place. This is known as the "zone of proximal development." When a teacher supports a student when a task is too difficult, s/he soon learns to move to a state of independence. When a teacher scaffolds or supports a student in moving through complex tasks, students learn to succeed. When a student gets frustrated and cannot move through a task even with adult supervision, no learning is taking place. The ideal state for a student to be in is within this zone. This zone is usually described as when a student is challenged moderately with a task, but with adult supervision, scaffolding, and assistance, the student is able to move through the task (Tomlinson & Demirsky-Allan, 2000). By identifying where students are with their learning, differentiating by readiness can challenge students to move beyond their current level of mastery (see Table 2).

Table 2: Differentiating by readiness

Planning tips for differentiating by readiness	Instructional Strategies
Foundational to transformational time to explore the basics of the topic or time to stretch and extend ideas already familiar with.	Tiered activities
Concrete to abstract.	Compacting
Simple to complex – a skeleton of the topic to details of the topic.	Learning Contracts
Single facet to multiple facet – only a few steps to a variety of steps.	Tiered activities
Structured to open-ended.	Alternative forms of assessment
Dependent to independent activities.	Varying products

Note: From Tomlinson, C. A. (2001). *How to differentiate instruction in a mixed-ability classroom*. Alexandria, VA: ASCD.

Differentiating by learning profile. When looking at implementing a differentiated lesson to students, a student's learning profile should be taken into consideration. When looking at learning profiles in a differentiated classroom, the concept of differentiation encompasses learning styles, intelligence preferences, and environmental influences (Tomlinson & Demirsky-Allan, 2000). Sternberg & Grigorenko (1997) have studied and written about the impact learning styles have had on student success. Although most theorists agree that learning preferences may change over time and with varying conditions, most believe that learning preferences are to some extent biological. Based on these findings, Sternberg & Grigorenko (1997) stress the importance of matching learning style preferences with learning conditions to maximize learning for all students.

When looking at multiple intelligences (MI) and the impact it has on learners, Gardner has contributed by introducing educators to a variety of ways in which students learn. Gardner's ideas surrounding MI state that all people have an intelligence profile that should be identified at an early age so they are able to use this knowledge to enhance opportunities and options in life (Gardner, 1983). In the Multiple Intelligence Theory, connections that students make with material in the form of past experiences, pictures they create, words, numbers, or music become more meaningful, therefore, having a better chance of being stored in long-term memory. DI relies heavily on the idea of making education meaningful, which is easier to accomplish when, as a teacher, you are aware of how to teach to the different types of intelligences. Giving students an ample opportunity to tap into their intelligence as often as possible gives students a chance to display more success within the classroom.

Getting to know how students learn is essential in helping students feel successful. Although teaching students in a way that compliments their learning style can assist in student achievement, Kolb (1984) also found in his research that mismatching, or creating an environment where there is a variance in teaching style and learning style, can be beneficial to students learning. By mismatching, a student begins to use learning styles that are not a strength for them. Kolb (1984) believes that creativity is produced when students have tension and conflict. New material being taught in a mismatched style creates tension, therefore, strengthening learning styles students exhibit weaknesses in. On the other hand, Matthew (1991) argues that "while mismatching is appropriate for developmental reasons, students have more positive attitudes towards school and achieve more knowledge and skills when taught, counseled, or advised through their natural or

primary style...” (p. 253). Researchers agree that beginning instruction with the matching of learning styles is best when a student is learning new information, but that over time using systematic mismatches may encourage the development of strengths in other learning styles and challenge students. As with MI, research on learning styles preferences suggest many strategies that are beneficial to use when implementing a curriculum that works with students’ different learning styles (see Table 3).

Table 3: Differentiation by learning styles

Guidelines for differentiating by learning profile	Planning tips for differentiating by	Instructional Strategies
Create an environment with flexible learning spaces and options.	Plan complex lessons draw on students' intellectual strength.	Multi-ability cooperative tasks
Allow students to work alone or in groups.	Begin a new topic by having students explore topics utilizing their learning style preference.	MI options
Use approaches such as part-to-whole and whole-to-part.	When introducing a new topic, let students investigate, write something, discuss, and create to meet all learning styles.	Triarchic options
Make adjustments for students' culture, gender, and language differences.	Help students identify ways in which to organize new information. Give students a reason, give them a purpose, and make it meaningful.	4-MAT options
Vary modes of presentation to reach all students styles.		Learning Centers

Note: From Tomlinson, C. A. (2001). *How to differentiate instruction in a mixed-ability classroom*. Alexandria, VA: ASCD.

Elements of curriculum differentiation

Content differentiation. When looking at differentiating content, Tomlinson and Demirsky-Allan (2000) suggest looking at facts, generalizations, principles, skills, and attitude as it is related to the subject. "Content includes both what the teacher plans for students to learn and how the students gains access to the desired knowledge,

understanding, and skills (Tomlinson & Demirsky-Allan, 2000, p. 7). The goal of differentiating content in a classroom is not to change the material being presented, but to differentiate how “students gain access to core learning” (p. 8). This concept ties in with differentiating by readiness, interest, and learning profile. By differentiating in these three ways, what students learn is steady; the change comes in how students go about learning. There are several strategies for differentiating by content that include: (a) Concept-based teaching: This style of teaching encourages students to focus on concepts and principles instead of rote memorization of facts. In a differentiated classroom, teachers assist students in making learning meaningful and help students connect learning to prior knowledge; (b) Curriculum compacting: This strategy is designed to help advanced learners. There are three stages to compacting. Stage one involves identification of students who are candidates for compacting and assess using pre-tests or informal measures to see what students have prior knowledge of the topic and to what extent. Stage two is where the teacher identifies any skills that a student does not demonstrate mastery in and develops a plan for learning. In stage three, the teacher and student design activities that the student who has mastered the skills can engage in while the others are learning the skills (enrichment activities, goals of the project, time line); (c) Using a variety of text and resources: Offering a variety of text at different levels of interest and readability assist students who are both struggling and advanced learners. For a group read, purchasing the same book at a lower reading level is an option, or providing supplementary materials to enhance the reading can be helpful. The internet and other computer programs are helpful in this area; (d) Learning contracts: Contracts assist students in mapping out their responsibilities on certain activities, or on a number

of activities for the week. Contracts can be as broad as to list goals for the student, or as specific as to the steps the student needs to take to achieve a certain goal. Students should be a part of the creation of contracts to enhance motivation and buy in;

(e) Minilessons: When introducing a new topic, teachers will find that some students get it right away, while others struggle with the most basic of meaning. For those students who do not grasp an idea instantly, a short minilesson to bring them up to speed and reinforce the concept may be helpful before moving on to the project or assignment. While other students move ahead to the assignment, the teacher can spend more time with the other students who did not grasp the new idea so easily.; (f) Varied support systems: There are a variety of materials available for teachers to use in their classroom that can enhance students learning. When introducing a new concept, things such as audio/visual materials, organizers, supplementary reading materials, outlines, and mentors can be useful for both struggling and advanced learners.

Process differentiation. In differentiating process, the teacher is assisting students in making sense out of new ideas they have been introduced to. The most important component in helping students process a new idea is giving them time to input and digest the material. As soon as students are introduced to new material, they need time to “analyze, apply, question, or solve a problem...” (Tomlinson, 2001, p. 79). By giving students time to make sense of the new information, or process it, students have an opportunity to internalize the information instead of instantly losing it. To make a learning task meaningful for students, Tomlinson & Demirsky-Allan (2000) have found that tasks that involve students using a general skill to understand an essential idea is important, but that making that essential idea as clearly laid out and focused is key in

helping students maintain that new information. Students are more likely to process information and make sense of it when it is: (a) interesting, (b) engage them in higher level thinking, and (c) use key skills to get to the understanding of a new concept (Tomlinson, 2001). When assisting students in making sense of new information, the ultimate goal of teachers is to move students from the level of understanding they are currently at to a higher level of complex thinking about a topic. Some strategies for differentiating by process include: (a) using multiple intelligence ideas in planning, (b) using interest groups, (c) using graphic organizers, (d) using independent study opportunities, and (e) using complex instruction where teachers and students build on prior knowledge and experiences when exploring a topic (Tomlinson, 2001).

Product differentiation. When looking at differentiating products, there is a great deal of flexibility in what teachers can have students do. By giving students an opportunity to demonstrate what they have learned, understand, or come to know in a variety of ways, students are given an opportunity to rethink what they have learned and apply it in a way that is meaningful to them (Tomlinson & Demisrsky-Allan, 2000). A good product is not only crafted in such a way as to make creation enjoyable, but it is crafted in a way that assist students in applying and expanding on key ideas and skills they have learned in the unit (Tomlinson, 2001). Product assignment is not only a great way to help students expand on what they have learned, but it gives them an opportunity to “explore modes of expression unfamiliar to them...” (Tomlinson, 2001, p. 86). When students are given options to choose from with product development, most students tend to choose products that are congruent with their learning style preference. Teachers should encourage students to choose products outside of their comfort zone for at least a

few assignments through the year to foster strengths in other learning style areas. Not all assessments of units will cater to each learning style preference, but by giving students an opportunity to talk about their ideas and how to solve problems as they encounter them, students are not only learning how to problem solve, but they are using higher level thinking skills when challenged to use other learning style modalities. Although stretching students to use a variety of learning style modalities is important, students need an opportunity to find success at the end of the unit rather than being overwhelmed with confusion and lack of understanding. The goal of product development is to assist students in synthesizing what they have learned and expressing themselves in a way that helps foster an understanding in their minds of what has been learned (Tomlinson, 2001). A few guiding principles to keep in mind when designing differentiated products are as follows: (a) identify the essential elements of the unit; (b) identify several options and formats for product design; (c) determine expectations for product development for all students; (d) decide on scaffolding techniques that may be necessary for each option available for students; (e) modify product outcomes based on interests, readiness, and learning profile; and (f) coach all students for success (Tomlinson, 2001).

