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Differentiated Instruction in the Secondary Classroom: Analysis of the Level of Implementation and Factors that Influence Practice

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DIFFERENTIATED INSTRUCTION IN THE SECONDARY CLASSROOM:
ANALYSIS OF THE LEVEL OF IMPLEMENTATION AND
FACTORS THAT INFLUENCE PRACTICE

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DIFFERENTIATED INSTRUCTION IN THE SECONDARY CLASSROOM:
ANALYSIS OF THE LEVEL OF IMPLEMENTATION AND
FACTORS THAT INFLUENCE PRACTICE

Duane Kiley, Ed.D.

Western Michigan University, 2011

Differentiated instruction is designing and implementing instruction to meet the needs of every student. Differentiated classrooms adjust to individual student's needs through a combination of practices proven effective in teaching at the student's point of learning acquisition.

The purpose of this study was to determine the extent to which secondary teachers differentiate instruction and whether selected independent variables influence teachers' use of differentiated instruction. Academic teachers were surveyed to determine the extent to which they utilized differentiated instructional strategies. Focus group meetings were conducted to delve deeper into understanding the information received from the teacher survey. Statistical analysis of the responses from teachers concerning the actual implementation of differentiated instruction revealed that there was only one of seven factors that had a significant influence on teachers' use of differentiated instruction.

The study concludes by offering recommendations that would benefit those interested in promoting differentiated instruction in a secondary school setting.

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Duane Kiley

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CHAPTER I

INTRODUCTION

Statement of the Problem

The problem addressed by this study was the lack of consistent use of differentiated instruction strategies at the secondary level. Even though there are well documented methods of differentiated instruction practices and proven success for improving student results, educators are described as not consistent with use of these methods (George & McEwin, 1999; Wormeli, 2005). This may be particularly true for secondary education classrooms. This study attempted to answer the question: Why don't secondary teachers utilize differentiated instruction more than they currently do? Also, what influences whether a teacher differentiates instruction?

"Evidence that the traditional high school is long overdue for reform has been mounting for decades" (Nelson, 2007). At a time when legislators and communities are demanding improvements in secondary education, differentiated instruction provides a method to improve performance of our schools. An analysis of what is likely to lead to differentiated instruction can be a significant step forward in school improvement. This study attempted to determine factors that can be utilized to promote this improvement.

There is a belief that differentiated instruction is effective in improving academic achievement (Campbell, Campbell, & Dickerson, 1999; Koeze, 2006; Pardina, 2005; Tomlinson, 2007). Pardina (2005) stated that any increase in the differentiation of

instruction in a classroom improves instructional effectiveness. Academic improvements in achievement have been documented through use of differentiated instruction (Campbell et al., 1999; Koeze, 2006; Tomlinson, 2007; Tomlinson, Callahan, & Lelli, 1997).

Although its success in improving achievement is documented, few high school educators are attempting to utilize a philosophy of differentiated instruction (George & McEwin, 1999; Tomlinson, 2003). Teaching the heterogeneous student populations at the high school level is difficult to address without differentiation. In 1999, the National Center for Education Statistics conducted a self-appraisal for teachers. Eighty percent of them indicated they were not prepared for many of the challenges of the classroom, including technology in education, teaching students with disabilities, and teaching students with limited English proficiency (Gregorian, 2001). The combination of lack of use of differentiated instruction combined with indicators that teachers feel inadequately prepared to deal with a diversity of student needs provides the basis for research toward methodology that prepares teachers to implement more effective practices. The goal of this study is to answer the question, what contributes to processes that lead to greater use of differentiation of instruction to improve academic achievement for all students?

All of the factors that create diversity in the classroom and the driving need for all students to be successful produce the need for education that is responsive to all students. Learning characteristics of each individual student vary significantly. The profile of the regular education classroom has had a significant increase in diversity of student ability, motivation, ethnicity, socioeconomic status, and language (Darling-Hammond, Wise, & Klein, 2001). A variety of researchers and professional organizations are pressing the

need for classrooms to be responsive to learner variance. For example, the National Association for the Education of Young Children (Pianta & LaParo, 2000) has emphasized that it is the responsibility of schools to adjust to the developmental needs and levels of the children they serve, rather than expecting children to adjust to a system that is inattentive to their needs. From various arenas, the expectation is that the general education teacher must provide differentiated instruction. For example, Gale (2001) states the following in terms of disabled students: "Teaching that recognizes the needs of learners who have disabilities is sound instruction for all children." Also as stated by Borland (2003) regarding academically talented students: "A more defensible approach to serving 'gifted' learners than labeling and segregating them is differentiating instruction in response to student need."

Purpose of the Study

The overall purpose of this study was to provide answers to the following questions:

1. How extensively are differentiated instruction practices utilized by secondary academic teachers?

2. What variables influence whether a secondary academic teacher utilizes differentiated instruction?

The purpose of this study was to determine the extent to which secondary teachers utilized differentiated instruction. More specifically, this study sought to determine whether teachers who were provided professional development, administrative support, smaller class sizes, less classes per day, more planning time, and/or a variety of schedules

were more likely to implement differentiated instructional practices than teachers who were not afforded these opportunities. Also in this investigation, teacher's opinions regarding differentiated instruction were evaluated in relation to their experience and beliefs. This was compared to differentiated instruction implementation.

The effectiveness of differentiated instruction has been documented in research and the extent of its use has been reviewed; however, there is little research that investigates why it's not used with any consistency. Answering this question leads to indications of how to promote this effective educational practice. This study contributes to the knowledge base by examining institutional and individual variables and their relationship with teachers' implementation of differentiated instruction. By determining whether there are relationships between selected independent variables and teacher willingness to implement differentiated instruction, administration and trainers can better assist teachers in effective differentiation of instruction and consequent improved student outcomes. Assessing whether there are means of promoting effective instruction practices through analysis of variables that lead to differentiation is the target of this study.

Background of the Problem

Classrooms were never homogeneous; the demographics of student populations in the regular education classroom have diversified to a larger extent in the recent past. A variety of factors has contributed to the change. To understand the task facing today's teacher, a review of the major issues that contributed to these changes will be discussed. Following is a summary description of some of the factors that have lead to diversity in education.

Inclusion and Special Education

Although special education is a relatively recent development in the history of education, its effects are significant. Since the inception of the Individuals with Disabilities Education Act (IDEA), formerly known as Public Law 94-142, Education of All Handicapped Children Act (1975), the treatment of special education students and the resultant changes for all students have been dramatically altered. Initially, special education was predominantly a "pull-out" program, where students went to another location to receive special education services. With the advent of inclusion and education in the least restrictive environment (IDEA, 1975), handicapped students are more frequently taught in the regular education setting, i.e., the classroom. This creates a more heterogeneous grouping of students. Even the best trained and most willing teachers have difficulty meeting the diverse needs of their heterogeneous grouped classes, let alone the special requirements of students with moderate to severe disabilities (Tomlinson, 2004). General education teachers have expressed concern over the increases in class sizes and the addition of special needs students. Chesley and Calaluce (1997) state that a complaint of teachers is, "I have twenty-five children in my second grade class, and you can't expect me to take on more students with special needs" (p. 489). This sentiment has become an often-heard statement prevalent in schools today. It carries some truth that is understood by even the most hard-core supporters of inclusion and clearly illustrates one of the legitimate roadblocks to a full inclusionary program. Today, more than ever, students with disabilities are taught in general education classrooms. Preparation for the inclusion of special education students has not been met with the needed training for teachers,

particularly at the secondary level. According to Gale (2001), "Inclusion at the secondary school level has not received the same attention as inclusion at the elementary level in terms of research, funding and resources, policy recommendations, and professional development opportunities" (p. 263).

In 1975, the Individuals with Disabilities Education Act introduced the concept of instructing students in the least restrictive environment (LRE), and for many students with disabilities, the LRE is a general education classroom. Will's (1986) call for shared responsibility in educating students with disabilities set schools and researchers in search of successful models of inclusion. Differentiation of instruction aligns with the solution to attempt to educate all students equitably.

Gifted and Talented Programming

At the same time that special education students were migrating to the regular education classroom, students who were identified as gifted or academically talented were also brought back to the regular education classroom. Previously, some of the extended training included pull-out or extracurricular programs to help them develop their talents. However, as funding for the gifted programs waned, students returned with the expectation that the regular classroom teacher needed to modify the curriculum and methods to meet their needs (Borland, 2003). The gains of academically talented students are not as large when they are in a classroom that "teaches to grade level." According to Vygotsky and Howard, as cited in Tomlinson et al. (2001),

> We know that learning happens best when a learning experience pushes the learner a bit beyond his or her independent level. When a student continues to work on skills already mastered, little, if any, new learning takes place. On the

other hand, if tasks are far ahead of students' current point of mastery, frustration results and learning does not. (p. 8)

Vygotsky (1986) argues that children should be taught through a series of goals that increase in difficulty so that they are challenged to reach beyond their current skill level.

De-Tracking

Ability grouping was a practice to help teach students in a more homogeneous grouping. It was thought that students learn at levels similar to their abilities. Research on K-12 education in U.S. schools has identified ability grouping (i.e., tracking) as the assignment of students to differentiated coursework with varying levels of academic content. The theory behind tracking posits that low-performing students must be separated from other students and taught a simplified curriculum. This allows high-performing students to "move ahead unhampered by their peers" (Tyack, 1974, p. 237). A student was taught in a reading group that matched his or her current level of skill. Although it assisted the teacher with how to address the student's level of need, it came under fire as limiting the ability of the student to move and progress to higher levels. Racial segregation has occurred, intentionally or unintentionally, through programs called tracking, ability grouping, or gifted and talented programming (Losen, 1999; Welner, 2001). There has been significant research demonstrating the ineffectiveness of low-track classes and of tracking in general, causing most schools to drop the practice (Burris & Welner, 2005). So, the practice of tracking or ability grouping has appropriately come under fire, yet its removal has made the teacher's job all the more difficult.

Ethnicity and Language

The ethnicity of America is changing. Some minority populations are on the increase. There is a large influx of people from other countries. Each classroom can now have a variety of cultures. Learning expectations and cultural influences bring a rich variety of learners. Frequently now, school districts host students of many different languages. According to Futrell, Gomez, and Bedden (2003),

> Enrollment in our elementary and secondary schools today has reached 53 million children—35% from racial or ethnic minority groups. If current demographic trends continue, this figure is projected to reach 51% by 2050. One-third of all African-American and Hispanic students attend schools that have minority enrollments of 90% or more. (p. 382)

Socioeconomic Status

Many, if not most, classrooms have a range of students from different socioeconomic levels. Economic conditions are re-shaping the distribution of wealth in the United States. The middle class is shrinking while there is an increase in poverty and an increase in the amount of wealth held by the top percent of the rich. Studies have shown that there is a correlation between socioeconomic status and educational achievement (Grinion, 1999). As of 2001, approximately 25% of school-age children lived in poverty (Parsad, Lewis, & Farris, 2001). In 2008, The National Center for Children in Poverty at Columbia University stated that 43% of children under age 6 live in low income. Low income is defined as two or more times the federal poverty rate or less. For children over age 6, it is 37%.

Tougher Standards

The legislation of the No Child Left Behind Act of 2001 (NCLB) requires schools to hold all students to the same high standards as evaluated through high stakes testing. Earlier research has demonstrated that children from diverse cultures and language, those with learning disabilities, gifted and talented students, and others who are of poverty and neglect have not fared well in our schools (Gardner, 1983; Kozol, 1991; Maheady, Harper, & Mallette, 1991).

The need for individualized instruction that addresses learner variability arrived at the same time that legislation demanded stricter standards. Mazzeo (2001) states, "We now live, at least rhetorically, in an era of 'no excuses' where teachers, principals, and school communities are expected to teach students, no matter what the students' background or initial capacity" (p. 377). Crawford and Tindal (2006) state, "Although teachers do not currently see the usefulness of statewide test data in driving instruction, nor do they consistently believe that test scores are valid indicators of students' knowledge and skills, yet they are being held accountable for improving test scores" (p. 367). Standards-based reform is designed to improve student achievement through accountability structures at the federal and state levels. In the field of special education, NCLB (2001) and IDEA (2004) drive accountability policy at the federal level, whereas efforts at the state level are primarily defined through high-stakes testing programs. The emphasis of NCLB is to not exclude anyone from the accountability measures. Not only are schools expected to improve overall scores, but data must also be compiled for subgroups within schools. This includes data disaggregated by disabled, disadvantaged,

limited English, migrant, male/female, and by ethnicity. As these new data are compiled,

educators and society members have come to see the uneven performance of certain

student groups.

In a well-stated summary, Darling-Hammond et al. (2001) exemplify the

variations in the classroom:

> Today's classrooms are typified by academic diversity. Seated side by side in classrooms that still harbor a myth of "homogeneity by virtue of chronological age" are students with identified learning problems; highly advanced learners; students whose first language is not English; students who underachieve for a complex array of reasons; students from broadly diverse cultures, economic backgrounds, or both; students of both genders; motivated and unmotivated students; students who fit two or three of these categories; students who fall closer to the template of grade-level expectations and norms; and students of widely varying interests and preferred modes of learning. (p. 202)

Sapon-Shevin (1999) stated that by 2035, minority students will be a majority in

our schools, and increasing populations of children of immigrant and migrant families

will expand the presence of cultural diversity in schools. She also stated that half of all

children will live in single-parent homes at some time during their school years.

