AN ANALYSIS OF DIFFERENTIATION STRATEGIES USED BY MIDDLE
SCHOOL TEACHERS IN HETERGENEOUSLY GROUPED CLASSROOMS

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TABLE OF CONTENTS

ABSTRACT

Differentiated instruction has been promoted as a sound educational approach in meeting the needs of increasingly diverse student populations. This study examines the differentiation strategies used by middle school teachers in heterogeneously grouped classrooms. Quantitative and qualitative data were collected by means of a questionnaire and classroom observations. This study analyzed the frequency with which middle school teachers implement differentiation in their classrooms. It also analyzed which contextual or educational factors, if any, influence their frequency of use of these strategies to meet the needs of their diverse learners. The setting for the study was a middle school in southeastern North Carolina. Teachers in the study were asked questions about how frequently they use differentiation in their classrooms and were also observed in their classrooms while delivering instruction. Results of the study indicate that there are two groups of teachers: those who differentiate frequently and those who differentiate with little frequency. The findings in this study also indicate that factors such as years of teaching experience and staff development have little impact on how often teachers implement differentiation strategies in their classrooms

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DEDICATION

I would like to dedicate this thesis to my parents, Dr. Hugh A. Hobson and Dr. Bonnie C. Hobson, whose ambition, commitment to education, and passion for learning has been and example and inspiration my whole life.

LIST OF TABLES

CHAPTER 1: INTRODUCTION

Background

Meeting the needs of a diverse student body is one of the most persistent and daunting challenges facing educators in public schools today (Futrell, Gomez, & Bedden, 2003). Many school districts nationwide are experiencing rapid growth in the number of students of color, culturally and linguistically diverse students, and students from low-income families. In addition to racial and ethnic differences, our children bring to school with them a variety of learning needs, interests, and strengths. Research suggests that today's classroom teachers must deliver developmentally appropriate instruction while providing lessons that are stimulating, challenging and differentiated to meet the varied learning needs of students (Hobson, 2004).

Of the 53 million students enrolled in our nation's schools, 35% are from racial or ethnic minority groups. This figure is projected to reach 51% by 2050 (Futrell et al., 2003). Beyond and race and ethnicity, language differences are also an issue in America's schools. In 2004, 9.9 million school-age children (ages 5-17) spoke a language other than English at home, representing 19% of all children in this age-group (Lapkoff & Li, 2007). Considering the current demographic trends of the student population in American schools, it is becoming more vital that the classroom teacher be equipped to meet the needs of a diverse student population.

It is not merely race, language, and ethnicity that are diversifying our classroom landscapes. Studies show that approximately 25% of school-age children live in poverty (Futrell et al., 2003). In addition to socioeconomic differences, according to the U.S.

Department of Education (2000), the number of identified special education students in general education classrooms has increased 20% in the last decade; with more students who are identified as having "learning problems" attending schools than ever before (Gersten, Fuchs, Williams, & Baker, 2001).

Current instructional trends also contribute to diverse classrooms. At the middle school level in particular, current philosophy has prompted schools to eliminate or reduce ability grouping practices and to embrace the inclusion model for educating students with learning disabilities, students with limited English proficiency (LEP), and students labeled academically "gifted" (Tomlinson & George, 2004). The results are classrooms filled with students who represent a wide spectrum of learning needs, interests and profiles.

Today's class rosters include students with a wide variance in: pace of learning, culture, race, economic support, preferred approach to learning, and interest (Tomlinson, 2004). In response to the realities of such a diverse student population, many educational leaders, researchers, and teacher training programs have made it a priority to equip teachers with a knowledge base for understanding and working *with* the differences that students bring to the classroom. One focus has been on curriculum differentiation: differentiating content, instructional methods, and strategies to meet the unique needs of the individual student (Hobson, 2004). Research supports the use of differentiation as a way of meeting the needs of academically diverse learners in today's classroom (Hunt, 1971; Torrance, 1995; Gardner, 1999).

The need for teachers to be able to differentiate instruction to meet students' unique learning needs has become more important considering the ever-increasing

emphasis placed on high stakes testing, standards, and accountability. The federal No Child Left Behind (NCLB) legislation of 2001 mandates that schools close the achievement gap that exists between minority students, economically disadvantaged students, special education students, and their peers. In order for schools to make Adequate Yearly Progress towards the educational goals set forth by the federal and state governments, students from *all* sub-groups of the population must be proficient on state standardized tests. Public schools are held accountable for the success and achievement of all students. If schools are going to achieve equity and excellence, then they must provide teachers with the knowledge base and skills to differentiate curriculum and instruction to meet the needs of all students (Hobson, 2004; Banks et al., 2005).

Statement of the Problem

Historically, students from diverse learning backgrounds, those who are academically gifted, learning disabled, or who have limited English proficiency, have struggled to succeed in our schools (Gardner, 1999; Maheady, Mallette & Harper, 1991). It is the case that student populations are becoming more diverse while classrooms generally remain inattentive to variance in student learning needs (Tomlinson, 2004).

Considering the academic diversity that exists in today's schools, a typical middle school classroom consists of both students to whom the standard grade-level curriculum provides little or no challenge, as well as students who function at the most remedial level and struggle to meet the minimum standards for success. Studies suggest that students identified as "gifted" find few adaptations in curriculum and instruction in response to their learning needs (Archambault et al., 1993; Reis et al., 1993; Westberg et al., 1993)**.** Consequently**,** many students in heterogeneously grouped classrooms are frequently

unchallenged. According to research by Rimm and Davis (2003) lack of challenge in the classroom may lead to (a) students underachieving (b) students to becoming discipline problems, (c) increased drop-out rates, (d) low student self-esteem.

Research also indicates that students in heterogeneously grouped classrooms spend most of their school day in classrooms with teachers who have little or no training in designing and implementing differentiated instructional strategies (Archambault, Dobyns, Slavin & Westberg, 1993). This research indicates that teachers of heterogeneously grouped students are not comfortable, nor are they aware of how to differentiate instruction to meet the learning needs of gifted students. In a study conducted by Mastropieri & Scruggs (2004), only a quarter of classroom teachers report feeling competent to teach in inclusive classrooms- meaning those which include students diagnosed with learning "disabilities". Lack of teacher confidence in managing more flexible classrooms is cited as one barrier to classrooms becoming responsive to the academic needs of diverse learners (Brighton, Hertberg, Callahan, Tomlinson, & Moon, 2004).

It appears though, that in many cases it is not just a lack of teacher confidence or training that is preventing responsive classrooms. It is also indifference or disinterest on the part of teachers to modify their teaching practices to accommodate students whose learning needs extend beyond the norm. According to a randomized, national sample of middle school teachers surveyed by Moon, Tomlinson, & Callahanan (1995) nearly half of the teachers indicated that they saw no need to modify teaching strategies to respond to the variance of learner needs.

According to North Carolina's School Report Card for the 2006-2007 school-year, there exists a significant achievement gap between minority students, economically disadvantaged students, learning disabled students and their white affluent counterparts around the state. In order for our schools to comply with federal NCLB legislation, and in order to prepare our students to compete in a global society, we must accommodate and cater to the unique learning needs of students. In a paper presented at the Holmes Partnership Annual Conference, and printed in the *Phi Delta Kappan,* Linda Darling Hammond, Arthur Wise, and Paul Klein stated:

> "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 requires an equally wide and varied repertoire of teaching strategies. (p. 26, 2003)

If we accept the notion that each student possesses individual learning characteristics, researchers in education must also be willing to accept the responsibility of studying those characteristics and the strategies used to accommodate them.