Conclusions

Giving students a chance to express their understanding in ways that make sense to them is critical in making learning meaningful. To engage students in meaningful learning, a teacher must: (a) align their objectives, (b) find out what students already know, (c) plan flexible grouping, (d) encourage student responsibility, and (e) provide choice. These are all essential elements in differentiating curriculum to meet the needs of learners with varying interests and learning profiles (Pettig, 2000). By providing instructions that meet the needs of a diverse population of students, schools become a place that nurture and value students' differences and build relationships that respect the strengths and energies of each individual (Littky & Allan, 1999).

CHAPTER 3: METHODS

Rationale and research approach

The rationale for this study was to help educators develop a better understanding of teachers' experiences in a classroom in which the teaching methods that are used take into account students' interests, readiness, and learning profile. Differentiated instruction (DI) as described by Kronberg (1999) "...is the proactive use of a wide repertoire of curricular and instructional approaches which are consistently used with students with diverse needs, abilities, strengths, experiences, and interest in order to best support their learning" (p. 2). In a differentiated classroom, students have an opportunity to acquire content, make sense of their learning, and develop products through different avenues (Tomlinson, 2001). Through this study, the researcher hoped to help teachers develop a better understanding of how to take students individual learning preferences into account when presenting new information and begin the process of differentiating in the classroom.

This study was qualitative in nature, and more specifically a within group case study was conducted. Each participant in the study received or experienced all of the conditions in the study. A case study, as described by Merriam (2001) "is an intensive, holistic description and analysis of a single entity, phenomenon, or social unit" (p. 34). When researching a particular practice in the field of education, case study analysis fits well with the situation and gives the researcher an opportunity to identify and explain issues and problems in educational practice (Merriam, 2001). How teachers actually feel about a certain methodological approach became apparent due to the descriptive nature of a case study.

Case description

This particular study took place in a small high school in a ski resort area in Western Colorado. The population of the high school was approximately 620 students with a large majority (approximately 30%) of the population being of Hispanic or Chicano ethnicity. The study in this case was conducted in an English I class that consisted of mostly freshman, and a World and U.S. History class that consisted of freshman and sophomores. Both classes had about 25 students enrolled with about 55%-60% of the population of the students being classified as your average learner, 10% being gifted, 10% - 15% being second-language learners, and the remaining 20% identified as learning disabled. Information gathered for this was collected using past scores and eligibility requirements for English as a Second Language classes and Special Education diagnosis.

At the time data was collected, the teacher in the English classroom had been teaching for approximately 5 years at the same school. She taught classes that ranged from English I, to Journalism, to a Reading and Writing (RAW) class made up of learners that needed extra assistance with reading and writing and the basic skills of the subject. The teacher made the classroom very comfortable for the students by creating an environment that centers around student interest and is student friendly. The walls consisted of things that students have created and displayed a variety of visual stimuli that assisted students with reading and writing strategies.

At the time data was collected for the study, the teacher in the History classroom had been teaching for over 10 years with the majority of those years being at the same high school. He taught classes that encompassed both History I level curriculum and

History II level curriculum. The classroom displayed a variety of work that the students had created during various projects, as well as posters of current and past events that have affected and shaped our world today.

The curriculum in the language arts class consisted of writing well developed paragraphs, reading novels, reading short stories, and exploring poetry. Individual teachers choose which novels they would like the students to read, and all English I classes read the same short stories. Written assignments are intertwined with the required reading. Specific techniques used within the class included Step-Up-To-Writing, group work, individual work, peer review, read-alouds, silent reading, literature circles, and being read to. Although there was a great deal of group work being done, most written assignments were done individually with group work being saved for brainstorming, literature circles, and various discussion and processing activities.

The curriculum in the history class consisted of information dating back to the American Revolution up through the beginning of World War II. The class focused on key concepts of war and change as it relates to the world today. Current events are brought into the lessons frequently to help students connect past to present, therefore, developing a better understanding of how things that happened in the past effect things today. There is a great deal of time for brainstorming, making connections to the concepts, group work, project based assessment, and individual work. Students have time to process with class and group discussions, and choice in assessment is prevalent.

Participants

The participants in this study were high school teachers, with one teaching English and the other history. Both classrooms consisted of freshman that range in age

from 14-15, and both males and females were included in the study. The classes are both a requirement for graduation. The make up of both classes are based on a model of inclusion with students identified as special needs, gifted, second-language learners, and average all combined in one class. Expectations for students are the same across the spectrum except for accommodations and modifications as specified by certain students Individual Education Plan or 504 Plan.

The teachers were chosen using purposeful sampling based on their training, level of knowledge about DI, and their willingness to work with me on using DI strategies within their classroom.

Measures

This study was qualitative in nature. Patton, as reported by Merriam (2001), describes qualitative as “direct quotations from people about their experiences, opinions, feelings, and knowledge” obtained through interview, “detailed descriptions of people’s activities, behaviors, and actions” (p.70). Interviewing, observing, and reviewing documents are three of the most common data gathering techniques used in qualitative research. All three of these techniques were used during this study, with interviews and observations being the main focus of the data collection.

Interviews. Interviews are most commonly used in qualitative studies to get at how people are feeling, how they interpret what is going on around them, and when observation alone cannot give you enough information (Merriam, 2001). For the purpose of this study, the most common type of interviewing was person-to-person. Interview questions were unstructured in nature and were interpretive. This allowed for the teachers to give more information about how they were feeling about the DI methodology

that was being delivered in the classroom. Some specific questions that were asked during the interviews and were looked at included: (a) are the elements of DI, which include modifying by content, process, and product helpful in teaching your students?, (b) is being aware of the type of learner your students are assist you in planning lessons, delivering content, and meeting students' needs?, (c) describe the benefits or detriments of teaching in a classroom that uses elements of differentiation as a basis; (d) what elements/strategies of DI did you feel were most useful to you? Which elements were not useful to you?, (e) how did you prepare yourself to implement DI strategies in your classroom?, (f) how do you think using DI strategies in your classroom impact student learning?, (g) how do you think DI impacts students perceptions of their learning?, (h) were there certain elements of DI that seemed to work better for certain groups?, (i) were there certain elements of DI that seemed to work better for certain learning styles? Teachers in the study were asked these questions two times throughout the study. Questions were recorded and compared when looking for emergent themes.

Observations. Observation during a research study is critical in getting a firsthand look at the actual interests of the participants in the study (Merriam, 2001). I observed teachers who were delivering the methodology in the classroom to look at strategies that are associated with DI and how they are being used. Of particular interest were the conversations amongst students during group activities, their behavior during group activities, and their reactions to activities after their completion. Observations were recorded through fieldnotes and summaries of the activity by the researcher.

Procedures

This study was conducted at a high school in Colorado. The methodology used was qualitative in design, and more specifically a case study was conducted using two teachers at the high school. Students were given a Gregoric Learning Style Inventory (1982) to assess the type of learning style students' exhibit. Students also completed "The Real Me" worksheet out of the *Kagan's Multiple Intelligences Structures Workbook* (Kagan & Kagan, 2000) to get a better idea of how they learn best. Observations occurred on a daily basis during the English and history classes allotted time period. Interviews with teachers were conducted at quarter which resulted in two interviews per semester. Interviews were unstructured and interpretive in nature to allow the teachers to express their feelings more openly. Observations were recorded using fieldnotes and included descriptions, quotes, and any comments that were noteworthy from my perspective. Activities that are differentiated in nature usually occurred two to three times a week, sometimes more, within the class structure of activities.

The researcher de-briefed the students and the teacher after the study was completed by sharing observations made about the use of DI, describing themes that emerged out of the coding of information, and conclusions that were drawn about the effectiveness of the use of DI in the classroom were shared.

Data Analysis

Merriam (2001) describes data analysis as "the process of making sense out of data" (p. 192). When researchers analyze data that has been collected over the course of the study, themes, categories, and other classes emerge (Merriam, 2001). Creswell (1994) clarifies the difference between quantitative and qualitative data analysis as being

the difference between analyzing data simultaneously with data collection (as in qualitative) and analyzing data as a separate step that comes between collection (as in quantitative). Constant comparative analysis was used with coding being applied for the documents, interview transcriptions, and the observational fieldnotes. The process of data analysis consisted of three levels of coding; open coding, axial coding, and selective coding which were all used to gain a better understanding of DI implementation.

Trustworthiness

Reliability and validity are important components of a research study. In qualitative research, these components can be interpreted in many ways. The way in which data are collected, analyzed, and interpreted, as well as the way in which findings are presented, help improve trustworthiness of a study (Merriam, 2001). According to Merriam (2001), an investigator should use six basic strategies to enhance trustworthiness. The six strategies are: triangulation; member checks; long-term observation; peer examination; participatory or collaborative modes of research; and researcher's bias. In my research, all six areas were touched on to strengthen internal validity of the data collected.

Triangulation. Triangulation, as described by Glesne (1999) is not only the use of multiple methods of data collection, but the use of multiple data sources as well. In looking at differentiation at the high school level, it was difficult for me to think of an effective way to include teachers, students, and parents. To assure internal validity, I chose to use two teachers instead of one to confirm my findings and pull out themes that emerged from both of their responses. As for multiple methods for data collection, I found observation, interviews using both taped discussions and notes taken by myself,

and keeping a journal of activities in both classes so I was aware of how the lessons were being differentiated in style to assist when it came time to look at emerging themes.

Member checks. Merriam (2001) describes member checks as actually going back to the sources and directly asking them if the information you collected is accurate. In my research, I was constantly discussing my findings, interpretations, and clarifying comments with each individual teacher. The members of the study were active participants and communication about the findings were freely and openly discussed on a daily basis.