Differentiated Instruction

Education is an individual experience. There is variation in how each student

studies and learns. The best method of education is to individualize the instruction to

match each student's learning needs. There is a need to do just that; for example,

assessment of educational progress shows consistent results of gaps between poor

children and middle class. African-American, Latino, and poor white students fare much

worse than middle class white students (Thernstrom & Thernstrom, 2003). NCLB (2001)

legislation requires disaggregating of data by disadvantaged students, disabled students,

limited English students, migrant students, gender, and ethnicity. The patterns of these

data demonstrate that there are inconsistencies in student achievement. There has been a

continuous aim and attempt to "close the gap" between socioeconomic disadvantaged and

middle class and/or minority and non-minority populations. Data from schools indicate

this has been an issue for some time. The Coleman (1966) report demonstrated the

differences in educational opportunities for children of different race, color, religion, and

national origin. The continued call for accountability and meeting high standards is

driving the need for effective educational practices that show academic gain for all

populations. NCLB was enacted on the premise that all children in the United States

should be provided with a quality education that meets their individual needs. Studies and

mandates such as these show the need for an educational system that individualizes for

the success of all students.

Differentiated instruction is a method that addresses student variation. In schools

that have implemented the strategies of the differentiated classroom, academic gains have

been documented (Tomlinson, 2007). Tomlinson and Allan (2000) believe that teachers

can differentiate their instruction through four elements: content, process, product, and

learning environment. Any increase in the differentiation of instruction in a classroom

improves instructional effectiveness (Pardini, 2005).

Tomlinson et al. (2001) define differentiated instruction:

In differentiated classrooms, teachers begin where students are, not the front of a
curriculum guide. They accept and build upon the premise that learners differ in
important ways. Thus, they also accept and act on the premise that teachers must
be ready to engage students in instruction through different learning modalities, by
appealing to differing interests, and by using varied rates of instruction along with
varied degrees of complexity. (p. 16)

Tomlinson (2003) also states, "In differentiated classrooms, teachers ensure that a student competes against himself as he grows and develops more than he competes against other students" (p. 142).

Differentiated instruction seems common sense and necessary to meet the needs of all students. It can be defined as an approach to teaching in which teachers proactively modify curricula, teaching methods, resources, learning activities, and student products to address the diverse needs of individual students and small groups of students to maximize the learning opportunity for each student in a classroom (Bearne, 2004; Tomlinson, 1999). However, it may be easier to describe than it is to implement. Tomlinson (2003) stresses that differentiation is not a widespread practice:

> Both the current school reform and standards movements call for enhanced quality of instruction for all learners. Emphasis on heterogeneity, special education inclusion, and reduction in out-of-class services for gifted learners, combined with escalations in cultural diversity in classrooms, make the challenge of serving academically diverse learners in regular classrooms seem an inevitable part of a teacher's role; however, indications are that most teachers make few proactive modifications based on learner variance. (pp. 261-262)

It may well be the case that teachers don't have a good understanding of what or how to differentiate instruction. In a recent study of differentiated instruction in language arts, researchers found that teachers often mistakenly viewed a lesson as adequately differentiated as long as students were doing something related to the theme with little consideration of whether or how the students were reaching particular outcomes or practicing the targeted skill. In fact, at times the activity was incongruent with the overall goals of the lesson (Tobin & McInnes, 2008).

Designing and implementing education to meet all students' needs at their level is the focus of differentiated instruction. It is a methodology that meets individual students'

needs through a combination of best practices proven effective in teaching at the student's point of learning acquisition. Tomlinson (2007) demonstrated how differentiated instruction improved student scores on the Missouri Assessment Program results at Conway Elementary School in Missouri and on standardized test results by Colchester High School students. In addition to raising standardized test results at Colchester, correlating factors such as increasing college attendance, increases in numbers of students achieving "honors" status, improvements in school climate, and decreases in discipline interventions and expulsions occurred.

"Evidence that the traditional high school is long overdue for reform has been mounting for decades" (Nelson, 2007). Teacher training on such issues as dealing with inclusion of handicapped students, other language learners, and dealing with variations in academic competencies has been targeted more towards elementary and middle school grades (Gale, 2001). Yet these skills are necessary at every level of education.

Although the methods and practices of differentiated instruction have been well defined, the prevalence of differentiated classrooms is not pervasive. If a well-defined effective educational practice such as differentiation is available, why haven't schools implemented it?

Research Questions

This research focuses on the relationship between selected independent variables that may influence teachers' use of differentiated instruction and implementation of differentiated instruction. Research questions were developed within two categories that potentially have a direct influence on the use of differentiated instruction. The two

categories are teacher characteristics and institutional characteristics. A third group of questions was formed for focus group meetings based on the responses from the teacher surveys. The particular characteristics of each area are identified in the questions listed below.

Teacher Characteristics:

How do the following teacher characteristics relate to the use of differentiated instruction?

1. Are teachers who have more training in differentiated instruction more likely to utilize differentiated instruction than teachers who do not have training?

2. Are teachers who value differentiated instruction more likely to utilize differentiated instruction than teachers who see little value?

Institutional Characteristics:

3. In schools where there is more administrative support, are teachers more likely to utilize differentiated instruction than schools where there is little support?

4. Because of time constraint issues, are teachers who have lower number of classes per day more likely to utilize differentiated instruction than teachers who have higher numbers of classes?

5. Due to workload constraints, are teachers who have lower numbers of students per day more likely to utilize differentiated instruction than teachers with higher numbers of students?

6. Are teachers who have more planning time more likely to utilize differentiated instruction than teachers with less planning time?

7. Are teachers who have more flexible school schedules, such as block schedules, more likely to utilize differentiated instruction than teachers have traditional school schedules?

The third set of questions were developed that were of a qualitative nature. These questions were to clarify information received during the quantitative data collection. As a result of the statistical analysis results, further investigation was warranted from the participants' perspective during focus group discussion. According to Creswell (2003), "In a two-phase, sequential project in which the second phase elaborates on the first phase, it is difficult to specify the second-phase questions in a proposal or plan" (p. 114). As a result of the quantitative analysis, a focus group of teachers was utilized to add greater clarity of the phenomenon under investigation. The qualitative analysis asked the following questions:

1. How much do teachers know about differentiated instruction?

2. What influences teachers' value of differentiated instruction?

3. How might administration and educational planners provide training, support, structure, and motivation to promote teachers' implementation of differentiated instruction?

Methodology

The population under study in this research consisted of secondary academic teachers selected from five high schools in southwest Michigan. All academic teachers from the five high schools were invited to participate. Non-academic teachers, such as music or physical education, were excluded. All potential participants were notified that

participation was voluntary. All academic teachers from the selected schools were invited to complete a survey to provide the quantitative analysis. The total number invited equaled 175 teachers. Seventy-six teachers responded. Of those teachers who responded, each was invited to participate in a focus group. Teachers who choose to participate were the subjects. Permission for the research was acquired from the district administration. All data were kept in confidence. Only summative statistics and information is shared in this report. Steps were taken to ensure that no names of individual participants were identifiable or otherwise reported.

This two-phase, sequential, mixed methods study examined teacher and institutional characteristics in relationship to implementation of differentiated instruction. Survey data were used for the comparison. A chi-square statistical analysis was used to determine if the categorical answers collected through survey demonstrated a statistically significant relationship. After the survey data were collected and analyzed, focus groups were conducted to explore the results in more depth and to get a better understanding of what the survey data indicated. In the first phase, quantitative analysis looked at seven independent variables (teacher and institutional characteristics) and their relationship to the implementation of differentiation (dependent variable). The second phase collected qualitative information from the focus groups to further investigate and probe for indications of how the quantitative data relate to differentiated education implementation. In addition, the study looked at how well teachers understand differentiated instruction across content, process, product, and learning environment.

Significance of the Study

Improved student achievement as a result of differentiated instruction has been demonstrated (Campbell et al., 1999; Koeze, 2006; Tomlinson et al., 1997), although, according to Tomlinson (2003), differentiated instruction is not a widely used practice. George and McEwin (1999) stated that few high school educators are attempting to utilize a philosophy of differentiated instruction to teach the heterogeneous student populations at the high school level. Hess (1999) stated that the implementation of differentiated instruction requires significant staff development, but even when training is provided, many teachers find it hard to put into practice in their classrooms. This is supported in other research (Hall, Strangman, & Meyer, 2003; Scherer, 2000). Lee (2001) described secondary teachers as particularly hard to change due to the time requirements of implementing change and their busy schedules. The value of differentiation has been established; the difficulty lies in determining how to establish its use. Little research has been done to address this problem. This study adds to the body of knowledge by investigating the extent to which differentiated instruction actually occurs in secondary education through a sampling of secondary educators, and determining what factors increase the likelihood of differentiated instruction or impede its use. Through a gathering of information from teachers at the secondary level, factors are indicated which relate to the use of differentiated instruction and contribute to effective educational practice. This research offers information that will improve how teachers are trained in differentiated instruction practices and how administration and trainers can support differentiated instruction. Based on the research done previously, this should then result in

improvement in student achievement (Campbell et al., 1999; Koeze, 2006; Tomlinson et al., 1997).

The results of the study can guide administrators and trainers of educators to be more successful in implementing effective professional development which supports use of differentiated instruction. It clarifies the perspectives of secondary teachers in relation to differentiated instruction. A systematic study and analysis of these factors potentially can produce promising methods of enhancing differentiated instruction for students. Training programs can use the information to prepare teachers for effective differentiation utilization. Policy makers and school administration can utilize the information for more effective educational practice.

Definitions of Terms

Differentiated instruction (differentiation, differentiated classroom): An educational approach in which teachers proactively modify curricula, teaching methods, resources, learning activities, and student products to address the diverse needs of individual students and small groups of students to maximize the learning opportunity for each student in a classroom (Tomlinson, 1999).

Gifted and talented: "The term 'gifted and talented' when used in respect to students, means children, or youth who give evidence of high performance capability in areas such as intellectual, creative, artistic, or leadership capacity, or in specific academic fields, and who require services or activities not ordinarily provided by the school in order to fully develop such capabilities" (Improving America's Schools Act, 1994).

Inclusion: Inclusion is a term often used to describe a least restrictive environment (LRE) method of educating children in need of special education in a general education classroom in the school they would have attended if not disabled, with age-appropriate peers, and with appropriate supports and services (Least Restrictive Environment Coalition, 2006).

Learning disabilities: "Specific learning disability is a disorder in one or more of the basic psychological processes involved in understanding or in using language, spoken or written, which may manifest itself in an imperfect ability to listen, think, speak, read, write, spell, or perform mathematical calculations. The term includes such conditions as perceptual handicaps, brain injury, minimal brain dysfunction, dyslexia, and developmental aphasia. The term does not include children who have learning problems which are primarily the result of visual, hearing, or motor handicaps, of mental retardation, of emotional disturbance, or of environmental, cultural, or economic disadvantage" (IDEA, 1975).

CHAPTER II

REVIEW OF LITERATURE

Heterogeneity of Students

The demographics of America show a nation of increasing diversity. The make-up of the student body of public education has concomitantly changed dramatically in the last 20 years. This requires teachers to constantly review their approach to educating their students. Futrell et al. (2003) stated, "Meeting the needs of a diverse student body is one of the most persistent and daunting challenges facing educators at all levels" (p. 381). Darling-Hammond et al. (2001) stated that every classroom varies in language, ethnicity, socioeconomic, and cultural factors. The optimal environment for learning would be where the level and pace of instruction are matched to the student.

In reality, individualized instruction is difficult in public school classrooms (Renzulli & Purcell, 1996). But it is not impossible; some teachers may feel that the adoption of differentiated instruction is too difficult. How can a teacher possibly design education that takes into account every student's individual needs? This is not the true description of development of differentiated practices. As described by Huebner (2010),

> Differentiating does not mean that a teacher is taking into account the individual interests, profiles and readiness of students five hours per day in every curricular and instructional decision. To suggest that would be ludicrous. Rather, differentiating means that a teacher is approaching the literacy curriculum and her students with a responsive disposition—an orientation to planning, decision-making, curriculum selection and instructional flow that is flexible and opportunistic.

Hertberg-Davis (2009) states that reality is that the pressure to have students pass a standardized test makes it difficult to address individual student needs.

> Although differentiation and state standards can peacefully coexist in a classroom, teachers often find it difficult to reconcile attending to student differences with a broader high-stakes testing culture that seems to mandate the opposite. Recent research indicates that the high-stakes testing associated with *No Child Left Behind* has rendered the regular classroom even less hospitable to gifted learners than it was previously.

According to Finlayson Reed (2004), "Teaching to the lower level of a class perpetuates the problem of low mathematics achievement, along with boredom and disengagement on the part of the middle and high-end learners" (p. 89). "Teaching to the middle level causes the less-prepared students to struggle and fall farther behind, while the better prepared students, who remain unchallenged, lose their motivation to learn" (Rimm & Lovance, 1992, p. 10). Teaching to the high end also seems untenable, given the probable struggle and likely disengagement by less-prepared students. Consequently, you can see why it is necessary to build in a process of differentiation to effectively educate students.

There are a variety of reasons that student variation occurs. Some of the factors of student variation and the effect on education are discussed here.