Purpose of the Study

The purpose of this study is two-fold: First, the researcher proposes to replicate a previous study conducted by Hobson (2004) to determine which differentiation strategies are used by middle school teachers in regular classrooms to meet the instructional needs of diverse learners. Second, the researcher will determine what educational and contextual factors are most influential in the teachers' selection of differentiation strategies used. The resulting data can prove valuable to driving staff development for teachers in the schools, as well as guide leaders of teacher preparation programs in colleges and universities.

Research Questions

The researcher proposes to replicate Hobson's (2004) differentiation study in order to answer the following research questions:

1. What differentiation strategies do teachers use to address student characteristics in heterogeneously grouped classrooms at the middle school level?

2. What educational or contextual factors influence teachers' use of differentiation strategies in heterogeneously grouped classrooms at the middle school level?

Definitions of Terms

For the purpose of this study the researcher will apply the following terms and definitions used by Hobson in her 2004 study:

Differentiation - instruction that modifies what goes on in the classroom so that students have multiple options for taking in information, making sense of ideas and expressing what they learn. A differentiated classroom provides different avenues to acquiring content, processing information and to developing products so that each student can learn and evidence that learning effectively (Tomlinson, 2001).

Equity - all students can and do achieve quality educational outcomes (Lockwood & Cleveland, 1998).

Heterogeneous grouping - a method of grouping students who have varying abilities, learning profiles, racial and ethnic origins, and socio-economic backgrounds for the purpose of instruction.

Inclusion - a strategy used to include special education students and students with Limited English Proficiency (LEP) in regular classroom settings. It allows special education and LEP students to be served in a regular classroom, with a regular classroom teacher. Support personnel such as a special education teacher and LEP teacher work collaboratively with the regular classroom teacher to meet the unique needs of students.

Multiple Intelligences - Howard Gardner's theory that all human beings have at least nine intelligences, and that these intelligences can be nurtured and strengthened (Gardner, 1999). These intelligences include (a) verbal/ linguistic, (b) logical /mathematical, (c) visual/spatial, (d) bodily/kinesthetic, (e) musical/rhythmic, (f) interpersonal, (g) intrapersonal, (h) naturalist and (i) existential.

Middle School - A school containing grades six, seven and eight which promotes student transition from primary to secondary grades by addressing the intellectual, social, emotional, physical, and developmental needs of students.

CHAPTER 2: REVIEW OF LITERATURE

Two bodies of research lend themselves to this study. They are: 1.)

Heterogeneous grouping and the middle school 2.) Differentiation of instruction.

Heterogeneous Grouping and the Middle School

Today's middle school can loosely be defined as a school housing grades 6-8

whose educational programs deliberately seek to meet the developmental characteristics

of the student, rather than force the student to fit the educational programs of the school

(Darling-Hammond, 2003). The middle school philosophy is based on the idea that

adolescents have unique social, emotional, intellectual, and physical needs, and that these

needs must be addressed in order to successfully transition students from the primary to

secondary grades.

The National Middle School Association (NMSA) published a paper naming the

following 'benchmarks' as pillars of today's successful middle schools:

> "A curriculum that is challenging, integrative, and exploratory; assessment
> and evaluation that promote learning; varied teaching and learning
> approaches; flexible organizational structures; adult advocacy for every
> child; shared vision; high expectations for all; positive school climate;
> educators committed to young adolescents; programs and policies that
> foster health, wellness, and safety; family and community partnerships;
> and courageous leadership (NMSA, 2003)."

One element considered essential to the middle school philosophy is the concept

of heterogeneous grouping (Carnegie Task Force on the Education of Young

Adolescents, 1989; National Middle School Association, 1992). Proponents of the

middle school philosophy have commended abandoning homogeneous grouping as a

means of addressing academic diversity in middle schools, citing the social stratification

which can result from homogeneous grouping of young adolescents (Tomlinson, 1995).

Simultaneously, a philosophy of inclusion has become more prevalent among educators in the field of special education and English as a second language (Hallahan & Kauffman, 1994; Thomas & Collier, 1997). As a result, many advanced learners, struggling learners, and students with a variety of literacy needs who previously had special needs addressed by resource programs, or ability grouping, are now more often served in the regular heterogeneously grouped classroom (Tomlinson, 1995).

At the heart of the middle school movement is the notion of "democratic learning communities, egalitarian methods, and attention to emerging learning theory" (Beane, 1999, p. 3) As such, more and more efforts have been made to promote collaborative learning, get rid of tracking and honor rolls, to create heterogeneous groups for learning and to respond to diverse learning styles (Beane, p. 5)

Proponents of heterogeneous grouping in middle school argue that it provides for a more democratic and egalitarian learning environment. They contend that when children are only grouped by ability level that a litany of threats to student achievement and social development occur. Some concerns are:

- Perceived psychological damage, low self esteem and self concept of the students placed in the lower ability groups (Oakes, 1992).

- Less experienced and capable teachers assigned to teach lower ability groups (Carnegie Council on Adolescent Development, 1989)

- Slower pace, lower quality, less rigorous instruction administered to lower ability students and lower expectations for their success (Oakes & Wells, 1998). Low tracks often emphasize good behavior and menial skills, while high tracks offer preparation for college. These differences in learning

environments particularly depress the academic achievement of poor and minority students (Loveless, 1998, p. 8).

- The criteria used to group according to ability are based on subjective opinions and myopic views of intelligence (Wheelock, 1995).

- Racial and social inequalities perpetuated when students are assigned to ability groups using flawed criteria for grouping (Oakes, 1992).

- The absence of strong, peer role models in the low ability, homogeneous class (Stevenson, 1992).

Despite years of heated and passionate debate in the field of education about heterogeneous grouping versus ability grouping, the research remains largely inconclusive about whether heterogeneous grouping is superior in producing the highest academic performance by students (Loveless, 1998).

Robert Slavin (1987) conducted a meta-analysis of 27 studies at the middle school level which compared the achievement levels of students in "tracked" or ability grouped schools to the achievement levels of students in untracked schools where students are heterogeneously grouped. His conclusion, which is cited very frequently in middle school journals and articles on the topic of ability grouping, was that students who are grouped by ability do no better or worse than students who attend heterogeneous classrooms. He determined that "the academic effect size of tracking was zero" (1987).

While Slavin's findings are used by educators to promote heterogeneous grouping in middles schools, his study does not take into account the achievement of gifted or high ability students. Standardized achievement tests were used in the studies analyzed by Slavin (1987); therefore, if a gifted student scored in the 98th percentile on a test before

being tracked, and the child was tested again a year later – again scoring at or near the ceiling of the test – it would appear as if no growth had occurred (Rogers, 2002). The results of Slavin's meta-analysis are inconclusive about the effects of ability grouping and heterogeneous grouping on the performance of students at the high end of the ability spectrum.

It is also true that typical XYZ studies, such as those examined in Slavin's meta-analysis, show no difference in performance by students who are ability grouped versus those from heterogeneously grouped classes. In a typical XYZ study, students were given an IQ test, or a standardized achievement test, and then grouped into three separate classes – X, Y, or Z - based on their ability. All students in the X, Y and Z groups were prescribed the identical curriculum. The XYZ students' achievement is then compared to that of similar students in ungrouped classes. It is not surprising then that academically gifted students fared no better when grouped with students of similar ability because their curriculum was still not meeting their learning needs or development level (Kulik, 1982; Loveless, 1998; Rogers, 1991).