Long-term observation. This study was conducted over a semester at the high school. Merriam (2001) believes that multiple observations in the same site, looking at the same phenomenon is important in increasing and strengthening validity. I was in both classes used in the study daily for the semester, taking notes, talking with the teachers, and observing. I also met with both teachers during their planning time usually once a week, sometimes more, to plan and sometimes discuss what was working and what was not.

Peer examination. This is what Merriam (2001) sees as a way of communicating with the participants and others to check for clarity and understanding of where the research is going. I discussed my interpretations and findings with participants and others who are familiar with differentiation several times to check for clarity or understanding of what was emerging from the research. I made myself available daily and planned weekly with each teacher to assure that we were getting all the information that was important to the study and clarifying the questions that were being asked.

Participatory or collaborative modes of research. When beginning my study, I worked with both teachers the year before data collection began to include them in on every phase of my study. Merriam (2001) sees this as important in developing validity so that the participants are aware of every aspect of the study. Both the English and the history teachers in this study were people I had worked with and invited to attend trainings on differentiated instruction so that they were better prepared to be a part of the study. They were helpful to me from the formulation of the question I was looking at to the end of the confirmation of findings.

Researcher bias. Being a classroom teacher in the building I was collecting data in, made me fully aware of the possibility of researcher bias, or researcher effects on the interpretation of my data. Miles and Huberman (1994) said there are two types of biases, “the effects of the researcher on the case, and the effects of the case on the researcher” (p.265). In the classrooms I was observing, it was common practice to have a teacher in assisting the lead teacher or observing. This did not seem to raise any questions from the students. Although the students did not have questions, I was aware that I, along with the teachers, wanted the methodology of DI to be successful and something the students and teachers found helpful.

To try and avoid my enthusiasm for the methodology swaying how the teachers and students felt, I decided not to have direct contact with the students and be an unobtrusive observer in the classrooms during my data collection time. The most contact I had with the teachers was when we were planning lessons or debriefing about lessons. During class time, I was just an observer in the back of the room, taking notes and marking down observations about student behavior and the lesson being presented. This

was helpful in my data collection, but this could have contributed to both types of bias that Miles and Huberman (1994) mention based on the fact that I worked with a number of these students at other points in the day, assisting them with their homework, class work, and projects. Many times, I was assisting students with work from this class and they were giving me feedback about the projects or work in that class.

Being an unobtrusive observer became an ethical dilemma for me in many instances, as I had worked with both teachers as a partner and co-teacher in the classroom the year before. I struggled with the decision to maintain my co-teaching status with the teachers or to become an unobtrusive observer in the classroom. My decision to become just an observer were based on the fact that I did not want to be there to change things or fix things that were not going right during instruction. I felt as though keeping my distance and discussing issues that may have come out of a lesson after the fact would help me come to a more honest and trustworthy conclusion about how DI was working in the classroom.

CHAPTER 4: ANALYSIS

Introduction

I chose to begin this chapter on analysis by describing and defining characteristics of a qualitative study, and more importantly a case study analysis. This particular case study took place in two classrooms where I collaborated with the classroom teacher on designing lessons using differentiated instructional strategies. I did not have an actual hypothesis that I was looking at specifically, but was interested in looking at how a classroom that used a variety of strategies differentiated in style influenced student learning from a teacher's perspective. The focus of this study was to see how teachers perceived the use of instructional strategies that are associated with differentiation in influencing their teaching. The data collected was best reported using a case study analysis so that information on strategies and the impact of differentiated instruction could be reported and described accurately.

In this chapter, I will begin by discussing the type of analysis I chose to use and my rationale behind using this methodology of data collection. After a brief discussion of the type of research I conducted, I will be describing the school and the district that I conducted my research in. It is important to the reader to understand the changes that were occurring in the district and why I found it important to look at using Differentiated Instruction at the secondary level in this particular district. I will then be discussing why I chose the teachers to participate in this study. Discussing the teachers and why they were chosen will help the reader understand why they were willing participants in the study. After these brief descriptions, I chose to report on the responses to a set of questions that were asked to the participants twice during the semester that data was

being collected. I embedded the responses into elements of Differentiated Instruction that were touched on by both teachers in the course of this one semester.

Based on the informational responses from the teachers, I will then be reporting the data based on thematic structures that were found within the responses. I will conclude this chapter with a summary of my findings and conclusions drawn from the information collected.

For this particular study, I used a case study analysis model based on Merriam's description of a case study as being one chosen by "researchers [that] are interested in insight, discovery, and interpretation rather than hypothesis testing" (2001). A case study, as seen by Merriam (2001), is characterized by certain features which I used in my data collection. Merriam (2001) sees case studies as being, "particularistic, descriptive, and heuristic." As the researcher, I was interested in looking at how teachers empowered themselves to take a teaching methodology and prepare themselves and their classrooms for implementation. I was interested in looking at a particular methodology and questions, situations, or problems that might arise from the implementation of this methodology. In collecting and reporting my findings, I was hoping to use words to portray what was going on in the classroom over a period of one semester to hopefully give the readers a better understanding of the impact differentiation has on a classroom. By reporting my findings, I am touching on all three characteristics of a case study analysis that Merriam (2001) sees as important when conducting research using this method of data collection.

When looking at choosing a design to guide my research study, Merriam's (2001), definition of particularistic as being, "a focus on a particular situation, event, program, or

phenomenon” (29) was a characteristic that seemed to fit the purpose of my study. When looking at a specific instructional methodology and the events that took place in a classroom that used DI as a basis for meeting the needs of all students, I felt that particularistic described the goal I had in mind for my research. My goal, as the researcher, was to look specifically at the way teachers used strategies differentiated in style, how they prepared to differentiate in the classroom, and how they felt the strategies they used affected the students and their own perceptions of learning. My hope in choosing this particular program to look at was to bring information to the reader that describes both positive and negative interactions that occur at the high school level when using differentiation. I wanted to be able to provide, as another characteristic of a qualitative study, descriptive information to help the reader understand what differentiation felt and looked like. The purpose of the rich, descriptive text is to hopefully engage the reader and help with understanding of the phenomenon under study, or what Merriam (2001) describes as “heuristic.”

Creswell’s ideas of qualitative research, and more importantly, a case study were also used when designing this particular study. Creswell (1994) sees qualitative study as “one [that] does not begin with a theory to test or verify” (94). In my research on differentiated instruction, I was not interested in testing a theory, but more interested in seeing what types of themes and theories might emerge from my data collection. Since DI has not been studied at the high school level, I was hoping to see if there were themes that emerged as the teachers at the high school level began using DI.

Using DI at the secondary level can be seen as a bit more difficult than at the elementary level based on the fact that secondary level education and the design of it

looks much different than elementary level education. When discussing the use of DI with teachers, some of the concerns that teachers voiced included having so many students that they had direct contact with everyday (up to 150), the cultural diversity in the school that not only prevented them from connecting with students, but made it difficult to communicate, and the amount of time it takes to plan for that many students, much less differentiate for each unit (English and History teacher).

With those concerns in mind, I was interested in seeing how teachers dealt with the transition in their individual classrooms, and how diversity and minimal time to plan in a day affected their ability to differentiate.

Description of setting. When beginning my research on the use and implementation of DI, I chose this particular high school in a rural setting in Western Colorado due to the vast changes the district was undergoing. At the time the research data was being collected, the district was switching gears to better prepare itself for the enactment of No Child Left Behind (NCLB) and being held accountable for meeting Annual Yearly Progress (AYP). In an attempt to be better prepared, the district decided to adopt the Teacher Advancement Program (TAP) as its primary evaluation and teaching methodology.

With the new TAP program came a great deal of change in the structure within schools. Each school would now have Master and Mentor teachers that would take on an administrative role. These people would be in charge of observing and evaluating teachers based on the new evaluation rubric. They would also become experts on curriculum and teaching methodology so as to enhance teachers and their teaching practices. The new evaluation rubric being used has several components to it, with one

being how well teachers differentiate instruction in their classroom. Suddenly using DI in the classroom became extremely important to teachers and administrators. DI was being seen in not only elementary schools, but in secondary schools as well. Using DI was important for teachers because it was part of the evaluation rubric, but it was also important because the new evaluation rubric was also tied to teacher pay because of the new TAP program. The way in which this new evaluation rubric was set up, each area looked at was given a score from one to four. After all scores were added up, the final score was averaged and that score then becomes a measurement of your teaching ability. This score is then made a part of a collective piece of information on how much of a raise you are to get the following academic school year. This evaluation rubric, and meeting all parts of it, became a very important tool for all teachers. Differentiation is a piece of this tool and something that administration started taking a close look at.

Description of participants. The teachers in the study were chosen to be participants based on the fact that they had been working with me for a year prior to the restructuring on ideas and concepts related to DI. Both teachers had attended several training sessions with me, and we collaborated on ideas for lessons on a frequent basis. For one year, I worked closely with both of these teachers on training and developing ideas. The next fall, we were finally ready to implement DI in the classroom. We worked for one solid semester on implementation of DI and collection of data based on their experiences. As the district was just starting to move ahead with their restructuring, we were finding out what worked and did not work with using DI at the secondary level.

The English class that was observed and used for data collection in this study was chosen based on the population of the students in the class. In this particular English I

class, there was a wide range of diversity in ethnicity and ability levels, with several students being in the English as a Second Language Program and on Individual Education Plans. Since I wanted to look at how DI worked with a variety of abilities and levels, diversity was imperative to the study. The particular teacher that agreed to participate in the study was an energetic teacher that had a good rapport with the students, as well as good behavior management in her class. Behavior management is also imperative when using DI in the classroom, as giving students an opportunity to have product choices and work in groups can cause students to easily get out of control. One concern with doing DI is that without good management and cooperative behavior, many of the techniques are difficult to do. Grouping, alternative activities, and expecting independence from students is impossible without good behavior. Based on these factors combined with the teacher's willingness to work with me and her knowledge of DI, this English I classroom was a perfect choice for the study. This teachers willingness to work with students of varying levels and abilities, as well as her eagerness to expand her knowledge of how to teach kids, made for an excellent classroom to gather data in.