Poverty

Poverty and its negative influences on education have been well documented. Michigan and the Midwest have been particularly affected by the recession of 2001 and the continuing economic deficits of the area. Douglas-Hall and Koball (2006) documented the particular increase in the number of children living in poverty:

Since 2000, the Midwest has experienced a 29 percent increase in the number of children living in poor families, rising from 2.2 million in 2000 to more than 2.8 million in 2004. With over one-half million children (634,075) added to the poverty rolls of the region, this rise in child poverty was by far the largest in any of the four regions over the last five years and has been the driving force behind the overall increase at the national level. (p. 5)

The National Assessment of Educational Progress (NAEP) tests students across the nation at various grade levels. The results consistently indicate a gap between poor students and students from the middle class (Thernstrom & Thernstrom, 2003). There is also a direct correlation between social class and dropping out of school. In 2000, 6% of high-income students dropped out, while 40% of low-income students dropped out of school in large urban schools (Kanpol, 2002).

Education correlates with socioeconomic standing. It allows the holder to "purchase" certain roles in society (Nieto, 2000). The level of education is a criterion to allow the educated entrance into certain occupations that correlate with income. The goal of education should be to develop each student's abilities and to give the best and most advanced education possible. This is a right of every student that impacts opportunities and income for their entire lives. Consequently, it is imperative for all educators to teach via the best methods known.

Ethnicity

The Holmes Group (1995) stated that enrollment in the K-12 system is approximately 35% from racial or ethnic minority groups. This is projected to reach 44% by 2010 for 6- to 16-year-olds; 20% will be Hispanic, 17% African-American, 5% Asian, and 2% Native American. By 2050, the minority enrollment is expected to reach 51%

(Futrell et al., 2003). The variety of race and culture brings a rich assortment of opportunities to our nation and, at the same time, presents a challenge to the classroom teacher to address each student effectively. That a good education is important is hardly debatable. It is implied that educators need to provide education to the maximum development of each student so he or she can be gainfully employed, lifelong learners, and contributors to society.

Reforming High Schools

When *A Nation at Risk* was published in 1983, it began a long succession of national and state standards aimed at reform. Nearly every state responded with legislation and recommendations to increase requirements (George & McEwin, 1999). The call for education reform has been moving from the elementary and junior high to the high school. Variations in what the reform should or does look like range from block scheduling, tougher standards, extensive testing, variations in curricula, and delivery. What directions will be maintained is unclear, but it is likely that there will be significant changes (Lee, 2001).

The federal legislation of NCLB requires all states to test children and report scores disaggregated by race, ethnicity, and other demographics of education disadvantage. It mandates that by the year 2014 all students will meet standards of adequate yearly progress. This presents some interesting dilemmas. For example, Wright (2006) presents this scenario regarding English language learners:

> As with other subgroups, such as African-Americans or Latinos, the LEP subgroup is expected to make adequate yearly progress (AYP) toward proficiency. By 2014, all English language learners, regardless of how long they have been in

the United States, must pass their state's accountability tests. Moreover, if the requisite number of English language learners in a school's LEP subgroup does not pass the tests in a given year, the school is deemed as failing and may be subjected to sanction. (p. 22)

Although this seems to be an impossible task, it does demonstrate the need to address individual differences to successfully meet student needs and achieve their greatest academic skills. Teaching to the middle of the class will not accomplish annual yearly progress set by government standards.

According to George and McEwin (1999), few high school educators are attempting to utilize a philosophy of differentiated instruction to teach the heterogeneous student populations at the high school level. This isn't necessarily because they argue against differentiation of education; it is more likely to arise from difficulty of implementation and a traditional focus in most high schools. In the landscape of K-12 education, high schools are traditionally the most conservative of educators. Richard Elmore (2004) pointed out that schools are in a constant state of change, but most resist change, which makes a significant difference in traditional core practices of teaching and learning. Although there are many who envision the new high school proposed by reform, there is often resistance due to the difficulty and time required to make reforms happen (Lee, 2001). Hess (1999) stated that the implementation of differentiated instruction requires significant staff development, but even when training is provided, many teachers find it hard to put it into practice in their classrooms (Scherer, 2000). A typical high school teacher may have 5 to 6 classes per day with 25 to 30 students per class. Those numbers make it difficult to remember names, much less individual learning styles and

interests. Significant motivation and support are necessary to move from traditional high school education to an individualized education.

Gifted and Special Education

Gregory (2006) stated in her dissertation, "Numerous mandates and court decisions, as well as American values of freedom and equality of opportunity for everyone, favor inclusion as a way of transforming education and ensuring these students have equal access to productive citizenship" (p. 24). Even though this is accepted as true, educators struggle to make the theory work in their schools. "Inclusion remains one of the most controversial and hotly debated issues in education today" (Scherer, 2003, p. 5). Now, more than ever, students with disabilities are taught in general education classrooms. In fact, the U.S. Department of Education (2001) indicates that more than half of all special education students spend most of their days learning alongside general education students, and approximately 96% of general education teachers have at some point taught students with disabilities in their classrooms. The call for inclusion has been evolving over the past 30 years with the expectation that all students will be taught in the same educational system. Inclusion, according to Sage (in Idol, 1997), implies the existence of only one unified education system that encompasses all members equitably. A theory generally accepted by all is that

> Teaching that recognizes the needs of learners who have disabilities is sound
> instruction for all children. . . . In reality, even the best trained and most willing
> teachers have difficulty meeting the diverse needs of their heterogeneously
> grouped classes, let alone the special requirements of students with moderate to
> severe disabilities. (Chesley & Calaluce, 1997, pp. 384 & 389)

Teacher Preparation

Villegas and Lucas (2002) indicated preparing teachers to educate students who are linguistically, ethnically, culturally, and socioeconomically diverse is one of the most pressing needs of teacher preparation programs.

> If all children [students at every level] are to be effectively taught, educators must be prepared to address the substantial diversity in experiences children bring with them to school—the wide range of languages, cultures, exceptionalities, learning styles, talents, and intelligences that in turn require an equally wide and varied repertoire of teaching strategies. (p. 21)

In 1999, the National Center for Education Statistics conducted a self-appraisal for teachers. Eighty percent of them indicated they were not prepared for many of the challenges of the classroom, including technology in education, teaching students with disabilities, and teaching students with limited English proficiency (Gregorian, 2001).

The traditional role of the high school teacher as the holder and deliverer of information is a difficult model to change. However, as we move from the Industrial Age to the Information Age, student-centered practices are needed. The teacher needs to be cast as a facilitator of learning. Of course, changing from a model of teacher as the purveyor of knowledge to teacher as facilitator is a huge paradigm shift. Some teachers suggest implementing change with the goal of 10% change per year (Gregerson, 2003). According to Tomlinson (as cited in Hess, 1999), it takes 7 to 10 years to institutionalize differentiated instruction and requires significant staff development. But even teachers who agree with instituting differentiation find it difficult to utilize it in their classes (Scherer, 2000; Hall et al., 2003). Lee (2001) emphasizes that high school reforms are often resisted, at least in part, because of the time and effort required institutionalizing

them. Anyone who has worked in a high school realizes the significant amount of information and work each teacher must face. To institutionalize any change in such an environment is a daunting challenge. The first step is to evaluate the state of the usage. In the high school classroom the teacher is to begin where the learner's current state of knowledge, ability, and motivation exist. Hertberg and Brighton (2004) state:

> While it may be tempting to consider professional development for differentiation as a "one-size-fits-all" proposition, doing so contradicts the message staff developers hope to convey to and instill in teacher-learners. Teachers who come to staff development are as diverse as the students they teach. (p. 48)

Educational leaders will need to begin with their staff's current level of knowledge, ability, and motivation. In an article on how differentiation was implemented in North Topsail Elementary in Pender County, North Carolina, Lewis and Batts (2005) said, "Administration provided on-going staff development, suggested instructional videos, assigned readings, observed colleagues' successes, and highlighted the consequent rise in student achievement" (p. 30). Even with a significant amount of training and support, the implementation of differentiated instruction is incremental.

An effective way to create the desired change is to begin training at the postsecondary level. College preparation in differentiated instruction before the teacher is in the classroom avoids trying to institute change while the teacher is engaged in teaching. Yet, many models of instruction at the postsecondary level still illustrate the professor as the keeper of knowledge. The model would need to be changed at all levels in order to indoctrinate the prospective teacher. Indeed, the most effective way of changing the system is to address it at all levels. As stated by Saravia-Shore and Garcia (2001), "Every single person in this enormously diverse and ever-changing system has the

power to serve as an invaluable resource for all others—students, teachers, communities; elementary and secondary schools as well as our colleges and universities" (p. 49).

Differentiation of Instruction

The educational theory behind differentiated instruction comes from constructivist theorists including John Dewey, Piaget, and Jerome Bruner (Hobson, 2004). Erickson (2001) and Wiggins and McTighe (1998) have advocated a constructivist theoretical basis which parallels many components of differentiated instruction. For example, "Understanding by Design" (Wiggins & McTighe, 1998) models utilize multiple methods of assessment, incorporates a variety of resources, and seeks to produce education which creates a clear understanding of what is being learned by the student. Howard Gardner (1983) presented a theory in which learners have a variety of intelligence modalities and effective education is directed in a manner that reaches the learner through venues that match the student's areas of intellectual strength. Theories of learning style variations are based on the idea that individuals have a tendency to both perceive and process information differently (McCarthy & McCarthy, 2006). The need to match learning tasks to the student's level of education was demonstrated in early studies by Fisher et al. (1980). These studies concluded that students who were given learning activities that were not challenging resulted in low involvement and a lessening of concentration. Students who were given tasks too difficult for their skill levels resulted in low achievement and low feelings of self-worth. More recently Tomlinson (1999) demonstrated that the complexity or level of independence required to complete a task can enhance both student achievement and student attitudes.

Under Constructivist Theory the student actively constructs knowledge based on prior experience. Instruction is then based on the development of the students. Differentiated instruction relies heavily on this theory. It focuses on each student's readiness, interests, and learning styles. Teachers assess preparedness of the student and begin the teaching facilitation at the level where the student currently functions. The teacher's support diminishes as the student's competencies increase. The practice of scaffolding—or giving more support as skills are low—is integral to such a method (Parkay & Hass, 2000).

Tomlinson and Allan (2000) stated that teachers need to address the learning profile of the student; that is, determining how a student best processes information and ideas is an important part of differentiation. This includes learning style, gender, culture, and intelligence preferences. Grigorenko and Sternberg (1997) concluded students need to be matched to instruction that best compares with their learning patterns. When matched, they achieve significantly better than comparable students whose instruction is not matched. Sternberg (1997) found that even a minimal amount of differentiation made a difference in student achievement. As indicated earlier, implementing differentiated instruction is not an easy task but one that is necessary.

In a review of literature, Tomlinson (2003) specified the parameters of differentiated instruction. She stated that differentiation consists of the following characteristics:

1. Effective differentiation of curriculum and instruction is proactive, rather than reactive. A clear definition and model of the scope of effective differentiation is needed to counteract a tendency among teachers to believe they are addressing individual variance when they are, at best, making minor and occasional classroom modifications (Moon, Tomlinson, & Callahan, 1995;

Tomlinson, 1995). It seems unlikely that differentiation defined as tinkering with one-size-fits-all instruction can be robust enough to meet the learning needs of academically diverse populations. In fact, an impediment to more robust and effective differentiation may stem from a teacher-held perspective of differentiation as reactive—the teacher plans one lesson for everyone and tries to adjust on the spot when students signal the lesson isn't working for them—rather than proactive—the teacher plans a lesson that will, from the outset, address learner variance (Schumm & Vaughn, 1992; Tomlinson, 1995). Effective differentiation will likely arise from consistent, reflective, and coherent efforts to address the full range of learner readiness, interest, and learning profile in presentation of information, student practice or sense making, and student expression of learning.

2. Effective differentiation employs flexible use of small teaching-learning groups in the classroom. A meta-analysis of 165 effect sizes from studies of effects of within-class grouping on student achievement and other outcomes (Lou et al., 1996) found that students in small within-classroom learning groups (generally three to four in size) achieved significantly more than students not learning in small groups. In addition, students in grouped classes had more positive attitudes about learning and stronger self-concept measures than those in ungrouped classes. It appears that small-group settings give teachers the flexibility to address learner variance more appropriately than does sole reliance on whole-class instruction. The meta-analysis reports that low-ability students tended to learn better in heterogeneous groups, medium-ability students in homogeneous groups, and high-ability learners fared well equally in either setting. However, because of variance in student readiness across subjects, variability in student interest and mode of learning, and varying needs of categories of learners within a class, it appears important to group students in a variety of ways in the classroom. Effective differentiation varies the materials used by individuals and small groups of students in the classroom.

3. Student gains are greatest when instructional materials are varied for differing instructional groups, rather than using the same materials for all groups (Kulik & Kulik, 1991; Lou et al., 1996). Thus, in addition to flexible grouping of students, teachers in differentiated classrooms should match materials to the specific instructional needs of groups. This would seem particularly important when readiness differentiation is a focus of student groupings.

4. Effective differentiation uses variable pacing as a means of addressing learner needs. A number of studies have noted the ineffectiveness of classrooms in which teachers fail to adapt the pace of instruction in response to learners' needs. Often the level of instruction is set to address mid- or high-achieving students, while the pace is set for low-achieving learners (Dahloff, 1971; Oakes, 1985), with the result that many students of varying readiness levels

are frustrated (Ben Ari & Shafir, 1988). Classrooms in which time is used as a flexible resource would likely better serve the full range of learners.