Kulik and Kulik (1984) also conducted a meta-analysis of twenty-six studies which compared the achievement of accelerated talented students versus equally talented, but nonaccelerated students. The conclusion was that, "in subjects in which they were accelerated, talented accelerates showed almost a year's advancement, over talented same-age nonaccelerates" (p. 421). Kulik and Kulik (1991) expanded upon their original conclusion, "a careful re-analysis of findings from all studies (143 in all) showed that higher aptitude students usually benefit academically from ability grouping….the larger gains are usually found in classes that are accelerated" (p.45)

11

In conclusion, when students are ability grouped into classes and given an identical curriculum, there are, as Slavin says, no appreciable differences in achievement. However, when curriculum is adjusted to correspond to ability level, it appears that ability level is boosted, especially for high ability students receiving an accelerated curriculum (Loveless, 1998, p. viii).

Slavin (1988) and Kulik (1991) both agree, that flexible, within-class grouping can create substantial gains in achievement for able learners and nontrivial gains for average and struggling learners when instruction is tailored to students' readiness levels (Loveless, 1998).

As classrooms become more diverse, providing equity of learning opportunities becomes paramount (Kozol, 1991). While middle school proponents have established numerous alternatives to ability grouping and tracking, Tomlinson (1999) found that *differentiated instruction* appeared to be the most promising strategy for meeting the needs of diverse learners in a heterogeneously grouped classroom (Hobson, 2004).

Differentiation of Instruction

Differentiation has come to mean implementing a variety of instructional approaches to modify content, process, and products in response to learning readiness and interest of academically diverse students (Tomlinson, 1995; Hobson, 2004). Differentiating the curriculum means making changes in the regular curriculum that are sensitive to the needs and abilities of all students. Teachers who differentiate simply try to find the best possible fit between the instruction and learners who differ in significant ways from one another (Tomlinson, 1999).

The model for differentiation is rooted in educational theory whose principles include: student-centered, meaning making, active approaches to learning. These constructivist approaches were advocated by writers including John Dewey, Piaget, Jerome Bruner and more recently by Erickson (2001), Wiggins & McTighe (1998).

Effective Differentiation Practices

According to Parke (1989), appropriate differentiation should meet the following guidelines:

1. The program should be characterized by a flexibility to respond to the individual needs of students;

2. Program options should be in place so that the varying skills, abilities, and interests of the students can be accommodated;

3. Patterns of grouping students should be based on the unique needs of the students and should allow students to progress at their own pace; and

4. Decision making should be based on students' needs. Individualized program planning should take place for all students (p. 44).

Tomlinson (1999) identifies the following key principles of a differentiated classroom. "The teacher is clear about what is important in the subject matter. The teacher understands, appreciates, and builds on student differences. Assessment and instruction are inseparable, and the teacher adjusts content, process, and product in response to student readiness, interest, and learning profile. All students participate in respectful work. Students and teachers are collaborators in learning (pg. 10)."

Building both competence and confidence in differentiation requires knowledge of content, a broad repertoire of assessment tools, flexibility in matching tasks to students, creativity in finding resources, continual reflection, and collaborative support (Brimijoin, 2005, pg. 255). Teachers who are skilled in providing students with

differentiated curriculum and instruction exhibit certain core principles that constitute

best practice and support student success. Brimijoin (2005, pp. 255-257) identified a set

of seven of these principals:

1. **Clarity of learning goals** - Using the process of backwards design (Wiggins and McTighe, 1998) teachers who differentiate well always define learning goals and outcomes first, while also considering data about students' prior knowledge, performance, interests, learning preferences, and misconceptions.

2. **Ongoing assessment -** Effective differentiation is anchored by ongoing assessment, the continual measurement of student response to curriculum, instruction, and assessment itself. When designing learning experiences, these data help teachers assure that every student has equal and adequate access to content, increasing the chance that high-stakes testing support equity (Darling-Hammond, 2003).

3. **Informing instruction -** Research from Sternberg and Grigorenko (1997) showed that responsive teachers use data about diverse thinking styles to adjust assignments and design assessments that maximize student performance. Responsive teachers are able to use data collected from regular assessments to design instruction appropriate for individual readiness levels. By capitalizing on student interests, responsive teachers may offset what studies (Amrein & Berliner, 2003; Darling-Hammond, 2003) have indicated are potentially negative effects of high-stakes testing--a decrease in student motivation and increasing retention and dropout rates.

4. **Respectful tasks -** Making certain that learning experiences are interesting, valuable, and important for all students is an ongoing challenge for teachers who differentiate well. Ensuring the respectfulness of each task requires careful analysis of the link between assessment data and learning goals, reflection about students' developmental levels, and constant monitoring of student response to a variety of classroom contexts (Tomlinson, 1999). If a delicate balance of challenge and skills is achieved, engagement is more likely, and optimal learning experiences can lead to an increase in achievement (Csikszentmihalyi, 1997).

5. **Appropriate Strategies -** Teachers with expertise in differentiation use a variety of research-based instructional strategies to engage students with content. In his study of effective teachers, Stronge (2002) highlighted research showing that instructional strategies influence student learning almost as much as aptitude. Stronge also pointed to data indicating achievement is higher when students focus on concepts and relevant tasks. Research-based instructional strategies such as nonlinguistic representations, advance organizers, and interactive learning can lead to higher effect sizes on achievement measures (Marzano, Pickering, & Pollack, 2001).

6. **Flexible grouping -** When differentiation is working well, specific task assignments, the placement of students in learning groups, the use of materials, the pacing of instruction, and the social context of learning are all modified in a variety of ways to meet student needs (Tomlinson, 1999). Teachers who differentiate well ensure that students interact with content and each other in a multitude of ways every week of the school year. Flexible grouping can exert a positive influence on the learning environment, promote engagement, and assist students in constructing new knowledge (Brandt, 1998).

7. **Classroom community –** Differentiated classrooms are a community of learners who honor and celebrate differences, competence, belonging, and independence. This is a community founded on trust, shared management, self-governance, a balance of teacher-directed and student-centered learning, and high expectations. Students who self-regulate their behavior, know their individual needs are respected, and develop a sense of relatedness are more engaged, and increased engagement is associated with higher levels of academic accomplishment (Connell & Wellborn, 1991).

Research Supporting Differentiation

Research supports the need for differentiated instruction. In a study by Fisher, Filby, Marliave, Cahen & Dishaw (1980) data points to the need for learning tasks to match student readiness. The researchers studied 250 classrooms, and found that in classrooms where individual students' readiness was considered while assigning learning tasks, students worked at a high success rate. As a result, students had a higher self esteem, enjoyed the subject they were studying, and actually learning more. In a longitudinal study of 200 teenagers Csikszentmihalyi, Rathunde & Whalen (1980) found that when students' skills were under challenged they demonstrated low involvement in learning activities and lessening of concentration. Conversely, students whose skills were inadequate for the level of challenge posed by their learning tasks demonstrated both low achievement and reported a feeling of low self worth. Research suggests that teachers who make adjustments to ensure that a task is appropriately challenging for the readiness

of a given learner by modifying the degree of learner independence, the complexity, or the level of independence required to complete the task can enhance both student achievement and student attitudes about learning (Tomlinson, 1999).

Many researchers have found evidence to support the importance of accommodating or fostering individual interests as a means of enhancing motivation, achievement and productivity (Amabile, 1983, Torrence 1995). Other researchers have found that instruction which responds to student interests has a positive impact on both long and short term learning (Herbert, 1993; Renninger, 1990).