When looking at another class to use for the study, the History I class at the high school fit the criteria that I was looking for. This classroom also had a teacher that was willing to participate with the makeup of students that made this study feasible. This particular teacher had been teaching at the school for several years and had a good rapport with students. At the time that I started working with him on using DI strategies in the classroom, he was looking for some way to change his classroom a bit. He felt as though he needed to reach the different levels of students in his classroom, and had always been willing to take in and embrace students with varying needs and abilities. DI

and techniques differentiated in nature were a welcome change in his classroom as he saw the need to reach these students becoming more of a challenge as the years passed by.

Findings

Elements of Differentiated Instruction as Used in the Classroom

The students in both classrooms were not introduced to the idea of differentiated instruction as a way to teach students based on readiness, interest, and learning profile. Teachers did not introduce the concept at all, but instead started the school year with activities that revolved around getting to know the student's learning styles, interests, and prior knowledge. These activities are key in beginning to implement and choose activities that are differentiated in nature. The students were informed of the importance of knowing about their own learning styles and interest so the teachers were better able to design lessons and activities that met their needs. Some of the prevalent differentiated strategies that were used by both the English and the history teachers included brainstorming, graphic organizers, providing choice in assessment, varying reading material to meet different levels and interests of the students, and flexible grouping.

Brainstorming. While using a variety of differentiated strategies, there were several strategies that both teachers used more frequently and were a good fit for the students. One of those strategies was brainstorming. "Brainstorming was used in all parts of the unit of study, but was seen as most useful during the beginning of a lesson when assessing students' prior knowledge" (History teacher). The history teacher in this research study found brainstorming to be extremely effective in helping him pre-assess where students' are before beginning a new unit of study. When asked why he found

brainstorming to be so effective, he stated that, “getting to know what kids already know is really powerful, there is no need for repetition” (History teacher).

Other powerful components of brainstorming include having your students come up with ideas and creative ways to express their knowledge. Brainstorming gives students the ability to be flexible, creative, display originality, and use fluency in their work (Heacox, 2002). Even though brainstorming is effective for assessing prior knowledge, both the history and the English teacher found that giving students the time to think about what they were doing or going to do was powerful in enabling them to take responsibility for their work.

Graphic Organizers. Another powerful strategy used by both teachers in this particular study was the use of graphic organizers. Graphic organizers, as explained by Tomlinson (2001), are a way for information to be presented to the students that helps them come away with a clear sense of what the lesson was about. Tomlinson (2001) believes that, “it can be quite useful [for teachers] to work with a visual organizer that follows the flow of ideas from the text or lecture” (77). Both teachers in the study felt that graphic organizers helped their students see information in a different way so that they were better able to comprehend the information given. The English teacher in this study used graphic organizers almost daily, and stated that one of the most useful strategies was, “graphic organizers, especially double column notes.” The important thing that Tomlinson (2001) warns teachers against is “that students who read independently may find it restrictive to have to use such organizers” (77). Using graphic organizers is a great tool to use and introduce to students, but as with all tools we give students to use, if it is not something that works for a student, you should give them the

flexibility to use something that works for them. A tool is only useful if it clicks for that students and is something that they find useful. Introducing tools to students is important to their success in the classroom, but making it mandatory can be restrictive and defeat the purpose.

Choice. The next strategy that the teachers in this study found useful was providing choice in assessment to students. By differentiating products that the students are required to do to show mastery of content, all students have a way to share their knowledge at a level that fits their ability. While it is important to give students choice in displaying mastery, it is important to continue to challenge students to grow academically while focusing on their personal interests and strengths (Tomlinson, 2001). Both teachers in this study used a variety of products to assist all students in being successful. Both teachers acknowledged how powerful it was to provide choice and listed this as one of the most useful strategies they used in their classroom.

Providing choice in the selected reading material was also something both teachers found to be important when differentiating lessons. While in English, the teacher chose anywhere from two to three novels the students could pick from that contained the same genre or concept, the history teacher picked out articles from historical magazines or other supplemental material to reinforce what the students needed to know. Tomlinson (2001) suggest “using multiple texts and combining them with a wide variety of other supplementary materials [to increase your chance of] reaching all your students with content that is meaningful to them as individuals” (75). Based on my observations, using a variety of text and multiple reading resources was one of the most powerful strategies that these teachers used during our semester of data collection.

Flexible grouping. Flexible grouping was the last strategy that the teachers in this study found to be useful and effective. Flexible grouping is a way that teachers can personalize learning activities while giving themselves the time to provide additional instruction or enrichment opportunities (Heacox, 2002). Based on my observations, switching things around and having the students work with different classmates seemed to help students not only get to know all of their classmates in a different way, but build a sense of respect and camaraderie amongst the members of the class. Depending on the group of students the teacher was working with, different types of grouping seemed to work better. The English teacher stated that,

There seemed to be a big difference for me when I grouped by ability versus own choice. When grouping by ability, there always seemed to be a group that did a poor job. There wasn't anyone in the group to raise the bar, the high group always did exceptionally well, but I like ability groups to help with remediation. (English teacher).

When looking at own choice groups, there are kids in the group that can raise the bar, it seemed that the lower kids in the group were even working hard, and the kids seemed to buy in more because it was their own choice (English teacher).

The history teacher in this study found grouping to be a powerful tool when assessing students' prior knowledge, stimulating small group discussions, and brainstorming ideas. He found grouping by learning style to be helpful so that students were able to use their strengths to present to the whole class or create a product that was conducive to their learning style.

Emergent Themes

In analyzing the data taken from the two sets of interviews, I first looked at the responses to the nine questions asked to each teacher during the interviews. I also looked at field notes taken while making observations that included comments teachers would make while teaching and after while having conversations with me or students in the class to build emergent themes that occurred throughout the study.

Based on the responses from both teachers, I began to put together what I saw as emergent themes based on the coding using what Merriam (2001) refers to as the step-by-step process of data analysis. Looking at the development that reflected the purpose of my research and assisted with answering the initial research question that based on teachers responses and field notes began to emerge as themes. After coding the responses into categories, I began to generate theories and make inferences based on the categories. The emergent themes will be discussed below with responses being embedded into the discussion to give the reader clarity as to how themes were generated.

When looking at and analyzing qualitative research data, the researcher begins looking for emergent themes to come out of the information. Unlike quantitative studies, qualitative studies are used to better understand the perceptions that people have about a given process (Glesne, 1999). In this study, I was looking to see what the perceptions of the teachers were about using DI in the classroom and their perceptions on getting started using such a methodology. Some of the following themes that emerged during the study were as follows: (a) autonomy; (b) self improvement; (c) planning; and (d) management.

Autonomy. Autonomy is a sense of independence. When students feel they are able to achieve and be successful at something, they have achieved autonomy. Strategies

that are incorporated into the classroom that are differentiated in nature are designed to encourage students to reach a level of autonomy. DI strategies, as seen by the teachers, “got kids to take charge and feel they had a say in what they were doing in class” (history teacher). Using choice helped students feel “empowered in their own education” (English teacher). A sense of independence in students is hard to achieve since most students can be somewhat timid when taking chances in their education. Students can be easily embarrassed and their self-confidence shattered when they take chances and fail. With DI strategies, providing choice helped to alleviate that stress. “All kids have something they can do” (history teacher). “Higher kids had more independence” (history teacher). This is what the teachers want all kids to feel; a sense of autonomy that “enables them to be more successful” (history teacher). Although the sense of autonomy that using these strategies helped students develop, the teachers also felt that there could be a down side to this. Certain groups of students still seemed to struggle with making choices. “Some students still needed guidance in choosing right project options and the right books no matter how you divided them up.” (English teacher).

Even though choices were presented to students, many students still did not feel confident enough in their choices, and the English teacher felt she still needed to direct them and assist with decisions. Being independent at making choices is difficult for students. As students are lead year after year in making good decisions and being told what they will do in school, giving students a chance to have some independence was difficult for them.

One of the factors of DI that is important is the sense of autonomy that the teacher wants to create for the students by giving them choice. When asking the teachers to

describe some of the benefits of using the elements of DI, both the history and the English teacher stated that giving students' choice was one of the greatest benefits.

“Kids seem excited about reading when they have a choice of a novel. There is no fake reading” (English teacher). “Kids appreciate choice and choices” (history teacher).

When giving students choice, the teachers would design lessons that would vary in some way for different groups of students. For some groups varying by the options of novels they were reading with similar genre was a choice. For some it was giving them a different way to express their comprehension with product options. Whatever the teacher decided to do, they felt that when lessons were designed in a way that gave students a chance to make a choice, that students were much more excited to follow through with the assignment. When the history teacher was asked which element he felt was most useful to him, he responded by stating, “[students choice in projects] gave more students a chance to participate and feel successful.” The English teacher responded with the idea that “[a]llowing student to have a choice in novels” was a useful element.

In my observations, I noted that students seemed to be more excited when the teachers handed them a list of possible projects to evaluate their learning than when they handed out a test. As an observer in the class I overheard several comments about how “cool” the projects were that they were working on. These comments were directly related to both the English and the history classes I was collecting data in. I also had the opportunity during my observations to hear students comment on how glad they were that they were reading a certain novel over another one. The students were able to choose the novel or were put into a group where the novel was leveled for them, and the students

noticed the difference and seemed to appreciate the opportunity to have this. Comments like this were repeated throughout my field notes, and both participating teachers commented as well on how much they heard students' positive remarks.