5. Effective differentiation is knowledge centered. Teachers' sound knowledge of their discipline(s) provides a road map to the key concepts, organizing principles, and fundamental skills of those disciplines. In turn, teachers use materials and activities to ensure student understanding of essential ideas and ability to use important skills to solve meaningful problems (National Research Council, 1999). This sort of sound knowledge base and clarity of learning priorities is fundamental to effective differentiation, as it is to all good teaching.

6. Effective differentiation is learner centered. Learner-centered classrooms focus on the needs of students within the cognitive frameworks established by teachers (Schweinhart & Weikart, 1988). Among the traits of learner-centered classrooms are the building on the knowledge students bring to the task (Callison, 1998; Marlowe & Page, 1998; National Research Council, 1999; Vygotsky, 1986); ongoing assessment of learner understanding and skill to help the teacher teach and individual students learn more effectively (National Research Council, 1999; Palincsar, 1984); focusing on student sense making (Elmore, Peterson, & McCarthey, 1996; Schoenfeld, 1991); helping students see relevance and utility in what they are learning (Anderson, Reder, & Simon, 1996; Pintrich & Schunk, 1996; Vygotsky, 1986); student choice within teacher frameworks (Schweinhart & Weikart, 1988); shared management of learning; (Borko, Mayfield, Marion, Flexer, & Cumbo, 1997); and students playing an active role in learning (McLaughlin & Talbert, 1993; Queen, 1999; Vygotsky, 1986). In learner-centered classrooms, teachers use a wide variety of instructional strategies and approaches to scaffold learning to ensure that each student links solidly with the important knowledge necessary to achieve understanding and power (Borko et al., 1997; Palincsar, 1984). (pp. 131-134)

As can be seen by this description, the effective implementation of differentiated instruction requires training and a carefully planned process. It is a complex process filled with many components, each with its own parameters and complexities.

Tomlinson and Allan (2000) believe that teachers can differentiate their instruction through four elements: content, process, product, and learning environment. Any increase in the differentiation of instruction in a classroom improves instructional effectiveness (Pardini, 2005). Consequently, it is not an all-or-none prospect but rather a

process of acquisition. Pardini stated, "You wouldn't do it every day, but if you did it once a week, by the end of the school year you'd have 40 differentiated lessons" (p. 15). A variety of analyses are possible among the elements of differentiation in content, process, product, and learning environment. A variety of degrees of each are possible and a variety of methods in each element. The point the authors indicate is that differentiation produces better learning results; the more it is an integral process of education, the more benefit for the learner.

In schools that have implemented the strategies of the differentiated classroom, academic gains have been documented. Tomlinson (2007) reported that at Conway Elementary in Missouri, a 6-year look at students who scored at the Advanced and Proficient Levels of the Missouri Assessment Program from 1998 to 2003 demonstrates how achievement can be improved with differentiated instruction (Table 1).

Table 1

Test Results of Conway Elementary School

	Pre-differentiation			Post-differentiation		
Year	1998	1999	2000	2001	2002	2003
Conway 4th grade math	**56%**	**64%**	**71%**	**83%**	**77%**	**79%**
State 4th grade math	32%	35%	37%	37%	38%	38%
Conway 3rd grade science	**71%**	**63%**	**80%**	**71%**	**73%**	**84%**
State 3rd grade science	39%	35%	45%	45%	48%	48%

After 6 years of implementing differentiation, Colchester High School in Vermont demonstrated the following improvement on standardized test scores (Tomlinson, 2007), as demonstrated in Table 2.

Table 2

Colchester High School Standardized Test Results

Test Area	1999	2006
Reading Understanding	53%	63%
Reading Analysis/Interp	51%	78%
Writing Effectiveness	58%	82%
Writing Conventions	82%	85%
Math Skills	33%	68%
Math Concepts	44%	52%
Math Problem Solving	25%	54%

In addition to the score improvements, Colchester High School experienced the following improvements in the 6-year period:

- College attendance increased from 68% to 74%.

- The number of students achieving "Honors" status on the NSRE exams rose in every subject, often dramatically (for example: from 17% to 29% in writing conventions, from 19% to 46% in math skills, and 15% to 25% in math concepts).

- Disciplinary interventions dropped by 42%.

- Expulsions declined from 7 to 1.

- The dropout rate decreased from 6.9% to 1.03%.

- Quantitative measures document significant improvement in school climate for teachers.

These examples, plus research on components of the differentiated classroom and differentiation as a whole, have demonstrated that change is possible and that differentiated instruction is effective in producing that change (Campbell et al., 1999; Koeze, 2006; Rock, Gregg, Ellis, & Gable, 2008; Tomlinson et al., 1997).

In summation, differentiated instruction is what has been learned as a process of best practice in education. By addressing each component of differentiation, a teacher is merely responding to what research has shown is most effective in educating a student. If you compare what has been written about differentiation to the Five Core Propositions of the National Board of Professional Teaching Standards, you will see that the concepts in differentiated instruction are mirrored in many of the Propositions (National Board of Professional Teaching Standards, 2007).

CHAPTER III

METHODOLOGY

The purpose of this ex post facto study was to determine the extent to which secondary teachers utilize differentiated instruction. More specifically, this study sought to determine whether teachers who were provided professional development, administrative support, smaller class sizes, less classes per day, more planning time, and/or a variety of schedules were more likely to implement differentiated instructional practices than teachers who were not afforded these opportunities.

This chapter is organized into the following sections: (1) sample composition, (2) sampling procedures, (3) data collection procedures, and (4) validity and reliability.

Sample Composition

The subjects in this study were a sampling of teachers who taught in public K-12 schools. Specifically, this study included teachers who taught at the high school level in one Midwestern county that was comprised of 20 school districts.

Sampling Procedures

The participants were 9th through 12th grade high school teachers. All academic teachers at selected high schools were asked to participate. Only instructors who taught academic coursework were considered. Instructors of physical education, music, art, etc., were not included. Each instructor was given a packet that contained an informed consent

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form, survey, directions for completion of the survey, and a description of the interview process. Information collected was kept confidential and not identified with the person who provided it. Every teacher who completed a survey was asked to participate in a focus group. The administration of each respective district in which the high school resided was contacted to gain permission to survey teachers and conduct focus groups (Appendix A). The contact affirmed that each teacher would complete a confidential survey and then be asked to participate in a focus group discussion.

For each of the schools utilized in the study the process was as follows: Permission was acquired from the building administration and a list of the academic content area teachers at each high school was developed. All academic teachers had a survey packet delivered to their high school mailboxes that discussed the purpose of the study, approximate time it would take to complete the survey, and that their participation was completely voluntary. It also informed them that upon completion of the survey, participants would be invited to participate in a focus group discussion. The packets instructed the teachers to sign the informed consent (Appendix B), complete the surveys, and return both via inner-school mail in pre-addressed envelopes. The permission forms and surveys were returned in separate envelopes to maintain confidentiality. Surveys were coded for the researcher to identify who completed them.

Three days prior to the final turn-in date, a reminder was sent to all teachers who had not returned their survey. After surveys were returned, teachers who completed them were invited to join focus groups. A time and place convenient to the teachers was arranged. Teachers were asked to read and sign the focus group permission form (Appendix C). Surveys were matched to focus group results. All identifying information

was removed from the forms, with the exception of type of high school. Results were analyzed and all materials secured for privacy.

Teacher participation was strictly voluntary; no teacher was obligated to complete the survey or to participate in the focus groups. The subjects were informed in the consent that all responses would be kept completely anonymous and that no individual names, or school district, would be reported or otherwise released. All demographic information would be used only to control for the independent variables. None of the information would be used for identification purposes. Participants were told that all information would be kept in a locked file available only to the researcher. Responses would be known only to the researcher and the dissertation committee members. Committee members would be given individual teacher data without identification by name. The researcher would be the only person who collected the data and was privy to its use.

Demographics

Schools were selected based on three demographic variables: suburban, inner-city, and alternative schools. Initially, two suburban schools, one inner-city school and two alternative high schools were identified and surveyed. . Suburban was defined as a town or unincorporated developed area in close proximity to a city, largely residential in nature. Inner city was defined as an area within the city characterized with a significant number of families of low wages, and the existence of multi-occupied housing. Alternative school is defined as an educational program outside of the traditional school program. Selection of the schools took into account socioeconomic data to get a representation that included both low income and middle income students. To assure a representative sample for

statistical analysis, other schools could have been added at a later date if inadequate numbers of surveys were not returned; however, the return rate was adequate for analysis.

Data Collection and Analysis Procedures

Review of research supported the fact that both quantitative and qualitative research methods were informative for the study (Bogdan & Biklen, 1998). Ex post facto quantitative data collection and analysis was conducted first as a means to outline the relationships from the data presented. An ex post facto study of variables is suited to this type of social sciences research (Kerlinger, 1964). Results from quantitative data helped to structure the qualitative methods to explore the relationships further and search for explanations that could only be further revealed through focus group discussion. According to Rossman and Wilson (1984), a combination of qualitative and quantitative study methods would allow the researcher to confirm findings. According to Bogdan and Biklen (1982), qualitative research has the following characteristics:

1. The natural setting is a direct source of data and the researcher is the key instrument.
2. Is descriptive in nature.
3. Is done by those who are concerned with process rather than simply the outcomes or products.
4. Requires the researcher to analyze their data inductively.
5. States that meaning is essential.

The results of statistical analysis can be analyzed and brought to life by the qualitative analysis. Quantitative research methods allow an analysis of variation between independent variables and dependent variables. (pp. 27-30)

In this study, neither method used in isolation could give as insightful an analysis as both used in unison. Qualitative techniques allowed the researcher to understand the relationship between the independent variables and the implementation of differentiated

instruction. Qualitative strategies suggested how the teachers' knowledge would be translated and put into practice and described the extent to which factors influenced or impaired the use of differentiation.

Cook and Reichardt (1979) stated three reasons in supporting dual approaches to research:

1. "Comprehensive research should include both process and outcome analysis."
2. "Use of both types allows each method to build upon the other."
3. "Use of multiple techniques provides triangulation of the 'underlying truth.'"

(pp. 21-23)

This study attempted to provide answers to seven major research questions in the ex post facto phase. To test the relationship between the independent variables (extent of differentiated instruction training, administrative support, number of classes taught per day, number of students taught per day, amount of planning time, type of school schedule, and personal value of differentiated instruction) and the dependent variable (level of implementation of differentiated instruction), a chi-square goodness-of-fit test was utilized. The chi-square test was selected since it is appropriate for research utilizing non-numerical categories of nominal data to evaluate results in comparison to population expected frequencies (Gravetler & Wallnou, 2008). In all test applications, the 0.05 level of confidence was used for determining statistical significance.

Qualitative analysis was led with open-ended questions, which were then followed up with probing questions for further clarification. Focus group information was written with complete notes, which were then compared to ferret out meaningful patterns. Those patterns were compared in triangulation with the survey data. Following collection of the

qualitative data, results were analyzed by themes. If a topic surfaced across all three of the convened focus groups, it was deemed a major theme. If a topic was brought up in two groups or by five or more individuals, it was considered a subtheme. If new information came to light that was not previously considered but developed as a part of the discussion, it is deemed as a topic to consider for future research.

Quantitative Design

Teacher Survey Instrument

Survey research was selected for quantitative assessment because it provided an economy of design and ease to generalize from a sample to a given population. A survey also provides a quick turn-around time for collecting data and identifying attributes of a population from a comparative small group of people (Babbie, 1990).

The survey instrument used was adapted from the Teacher Self-Reflection on Differentiation for Staff Development Planning Survey (Page, 2007). This is a survey that was distributed at the Summer Conference on Differentiating Instruction by the Association for Supervision and Curriculum Development. It was adapted by permission of Sandra Page, ASCD Consultant, who adapted her version from Carol A. Tomlinson (see Appendix D). The questions selected correlated with the components of differentiated instruction under investigation. The addition of descriptive information was used to analyze the influence of circumstances and descriptors of skills which may be related to differentiation of instruction. This included gender, education level of the instructor, years of teaching experience, and socioeconomic level of students.

Teachers were asked to rate factors critical to differentiation of instruction on a simple 4-point scale across two dimensions: (a) how important they felt the skill was to effective education (ranging from not important to very important), and (b) the extent to which they utilized the skill (ranging from hardly ever/never do this to use intentionally and often).

The results of the "extent to which they utilized the skill" were then placed on a rating scale and compared to the seven independent variables listed above. This produced the analysis of the effect of the independent variables on the dependent variable—differentiation. For each item, teachers rated themselves on a 4-point scale: 1 = *hardly ever/never did this*, 2 = *sometimes/have used on a few occasions*, 3 = *frequently used this*, and 4 = *used intentionally and often*.

Scores were then totaled for all items and divided by the number of items. The average score was then used to place the teacher in one of three categories:

Extensive use of DI = 3.1 to 4

Moderate use of DI = 2.1 to 3

Minimal use of DI = 1 to 2

This measure was then used for the cumulative statistical analysis of each independent variable to determine the relationship with the dependent variable of differentiated instruction implementation utilizing chi-square statistical analysis. Analysis for each independent variable was summarized in a 2×3 or 3×3 categorical design. Independent variables were coded as:

Extent of training
        None   = ET0
        Some   = ETS
        Extensive   = ETX

Value of differentiated instruction
        High   = VH
        Medium   = VM
        Low   = VL

Administrative support
        high   = ASH
        medium   = ASM
        low   = ASL

Classes per day
        1 to 3   = CD3
        4 to 5   = CD5
        6 +   = CD>5

Students per day
        0 to 40   = SD40
        41 to 70   = SD70
        71 or more   = SD>70

Planning time per day
        0 to 30 minutes = PT30
        31 to 60 minutes = PT60
        61 or more   = PT>60

Class schedule
        Traditional   = Trad
        Block   = Block
        Other   = Other

The dependent variable was coded as differentiated instruction level of usage:

Extensive (average of 3.1 to 4) = DI Extensive

Moderate (average of 2.1 to 3) = DI Moderate

Minimal (average of 1 to 2) = DI Minimal

The categorical area comparisons are indicated in the data analysis matrix for the three areas and can be found in Table 3.