Addressing the learning profile of the student is an important component of differentiation. A student's learning profile refers to ways in which he/she best processes information and ideas, and ways in which learning style, gender, culture and intelligence preference influence the student (Tomlinson, 2000).

Numerous researchers have addressed the relationship between instruction designed to match a student's learning style and academic achievement. Sullivan (1993) found that accommodating learning style through complementary teaching or counseling interventions resulted in significant academic and attitude gains for students from all cultural groups.

Grigorenko & Sternberg (1997) concluded that when students are matched to instruction suited to their learning patterns – such as creative, practical, etc. – they perform and achieve significantly better than comparable students whose instruction is not catered to their learning patterns. Sternberg not only found that matching instruction increased achievement at all grade levels, but that even a minimal amount of differentiation made a difference in student achievement (1997).

Howard Gardner's theory of Multiple Intelligence has also shown that differentiating instruction based on student intelligences can increase student achievement (1983). Campell and Dickerson (1999) found that test scores increased at all grade levels when teachers and administrators focused instruction on the different intelligences of students. This study included schools with different demographics and varied cultural and economic groups. In another study based on Gardner's work, Tomlinson, Callahan, and Lelli (1997) found that teachers and parents benefited from a multiple-intelligence approach. These researchers found that teachers in a large school district who developed classrooms with a multiple-intelligence approach demonstrated more flexibility in teaching and were better at meeting the needs of the non-traditional learner than when teaching in the traditional manner. Finally, the researchers found that teachers using a multiple intelligence approach were better able to communicate positive messages to parents about their children, which in turn, made the parents more receptive to school and school-related events (Tomlinson & Allan, 2000).

Summary

The middle school movement places an emphasis on the emotional and social development of young adolescents. As such, a push towards de-tracking and heterogeneous grouping is encouraged in order to create an emotionally safe environment for adolescents, to ensure equity of learning opportunities, and to allow students at this unique age to develop and relate socially to their peers. Many middle school philosophers argue that when students are grouped by ability, they learn no more than if they were heterogeneously grouped. Critics of ability grouping say that it not only fails to benefit students, but that it also channels poor and minority students into low tracks and dooms

them to an impoverished education. Their opponents contend that, "high ability students languish in heterogeneously grouped, mixed ability classrooms, and that it is nearly impossible to guide some students through the plot twists of King Lear, while teaching some students phonics" (Loveless, 1998, p. viii). So, the challenge to educators is to maintain positive self concept, and equity of learning opportunities for all students while also challenging students and providing rigorous curriculum for all levels. *Differentiation* of curriculum and instruction has been touted as the solution to this challenge.

So far, the review of pertinent literature has provided vast reports about the dire need for differentiated instruction, what differentiated instruction looks like, and strategies for how schools and teachers can differentiate instruction effectively. Therefore, the purpose of this study is to gain more insight as to what types or how much differentiation of instruction is actually taking place in classrooms, which differentiation strategies are being used by teachers, and why they are electing to use the differentiation strategies they choose to implement.

CHAPTER 3: METHODOLOGY

Introduction

The purpose of this research study was to identify the differentiated instructional strategies used by teachers in heterogeneously grouped middle school classrooms and to determine what factors affect the differentiated instructional strategies they use. This chapter outlines the methods and procedures that were used in this study. Included are: a description of the setting, a description of the participants, the research design, and the instrumentation that were used. This chapter also describes the measures taken to ensure both reliability and validity and the procedures used by the researcher in gathering and analyzing the data.

Research Method and Design

This was an action research study that gathered and analyzed quantitative and qualitative data. The design of this study was modeled after a study conducted by Hobson (2004) which took place at middle school in Virginia.

The data collected in the study was analyzed to describe differentiation strategies used by middle school teachers to meet the needs of all their heterogeneously grouped students, and to determine which contextual and educational factors affect how frequently they implement these differentiation strategies. The researcher collected data from the subjects by means of a questionnaire and by classroom observations. The use of these two research strategies provided the researcher with data concerning the participants' knowledge and use of numerous differentiation strategies. The mixed methods approach gave information concerning the type and frequency of differentiation strategies used.

Setting

The rural school district where the study was conducted is located in southeastern North Carolina. According to the US Census Bureau, the district's population in 2006 was approximately 48,630 which reflects a nearly 20% growth in the last eight years. The district is classified by the State as a low wealth, high poverty district with 18.6% of county residents under the age of 18 living below the poverty line. The racial demographic of the district is approximately 78% white, 18% African American, and 4% represent other ethnic and racial backgrounds.

Wrightsville Middle School (pseudonym) has a student population of 723 students in grades six through twelve, 85% of whom are white and 8% are African American. The remaining 7% of the students are Hispanic, multi-racial, or Asian. 32% of students qualify for free and reduced meals (NC School Report Card, 2006-2007). According to information provided by the Superintendent's office, 25% of the student body is labeled "academically gifted" as compared to about 4% nationally. 9% are labeled "learning disabled" (See Table 1).

Table 1
Student Demographics

Demographic characteristic	% of students
White	85
African-American	8
Other race or ethnic background	7
Identified "academically gifted"	25
Identified " learning disabled"	9
Eligible for free and reduced meals	32

The administrative staff of Wrightsville Middle School consists of one white male principal and one black female assistant principal. There are a total of 42 licensed

classroom teachers and resource positions. There is no differentiation specialist housed at the school and there is a part time gifted specialist to serve the whole school.

Students are heterogeneously grouped for most subjects. Learning Disabled students are in an inclusion setting for all of their subjects and receive extra remediation during an elective time during the day. Gifted students are grouped onto one team at each grade level, but are not grouped according to their area of giftedness, which still allows for a heterogeneous group.

In compliance with the requirements of the Institutional Review Board at the University of North Carolina Wilmington, the researcher applied for and received consent to conduct this study at Wrightsville Middle School. The researcher also received written consent from the principal at Wrightsville Middles School to recruit study participants, distribute surveys to participants, and to conduct classroom observations.

Description of Subjects and Sample Selection

A total of twenty teachers participated in the questionnaire and thirteen participated in the classroom observations. The participants varied in terms of the grade level they teach and their subject area. Specific information on the participants is included in Tables 2 and 3.

The researcher solicited the study sample from the certified teachers at Wrightsville Middle School based on their willingness to participate in the study. The researcher presented the objectives of the research study to the teaching faculty during a regularly scheduled faculty meeting. The researcher announced to the teachers the name and objectives of the study and told them that their participation in both the questionnaire and the classroom observation was completely voluntary. In order to encourage teachers

to participate in the study and volunteer to be observed, names of the participating

volunteers were put into a drawing to win a $50 gift card to Barnes and Noble.

Questionnaires were distributed to teachers the morning following the faculty meeting.

Subjects gave their consent to participate by completing a questionnaire. The researcher

received 20 completed questionnaires from 42 eligible participants. Subjects gave their

consent to be observed at work in their classrooms by signing a written consent form

provided to them by the researcher. 13 teachers signed and returned to the researcher the

written consent form required by the Institutional Review Board.