Student Involvement. Along the same lines as autonomy, but noteworthy enough to be seen as another emergent theme, is the increase in student self-concept that using DI strategies brought about. In my observations throughout the semester, it was noticeable to both the teachers and myself that the students seemed to be more actively engaged and willing to get started. One of the best things that the English teacher observed was that, "No one was overwhelmed. With a hard choice like *Romeo and Juliet*, they had options and the right books no matter how you divided them up." The students became "empowered in [their] own education" (English teacher). The switch in some students' attitudes about doing certain types of work was noted in my observations during several activities, and was exciting for the teachers to see. The history teachers noticed that when students were given choices that "it really help[ed] with motivation and engagement." He felt that before, students sometimes struggled with the assessment, be it test or project, and that with choices, the students seemed a bit more "eager to show what they know" (history teacher). The history teacher also noted that it was easier to tell if students were "truly involved or just going through the motions of an assignment." In-depth, higher level thinking was also commented on by both teachers as a positive of DI in conversation with me. In education, teaching to the average or middle is a common practice. With DI, teachers were able to reach out to students that were ready for something deeper and richer. Giving students choices helped push those kids that are

ready for something more into choosing activities that challenged them and stretched their brain instead of doing the same as everyone else.

Although “some strategies help[ed] with students confidence” (history teacher), there was still some concern that it could be a great deal for some students to handle, and choice could be confusing. As the English teacher observed: “Some things have the potential to be positive once learned as a teacher. DI does work for the students, but [the] effectiveness depends on the preparedness of [the] teacher.” The teachers commented several times during my observations on the importance of being prepared in a way so as to “engage all students; high and low learners alike need to have something they can do” (history teacher). This was not only beneficial to the students, but the English teacher also commented on how she felt that she had, “learned[ed] more about what [she] wanted[ed] them to learn than ever before. [The students’] learned about consumerism, rebellion, [and] learned to access information for themselves. I didn’t have to tell them what the themes were; I usually have to (English teacher). As Tomlinson (2001) notes, “Self-efficacy comes not from being told we’re terrific but rather from our own recognition that we’ve accomplished something we believed was beyond us” (p. 13).

As an observer in both classrooms, I not only observed, but noted the difference in students and their attitudes toward learning. Students in both classes seemed more engaged and eager to learn than I had noticed in previous years of being in the same two classes. There was more movement and activity going on daily that to some could be seen as off task behavior, but to myself and the teachers it was a sign of true enjoyment and engagement in the learning process. The students seemed excited and more in control of what they were doing. There were still questions about what to do and how to do it, but

less blank stares and hesitation to get started. Students were excited about what they were doing, and it showed in their on-task behavior as well as in their final assessment grades.

Planning. One concern of teachers and administrators with using DI is that to individualize instruction for students is time consuming. In talking to the teachers in the study, this was a concern of theirs and one of the reasons they stated that they could see DI being easier at the elementary level rather than secondary. At middle and high school, you can see upwards of 150 students a day, but in elementary you have the same 15-30 all day. Both teachers made comments even before the research began about how difficult planning would be. This concern became evident throughout my field notes and reappeared several times during the study in both interviews and observations.

When differentiating instruction for students, there seems to be a great deal to do when beginning to plan. The idea and goal of DI is to take into account students readiness, interest, and learning profile when designing lessons. The problem arises when teachers start to think that all lessons have to be differentiated in nature as well as aligned with state standards for you to actually be differentiating. Alignment with state standards is a requirement in most districts, but differentiating is not. There is no difference when using state standards to guide instruction in either a differentiated lesson or a non differentiated lesson. Differentiation only guides how you approach the lesson, not what you teach in your classroom.

During interviews with teachers, both teachers commented on how differentiating gives “to much choice for kids sometimes” (English and history teacher). The teachers thought that students sometimes had a hard time when given so much choice and that it

“[could] become confusing for them” (English teacher). It made it hard and time consuming to plan different options only to have it confuse kids and have them become overwhelmed. This was seen as a frustration for the teachers, but after further and deeper conversation, the teachers both agreed that “if students were exposed to differentiation at a younger age and learned how to be comfortable with making choices, this part would not be frustrating” (English teacher). The history teacher added that “if kids were more comfortable with making choices, the planning for different options would not be bad; it is actually fun to give them choices.”

Other issues that would arise in regards to planning included structuring activities, getting to all of the students, grading, providing enough rigor for some students, and keeping all kids busy. The history teacher in the study commented on how difficult it was to “structure the class into groups and have enough to keep them engaged independently. It made it difficult to hit 100% of the kids with each activity.” The English teacher commented that “structuring was difficult, which made it hard to plan for the types of groups you wanted to use with assignments.” This seemed to lead to some frustration when planning for differentiated types of lessons.

On top of the structuring, there were pros and cons mentioned when grading, which can directly tie into how you plan lessons. Grading can be a cumbersome part of a teachers job, so with more options planned for the “grading was sometimes harder to manage” (history teacher). On the other hand, the history teacher did comment on how using “more projects to assess comprehension alleviated grading everything.” This, in turn, gave him more time to plan assessments that encompassed a “larger scope of information so there [were] less filler activities to grade along the way.” The English

teacher also commented on how differentiated lessons helped her “cut out the fluff and be more mindful of what students need[ed] to learn. Kids appreciate[ed] no fluff.” No fluff meant less planning and grading in many instances.

Another aspect of planning that was important for the teachers was how they prepared themselves for using DI in the classroom. Preparation and an understanding of how and why differentiation is important is key to successful implementation. As Tomlinson (2001) states, “[i]n a differentiated classroom, some of the traditional ground rules change” (p. 39). To prepare themselves for using DI in their classrooms, both teachers did several things that varied from workshops to using the List Serv to assist with ideas and the way to implement DI successfully. Both teachers “attended trainings, workshops, and read books to help get started” (English and history teacher). The English teacher also commented on the importance of using “ideas from the past” so as to use that prior knowledge and feel more comfortable with what she was teaching.

The last concern of the teacher in regards to planning seemed to be reaching all of the kids. When planning lessons, the teacher needs to keep in mind what “facts students must know” (Tomlinson, 2001, p.87). The English and history teachers both felt that it was difficult to plan the activities and time them effectively enough to “keep all kids busy and engaged.” As all teachers know, some students can work quickly through an activity while others can take a long time. Both teachers felt like some kids would fly through an activity and other may take their time and be more thoughtful of the process. Although both teachers felt this way, they did recognize that this is a problem with all lessons, not just those differentiated in nature.

Along the same lines of keeping kids engaged in learning, the history teacher added that it was “difficult to provide enough rigor to some students that needed that.” As learning contracts are an important component of DI, they were not something either teacher felt comfortable enough to get started with. Learning contracts are a great way to keep students working independently and engaging them in higher level thinking, but are difficult and time consuming to get started. Along with this frustration came the feeling that the facts that were so important for all kids to know became “difficult to plan for with each group you were working with and keep them all aligned and on task (English teacher). Whether providing enough rigor or providing work at a students level, both teacher found it difficult to plan for. As King-Shaver and Hunter (2003) have reported on differentiation, they seek to remind teachers to be aware that differentiation does not have to occur all the time for good learning to be occurring. The most important principle guiding differentiation is flexibility. Although the teachers goal is to have all kids getting the same content out of a lesson, there is nothing wrong with moving kids around and about during an activity to see where they fit best or changing things to better fit the needs of the group when things are not going as planned. Gregory and Chapman (2002) also encourage the use of sponge activities for groups or students that finish early. These activities are designed to enhance what students have already done, but do not require planning from the teacher. Some ideas are: (a) make a crossword out of key vocabulary, (b) use a web to organize key ideas in a unit, (c) rewrite a passage in your own words or change the ending, (d) draw a comic strip. These are a few ideas to help keep groups on task that require no planning on the teachers part.

In my observations, when it came to planning, I felt as though I was fortunate to be working with two seasoned professionals. Their ideas and structure for the class were already developed, so it was easier to take what they had and work with it. Although this helped, I could see how difficult DI would be to do with all lessons. Even with us working together as a team on planning, it took a great deal of time and energy to plan, organize, and prepare for each lesson. Based on my observations, it became clear to me that for new teachers, differentiating could be difficult. The thing that is important for teachers to remember is that there are so many levels of differentiating that even at the lowest level, students will be able to benefit. Both the English and history teachers agreed that even doing some differentiation made a difference in their classrooms.

Management. Another emergent theme that was evident in my observations was management at a different level than planning. Management encompasses many things, and behavior and organization both became facets of management that the teachers were concerned with. During our short period of observation, we were unable to delve into some facets of DI that are important and helpful in planning and management of students doing so many different activities.

King-Shaver and Hunter (2003) have reported that when teachers get to know their students interest, readiness, and learning styles, that management becomes easier. These are the three premises that DI is built on, and although the teachers in the study would agree that these facets are important, management issues seemed to continue to arise when students were working on individual or group activities even when the teachers were aware of these facets and working hard to improve them.

Although “placement in any type of group seemed to work well” (history teacher), so much activity in the room made “structuring difficult” (English and history teacher). When structure became difficult, it made it difficult to “provide more rigor,” (history teacher). Both teachers liked the idea of grouping students in different ways weather it be based on interest, learning style, or choice, but they sometimes felt that it encouraged talking and misbehavior. “Some students enjoy working by themselves, and sometimes there were kids that just couldn’t handle being in group type activities” (English teacher).

CHAPTER 5: DISCUSSION

Introduction

This study was chosen because of the particular interest I had in the use of certain instructional strategies in attempting to meet the needs of all learners in the classroom. The study was conducted to catch the essence of what it is like from a teacher's point of view to try and reach all learners in one heterogeneously mixed classroom. The study was not conducted to find out if strategies worked or did not work, but rather to find out how teachers, especially in a high school setting, feel about the use of these instructional strategies that have been termed differentiated strategies and the strengths and weaknesses of using this type of methodology within their classrooms.