Qualitative Design

Each teacher who completed a survey was asked to participate in a focus group. The focus group addressed the items on the written survey. One of the purposes of this process was to check commonality of definition for the differentiation variables under study. There was the possibility of a variety of interpretations for the items. This qualitative check would help define whether the teachers' definition of the differentiation method was the same as those in the study. It also helped to determine the sophistication of teachers' understanding of differentiation.

Another purpose of the focus groups was to provide a deeper understanding of the influences and factors related to differentiated instruction. Comments made by teachers would be used to help provide a fuller picture and gain insight into factors that may not have been uncovered in a written survey alone. As the quantitative data were acquired, the specific questions and discussion for the focus groups evolved in directions and topics that could not have been accurately predicted prior to data collection. This is a characteristic of developing a deeper analysis of the factors under study.

Validity and Reliability

Non-responsive bias can be a threat to survey research validity (Gall et al., 1996). There could have been differences between those who chose not to respond to the survey and those who did respond. To help diminish this threat and encourage as many

Table 3

Data Analysis Matrix

	D.I. Training			Value of D.I.			Admin Support			# Classes		
	ET 0	ET S	ET X	VH	VM	VL	ASH	ASM	ASL	CD3	CD5	CD>5
DI - Minimal												
DI - Moderate												
DI - Extensive												

	# Students			Plan Time			Build Schedule		
	SD40	SD70	SD>70	PT30	PT60	PT>60	TRAD	BLOCK	OTHER
DI - Minimal									
DI - Moderate									
DI - Extensive									

respondents as possible, the cover letter described the importance of the study, and a reminder was sent to faculty three days prior to the due date.

The issue of truthfulness on the part of the teachers could have threatened internal validity. Teachers may have been hesitant to state that they used limited differentiation of instruction in their classrooms. This challenge was addressed by reminding respondents that the purpose of the study was to determine factors that could be useful in designing and planning professional development activities and to remove obstacles which interfered with differentiation. Also, participants were promised anonymity. The process was designed so that participants completed surveys prior to being invited to participate in a focus group. This was done since people are more likely to answer truthfully on a survey than in a face-to-face discussion (Weiss, 1975).

The instrument used to collect quantitative data was based on the Teacher Self-Reflection on Differentiation for Staff Development Planning (Page, 2007). It was developed by Tomlinson and adapted by Page to assist leaders and teachers in evaluating the implementation of differentiated instruction in classrooms. It was specifically designed to have teachers self-evaluate.

Focus group discussion was developed based on the survey instrument results and on Tomlinson's description of the foundational concepts needed for a differentiated classroom (Tomlinson, 2007). Questions and discussions were influenced by the information collected and analyzed during the quantitative analysis. Quantitative analysis was done first to avoid potential influence between respondents.

The teacher survey and focus groups were piloted with secondary academic teachers from schools that were not included in the actual research. The survey instrument

was modified, as needed, based on the responses and suggestions from the pilot teachers and from input from field experts who were asked to review the document. The instrument was developed to be as precise and clear as possible to avoid confusion and impairment of the data.

According to Creswell (2003), reliability and generalizability play a minor role in qualitative research; however, he states that validity is a strength. In qualitative research he states that this is in terms of whether findings are accurate.

According to Creswell, there are eight primary strategies that check the accuracy of findings and a researcher can utilize any number of them to assure accuracy. Of those eight, this research utilized:

1. triangulation across different data sources to build a coherent justification of themes. Information was triangulated across results from quantitative survey information and qualitative focus group information.

2. member checking to return to the focus group participants and ask for them to validate whether the reported information relays what was discussed in focus groups. Summaries of the major points discussed were reviewed with selected members of the focus groups.

3. acknowledging my personal bias towards use of differentiated instruction and tempering it with my many years experience in education and work with differentiated instruction.

4. utilizing peer debriefing where a person was asked to review the qualitative results and ask questions to clarify and cross check for accuracy. The information and data received were reviewed by professional peers in the

schools with the purpose of assuring accuracy of reader interpretation, and to determine if there was discrepant information.

CHAPTER IV

FINDINGS OF STUDY

The purpose of this chapter is to identify the study participants and their schools, give an overview of the research tools, describe the data collection process and the purpose of the study, address the research questions, and present the results of the statistical analysis and qualitative data collection. This chapter provides a description of the teachers' demographics and their schools, a description of the data collection, a report of the data from the survey, and a report of the themes developed from the focus groups.

This study investigates the relationships between a variety of factors that may influence teachers' use of differentiated instruction in the secondary academic classroom. One hundred and seventy-five questionnaires were distributed within five high schools.

Overview of the Participating Schools

Five public schools were selected in southwest Michigan to collect the data. Three traditional high schools and two alternative high schools were selected from K-12 districts. Two of the three high schools were 9th through 12th grade and one was 10th through 12th grade. The three high schools selected were across socioeconomic categories: one was an affluent high school in the suburbs, one was in an economically diverse setting with incomes ranging from poverty to upper middle class, and the third was a large high school serving an area of lower income students. Two alternative high schools were selected that serve socioeconomically disadvantaged students. Since the

alternative high schools were relatively small, two were selected to attempt to get a representative number of teachers who would participate in the surveys.

The Questionnaire

Of the 175 questionnaires distributed, 76 were completed and returned (43%). The demographics section of the questionnaire asked the secondary teachers five questions about their history, experience, and training. Teachers were given categories to choose from and were asked to select categories that best fit their situation. The information was analyzed by questions and totals. Some of the demographic information on training and experience was also analyzed in relation to the extent of differentiated instruction usage.

The questionnaire had 27 items (Appendix D) that asked instructors to rate the importance of that aspect of differentiated instruction and how much they used it in their instructional practices. Data indicating the importance that an instructor affixed to each aspect and the extent to which they used it were compared across all 27 items for each instructor, and an overall categorical score was determined for individual participants in each of the two areas: importance and usage.

Focus Groups Description

Three focus groups were conducted: two at high schools and one at an alternative high school. Descriptive information for each of the focus groups and totals is included. The groups were asked to discuss their views on differentiated instruction in relation to secondary teaching and factors that assisted or inhibited its use. In addition, instructors were encouraged to discuss anecdotal issues relating to differentiation that was not

requested in the survey. Data were described in narrative form and related to the results of the survey.

Demographics of the Participants

Tables 4 through 7 represent demographic data of the participants. The data in Table 4 demonstrate the gender of the participants. Of those who completed the surveys, 46 (60.5%) were female and 30 (39.5%) were male.

Table 4

Gender of Participants

Gender	Frequency	Percentage
Male	30	39.5
Female	46	60.5
Total	76	100.0

The data in Table 5 demonstrate the breakdown of educational levels.

Table 5

Educational Degrees of Participants

Degree	Frequency	Percentage
BA/BS	17	22.4
MA/MS	33	43.4
MA + 30	26	34.2
Total	76	100.0

Educational levels of participants were as follows: 17 had a BA/BS (22%), 33 had an

MA/MS (43%), 26 had a master's + 30 credits (34%), and zero had a doctorate.

Table 6 demonstrates the subject areas taught by participants.

Table 6

Subjects Taught

Subject	Frequency	Percentage
English	25	33
Science	14	18
Math	15	20
Foreign Language	8	11
Social Studies	11	14
History	3	4
Total	76	100.0

Subject areas taught by the instructors included the following: 25 taught

English/language arts (33%), 14 taught math (18%), 15 taught sciences (20%), 8 taught a

foreign language (11%), 11 taught social studies/world studies/government (14%), and 3

taught history (4%).

The data in Table 7 demonstrate the years of teaching experience of the

participants. Years of teaching experience was distributed: 5 had taught 1 to 2 years (7%),

9 had taught 3 to 5 years (12%), and 62 had taught 6 or more years (81%). The

preponderance of participants had 6 or more years of teaching experience (81.6%).

Table 7

Years of Teaching Experience

Years	Frequency	Percentage
1 to 2	5	6.6
3 to 5	9	11.8
6 or more	62	81.6
Total	76	100.0

Research Findings

Information collected from the questionnaire was used to learn the extent to which participants utilized differentiation and the extent to which variables were related to use of differentiation. The responses for use and value of differentiation were categorized for each instructor into extensive, moderate, and minimal use of differentiated instruction, and high, medium, and low value of differentiated instruction, respectively. The data collection for these two questions was a measure of differentiated instruction use and value across six domains (student interest, assessment, challenging lessons, content, process, and product) utilizing 27 questions.

Responses on the questionnaire that the average rate of differentiation implementation was 2.91 for the 76 participants. This falls within the moderate range of differentiation usage, which was on a range of 2.1 to 3.0. Differentiated instruction implementation was compared to other data collected by the questionnaire on independent variables which may be related to supporting or inhibiting the use of differentiation. These variables included differentiation instruction training, building

administrative support, classes taught per day, numbers of students taught, planning time, school's class schedule type, and instructor's personal value of differentiation. This research attempted to answer the following questions:

Teacher Characteristics:

How do the following teacher characteristics relate to the use of differentiated instruction?

1. Are teachers who have more training in differentiated instruction more likely to utilize differentiated instruction than teachers who do not have training?

2. Are teachers who value differentiated instruction more likely to utilize differentiated instruction than teachers who see little value?

Institutional Characteristics:

3. In schools where there is more administrative support, are teachers more likely to utilize differentiated instruction than schools where there is little support?

4. Because of time constraint issues, are teachers who have lower number of classes per day more likely to utilize differentiated instruction than teachers who have higher numbers of classes?

5. Due to workload constraints, are teachers who have lower numbers of students per day more likely to utilize differentiated instruction than teachers with higher numbers of students?

6. Are teachers who have more planning time more likely to utilize differentiated instruction than teachers with less planning time?

7. Are teachers who have more flexible school schedules, such as block

    schedules, more likely to utilize differentiated instruction than teachers who

    have traditional school schedules?

To report the findings in this study, each research question will be re-stated and an appropriate statistical test is provided to answer the research question.

1. Are teachers who have more training in differentiated instruction more likely to utilize differentiated instruction?

The data in Table 8 address the extent of training teachers received in differentiated instruction. They rated it as *none*, *some*, and *extensive.* A chi-square test of independence was performed to test the relation between training and teachers' use of differentiation.

Table 8

Amount of Training Related to Differentiated Instruction Implementation

Differentiated Instruction	Amount of Training			
	None	Some	Extensive	Total
Minimal	0	3	4	7
Moderate	1	23	15	39
Extensive	0	1	29	30
Total	1	27	48	76

Note. There was not a significant relationship between differentiation use and teacher training, $x^2(4, N = 76) = 6.646$, $p = .156$.
$p < .05$

2. Are teachers who value differentiated instruction more likely to utilize differentiated instruction?

The data in Table 9 address the relationship between teachers' value of the importance of differentiated instruction. When instructors rated the components of differentiated instruction, they were asked to rate the importance of the particular item to effective teaching. This was on a scale of *not important*, *somewhat important*, *fairly important*, and *very important*. This was compared to use of differentiation of instruction.

Table 9

Teacher Value of Differentiated Instruction in Relation to Use of Differentiated Instruction

Differentiated Instruction	Teacher Value of Differentiated Instruction			
	Low	Medium	High	Total
Minimal	0	3	4	7
Moderate	1	23	15	39
Extensive	0	1	29	30
Total	1	27	48	76

Note. There was a significant relationship between teachers' value in differentiated instruction and the extent to which they actually implemented it, $x^2(4, N = 76) = 24.982$, $p = .000$.
$p < .05$

3. In schools where there is more administrative support, are teachers more likely to utilize differentiated instruction?

The data in Table 10 address the relationship between the degree of administrative support and the use of differentiated instruction; instructors used the ratings of *supports*

and encourages, *doesn't encourage or discourage*, or *discourages* the use of

differentiated instruction. This was compared to use of differentiation of instruction.

Table 10

Administrative Support in Relation to Use of Differentiated Instruction

Differentiated Instruction	Administrative Support			
	Low	Medium	High	Total
Minimal	0	4	3	7
Moderate	0	10	29	39
Extensive	0	7	23	30
Total	0	21	55	76

Note. Administrative support levels did not demonstrate a relationship with teachers' use of differentiated instruction, $x^2(2, N = 76) = 3.403, p = .182$.
$p < .05$

4. Because of time constraint issues, are teachers who have lower numbers of

classes per day more likely to utilize differentiated instruction?

The data in Table 11 address the relationship between the number of classes

taught per day and implementation of differentiated instruction. Respondents selected

from 1–3, 4–5, or 6 or more. This was compared to use of differentiation of instruction.

5. Due to work load constraints, are teachers who have lower numbers of students

per day more likely to utilize differentiated instruction?

The data in Table 12 addresses the relationship between the number of students

who were taught per day in their classes to determine if there was a relationship with their

use of differentiated instruction. They selected from one of three categories: 0–40, 41–70, or 71 or more per day.