Table 2
Demographics of Participants in Questionnaire

Demographic Characteristic	Frequency	% of Subjects
Male	2	10%
Female	18	90
Caucasian	20	100
1-3 years of experience	2	10
4-10 years of experience	13	65
11-20 years of experience	2	10
More than 20 years of experience	3	15
6th grade teachers	8	40
7th grade teachers	3	15
8th grade teachers	3	15
Multi-grade teachers	6	30
Hold Bachelors Degree	14	70
Hold Masters Degree	6	30

Table 3

Demographics of Participants in Classroom Observations

Demographic Characteristic	Frequency	% of Subjects
Male	2	15
Female	11	84
Caucasian	13	100
1-3 years of experience	3	23
4-10 years of experience	6	46
11-20 years of experience	2	15
More than 20 years of experience	2	15
6th grade teachers	3	23
7th grade teachers	5	38
8th grade teachers	5	38
Multi-grade teachers	0	0
Hold Bachelors Degree	13	100
Hold Masters Degree	0	0

Instrumentation

The first data collection instrument was a questionnaire, the *Differentiation Practices Questionnaire for Classroom Teachers* (see Appendix A). The questionnaire used in this study was the same questionnaire used by Hobson in the 2004 study. Hobson adapted the questionnaire from Carol Tomlinson's *Teacher/Peer Reflection on Differentiation Instrument (2000).* Permission was granted by Hobson and Tomlinson for use of the instrument in this study.

The *Differentiation Practices Questionnaire for Regular Classroom Teachers* was divided into two sections. Section I contained seven questions that related to demographic information. The second section contained 40 items and dealt with the use of differentiated strategies by classroom teachers. The items relating to differentiation strategies were categorized as general differentiation, content differentiation,

differentiation relating to the process strategies, the differentiation of student products and differentiated instructional and management strategies (Hobson, 2004, pg. 44).

The questionnaire consisted of two scales. The scale on the left reflected the knowledge and skill of the teacher with respect to the differentiation strategy. The scale on the right dealt with the frequency in which the teacher used the differentiated strategies in the classroom. Teachers responded on both scales, but used the same 40 differentiation strategies. Teachers were asked to indicate whether they used the strategy, and the frequency of its use. They were asked to indicate their perceived use of each strategy based on a four point scale: *1 = hardly ever, 2 = sometimes, 3 = more than half the time, 4 = almost always or always.*

Hobson's modified version of Tomlinson's instrument was selected for use in the study because it addresses strategies that one would expect to see in a successfully differentiated classroom. The use of a questionnaire to collect data was chosen because it allows for gathering a large amount of data from teachers in a minimal amount of time, is cost effective (Gall, Borg, Gall) and because teachers have been found to be quite reliable at cooperating with this type of data collection. Research conducted by Bradburn and Sudman (1984) suggests that response rates are higher for individuals with a higher education, which includes teachers, who are familiar with the format of forms and questionnaires. Questionnaires also allow for teachers to respond at their convenience (Hobson, 2004, pg. 44).

The other data collection instrument used was the *Observation Checklist of Differentiated Strategies* (See Appendix B). This instrument was used to record data collected from the teacher observations. The observation checklist was also developed by

Hobson and was likewise based on Tomlinson's (2000) instrument. Hobson (2004) modified the instrument by reviewing the 40 items from the *Differentiation Practices Questionnaire* given to teachers and selecting 18 of the most easily observed differentiation practices to include on the checklist. Having a limited number of items (differentiation practices) to look for made the observation of data within the 20 minute classroom visit more plausible, and also allowed the recording of data between observations to be more efficient.

To check for validity and reliability of the instruments three teachers reviewed each item on the questionnaire and the observation instrument and made suggestions for improving the clarity of certain items. The recommended changes were made to each instrument.

After reviewing the literature, the researcher chose to use Hobson's instruments because they were modified to measure differentiation strategies for all students in a heterogeneous classroom, not just exclusively special education students or gifted students.

Data Collection Procedures

After announcing the objectives and data collection procedures of the study to the faculty of Wrightsville Middle School, the researcher distributed the *Differentiation Practices Questionnaire* to all teachers' mailboxes that same afternoon. The *Differentiation Practices Questionnaire for Classroom Teachers* was administered to identify the types and frequency of differentiated instructional strategies used by regular classroom teachers. Participants were given ten days to complete and return the

questionnaire. The researcher received 20 completed questionnaires from 42 eligible participants.

The second phase of the data collection was done by classroom observation. After the questionnaires were completed, teachers were asked to volunteer to be observed in their classrooms during instructional time. The researcher created a consent form which explained objectives of the study, data collection procedures, privacy information, and requirements of the participants. Teachers who volunteered to participate were required to sign this consent form, as directed by the Institutional Review Board, and return it to a designated mailbox in the school office within seven days. The researcher received consent from thirteen regular classroom teachers.

After consent was received, unannounced observations of 13 classrooms were conducted in order to observe the actual use of differentiated strategies by teachers in the heterogeneously grouped classroom. All grade levels were represented and all core subjects were observed. Classes were visited at random. The observations were done in a walk-through fashion and the observer spent 15-20 minutes in each classroom with several classrooms being visited within a few hours. The teacher participants were informed of the week in which they would be observed, but were not told on which day, nor during which class the observation would take place. Immediately following each classroom visit, the data was recorded on the *Observation Checklist of Differentiated Strategies*. Each item on the checklist that was observed was designated with a check. If the strategy was not observed, the item was left unmarked.

Gall, Borg and Gall (1996) suggest when observing classrooms that the disruption caused by an observer be considered. Neither notes nor comments were made during the

actual walk through observation in an attempt to eliminate any distraction for the participants and reduce the possibility of the observer missing an important aspect of the teaching process. However, descriptive and reflective field notes were taken immediately after the walk-through of each classroom (Hobson, 2004).

Reliability

A questionnaire was selected to collect quantitative data for the study. Research conducted by Bradburn and Sudman (1984) suggests that questionnaire response rates for college graduates are usually very high because they are familiar with the format of forms and questionnaires. These authors also found that teachers often prefer questionnaires over an interview because they can be completed at a convenient time. Questionnaires can also be completed anonymously.

A major concern with the use of any questionnaire is that the instrument be understandable to the participant. A questionnaire must be easy to read and the directions should be self-explanatory. To insure clarity of the instrument, the questionnaire was given to three classroom teachers for review and suggested modifications were made.

The researcher selected the two data collection instruments, *Differentiation Practices Questionnaire for Regular Classroom Teachers* and the *Observation Checklist of Differentiation Strategies,* because the reliability of both instruments had been tested thoroughly in a previous study. The two instruments were modified and implemented by Hobson (2004) in a similar study. Hobson ensured the reliability of both instruments by having a panel of experts review the instruments. Each panel member completed an official review and evaluation of the validity and reliability of the instruments.

According to Hobson (2004), reliability was also established for both scales on the questionnaire by using the Split-half method with Cronbach's alpha of .93 and two split-half reliability coefficients of .88 and .84. The scale for teacher understanding showed a Cronbach Alpha of .97 and two split-half reliability coefficients of .95 and .94 (Hobson, 2004, pg. 48).

Validity

According to Gall, Borg, and Gall (1996) non-responsive bias is a major threat to external validity. Individuals choosing not to respond to the questionnaire may differ from those who did respond. Precautionary measures were taken to prevent non-responsive bias. A cover letter attached to the questionnaire distributed to all teachers explained the critical significance of each individual's participation. A reminder was sent to the faculty three days before the deadline for turning in the questionnaire and again on the day it was due.

In addition to the aforementioned measures, and incentive was offered for teachers who returned their questionnaires. Teachers who completed and turned in questionnaires were eligible for a drawing to win a $50 gift card to Barnes and Noble. The same incentive was offered to those teachers who volunteered to be observed.