Study Summary

Autonomy

The emergent themes that were discovered led me to look into how the teachers perceived the effect that providing assignments that were differentiated in nature had on the students' feelings of independence and the control they had over their own learning. Autonomy is created when students feel a sense of independence, feel that they are in control of their learning, and are empowered in their own education. Both teachers in the study felt that there was an obvious change in students' attitude towards learning and their willingness to engage themselves in their own learning. The level of independence that some students began to exude was evident, and the success they felt after they were able to produce work that showed their true abilities led the teachers and myself to understand just how important differentiation can be. "[DI strategies] got kids to take

charge and feel they had a say in what they were doing in class” (history teacher). Using choices helped students feel “empowered in their own education” (English teacher).

Student involvement

In the beginning phases of using strategies that are differentiated in nature, it was evident that students did not feel comfortable with being so involved in their learning. Education has historically been a place where students take a passive role while the teacher directs instruction and learning. Although students are responsible for gaining knowledge and remembering it for assessments and such, students are use to sitting in their desks while teachers tell them what they need to know. Differentiation takes on a different form, and students become active partners in their learning. The role of the teacher changes drastically and they are viewed more as facilitators of information rather than direct instructors of information.

After using DI strategies in the classroom for a few weeks, the comfort level of the students began to take shape and it was evident that the students were more comfortable with their new role as active participants in their education. Strategies like flexible grouping, choices in assessments, and choices in how they learned began to create a feeling of involvement and control over their learning. Giving students choices “really help[ed] with motivation and engagement” (history teacher). “[The students] learned about consumerism, rebellion, [and] learned to access information for themselves. I didn’t have to tell them what the themes were; I usually have to” (English teacher).

Planning

When there are positives that come out of new methodologies and strategies teachers use in the classroom there also seems to be negatives that come along as well. With all the positives seen from what the students gained out of differentiation, and as much as the teachers liked and enjoyed using differentiation in the classroom, their seemed to be a few negatives that the teachers encountered. Planning was seen as one of the most difficult things from the teachers' perspective about using DI. Teachers felt that getting to know the kids learning styles, readiness, and interests was impossible for all 150 kids. After getting all of that information, just the planning alone for so many different lessons was seen as overwhelming. Issues with planning revolved around grading, structuring activities, and providing choice in product, process, materials, and groups.

Management

Another difficult part of differentiation that teachers encountered was management. There are several areas of management that teachers run into everyday in their classrooms, but organization and behavior seemed to be the two issues that came up the most during the research conducted. A great deal of the management issues became issues based on seeing so many students in one day.

Behavior. Behavior of students and managing the behavior was seen as a huge obstacle for teachers to overcome when differentiating in the classroom. As students are given more of an opportunity to be independent learners and have choices in their education, behavior can sometimes become an issue. Defining and outlining clear expectations at the beginning of the year is a must to control some of the students'

behavior. Working independently, choosing activities, and working in small groups can sometimes cause off task behaviors to occur. With clear expectations, students are able to understand and manage some of their own behaviors when engaged in different activities.

Organization. Another area of management that was a concern of the teachers was organization. Organizing activities that would keep students engaged and on task became difficult for teachers. Choosing groups, creating a variety of choices, enriching the students, and meeting the needs of all students requires organization. Coming up with a system to manage all of this is an important component of successful differentiation.

Summary of Findings

The findings of this research study that was conducted over one semester shed some light on the pros and cons of implementing DI at the secondary level. This study was conducted in a high school setting in hopes of giving teachers some idea of the challenges and successes of implementing curriculum required by many districts in a not so traditional form. The main focus of the study was to see how teachers at the secondary level felt about the use of DI as an instructional strategy after they implemented DI methods to the class over the course of a semester. Although there have been a great deal of observational studies conducted over the past several years, and information dispersed about the use of DI, how to get started, good strategies to use at different levels and for different types of students, there has been no research based information to date dealing with DI at the secondary level. The purpose of the study was to see if DI strategies seemed to work for both teachers and students, or if it is just another thing that teachers have to add to their already full plate.

In the beginning of the study, both teachers were a bit hesitant about taking on another form of lesson planning, but were also eager to learn how to meet the students' needs in their classes and help all students succeed. Curriculum reforms come and go, and new trends seem to take over in the field of education every few years. The last thing either teacher wanted to do was to get into some fad of sorts and waste the time that they have to educate their students in a productive, effective way. After both teachers learned more about DI, they realized that even if DI cannot be implemented to the full extent, it is still something that can benefit all too some degree, even if you are able to use only parts of it. DI is not something new or unique, but it blends several different approaches to teaching into one approach. Using the techniques that DI incorporates under it's umbrella, teachers are forced to, "recognize differences and then plan and deliver accordingly"(King-Shaver & Hunter, 2003, p.2).

As the results of this study show, differentiating can be difficult and timely. Although it can be time consuming, both teachers in the study felt it was important to use some of the strategies with their students to help foster success in each and every one of them. Both teachers in the study felt that differentiation could be used in a way so as to make learning more exciting for all. Although excitement is not the only reason to use this approach, success in school for all students is not only a responsibility of the students, but a responsibility of the teacher. Using a method of teaching that fosters that and increases student excitement about learning is imperative for students' success in the future.

In summarizing the findings of the study, I see the themes that emerged from the observations and interviews as helpful to teachers trying to get started with DI in their

classrooms. The goal of teachers is to meet the needs of all students, and in this particular study, the teachers found DI to be a useful tool in providing multiple avenues for students to learn (English and history teacher). Although implementing elements of DI in the classroom did assist the teachers in meeting the needs of all learners, there were many challenges posed during the implementation. The themes that emerged throughout the study brought to the surface some of the underlying challenges in using strategies differentiated in style, especially at the high school level.

Strategies for meeting the needs of all learners at the high school level seem to be more of a concern than at the elementary level. This seems to be the most difficult part of differentiating in a high school setting. Trying to create a program that meets the diverse needs of all these students seems overwhelming to teachers. The unique set up in high school with teachers seeing upward of 150 students in a day makes differentiating for all of those students almost impossible. At the elementary level, teachers have the same 20-30 students all day. Elementary teachers are better able to get to know each student and spend quality time getting to know them on an individual basis. Some of the key concepts that define DI become more cumbersome when there are so many students involved. In this study I found that planning, classroom management, and grading were some of the most challenging aspects of teaching that both teachers in this study found when trying to implement differentiation in the classroom.

Findings in relation to the literature

When looking at the literature on differentiated instruction, there is little information on the effects differentiation has on the teacher. There has been, over the past several years, information about the benefits of differentiation on students and

teachers alike when it comes to overall learning outcomes, but very little on the difficulty of getting started and managing all that differentiation has to offer students and teachers within the classroom. Although differentiation is seen as a great way to meet the needs of all students in one classroom, the amount of time it takes teachers to prepare themselves can be a cause for concern, as well as a great reason why more teachers are not implementing a curriculum that is differentiated in nature on a regular basis.

Tomlinson, as written by Hess (1999), sees the time commitment that teachers have on a daily basis even without differentiating and understands their struggles with trying to implement such a methodology in a short period of time. Tomlinson believes that it can take several years for a teacher to get to a point where they are differentiating for all students, but sees even one or two strategies to start as enough to give students of varying levels an opportunity to learn. The cycles that schools find themselves going through with different curriculums and fads only makes differentiation more difficult and even the most seasoned veteran can find it difficult to keep up.

When looking at the findings of this study in relation to the literature, there are several similarities. Although much of the literature looked at dealt with younger grades, the literature did identify several roadblocks that may be encountered when implementing DI that also came up in the research. As Tomlinson and Hess (1999) investigated in their book on differentiation the varying grade levels and issues raised at the upper grade levels, the concerns they raised about planning, grading, and meeting the needs of so many students were all themes that emerged out of this study. These were the most prominent themes that came out of this study and were the issues that concerned the teachers the most. Although the literature brought up these points, the teachers that were

faced with these issues continued to see these themes as their biggest obstacle when using differentiated instruction in their classrooms. Literature addressing these themes did offer some solutions when faced with these obstacles, but the teachers still felt that when implementing DI these obstacles seemed insurmountable at times.

Some of the findings of this study that were not found or addressed in the literature, or that were different than the literature looked at the autonomy and self-esteem. Both of these were themes that came out of this study, and although mentioned in the literature in several different ways, the teachers felt as though these were some of the main reasons a teacher should differentiate. The difference in some students' self-esteem and just motivation in general was enough to make both teachers that participated in this study want to try and differentiate no matter how difficult a task it could be in some situations.

Other important findings

Although this study was consistent with what Tomlinson and other authors and educators have found when implementing and training teachers on the use of DI, there were a few things that have not shown up in the observations that this study found. In many of Tomlinson's books and articles, she mentions how difficult planning, grading, time management, classroom management and so forth are. Even though the same things were found during this study, what I found to be most enlightening during the study was how positive the atmosphere was when students were allowed to choose activities and work in different fashions. The other important aspect of the study that is not found in much of the literature is how difficult it is at the high school level when you are dealing with so many students on a daily basis. There have been articles that discuss the

difficulty of doing differentiation and King-Shaver & Hunter (2003) even dedicate a section of their book to how to differentiate when you see 100 kids daily, they do not get to the core of the difficulty of seeing this many students and how to make differentiation work. This is an interesting part of this study and an important component of the initial reasons behind conducting this study at the secondary level.

At the end of the data collection period, there was no doubt in my mind or the teachers mind that differentiation can help all students and even make the teachers feel more successful about meeting the students needs. The main problem is, and will continue to be, that with so many students coming and going, it makes differentiating for all students even more difficult. During this study, we looked at only one class for each teacher. Although the data was collected from only one class, the teachers were using the same techniques in other similar classes throughout the day. Both teachers concluded that to do that type of work for each class would be almost impossible without the help of another teacher or aide (English and history teacher).