Table 11

Number of Classes per Day in Relation to Use of Differentiated Instruction

Differentiated Instruction	Number of Classes per Day			
	1–3	4–5	6+	Total
Minimal	1	4	2	7
Moderate	6	30	3	39
Extensive	2	22	6	30
Total	9	56	11	76

Note. There was not a relationship between number of classes taught per day and the implementation of differentiated instruction, $x^2(4, N = 76) = 4.276, p = .370$.
$p < .05$

Table 12

Number of Students Taught per Day in Relation to Use of Differentiated Instruction

Differentiated Instruction	Number of Students Taught per Day			
	0–40	41–70	71 or more	Total
Minimal	4	0	3	7
Moderate	10	5	24	39
Extensive	10	3	17	30
Total	24	8	44	76

Note. Numbers of students taught did not show a relationship with teachers' use of differentiation, $x^2(4, N = 76) = 3.224, p = .521$.
$p < .05$

6. Are teachers who have more planning time more likely to utilize differentiated instruction?

The data in Table 13 address the relationship between the amount of planning time and implementation of differentiated instruction. Teachers were asked the amount of planning time they had per day in increments of 0–30, 31–60, or 61 or more minutes per day. This was compared to use of differentiation of instruction.

Table 13

Amount of Planning Time in Relation to Use of Differentiated of Instruction

Differentiated Instruction	Planning Time (minutes)			
	0–30	31–60	61 or more	Total
Minimal	1	5	1	7
Moderate	2	15	22	39
Extensive	4	11	15	30
Total	7	31	38	76

Note. The amount of planning time did not show a relationship with teachers' use of differentiation, $x^2(4, N = 76) = 5.349, p = .253$.
$p < .05$

7. Are teachers who have more flexible school schedules, such as block schedules, more likely to utilize differentiated instruction?

The data in Table 14 address the relationship between the type of schedule utilized in their school and the implementation of differentiated instruction. The choices were *traditional*, *block*, or *other*. This was compared to use of differentiation of instruction.

Table 14

Type of Class Schedule in Relation to Use of Differentiated Instruction

Differentiated Instruction	Type of Class Schedule			
	Traditional	Block	Other	Total
Minimal	7	0	0	7
Moderate	31	8	0	39
Extensive	23	7	0	30
Total	61	15	0	76

Note. The type of schedule did not show a relationship with teachers' use of differentiation, $x^2(2, N = 76) = 1.981, p = .371$.
$p < .05$

In summary, the statistical testing demonstrated that almost all factors involved in preparing or facilitating differentiated instruction examined by this research had no relationship to actual utilization of differentiation practices. The only factor of significance was whether instructors valued differentiated instruction as a practice. If they value it, they are likely to use it.

Focus Groups Results

Three focus groups were conducted, one each at two of the high schools and one at an alternative high school. There were 14 participants at the first focus group, 12 at the second group, and 4 at the final group. The alternative high school was the smallest group, had the smallest staff, and had a resultant low return on the surveys during quantitative data collection. All staff that completed the survey from each of the buildings were invited to attend. Of the 38 who completed surveys from the respective schools, 30

of them participated in the focus groups (79%). Participants included teachers from a

broad range of subject areas, including mathematics, sciences, English, foreign languages,

social studies, government, and economics. All focus groups were scripted by the

evaluator to keep a record of what was reported. The scripted results were then combined

from the three groups. The results are quantified into three headings: major theme—when

a topic was brought up as a concern or consideration in all three focus groups with major

emphasis; subtheme—when a topic was discussed in at least two focus groups, or by five

or more participants; and other consideration—a topic of consideration for further

research but not shared in multiple groups.

The first analysis during each focus group established the level of instructor's

understanding of differentiated instruction. Various research cited earlier in this document

indicated that there was variation in the perceived definition of differentiated instruction.

This was assessed in the qualitative analysis by simply asking for a definition of

differentiated instruction.

Based on the quantitative test results, an important factor that needed further

investigation was, what leads to an instructor's valuing differentiation? To identify some

possibilities, the following questions were asked during focus group discussions:

- In your opinion, how important is it that you should differentiate instruction?

- What has led to your assessment of differentiated instruction's importance?

- What most influences your thoughts on differentiated instruction?

- What kinds of results have you seen from addressing the learning differences
  of students in your teaching?

During these sessions, validation questions were also asked, which were aimed at determining teachers' perspectives on why they did or did not utilize differentiation. These included:

- What is most helpful in assuring that you differentiate instruction?

- What most impairs your ability to differentiate?

Focus Groups Major Themes

Major Theme 1: Limited Knowledge of Differentiated Instruction

Before each focus group began, there was a discussion to assure commonality of terminology. In all three focus groups, teachers described the process of differentiation as adapting students' educational programs to fit the learning needs of the student. This included references to learning styles, students' lack of basic skills such as reading ability, and English language deficiencies. There was discussion on the ethics involved when differentiation does or does not occur. They expressed that not addressing students' learning needs and not dealing with student learning deficiencies would be unethical since it would exclude certain students from equal access to education. There was strong support of addressing student differences as educational practice. It was described as an important necessity for effective instruction.

The basic premise of differentiation—you must adjust to a student's particular learning needs—was demonstrated throughout the discussion by the participants. They understood that to be the premise of differentiated instruction. Many teachers were pressed to express the various differences that need to be addressed and even more

pressed to give much depth to the various components that differentiated instruction can comprise, as defined by Tomlinson (2003). One teacher referred to differentiated instruction as a gimmick that helps to keep student attention. Another described differentiation as a method to keep students involved to keep them from getting bored. Most discussion on what practices were involved in differentiated instruction included delivery of materials and methods of instruction. Examples included addressing language differences and addressing learning disabilities. There was no discussion on how to adjust curricula or learning environment, nor was there an indication that student product is differentiated to meet student learning needs. Discussion evidenced that they had been taught about learning styles and could discuss different types of learning styles but seem less prepared to implement practices that systematically addressed learning styles as a regular practice in the classroom. At one focus group, teachers of foreign language stated that the nature of the content taught by them mandated perpetual differentiation of instruction. However, in the short time during the focus group, it was unclear how the differentiation occurred.

Major Theme 2: Inadequacies of Professional Development

At all of the three groups, there was considerable discussion on the inadequacies of professional development and supportive methods for differentiated instruction. Teachers described administration as promoting the practice but indicated that there was no follow through with training and structure which would effectively continue differentiated practices in the classroom. The training that they had experienced was described as minimal, not always effective, and sometimes missing the mark. A frequent

complaint was that training examples for differentiated instruction were usually not at a secondary level. Teachers also expressed dismay and some humor in the fact that the professional development did not utilize the same differentiated practices that the training espoused.

Major Theme 3: Collaboration in Professional Development Practices

Teachers value collaborative education, peer education, learning communities, mentoring, and collegiality as methods of professional growth. A resource and method that all teachers saw of value was teacher-to-teacher education. There was much discussion on staff mentoring, collaboration, and collegiality. They valued learning that was developed with their cohorts. This was expressed through descriptions of models, such as master teacher, mentors, and professional learning communities. Many teachers described the process of collaboration among staff including brainstorming, designing, implementation, and review. They described this as more valuable than attending seminars or other types of training that had been provided to them. This topic surfaced at all three focus groups without prompting from the evaluator. There was a strong argument that this would be a better method of training and they valued the knowledge held by their cohorts. Although it was proposed as a method to be implemented in their schools, at other times the description was of how this process is ongoing at present.

Major Theme 4: Teachers Value Results

Teachers indicated that value of an educational process was determined by student results. All teachers indicated their need to feel they are being effective. Based on the

quantitative data, one of the most critical issues for the focus groups was to determine what affects teachers to value differentiated instruction, or what convinces them that any educational practice is of value? Each group indicated that value occurred where results showed the practice to be effective. In other words, if it increases student achievement, they are willing to include it as a practice. They indicated that, based on results, they would either incorporate the practice into their teaching or abandon it if it isn't effective. This topic arose at all three groups and was an important piece of information that they wanted to share. All teachers indicated the need to feel they are having a positive effect on student performance. Some described it as a professional mandate. If you are a professional, you are expected to produce worthwhile results. Producing a positive effect on student achievement was a drive for the participants and a goal that they all expressed.

Subtheme 1: Administrative Support

In two of the groups, participants indicated that their districts and administration were supportive of differentiated instruction. The extent of support was in verbal statements from administration on the need to differentiate. In one of the schools, particular professional development speakers had been provided, but effectiveness of the professional development was questioned. No one in the focus groups suggested a lack of administrative support. They did, however, indicate a need for appropriateness of support.

Subtheme 2: Concern Regarding Lack of Resources

At two focus groups, there was concern over the lack of resources and the effect on differentiation practices. They felt this was a concern that would only grow as school

budgets shrink. Of particular note was the related consequent lack of funds for technology and how that decreases technological methods for differentiation. They expressed concern that the limited funding would inhibit opportunities to learn and practice differentiated process. Time was expressed as an issue. In one group, their district had cut professional development time, which was previously built into the school calendar. Previously, students were released for a half day a month during which teachers could work on professional development. Because of budget cuts, this student-free time was eliminated. Teachers in all three groups talked about the reduction in their available time due to budget restrictions. They were being called on to do more as positions such as media specialists, clerical support, or other resources were eliminated.

Other Consideration

Some participants felt that differentiation of instruction was dependent upon teacher personality. Other teachers felt that the topic/area of instruction dictated what could be differentiated. In the literature reviewed, there was little to no discussion on the relationship between personality and differentiation of instruction or the relationship with academic area.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS
FOR FURTHER STUDY

The overall purpose of this study was to provide answers to the following

questions:

1. How extensively are differentiated instruction practices utilized by secondary

     academic teachers?

The survey asked participants to rate their level of implementation of

differentiated instruction. They averaged use of differentiation at 2.91 on a moderate

level, which ranged from 2.1 to 3.0. Above 3.0 was determined as extensive use of

differentiation.

2. What variables influence whether a secondary academic teacher utilizes

     differentiated instruction?

To answer this question, this study attempted to add to the literature base by

evaluating whether any of the selected independent variables had a relationship with

teachers' use of differentiated instruction. The intent was to discover those variables that

most highly correlated with utilization of differentiated instruction. With this information,

administration and trainers could be more successful in assisting teachers to incorporate

this effective practice. In this study, three high schools and two alternative high schools

were examined across academic teachers to see if any of the independent variables in

question were related to implementation. It looked at seven independent variables

encapsulated in the following research questions:

How do the following teacher characteristics relate to the use of differentiated

instruction?

1. Are teachers who have more training in differentiated instruction more likely

   to utilize differentiated instruction?

2. Are teachers who value differentiated instruction more likely to utilize

   differentiated instruction?

How do the following institutional characteristics of the schools relate to teachers'

use of differentiated instruction?

3. In schools where there is more administrative support, are teachers more likely

   to utilize differentiated instruction?

4. Because of time constraint issues, are teachers who have lower number of

   classes per day more likely to utilize differentiated instruction?

5. Due to workload constraints, are teachers who have lower numbers of students

   per day more likely to utilize differentiated instruction?

6. Are teachers who have more planning time more likely to utilize of

   differentiated instruction?

7. Are teachers who have more flexible school schedules, such as block

   schedules, more likely to utilize differentiated instruction?

Through quantitative analysis of survey information, it was determined that the

only significant independent variable in relation to implementation in this study was the

teachers' value of differentiation as a process. If someone valued differentiation, he or she

would implement it. Other factors, such as numbers of students taught, large class sizes, or quantity of planning time, etc., did not show a significant relationship. Consequently, the important question for qualitative research became: What determines whether a teacher values differentiated instruction techniques? Also, from survey information and analysis, participants' self-report indicated a much higher level of use of differentiation than indicated in previous literature.

Summary of Findings

This research investigated the extent of differentiation at the secondary level and independent variables that may influence implementation. To get thorough information from a rounded perspective, a mixed methods study was conducted. Through survey, the individual factors were spelled out in the item-by-item questions that make up components of differentiated instruction. Then, interpretation and philosophical discussion could further ferret out the details and motivations of participants through focus groups. The results of the survey statistical analysis guided the questions posed in focus groups and helped to identify what is important in determining the values held by the instructors.

The most significant results of the survey portion of the investigation were that the participants indicated a high moderate level of differentiation use and that there was 1 out of 7 independent variables that demonstrated a relationship to differentiation use, which was whether participants valued differentiation. All other variables which were considered to encourage or inhibit differentiation were statistically not significant.

Focus group discussions led to four major themes. These were as follows:

Theme 1: Teachers had limited knowledge of differentiated instruction procedures

Theme 2: Teachers indicated inadequacies of professional development

Theme 3: Teachers value collaborative education, peer education, learning communities, mentoring, and collegiality as methods of professional growth

Theme 4: Teachers indicated that value of an educational process was determined by student results

Discussion of Major Theme 1: Teachers Had Limited Knowledge of Differentiated Instruction Procedures

Although teachers generally could not name all aspects of differentiated instruction, they did grasp the concept and knew some methods of application. They clearly understood that it was tailoring education to the individual student learning characteristics. The most frequently cited methods were addressing learning styles and dealing with students with disabilities. It was also apparent that most of the differentiation in their practice was in materials and delivery. There was no discussion of the use of differentiation within evaluation. This validates research that questions how much teachers really know about differentiated instruction practices (Bearne, 2004).