A major threat to validity, especially in a study in which the participants may be familiar with the researcher, is the issue of truthfulness on the part of the participants (Weiss, 1975). Teachers may hesitate to admit they do not use several of the differentiation strategies included on the survey in their classrooms. This may be even more common if the researcher is a colleague. Fortunately, the researcher didn't personally know any of the participants; however the researcher's position at the

neighboring high school was a known fact. The challenge of soliciting honest responses from the participants was addressed by reminding teachers at a faculty meeting, and in an email, that the purpose of this study was to improve knowledge in the field of differentiation. Teachers were also repeatedly assured anonymity of their responses. Weiss (1975) found that participants tend to be more honest in their responses to a questionnaire than when they are in a face to face interview.

To insure the validity of the data collection process in this study, the researcher elected to use two data collection instruments whose validity had been thoroughly tested. The teacher questionnaire and observation checklist used in this study were originally developed and used by Hobson (2004). Hobson had the two instruments reviewed by a panel of experts on differentiation. Each reviewer on the panel was asked to evaluate the instruments for validity. Results of the review were positive for all items including instrument construction, content validity, construct validity, face validity, item bias, and consequential validity. The questionnaire and observation checklists were also reviewed for reliability. Results of the review were positive for all items including internal consistency and potential for consistent responses (Hobson, 2004, pg. 50).

Data Analysis

Data from two major data sources were used in this research. The sources included a teacher questionnaire and classroom observations. The procedures for analyzing the data included: (a) organizing the data; (b) generating categories, themes, and patterns; (c) and examining the data to answer the research questions identified in the introduction of this study.

The teacher questionnaire provided quantitative data for the study while the recorded data from the classroom observations offered qualitative data. Following the data collection process, the eighteen items which were included on both the questionnaire and the observation checklist were analyzed for frequency. The researcher then ranked the results according to frequency and compared the frequency with which teachers self-reported using differentiation strategies to the frequency of which the researcher observed them being used in the classroom.

The researcher also analyzed the results of the classroom observations to find the mean frequency with which teachers used differentiation in their classrooms. Teachers were identified as Frequent Users and Infrequent Users based on how many differentiation strategies the researcher observed them using in their classrooms. A demographic profile was created to represent these two groups. A correlation was run between the demographic characteristics of the subjects and how frequently they were observed using differentiation in their classrooms.

CHAPTER 4: FINDINGS

Introduction

This chapter is divided into two different sections in order to present the data and provide answers to the two research questions investigated in this study. The first section will answer the first research question and will include an analysis of the data collected from the questionnaire, an analysis of the data collected from the classroom observations, a comparison between the observed use of differentiation strategies and the use of differentiation as self reported by teachers. The second section of this chapter will answer the second research question and includes a contextual and educational profile of teachers who use differentiation strategies frequently and those who use them infrequently, and correlations between specific educational and contextual factors and how frequently teachers use differentiation.

Research Question One

Data from the questionnaire and the classroom observations was used to answer question one: *What differentiation strategies do teachers use to address student characteristics in heterogeneously grouped classrooms at the middle school level?* The *Differentiation Practices Questionnaire* consisted of 40 items relating to differentiation strategies. Teachers were asked to indicate the frequency in which they used specific differentiation strategies in their classrooms. Eighteen of the items on the questionnaire corresponded to the eighteen observable behaviors included on the *Observation Checklist*. The teacher responses to the eighteen items that appear on both of the data collection instruments were selected from the questionnaire and analyzed for frequency. Data indicating the frequency in which teachers used differentiation was

analyzed by recording the number of teachers who responded to each variable. The responses for *Hardly Ever* and *Sometimes* column and *Frequently and Almost Always* column were combined. The eighteen items (differentiation strategies) were then ranked in descending order according to those most frequently used (see Table 4). In addition to frequency, Table 4 indicates the domain (content, process, etc.) in which each item resides.

The researcher then analyzed the data collected from the teacher observations for frequency. The number of times each differentiation strategy was observed was tallied. Table 4 shows in descending order the most frequently used differentiation strategies as reported by teachers. Table 4 also shows the percentage of teachers who were observed by the researcher using specific differentiation strategies.

Table 4 Teachers' Use of Differentiation Strategies

Differentiation Strategy Used (domain)	Self -report (Frequently/ Almost Always)	Observed Use
The teacher clearly articulates what he/she wants students to know, understand, and be able to do. (content)	100%	77%
The teacher uses a variety of materials other than the standard text. (content)	95	46
The teacher varies curriculum and instruction from simple to complex and from concrete to abstract. (content)	90	31
The teacher designs curriculum based on major concepts, themes, and generalizations and uses these major concepts and themes as a basis for planning differentiated lessons. (content)	90	23
Teacher varies the pace of learning for varying learning needs. (process)	80	23
The teacher provides varying levels of resources and materials. (process)	75	15
Students work in a variety of group configurations. (process)	70	23

Teacher adapts content (e.g., text) to all levels of student proficiency. (process)	65	15
Teacher uses tiered lessons/activities of varying levels of challenge. (process)	60	7
Teacher provides opportunities for student product to be based upon the solving of real and relevant problems. (product)	58	15
29. Teacher allows for a wide range of product alternatives (e.g., oral visual, kinesthetic, musical, written, spatial, creative, practical, etc.) (product)	55	23
39. Teacher uses learning centers/groups. (learning environment)	50	23
21. Teacher varies learning tasks according to student interest. (process)	45	23
33. The teacher gives product assignments that balance structure and choice (Student choice is maximized within teacher-generated parameters). (product)	40	7
22. Teacher varies learning tasks based on learning profile (learning style, intelligence). (process)	35	23
38. Teacher uses interest centers/groups. (learning environment)	30	7
37. Teacher allows for students to engage in independent study. (learning environment)	20	0
28. Teacher uses curriculum compacting for advanced learners. (process)	5	0

The results of the data analysis show that the top five most frequently used differentiation strategies as reported by teachers are the same five strategies most frequently observed by the researcher. The nine (top 50%) most frequently used differentiation strategies fall under the differentiation domain of "content" or "process". On the other end of the scale, the three strategies least frequently implemented, as reported by teachers, are also the three least frequently observed by the researcher.

Research Question Two

Data collected from the classroom observations and the accompanying demographic questionnaire was analyzed to answer the second research question: *What educational or contextual factors influence teachers' use of differentiation strategies in heterogeneously grouped classrooms at the middle school level?* The researcher tallied the number of differentiation strategies used by each teacher as recorded on the observation checklist. The differentiation strategies used by each teacher were counted and analyzed to determine the mean. After determining the mean use of differentiation, teachers were divided into two groups: Frequent Users and Infrequent Users of differentiation. Teachers whose frequency of use was above the mean were assigned to the Frequent Users, and those whose frequency of use was below the mean were designated Infrequent Users. Using the demographic information collected from the teachers, the researcher created an educational and contextual profile of the two groups shown in tables 5 and 6 below.

Table 5 Educational and Contextual Characteristics of Infrequent Users

Characteristic	Mean Response
Years of Teaching Experience	11 years
Workshops attended on Differentiation	1.25 workshops
College Courses Taken on Differentiation	.6 courses
Number of Differentiation Strategies Observed	1.5

The researcher observed a mean of 1.5 differentiation strategies used by the infrequent users. Infrequent users made up 66.7 percent of the sample

Table 6
Educational and Contextual Characteristics of Frequent Users

Characteristic	Mean Response
Years of Experience	8.25
Workshops attended on Differentiation	.5
College Courses Taken on Differentiation	0
Number of Differentiation Strategies Observed	8.75

The researcher observed a mean of 8.75 differentiation strategies used by the frequent users. Frequent users made up 33.3 of the sample.