In this case, I was there to assist with planning, management, and several other components of differentiation that would have been more difficult if they were required to do it alone. This raises the question of the possibility of actually implementing differentiation at the secondary level to the full extent.

As King-Shaver & Hunter (2003) have advised, it is not necessary to differentiate every lesson to make a difference in a students' success in the classroom. Little steps and introducing some concepts in a differentiated style will help reach each student at his or her level. The issue of time still comes up even with differentiating in small steps for the teachers, and teachers usually want to do what is best for students and give it their all.

When they implement something only half way, they do not feel that the students are always reaping all of the benefits from their instruction and want to do more. King-Shaver & Hunter (2003) suggest planning one lesson at a time and see the more a teacher differentiates, the easier it becomes. Although it seems to be true that the more you differentiate the easier it is to do lessons down the road, it is still frustrating to teachers and they feel they are still focusing on only on or two groups of students instead of the whole. The group the teachers in the study felt they leave out the most are the gifted students, and they feel they need to continue to work to meet their needs and challenge them in an appropriate manner (English and history teacher).

As the researcher in this study, I could easily see how overwhelmed both teachers were when they first starting immersing themselves into working with me to see how differentiation could assist them in their classrooms. It is an all encompassing approach to learning, but one that can be well worth the time and energy. Both teachers in the study were able to observe noticeable differences in the way their students responded to differentiated lessons and were eager to continue to differentiate, but the time commitment and stress that it can add to planning each lesson without the assistance of another trained person was an overwhelming facet to the positive effects that DI has on students.

Recommendations

Recommendations for teachers

When looking at differentiating instruction in the classroom at any grade level, it is important to start small. As results of the study show, differentiation can be a difficult

task to begin to implement and can take a great deal of extra time to plan for. In the book by Tomlinson (2001) that relates to differentiation, there are many steps teachers can take to reduce some of the stress and time pressure that teachers feel when they are differentiating instruction. When looking at the themes that emerged during this study, many of those recommendations align with what I discussed with the teachers that participated in the study as we tried to work on making differentiation a possibility within their classrooms.

Recommendations that I would make for any teacher trying to start the process of differentiating instruction would begin with having teachers do research on differentiation and have them begin to understand why it is important and what it means for different students and different classes. Each new group of students a teacher gets each year will require different types of differentiated activities. What works for one child will not necessarily work for another. Although once a teacher gets started with using differentiation in the classroom, s/he will be able to use several of the activities again, there will always be kids that need something different. Constant teacher training and time to work with colleagues is of utmost importance in assisting teachers and helping them make differentiation successful. Understanding exactly why it is important to differentiate and having a belief in the usefulness of differentiation is key in making this methodology successful in the classroom.

Another recommendation for teachers would be to get the proper training. Reading books and working with others is helpful when beginning to implement differentiation, but on-going training is key to the overall success of the program. Attending workshops on differentiation as well as having people come into the school

and into your classroom can be helpful. Educators know that having proper training and follow up training is extremely important when starting anything. As changes in education occur and with teachers getting a new set of kids each year, training is important in assisting the teacher with the differences that will be apparent with each new class each year.

One of the key factors that I see affecting a teacher's ability to successfully differentiate is planning. In high school, teachers are fortunate enough to be teaching only one subject. Although they may have several sections of, for example, English I and a few sections of English II, they are able to focus on one subject throughout the day. One of the key components of a successful program at any level is planning collaboratively with other teachers. Even planning with teachers in different subject areas can be helpful to spark ideas and ways of teaching similar subject matter. Cross curricular, or thematic units, can help make differentiation easier as you hit the subject matter over and over again in a variety of ways in a variety of different classes. When teachers are given time to work together, great ideas are shared, information is shared, and strategies that work with students are shared. This is one of the goals of differentiation and an important component in making it work.

One aspect of differentiation that both teachers in this study mentioned as being difficult to do was planning for so many students. Teachers that are starting to differentiate will need a great deal of time to make a good differentiated program. I would recommend to teachers to be aware of the time commitment and once again, start small so as not to get overwhelmed. In reality, each class is a different class due to the fact that each class has different students with different needs. On the other hand, each

class at the high school level has similar lessons and content, so planning a variety of differentiated lessons can meet the needs of students in different class periods because the content and the *what* and *why* of information that the students need to know is the same.

Another way to deal with planning issues that arise when dealing with over 100 students is to work closely with other teachers in the same or different departments. Working with another teacher that is teaching the same content is an easy way to work together as a team. One teacher designs a differentiated lesson for one unit of study, the other teacher designs a lesson for another unit of study and then they share. This is even a viable option with a teacher from another department. Many high school classes are intertwined and when history is studying the American Revolution, the English department may be looking at a novel that depicts the life of a family torn apart by the American Revolution and the husband going off to war. When opportunities like this arise, it is a great time for departments to work together on assignments that can be cross curricular in nature. The teachers can be working on assignments in both classes and even more differentiation can occur when two teachers are planning for those lessons.

Another problem that both teachers in this study were concerned about was the grading that occurs when you have several different activities going on at once. Grading at the high school level on traditional assessments and work is difficult to keep up with when dealing with so many students, but when that many students are working on a variety of activities, it can become overwhelming. Tomlinson (2001) offers many great suggestions and ideas that I also see as helpful to teachers when keeping up with grading. One of the key components of keeping up with grading at the high school level is to give students some of the responsibility when it comes to grading. Students are capable of

grading their own work and keeping track of grades when the grading is more traditional. When differentiating instruction, the grading is not always so traditional, but on simple assignments where there are cut and dry answers no matter at what level you are answering them, students can be responsible for their own progress or peer grading can be implemented within the classroom as well.

Independent learning contracts where students are working more towards reaching an academic goal that the teacher and student have previously designed is another way students can become more independent and responsible for keeping track of their own grades. Learning contracts can be difficult for teachers to plan with a student and take a great deal of time, but students can easily monitor their progress and chart growth without the teachers input. Learning contracts are great for higher level thinking and learners that are easily motivated can really thrive with these types of contracts.

Another way that teachers can easily grade student work is in the form of projects and participation. When students are asked to display their work in a variety of ways, or they have choice in product, some of those choices can be an activity where the student presents their knowledge to the class or to you orally. Although this can take some time away from class and you working with students, it is a great time for some students to be working independently while you listen, or for the whole class to be participating and actively listening to someone who is presenting what they have learned throughout the unit. Grading for teachers becomes instantaneous and complete.

As with all teachers, the teachers in this study felt it was difficult to find the time to do all that was required of them when differentiating instruction to the full extent. As mentioned before, small steps is the way to begin and starting somewhere is better than

not starting at all. Heacox (2002) recommends that teachers start where they are with what they have. Instead of starting over, it is best for teachers to use what they have been using for the past several years and design activities off of those lessons that take into account student learning preferences and strengths.

The role of the teacher in classroom that uses differentiation is also different than it is in a typical classroom. Although this can be difficult for a teacher to get use to, it frees up time and helps students develop a level of independence. As the facilitator of the classroom, teachers lead students to engage in activities instead of being involved in direct instruction all the time. Your responsibility shifts and you are there to assist students by providing learning opportunities and organizing students around their learning (Heacox, 2002).

Most teachers feel stuck in what they are teaching since curriculum is district mandated and usually a product of state standards, so they feel helpless and like they are unable to be creative and make changes. What Tomlinson (200) and Heacox (2002) both recommend is that teachers use the curriculum they are prescribed to use in the district, but not to let that mandate how they deliver the instruction of that material to the students. The information has to get to the students, but no one ever dictates the format you use to get it to the students. This is where teachers have some flexibility to create exciting lessons that meet the needs of the students and make learning fun and exciting while fostering success in students who typically struggle or are bored because the curriculum is too easy.

Recommendations for teacher training

Young teachers are the ones that find differentiation the most difficult, but are usually the ones that have the energy to try and make it work. Some teachers that have seen fads come and go see this as another fad that will come through the door and leave just as quickly. Tomlinson, as written by Hess (1999), encourages teachers to see the benefit of differentiation as a long term solution to the problem of meeting the needs of students that range in ability from gifted, to special education, to second language learners. The key to making it a successful practice is pre-service and in-service training. Tomlinson sees differentiation as a “fine motor skill” (Tomlinson as reported by Hess, 1999) that teachers have to work on. Young teachers, and even experienced teachers will need training to acquire the skills it takes to be able to differentiate.

The time it takes to train a teacher on how to effectively differentiate is one of the biggest concerns and problems that teachers encounter. Although schools will do pre-service training for their teachers which may include some facets of differentiation, the one shot look at how to do it with no follow up is disturbing. Teachers are bombarded with quick snapshots of many things they are expected to do or ways to be an effective teacher, but have very little training on how to do it. If a teacher does not take control and initiate training or just learn on their own, many of the things they are exposed to during pre-service training just sits in a file never to be looked at again. This one shot look at different approaches to teaching encourages teachers to aim their instruction towards the middle of the road, therefore, leaving out up to two thirds of the students on a daily basis.

The key to any successful program, curriculum, methodology, or just about anything you do is proper training. One of the most difficult components of differentiation is the role that the teacher plays in the classroom. As teachers, we have been trained to be experts in our subject area and trained to teach students what we know. The typical approach to this is to engage in direct instruction and lead the students to learn the material you are presenting. The instructional focus when you are differentiating is taken off of the teacher and put onto the students. The teacher becomes a learner and a facilitator (Tomlinson 2001). This is a difficult role for a teacher to be in, and it takes a great deal of training to assist them in taking on this role. For differentiation to work, the teacher really needs to change their mindset and be comfortable in this position.