Tomlinson (2003) and Tobin and McInnes (2008) indicated that use of differentiated instruction was not widespread. According to George and McEwin (1999), few high school educators are attempting to utilize a philosophy of differentiated instruction to teach the heterogeneous student populations at the high school level. Based on participants' rating of their use of differentiation in this study, results could be interpreted as counter-indicative of the aforementioned literature. Participant self-reports demonstrated that the respondents felt they used differentiation at a high moderate level

of 2.91 on a scale from 1 to 4. At the secondary level, there has been discussion that

differentiated instruction is conducted by few teachers (Huebner, 2010). One explanation

for the contradiction with previous literature may be the participants' grasp of

differentiated instruction. As indicated in the literature, there are typically different

interpretations among teachers of what constitutes differentiated instruction (Bearne,

2004). In this research, this possibility was investigated further during focus group

discussion. Although participants clearly indicated that differentiated instruction was the

process of addressing student variations, they were not extensive in descriptions of how

to differentiate instruction. This may be responsible for their high rating of differentiated

instruction use. If they were more informed of the aspects of differentiation as described

by Tomlinson, they may be more likely to rate their use as less than indicated in this

survey.

Discussion of Major Theme 2: Inadequacies of Professional Development

Participants indicated the importance of differentiating instruction to them

personally and also affirmed that administration promoted differentiation. They indicated

that the acquisition of differentiation practices was hampered by weak professional

development attempts and poor pairing of training with need. Wei, Andree, and Darling-

Hammond (2009) investigated professional development in the United States and in other

countries. That research pointed out that professional development in the U.S. was on a

par with other countries when it came to short-term number of opportunities. The United

States varied with other countries in that they provided more long-term professional

development than the U.S. This correlates well with what the participants indicated. The

short workshop model of professional development does not fare well in research or in the opinions of the participants of this study. As stated by Bickmore (2010), "Expert-run training does not often result in long-lasting changes in instruction" (p. 44).

Discussion of Major Theme 3: Teachers Value Collaborative Education, Peer Education, Learning Communities, Mentoring, and Collegiality as Methods of Professional Growth

The participants discussed the need for and the success of peer collaboration and master teacher-mentor relationships. This correlates well with recent research on effective practices in professional development and is strongly supported in literature (Bloom & Vitcov, 2010; Umphrey, 2010; Williamson & Blackburn, 2010). An article by Williamson and Blackburn (2010) stated:

> We've found that providing collaborative time is one of the catalysts for nurturing and sustaining change. Teachers value the opportunity to meet with grade-level or content-area peers to discuss successes, discover ways to improve, and develop strategies that they can use in their own classrooms. (p. 65)

Also, Umphrey (2010) stated, "Collaborative teacher learning is key to advancing school change and improving student learning and offers quantifiable evidence of student achievement gains reaped when teachers were able to learn from accomplished peers and develop collective expertise" (pp. 8-9).

Discussion of Major Theme 4: Teachers Indicated that Value of an Educational Process Was Determined by Student Results

In the focus groups, teachers clearly stated that they value what they feel is effective in improving student achievement. This clearly aligns with research and the literature on the topic. The literature on teacher motivation differentiates intrinsic versus

extrinsic factors in motivation for teachers to implement new processes in the classroom. In general, most literature will identify intrinsic factors as more influential and lasting than extrinsic factors (Kocabas, 2009). Kocabas (2009) identified the individual sense of success as being an influence to drive teachers to do well. Sinclair, Dowson, and McInerney (2006) identified the need for teachers to feel like they are helping others. Of course, the feeling of helping others will exist only if they feel that students are achieving. Values such as a sense of mission and having a positive impact on students' lives are at the center of what makes for excellent teachers (Nieto, 2009). It is really no surprise that teachers will continue to do what they see as effective and discontinue processes that do not result in improvement.

Conclusions

One difficulty of this analysis is that differentiated instruction is a somewhat nebulous concept to the instructors. Based on the data collected, they can recognize and implement differentiated instruction but do so only in a semi-systematic fashion in less than a comprehensive methodology. Few, if any, would be able to discuss differentiation across curricula, teaching methods, resources, learning activities, and student products. In most instances, the secondary teachers discussed changes in teaching methods and learning activities when discussing differentiation. Very seldom was adjusting curricula, resources, or evaluation mentioned as methods of aligning with student differences. Several teachers spoke of being forced to adopt assessments standardized by the administration, therefore requiring the evaluations to be static across teachers. There

appears to be a need for professional development practices that open teacher training to addressing all methods and ideas of differentiation.

The ultimate conclusion of this research is that teachers will differentiate instruction if they value differentiated instruction. Through discussion, it was frequently cited by the teachers that what most creates value is results. They stated their desire to be effective at educating youth. If differentiating instruction helps them to achieve their goals—better educated students—then they would differentiate instruction. In a recent call to action by the president of the Association for Supervision and Curriculum Development, teachers are given this charge: "If we, as educators implement the strategies that we know are effective for helping students meet academic standards and perform at high levels, we will have done our job well" (Mariotti, 2010). Teachers' comments in focus groups mirror that proclamation. They take the onus of responsibility for utilizing whatever procedure helps their students to achieve. In practice, for this to lead to comprehensive systems of education that utilize differentiated instruction, support and training may be needed to guide this drive. Although value may be associated with differentiation, it doesn't mean that educators are well versed in all or even most practices of differentiated instruction. Many discussions revolved around the sharing of an idea or method that, when tried, was found to be useful. This is a process of small steps and not large transitions. In the work by Carol Tomlinson previously cited, she indicates that implementing differentiated instruction takes time. If not done in a systematic method, significant movement to effective practices may be long in development. According to Tomlinson (2003), "It seems unlikely that differentiation defined as tinkering with one-

size-fits-all instruction can be robust enough to meet the learning needs of academically diverse populations."

For educational practitioners, this research demonstrates that there is work to be done in assisting secondary teachers in implementing differentiated instruction. Professional development is needed that helps teachers see differentiation across all areas: curricula, methods, resources, learning activities, and products. In the quantitative analysis of variables that may have a relationship to teachers' use of differentiation, training did not show a significant relationship. This may be due to the quality of the training. It should be noted that in focus group discussion, the teachers described the training they had received as minimal and, when received, not well done. It may well be the case that effective training would have a significant impact on teachers' use of differentiation. The teachers in the focus groups discussed and described what they thought would be good training. The training should be tailored to the needs of the secondary educator. There should be a strong reliance on collaboration among the teaching staff. Based on participant comments, this is the most engendered method of training from the teacher's perspective. The most important aspect of facilitating a teacher's use of differentiated instruction would be to collect data that demonstrates effectiveness. Teachers want to be successful in their work educating youth. If they see the effectiveness of differentiated instruction, it will increase their personal value of differentiation. As seen by the quantitative analysis of this study, if teachers value differentiation, they will differentiate instruction for their students. Through a designed process incorporating both intelligent training and work and support among staff, differentiation of instruction could proceed quickly.

Delimitations of the Study

Previous studies have documented the positive effects of differentiation on student achievement (Campbell et al., 1999; Koeze, 2006; Tomlinson et al., 1997). Although studies have been limited, it is a generally perceived notion that differentiation is best practice, and best practice is synonymous with academic achievement. Since there is no evidence to refute the success of differentiated instruction, it is agreed that it is effective in improving student performance. For the purposes of this study, the research investigated factors that influence the secondary teacher's use of differentiated instruction and did not delve in research that attempts to explain causal inferences between differentiated instruction and its impact on student achievement.

This study looked at differentiation at the secondary education level only. The need to improve differentiation at the secondary level is indicated by the research quoted in this study. There has been more focus on primary and middle school educational differentiation in the past.

Limitations of the Study

This study has several inherent limitations. An implicit assumption of this research is that classrooms are arranged heterogeneously based on the building administration assignment of students and/or the process by which students enroll in classes. In reality, it is not possible to precisely predict the degree of homogeneous or heterogeneous groupings. In most instances, chance dictates the extent of variation of student attributes within each class.

School contexts vary widely from school to school. Interventions may be successful in some and not in others (Moon et al., 2003). This study selected a sample of schools with varying contexts to help interpret outcome data; however, generalization of data to other schools may be in need of a larger sample to verify results. In addition, the study is limited to one major county in southwest Michigan. Generalizations to other schools outside of Michigan may require further study. Finally, of necessity, this study will be limited to its participants and will not include those teachers who did not participate.

Recommendations for Further Study

Further study could focus on a number of aspects uncovered in this research. Methods of training and professional development that create a more complete picture of differentiated instruction need be investigated. Based on information collected from the current subjects, professional development for differentiated instruction does not fit the needs of secondary educators. The participants of this study stated that examples do not match their needs and training methods are questionable. One teacher observed that the professional development offered on differentiation did not exemplify the practice that was being espoused at the time. It was a presentation in a stand-and-deliver format, uniform for all participants. Also, along the lines of training, teachers in all focus groups emphasized the need for collaboration in learning better differentiation skills. This can be investigated and developed so that the process is a systematic method that actually produces results. There is a large amount of literature on effective practices for professional development. By coupling effective professional development utilizing

differentiated instruction, the results can be assessed in terms of student achievement. Since collaboration is of value to the participants, and literature supports it, there are a variety of methods of supporting collaboration and peer-to-peer learning. One issue in collaboration is the issue of time. When can teachers collaborate if they don't have common schedules that allow them to meet, discuss, and share information? Within the constraints of school district budgets, there is frequently not enough funding to pay teachers for time to collaborate. Interesting research would be to design a systematic method of professional development involving collaboration that is effective in results and cost effective in usage. Also, creative methods of collaboration such as using Twitter (Ferriter, 2010) or blogs might be effective manners of creating opportunities for teachers to use peers and master teachers as resources. Other creative methods of providing professional collaboration are discussed by DuFour, DuFour, Eaker, and Many (2006) in their book *Learning by Doing: A Handbook for Professional Learning Communities at Work*. Research on the most effective methods of providing collaboration time could be investigated. This would be worthwhile information for educational planners, trainers, and administrators.

Some of the beliefs of the educational community regarding secondary teachers were not supported by the study data. In general, secondary teachers value differentiated instruction as a practice. In fact, it was stated more strongly, many saw differentiation as a requisite to teaching their students and even an ethical imperative. Teachers are very interested in any methods that make them more successful in educating their students. They value effective professional development and seek to collaborate with their peers on methods that would most help their students. Based on this study, there are some very

important training and leadership needs to help guide teachers to more effectively utilize this valuable educational process.

First, teachers indicated professional development practices for their differentiated instruction training had been minimal. When training was provided, examples were not from the secondary classroom. Training procedures and process actually did not incorporate the very concepts to be taught. Teachers' learning needs are diverse as are students. To use a one-size-fits-all training paradigm for teachers makes as little sense as doing so for students.

Second, teachers described their learning as trial-and-error strategies to determine what produces results. This can create change, but small-scale trial and error doesn't generally create large-scale systemic improvements. Educators will need an organized and well designed process shown to be effective. Professional development leaders need to adhere to what has been shown to produce results. Too often professional development in education is a last-minute plan that has little reach beyond the seminar in which it is introduced. Preparing teachers to utilize differentiated instruction in the classroom is no different than training and preparation for other results-oriented endeavors. If teachers see the value, are provided with quality training, and see the results in positive student outcomes, then their behavior will change. Rooney (2010) advises principals to follow the direction of differentiated instruction. She asks, "Shouldn't principals meet teachers where they are?" just as we ask teachers to meet students where they are. She observes that "teachers who are regarded as competent professionals and whose strengths are affirmed tend to get even better in the areas in which they are affirmed" (pp. 85-86). It seems like good advice for training students or staff.

Third, teachers expressed value for peer collaboration, master teacher training, learning communities, and peer mentoring. Summarily, they see peer-to-peer models of support as very effective and facilitative to adoption of new processes beyond the workshop or seminar. By developing methods of incorporating collaboration that supports differentiated instruction, the teacher's learning process is extended beyond training sessions to ongoing involvement with learning. This is strongly supported in literature (Bloom & Vitcov, 2010; Umphrey, 2010; Williamson & Blackburn, 2010). Incorporating these methods and supporting them could go a long way in empowering teachers to take control of their mission—to effectively educate students. "When teachers put their heads together over student-centered concerns, that team effort can be the most powerful school improvement tool in the school" (Schmöker, 1996, p. 12). Authors Fogarty and Pete (2010) listed seven protocols for professional learning. According to their article, "Peer coaching, expert coaching, teacher facilitators, and lead teachers are needed on site in every building. These are the support teams, with clearly articulated responsibilities that support teachers' professional practice. The evidence is clear: Coaching makes a difference."

Combining collaboration with effective training processes can facilitate student results. Data collection and systems of performance feedback give teachers a chance to see what moves students to achievement. Student achievement reinforces teachers' efforts and provides the motivation to continue to learn.

A concern expressed in some focus groups was that resources were dwindling and consequently money and time caused less opportunity for professional development. It is a reality that our current economic climate is pulling back funding, but as stated by Grubb

and Tredway (2010), "Wise allocation requires not only fiscal resources but other abstract resources as well—leadership, vision, trust, and teacher participation and cooperation. Only the careful development of leaders and teachers will provide these" (p. 42). When funding becomes scarce, districts may not have the luxury of highly paid trainers or paid professional development experiences, but teachers should never be underestimated in their devotion and willingness to accept leadership and responsibility. Teachers clearly indicated their value of success in student achievement and their value of the procedures of differentiated practices. "Teachers in schools need to be accountable as opposed to being held accountable" (Kilbane, 2009, p. 186). Facilitation on the part of administration to place teachers in charge of outcomes can go a long way in improving the educational process.