Finally, a correlation was run to see if a relationship exists between the frequency with which teachers use differentiation and the specified educational and contextual characteristics of those same teachers. The results are displayed in Table 7, Table 8, and Table 9 below.

Table 7
Correlation Between Years of Experience and Use of Differentiation

		performance indicator	Years of Experience
Performance indicator	Pearson Correlation	1	-.145
	Sig. (2-tailed)		.652
	N	12	12
Years of Teaching Experience	Pearson Correlation	-.145	1
	Sig. (2-tailed)	.652	
	N	12	12

Table 8

Correlation Between Differentiation Workshops Attended and Use of Differentiation

		Performance indicator	Differentiation Workshops Attended
Performance indicator	Pearson Correlation	1	-.289
	Sig. (2-tailed)		.363
	N	12	12
Differentiation Workshops Attended	Pearson Correlation	-.289	1
	Sig. (2-tailed)	.363	
	N	12	12

Table 9

Correlation Between College Courses Taken and Use of Differentiation

		Performance indicator	College Classes Taken
Performance indicator	Pearson Correlation	1	-.598(*)
	Sig. (2-tailed)		.040
	N	12	12
College Courses Taken	Pearson Correlation	-.598(*)	1
	Sig. (2-tailed)	.040	
	N	12	12

The resulting data shows that the relationships between teachers' years of experience and the number of workshops they attend is not statistically significant in regards to their use of differentiation. However, with respect to the number of college courses attended, the correlation is significant at the 0.05 level (2-tailed). There is, in fact,

a negative relationship that exists between the number of college courses attended by teachers and their observed use of differentiation in their classrooms.

Summary of Findings

The purpose of this study was to identify the differentiation strategies most frequently used by middle school teachers in a heterogeneous classroom, and to see if certain educational and/or contextual factors influence their frequency of use of differentiation.

The data reveal that most teachers report being aware of, and using, differentiation strategies. The data shows that teachers are twice as likely to differentiate in the domains of content and process (curriculum and instruction) as they are in the areas of learning environment/classroom management and assessments.

According to the data collected and analyzed in this study, educational and contextual factors such as years of experience, training, and staff development have no positive effect on how often a teacher differentiates instruction. In fact, frequent users of differentiation reported having less staff development and less college coursework on the topic of differentiation.

CHAPTER 5: CONCLUSIONS, SUMMARIES & RECOMMENDATIONS

Introduction

Chapter four presented the findings from the research on the use of differentiation strategies in the middle school. This chapter will discuss the study's limitations, implications, recommendations, and suggestions for future research.

Implications of the Findings

Research question one asked what differentiation strategies middle school teachers use in their homogeneous classrooms. The findings presented in chapter 4 indicate that the specific differentiation strategies which teachers self-report using most frequently in their classrooms are the very same strategies most frequently observed by the researcher. A likely reason for the consistency of the findings among the two means of data collection (observations and questionnaire) is that the specific strategies that were determined to be most often implemented are strategies that many teachers use in their daily practice, regardless of whether or not they intend to differentiate. For example, strategies listed on the survey such as "use a variety of materials other than standard text", or "clearly articulate to students what you want them to know, understand, and be able to do", are not strategies which are exclusively associated with differentiation, but are examples of instructional "best practices". This could mean that many teachers in the study were not actually following a model of differentiation, but simply implementing best practices.

In answering research question one, the researcher also discovered that a drastic gap exists between teachers who are Frequent Users or Infrequent Users of differentiation. Infrequent Users were only observed using 1.5 differentiation strategies,

while Frequent Users were observed implementing a mean of 8.75 strategies. There was not a large range in either of these means, indicating that at Wrightsville Middle School teachers either *do* or *do not* differentiate; there seems to be no real middle ground. This disparity in the use of differentiation strategies implies that there may be vastly different types of teaching and learning occurring within the same school building. If you are a seventh grader fortunate enough to be in Ms. Smith's Language Arts class, where curriculum and instruction is differentiated and your personal interests and learning needs are accommodated, you will encounter a completely different learning experience than your friend who is in the Language Arts class three doors down.

After analyzing the data to answer research question two, the researcher discovered that all of the teachers observed and surveyed reported having very little training on the topic of differentiation. Although the data says that the relationship between staff development and use of differentiation is not statistically significant, this could be because the amount of staff development attended by the teachers is so minimal. It appears that particularly in the areas of instructional management and products (assessments) teachers could use more training.

Recommendations

At Wrightsville Middle School there is an unusually high percentage of the student population identified as academically gifted – 25% compared to 4% nationally. Therefore, there is a pressing need for the teachers to be able to meet the needs of advanced learners. It is the recommendation of the researcher that school-wide staff development or training on differentiation take place. The training should focus on all aspects and domains of differentiation, including instructional management and how to

differentiate products and assessments since these were least frequently used by teachers. All administrators and teachers should attend training. Targeting the whole staff could prevent the disparity and inconsistency of use of differentiation strategies. Schools and local universities could use this study to help guide staff development on the topic of differentiation.

Limitations of the Study

The following limitations are inherent in the study. The study is restricted to one middle school in a small school division. Generalizations cannot be made for other grade levels or other middle schools. Because data were collected with a questionnaire, the responses were dependent on the subjective attitudes and perceptions of the participants. An additional limitation of the study was the selection of participants. The sample of teachers, particularly for the classroom observation component of data collection, was very small. A small sample also prevents the researcher from making broad generalizations about the results. Finally, the short duration of the observations (about twenty minutes) was also limiting to the findings.

Suggestions for Future Research

1. This study might be repeated in several middle schools to determine if the frequency of use of differentiation strategies by teachers is similar in other middle schools.

2. This study might be repeated using a larger sample and lengthier, more frequent classroom observations to see if the data and results are the same.

3. A study might be conducted in the elementary or high school grades to determine if the use of differentiation strategies by teachers is similar to those identified at the middle school level.

4. A more detailed study might be done to determine exactly what kind of impact staff development and training in differentiation has on teacher use of differentiation in the classroom.

Summary

Our classrooms are continually becoming more diverse. No Child Left Behind legislation mandates that teachers must do more than simply "cover" material; they must present curriculum so that every child, regardless of learning style, disability, interest, economic background or race, have access to that curriculum. It is the researcher's opinion that continued research on the topic of differentiation and meeting the needs of diverse learners will prove valuable to the field of education.

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APPENDICES

APPENDIX A

DIFFERENTIATION PRACTICES QUESTIONNAIRE FOR CLASSROOM
TEACHERS

**Your participation in this survey is completely voluntary. You may stop
participating at anytime with no loss of benefits.**

Section I
Demographics

1. Current Grade Level:_____

2. Gender: Male__ Female__

3. Ethnicity: American Indian___ Caucasian___Pacific Islander___
   Black (non-Hispanic)__Other (please fill in)___ Asian___

4. Teacher Education: BA/BS___ MA/MS___ EdS___ EdD/PhD___

      Areas of Concentration (e.g., elementary, middle school, special education, ESL)

      _____

      _____

5. Teaching Experience: Number of years teaching____

                       Grades previously taught ____

6. Training in Differentiation within the last three years (check all that apply)

_____ None

_____ Course from College or University (specify)

_____ Teleconference

_____ In-service Day Activities (specify)_____

_____ Conferences, Meetings, or Workshops (specify) _____

7. Please indicate the title of the course (s) or activities you have taken that apply most
directly to differentiation instruction.