The problem with training in any area is usually that teachers are given a snapshot look at something and then set free to do it if they like. With differentiation becoming a part of evaluations and an important way to meet state standards, it is important to provide more than just a snapshot of how to differentiate and actually get into the schools and train teachers how to make it work by modeling and coaching teachers. Although both teachers went to several trainings on differentiation and I was able to work with them in the classroom, there still needed to be more time to get to the heart of differentiation and help the teachers feel more comfortable in their roles as well as meet the needs of all students.

Recommendations for schools and districts using differentiation would be to provide ongoing training for teachers and staff. Using a coaching or mentoring model within the schools is a great idea and one that the district where the study was taken place

adopted. The trouble with using coaches and mentors is that the focus needs to be specific for those coaches and mentors and the time needs to be given to them to become experts in the field so as to assist the teachers in a productive, meaningful way. Often times these people get bogged down with other responsibilities that take away from them having the time to get training for themselves or spend quality time with teachers to assist them with their needs. To build an effective community with mutual respect is important and something that takes time to build. A community where the staff can take time to work together for the greater good and feel properly trained can make a world of difference for not only teachers but students as well.

Proper ongoing training is expensive and time consuming. If districts and schools want teachers to be able to implement curriculum and methodology effectively, they must provide training in those areas that is all encompassing and assists teachers on building off of what they already know. The idea of learning about certain methodologies of teaching is to implement that within the classroom and build on that yearly. Giving a teacher a quick overview and then letting them go is not giving them the tools they need to implement any methodology or strategy effectively, therefore, these strategies usually are forgotten and never used.

As this study revealed, teachers need to understand how to properly introduce and implement differentiation, and only proper training and time can allow them this opportunity. As Tomlinson (1999) reports, planning, management, grading, and time are the difficult aspects of differentiation. This study confirms her thoughts and shares her ideas on how these difficult aspects make some teachers want to go back to the traditional way of teaching. On the other hand, the sense of autonomy, the self-esteem booster, and

the teachers feeling better about meeting the students' needs in their classroom make it all worthwhile.

Recommendations for future research

Based on the findings of this study, I believe that there needs to be more research done on effective ways to handle the varying learning styles, aptitude and abilities of students in the classroom. There are many research based approaches to educating students today, but there is little on how to effectively implement these programs in the schools in relation to all the teacher has to deal with and accomplish in a day. To date, there have been several new books and articles with suggestions and ideas for teachers on how to effectively introduce and get started with methodological approaches based on reaching the needs of all learners in the classroom, but the key to the success of these programs is proper, ongoing training.

Future research can, and needs to concentrate on what teachers need to know about students to help them be successful. There needs to be ample time for teachers to get to know their students and information kept in a cumulative file so each teacher does not have to recreate the wheel with each student. There are several quick assessments that can give teachers a ton of information about students and their learning style and academic ability. Students do not need to be on an Individualized Education Plan to alert you of their needs. Assessments early in the year can assist teachers in getting to know students so they are guiding them to be lifelong, independent learners from the get go.

Other ideas for future research would be to do a quantitative study that looks at actual grades of students where differentiation is being used. Looking at a class where the same curriculum is being used that has more of a direct instruction modality of

teaching and a class that uses more of a differentiation based modality and then looking at different assessments over the course of the year would be an interesting way to find out if differentiation is really making a difference in students grades and what they are learning.

Another interesting study based on the same concepts would be to look at not only the teachers' perspective of how differentiation and implementing differentiation was going, but to look at students' perspectives as well. Getting their input and seeing how if they like or dislike that way of teaching would be an interesting component and one that I see as important if you are going to make changes in your teaching style. What students think about the way they are being taught can shed a lot of light on what is and what is not working in education today. Students input into their education will tell educators more than discussing curriculum or methodology used amongst each other.

Recommendations for implementation of Differentiated Instruction

When faced with the challenges of implementing a methodology such as DI and looking at the teachers' perceptions of the difficulty, there are several strategies that might help alleviate some of the stress that can be put on teachers. Some of the strategies include: (a) preplanning; (b) common planning time; (c) training; and (d) empowering students.

Preplanning. One important component of getting DI started in the classroom would include preplanning. Giving teachers ample time to get organized and ready for their new classes is an important part of making DI successful in the classroom. Offering teachers time before the start of school so they have time to put together a curriculum map, target lessons to differentiate, and set up their classroom for successful

differentiation is key. Encouraging teachers to attend seminars and trainings, or bringing trainings to them is helpful in alleviating some of the ambiguity that such a broad methodology like differentiation entails. A typical response of teachers getting started when looking at differentiation is to ask where to begin. With preplanning time and proper training beforehand, teachers may feel more at ease about how to begin the process.

Looking at the key principles of differentiation which include: (a) making sure the teacher is clear about what matters in subject matter; (b) making sure the teacher understands how to build upon student differences; (c) understanding that assessment and instruction go hand in hand; (d) making sure the teacher is ready to adjust content, process, and product based on students' needs; (e) preparing students to participate in respectful work and make sure they understand how both teachers and students can collaborate in learning together; (f) understanding that flexibility is a key to successful differentiation in the classroom; and (g) setting the goal that all students will reach maximum growth (Tomlinson, 1999) are important in making differentiation successful. Making sure that each teacher has an understanding of these principles will let teachers and administrators know that the teacher has had ample time to familiarize themselves with differentiation.

Common planning time. Another important component in assisting teachers to get prepared for using DI in the classroom is giving teachers ample common planning time. Just as planning time is important, planning time with colleagues can open up opportunities for not only learning from others, but can help stimulate and create ideas that a person alone might not have been able to develop. Giving teachers time to work

together can have several effects. The first effect becomes evident when teachers from the same grade levels have opportunities to work together. If teachers from the same grade levels have these opportunities, they can plan multiple lessons with one person taking an idea for one unit and completing it and another person taking ideas from another unit and completing it. This gives the team two completed differentiated units instead of one in the same time frame. This will save everyone time which, in turn, makes differentiation become less cumbersome. DI being time consuming was another issue that came up during the research.

Another way to have colleagues work together would be in a cross curricular fashion. Having, for example, the history and the language arts teachers working together on a unit can open up some creative opportunities for both. As the students are learning about the Industrial Revolution in history, the LA teacher could be working on a writing assignment that deals with the same topic. As a cumulative activity, the teachers could have the students working on a project that ties into both classes. Giving time for these teachers to plan together can open up opportunities to see the importance and relevance of certain topics in more than one area of study.

There are several other ways that giving teachers common planning time can and will help support teachers with differentiation, but the most important component of giving teachers this time is that it builds a sense of teamwork and helps to get those reluctant to differentiate to try new things and begin to feel comfortable with the process. For those reluctant to get started, having an opportunity to work with staff that may have a level of comfort with DI will assist them in understanding the process and feeling more comfortable with taking that step forward in their thinking. Getting specials teachers

such as art, music, and special education involved can also open up opportunities and help build a sense of what Tomlinson (1999) calls “collegial partnerships” (p.105).

Training. As mentioned in preplanning, training of teachers is imperative in not only helping teachers feel ready to implement DI, but in the ongoing success of using DI in the classroom. Before any teacher feels confident in using a new tool in the classroom, they must feel prepared to use that tool. The one thing about differentiation that is unique is that it is not only a tool, but is a way of thinking about both teaching and learning (Tomlinson, 1999). To begin that transition in thinking, administrators must establish a shared vision amongst the staff. It is not fair to teachers to do something they have uncertainty about, so proper training and clear cut expectations and goals by administration can help clear up this uncertainty.

Once training has commenced and the staff is clear as to where the school is in regards to DI and its importance, having the teachers commit to continual training and making a personal commitment to keeping abreast of changes in education is an important goal. For administrators, giving opportunities for staff to engage in training and process the new information is what is needed to make implementation successful.

Student Empowerment. Just as important as preparing the teachers for the use of DI in the classroom is the idea behind preparing the students for the changes they will be undergoing when lessons become differentiated in nature. In a differentiated classroom, the role of the teacher changes from a director to a facilitator of learning. Teachers empower students to become independent thinkers and learners by offering students choice and creating activities where students are in charge of making decisions that directly effect their learning. As Tomlinson (1999) states, “helping students master these

things not only develops more independent and thoughtful learners, but it creates a classroom that belongs to kids as much as to adults” (p.100). Creating a classroom where students feel they have some ownership and see the teacher as a facilitator gets them excited about their learning opportunities (Heacox, 2002).

Conclusion

Although DI is a difficult, time consuming methodology to use in the classroom, it is obvious from this study and other information in the literature that students can benefit from it greatly. DI is not something new and has a long history. This methodology is just a continuation of other successful methodologies, but more intensive and student centered. The results of this study show that there are several obstacles and difficulties when starting to use differentiation in the classroom. The purpose of this study was to uncover some of these obstacles so that when teachers begin using differentiation they are able to get a head start and problem solve before the start. The importance of the findings of this study include the impact that DI has on students and their learning. As themes emerged from the research, it became evident that DI assists students in becoming autonomous learners with a positive self-esteem. Although students were not interviewed in this study, observations made by myself and the teachers led us to the conclusion that the students were happier, more energetic, and motivated to complete tasks when DI methodologies were incorporated into their daily instruction.

As stated in the purpose of this study, I was hoping to fill a gap in actual research that looked at the impact that using DI methodologies in a high school classroom had on teachers. The study was based on ideas that stemmed out of alternative methodologies in the field of education that look at meeting the needs of diverse learners. DI uses

components of these other methodologies, but is centered on the premise that all students should be able to be educated in their own classroom with other students of all ability levels. Once teachers feel confident in getting to know their kids interest, readiness, and learning profiles, they should be able to use DI to assist all kids in being successful in their classrooms. Successful teachers make for successful students, which in turn makes for a successful school. That is the ultimate goal of all educators and the ultimate goal of using the methodology of differentiated instruction in the classroom.

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