Some of the results of this study were not in alignment with results from previous literature. The sample for this study included three high schools and two alternative high schools. This research should be conducted in a larger sample size to validate the outcomes and determine if similar results would be replicated.

In this study, the participants indicated that administration was supportive of differentiated instruction but was not a significant influence in motivating teachers to use processes of differentiated instruction. One of the reasons may have been the manner in which administration provided support for differentiated instruction. The professional development was deemed minimal and not meeting the needs of the teachers. Consequently, even though administration vocalized support, they did not act in a manner that demonstrated valued professional development. This brings into question the roles and activities of administrators. In an environment where there are many demands on the

administrators, they become buried in activities of management. It narrows the possibilities for them to fulfill their roles as instructional leaders. Their time becomes so involved in managing the building, students, and staff that they do not get adequate opportunity to lead and get little training in educational learning processes such as differentiated instruction. An additional measure to this research that may have been very revealing is to evaluate administrators' understanding of differentiated instruction and what is needed to help teaching staff learn about, and carry out, differentiated practices. The role of administration being instructional leaders seems to be under attack as time for their own professional development is limited. This may be a missing link to effective implementation practices that need be addressed by universities and professional organizations. Various models and methodologies for improving the instructional leadership roles of building administration could be influential in improving teachers' educational practices.

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Appendix A

Administrative Consent for Research

Western Michigan University
Department of Teaching, Learning and Leadership

SURVEY CONSENT FORM - ADMINISTRATOR

Principal Investigator: Dr. Charles Warfield
Student Investigator: Duane Kiley

(DATE)

Dear colleague,

You are invited to participate in a dissertation study entitled "Differentiated Instruction in the Secondary Classroom: Analysis of the Level of Implementation and Factors That Influence Practice. The study will investigate the extent to which academic instructors at the high school level utilize methods of differentiated instruction in their classes. The goal of the study is to determine factors which correlate with or detract from the practice of differentiation.

You are asked to complete a survey; the name of the survey is "Building Administrator Information." It will take approximately 10 minutes to complete the survey. Information from the survey will be used to compare to the practice of differentiation of instruction in your building.

All the information collected from you is confidential. That means your name or other identifying features will not be used in any analysis or in any reporting of the research. Data will be reported in aggregate form only. All surveys will be retained for at least three years in a locked file, with only coded identifying marks, in the investigator's office. Only the co-principal investigator will have access to the file.

Your participation in this research is voluntary. You may elect not to participate at any time, to not answer certain questions, or to request your data not be included in the analysis, without prejudice or penalty.

Please do not put your name or any other identifying information on the completed survey. Place your completed survey in the enclosed envelope and seal it. Also, please return the attached signed consent form with your survey. Do not place the consent form inside the sealed envelope. Return both the sealed envelope and the signed consent form to me via the inner-school mail. Surveys are coded so that your responses can be paired with practices within your building. However, only the researcher will know who are the respondents.

Your signature below indicates that you have read or had explained to you, or both, the purpose and requirements of the study, and that you agree to participate.

Your Signature: _____ Date: _____

Appendix B

Teacher Survey Consent

Western Michigan University
Department of Educational Leadership

TEACHER SURVEY CONSENT

Principal Investigator: Dr. Charles Warfield
Student Investigator: Duane Kiley
Title: Differentiated instruction in the secondary classroom: Analysis of the level of
implementation and factors that influence practice

September, 2008

Dear colleague,

You are invited to participate in a dissertation study under the guidance of Dr. Charles
Warfield of Western Michigan University entitled "Differentiated instruction in the
secondary classroom: Analysis of the level of implementation and factors that influence
practice." The study will investigate the extent to which academic instructors at the high
school level differentiate instruction in their classes. The purpose of the study is to
determine factors which correlate with or detract from the practice of differentiation.

You are asked to complete a survey. The topics include your familiarity with and use of
various practices in the education of your students. It will take approximately 10-20 minutes
to complete the survey.

All the information collected from you is confidential. That means your name or other
identifying features will not be used in any analysis or in any reporting of the research. Data
will be reported in aggregate form only. All surveys will be retained for at least three years
in a locked file, with only coded identifying marks, in the investigator's office. Only the co-
principal investigator will have access to the file.

Your participation in this research is voluntary. You may elect not to participate at any time,
to not answer certain questions, or to request your data not be included in the analysis,
without prejudice or penalty.

Please do not put your name or any other identifying information on the completed survey.
Place your completed survey in the enclosed envelope and seal it. Also, please return the
attached signed consent form with your survey. Do not place the consent form inside the
sealed envelope. Return both the sealed envelope and the signed consent form to me via the
inner-school mail. When I receive the consent form and the sealed envelope from you, I will
separate the consent forms from the envelopes and place them in two different groups in
order to ensure the confidentiality of your responses.

If you have any questions or concerns about this study, you may email or call: Duane Kiley
at: duanekiley@kendISD.org or (616)318-5691. My contact information is on the consent
sheet that I will ask you to sign before filling out the survey. You may also contact the Chair

of Human Subjects Institutional Review Board at (269) 387-8293 or the Vice President for Research at (269) 387-8298 with any concerns you have.

The consent document has been approved for you for one year by the Human Subjects Institutional Review Board as indicated by the stamped date and signature of the board chair in the upper right corner. Do not participate in this study if the stamped date is more than one year old.

Thank you for the time and effort you have put into your participation in this research project. Your input is greatly appreciated.

Sincerely,

Duane Kiley

Your signature on this form indicates your approval for the research to be conducted in you district.

Researcher Signature: _____ Date: _____

Teacher Signature: _____ Date: _____

Appendix C

Focus Group Consent Form

Western Michigan University
Department of Teaching, Learning and Leadership

TEACHER FOCUS GROUP CONSENT FORM

(DATE)

Principal Investigator: Dr. Charles Warfield
Student Investigator: Duane Kiley

You are invited to participate in a dissertation study entitled "Differentiated instruction in the secondary classroom: Analysis of the level of implementation and factors that influence practice." The study will investigate the extent to which academic instructors at the high school level utilize methods of differentiated instruction in their classes. The goal of the study is to determine factors which correlate with or detract from the practice of differentiation.

If you choose to participate, you will be asked to participate in a focus group conducted by the student investigator. It will be structured to address specific questions regarding your familiarity with various practices and the extent to which you implement them in your lessons. It will take approximately 40-60 minutes to complete the focus group.

Responses will be recorded in writing for future reference to correlate with the survey responses. The data will be coded to facilitate comparisons within and between the focus group and the survey administered. The written product of the research will include quotations to exemplify the data collected and validate the conclusions derived as a result of the findings.

All the information collected from you is confidential. That means your name or other identifying features will not be used in any analysis or in any reporting of the research. Data will be reported in aggregate form only. All surveys will be retained for at least three years in a locked file, with only coded identifying marks, in the investigator's office. Only the co-principal investigator will have access to the file.

Your participation in this research is voluntary. You may elect not to participate at any time, to not answer certain questions, or to request your data not be included in the analysis, without prejudice or penalty.

If you have any questions or concerns about this study, you may email or call: Duane Kiley at: duanekiley@kendISD.org or (616)318-5691. You may also contact the Chair of Human Subjects Institutional Review Board at (269) 387-8293 or the Vice President for Research at (269) 387-8298 with any concerns you have.

The consent document has been approved for one year by the Human Subjects Institutional Review Board as indicated by the stamped date and signature on the board chair in the upper right corner. Do not participate in this study if the stamped date is more than one year old.

Your signature indicates that you have read or had explained to you, or both, the purpose and requirements of the study, and that you agree to participate.

Your signature on this form indicates your approval of your agreement to participate in the focus group and approval for use of the information gathered in the analysis and dissemination of the dissertation results.

Researcher Signature: _____ Date: _____

Teacher Signature: _____ Date:_____

Appendix D

Teacher Survey

Teacher Survey

Please answer the following items by circling the letter in the left column indicating the level of importance for each item and in the right column indicate level of use.

Left Column
(A) Not important
(B) Somewhat important
(C) Fairly important
(D) Very important

Right Column
(1) hardly ever/ never do this
(2) sometimes/ have used on a few
    occasions
(3) frequently use this
(4) use intentionally and often

Student Interest

A B C D	I know individual student interest and can relate it to instruction	1 2 3 4
A B C D	I know individual student culture and expectations and can relate to instruction	1 2 3 4
A B C D	I know individual student life situations and how it may impact their learning	1 2 3 4
A B C D	I am aware of student's learning disabilities and handicaps and how to address them in lessons so as not to impair their learning	1 2 3 4

Assessment

A B C D	Pre-assess readiness to adjust the lesson	1 2 3 4
A B C D	Assess during the unit to gauge understanding	1 2 3 4
A B C D	Assess at the end of the lesson to determine knowledge acquisition	1 2 3 4
A B C D	Determine student's learning styles	1 2 3 4
A B C D	Determine student's interests	1 2 3 4

Please go to the next page

Page 2   **Challenging Lessons**

A B C D	Teach up by assuring each student must reach to achieve	1 2 3 4
A B C D	Materials are varied to adjust to students' reading/interest abilities	1 2 3 4
A B C D	Learners play a role in designing/selecting learning activities	1 2 3 4
A B C D	Adjust for diverse learner needs with scaffolding, tiering, compacting &, student choices in learning activities	1 2 3 4
A B C D	Provide tasks that require students to apply and extend understanding	1 2 3 4

Content

A B C D	Curriculum based on major concepts and generalizations	1 2 3 4
A B C D	Clearly articulate what you want students to know, understand and be able to do	1 2 3 4
A B C D	Use a variety of materials other than the standard text	1 2 3 4
A B C D	Provide a variety of support mechanisms (organizers, study guides, study buddies)	1 2 3 4

Process

A B C D	Pace of instruction varies based on varying learner needs	1 2 3 4
A B C D	Use learner preference groups and/or learning preference centers	1 2 3 4
A B C D	Group students for learning activities based on readiness, interests &/or learning preferences	1 2 3 4
A B C D	Group composition changes based on activity	1 2 3 4
A B C D	Classroom environment is structured to support a variety of activities including group or individual work	1 2 3 4

Product

A B C D	Product assignments with multiple modes of expression	1 2 3 4
A B C D	Student choice to work alone, in pairs or small group	1 2 3 4
A B C D	Product connects with student interest	1 2 3 4
A B C D	Variety of assessment tasks	1 2 3 4

Page 3

Teacher Self-Reflection of Differentiation of Instruction

Please complete the following questions:

1. Current subject area taught: _____

2. Gender: Male___   Female____

3. Education Level: BA/BS _____ MA/MS _____   EdS (or Masters + 30) _____

    EdD/PhD _____

4. Number of years teaching:

5. _____1 to 2 years _____ 3 to 5 years _____ 6 or more years

6. Differentiated instruction training within the last three years:

    I would describe my differentiated instruction training experience as (check one):

        None   _____   Some   _____   Extensive _____

    What training have you had (check all that applies):

        _____   Course from college or University (please specify)

        _____

        _____   Teleconference

        _____   In-service activity (please specify)

        _____

        _____   Conferences, meetings, or workshops (please specify)

        _____

Page 4

7. My building administration (pick the one best answer):

    ____ supports and encourages the use of differentiated instruction

    ____ doesn't encourage nor discourage differentiated instruction

    ____ discourages the use of differentiated instruction.

8. How many classes do you teach per day (average over a week if there is day to day variance):

    _____ 1 to 3

    _____ 4 to 5

    _____ 6 or more

9. How many students do you have on your class rosters per day (average over a week if there is day to day variance):

    _____ 0 to 40

    _____ 41 to 70

    _____ 71 or more

10. How much planning time is designated for you per day (average over a week if there are day to day differences)?

    _____ 0 to 30 minutes per day

    _____ 31 to 60 minutes per day

    _____ 61 or more minutes per day

11. Describe your school's class scheduling model:

_____ traditional   _____ block schedule   _____ other

If other please describe: _____

Appendix E

Human Subjects Institutional Review Board
Letter of Approval

WESTERN MICHIGAN UNIVERSITY

Human Subjects Institutional Review Board

Date: February 11, 2009

To: Charles Warfield, Principal Investigator
        Duane Kiley, Student Investigator for dissertation

From: Amy Naugle, Ph.D., Chair

Re: HSIRB Project Number: 09-02-15

This letter will serve as confirmation that your research project entitled "Differentiated Instruction in the Secondary Classroom: Analysis of the Level of Implementation and Factors that Influence Practice" has been **approved** under the **expedited** category of review by the Human Subjects Institutional Review Board. The conditions and duration of this approval are specified in the Policies of Western Michigan University. You may now begin to implement the research as described in the application.

Please note that you may **only** conduct this research exactly in the form it was approved. You must seek specific board approval for any changes in this project. You must also seek reapproval if the project extends beyond the termination date noted below. In addition if there are any unanticipated adverse reactions or unanticipated events associated with the conduct of this research, you should immediately suspend the project and contact the Chair of the HSIRB for consultation.

The Board wishes you success in the pursuit of your research goals.

Approval Termination: February 11, 2010

Walwood Hall, Kalamazoo, MI 49008-5456
PHONE: (269) 387-8293 FAX: (269) 387-8276