Section II

This section of the questionnaire is divided into two scales. The column on the left (the letters) reflects your assessment of your knowledge and skill regarding various aspects of differentiation. The column on the right (the numbers) deals with frequency of use in your classroom. Please circle your responses for both columns.

THE LEFT COLUMN:

(A) I don't really understand what this means and don't know how to do it.

(B) I feel somewhat comfortable doing this, but I need more information and/or practice.

(C) I understand what this means and feel comfortable/competent doing it.

(D) I thoroughly understand what this means and feel adept at doing it.

THE RIGHT COLUMN:

(1) Hardly ever

(2) Sometimes – less than half the time

(3) Frequently – more than half the time

(4) Almost always or always

GENERAL

1. A B C D   Pre-assess students to determine level of understanding (readiness).   1 2 3 4

2. A B C D   Assess student interest.   1 2 3 4

3. A B C D   Assess students' learning profile.   1 2 3 4

4. A B C D   Design respectful assignments for all learners.   1 2 3 4

5. A B C D   Use flexible grouping.   1 2 3 4

6. A B C D   Vary the pace of learning for varying learner needs.   1 2 3 4

7. A B C D   Assign Students' grades that reflect individual growth and progress.   1 2 3 4

8. A B C D   Pro-actively (deliberately) plan differentiation when designing curriculum.   1 2 3 4

CONTENT

9. A B C D   Design curriculum based on major concepts and generalizations.   1 2 3 4

10. A B C D Use those major concepts and generalizations as basis for planning 1 2 3 4
       differentiated lessons/activities.

11. A B C D Clearly articulate to the students what you want them to know, 1 2 3 4
       understand, and be able to do.

12. A B C D Use a variety of materials other than the standard text. 1 2 3 4

13. A B C D Provide varying levels of resources and materials. 1 2 3 4

14. A B C D Provide various support mechanisms (e.g., reading buddies, organizers, 1 2 3 4
       study guides).

PROCESS

15. A B C D Design each activity to be squarely focused on one (or a very few) key 1 2 3 4
       concepts, essential questions and/or generalizations.

16. A B C D Design activities that require students to do something with their 1 2 3 4
       knowledge (apply and extend major concepts and generalizations as
       opposed to just repeating them back).

17. A B C D Use higher level tasks for all learners (e.g., application, elaboration, 1 2 3 4
       provide evidence, synthesis, etc.).

18. A B C D Use tiered lessons/activities of varying levels of challenge. 1 2 3 4

19. A B C D Use activities that involve all learners in both critical and creative 1 2 3 4
       thinking.

20. A B C D Vary tasks from simple to complex in each lesson. 1 2 3 4

21. A B C D Vary tasks by student interest. 1 2 3 4

22. A B C D Vary tasks by learner profile (learning style, mode) 1 2 3 4

23. A B C D Adapt content (e.g., text) to all levels of student proficiency 1 2 3 4

24. A B C D Use supplementary materials to a high degree 1 2 3 4
       (e.g., graphs, models, visuals)

25. A B C D Use independent study as an option for students 1 2 3 4

26. A B C D Consider Multiple Intelligences when planning lessons and activities 1 2 3 4

27. A B C D Use learning contracts 1 2 3 4

28. A B C D Use curriculum compacting 1 2 3 4

PRODUCT

29. A B C D   Allow for a wide range of product alternatives (e.g., oral, visual,   1 2 3 4
                  kinesthetic, musical, written, spatial, creative, practical, etc.).

30. A B C D   Give product assignments that differ based on individual (or group)   1 2 3 4
                  readiness, learning profile and/or interest.

31. A B C D   Use differentiated quality rubrics for assessment of products.   1 2 3 4

32. A B C D   Teacher supports students by using a wide range of varied resources.   1 2 3 4

33. A B C D   Give product assignments that balance structure and choice. (Student   1 2 3 4
                  choice is maximized within teacher-generated parameters.)

34. A B C D   Provide opportunities for student product to be based upon the solving 1 2 3 4
                  of real and relevant problems.

INSTRUCTIONAL/MANAGEMENT STRATEGIES

35. A B C D   Use curriculum compacting for advanced learners.   1 2 3 4

36. A B C D   Use student learning contracts.   1 2 3 4

37. A B C D   Use independent study.   1 2 3 4

38. A B C D   Use interest centers/groups.   1 2 3 4

39. A B C D   Use learning centers/groups.   1 2 3 4

40. A B C D   Use differentiated questions in discussions, homework and/or tests.   1 2 3 4

In the space below, please comment on your classroom use of, previous training in, current attitude about or any other information you would care to share regarding differentiation in your school.

Observation Checklist of Differentiated Strategies

Observation Summary

Content: _____ Lesson:_____ Teacher: _____Grade Level:_____

CURRICULUM (Content)	Check if observed
1. The teacher designs curriculum based on major concepts, themes, and generalizations and uses these major concepts and themes as a basis for planning differentiated lessons/activities.	
2. The teacher clearly articulates what he/she wants students to know, understand, and be able to do.	
3. The teacher varies curriculum and instruction from simple to complex, and from concrete to abstract.	
4. The teacher uses a variety of materials other than the standard text.	
5. The teacher provides varying levels of resources and materials.	
INSTRUCTION (Process)	
6. Teacher varies learning tasks according to student interest.	
7. Teacher varies learning tasks based on learning profile (learning style, intelligence).	
8. Teacher adapts content (e.g., text) to all levels of student proficiency.	
9. Teacher uses tiered lessons/activities of varying levels of challenge.	
10. Teacher uses curriculum compacting for advanced learners.	
11. Students work in a variety of group configurations. Flexible grouping is evident.	
12. Teacher varies the pace of learning for varying learning needs.	
LEARNING ENVIRONMENT	
13. Teacher allows for students to engage in independent study.	
14. Teacher uses interest centers/groups.	
15. Teacher uses learning centers/groups.	
STUDENT PRODUCTS	
16. The teacher gives product assignments that balance structure and choice (Student choice is maximized within teacher-generated parameters).	
17. Teacher allows for a wide range of product alternatives (e.g., oral visual, kinesthetic, musical, written, spatial, creative, practical, etc.)	
18. Teacher provides opportunities for student product to be based upon the solving of real and relevant problems.	

APPENDIX C

DEMOGRAPHIC SURVEY
(To accompany classroom observation)
**Your participation in this survey is completely voluntary. You may stop
participating at anytime with no loss of benefits.**

1. Current Grade Level:_____

2. Gender: Male__ Female__

3. Ethnicity: American Indian___ Caucasian___Pacific Islander___
   Black (non-Hispanic)__Other (please fill in)___ Asian___

4. Teacher Education: BA/BS___ MA/MS___ EdS___ EdD/PhD___

   Areas of Concentration (e.g., elementary, middle school, special education, ESL)
   _____
   _____

5. Teaching Experience: Number of years teaching____

   Grades previously taught ____

6. Training in Differentiation within the last three years (check all that apply)

_____ None

_____ Course from College or University (specify)

_____ Teleconference

_____ In-service Day Activities (specify)_____

_____ Conferences, Meetings, or Workshops (specify) _____

7. Please indicate the title of the course (s) or activities you have taken that apply most
directly to differentiation instruction.

_____

_____

_____