

Perceived Efficacy of Beginning Teachers to Differentiate Instruction ¹

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Abstract

A two-phase, sequential mixed-methods design was used to assess perceptions of teacher efficacy (10 item survey, $\alpha = .90$) to differentiate instruction for $N = 36$ graduates from one MAT teacher preparation program. Research questions addressed levels of self-efficacy, perceptions of preparedness, teaching tenure, and number of certifications held. Data were analyzed using descriptive statistics, one-way ANOVA and t -test procedures. A focus group with $N = 10$ purposively selected 2010 graduates and interviews with $N = 2$ graduates each from the 2008 and 2009 classes, and $N = 2$ faculty were conducted. No significant relationships were found for tenure and number of certifications. A relationship was found between levels of self-efficacy and feelings of preparedness ($r = .91$, $r^2 = .81$, $p < .001$). Pre-existing ideas of how to teach which contradict differentiation, misinformation regarding differentiation, and classroom management skills presented challenges which resulted in the unintentional implementation of surface-level differentiation, rather than deep-structure differentiation (Brighton, Hertberg, Moon, Tomlinson, & Callahan, 2005).

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Purpose

The purpose of this research was to investigate perceptions of how efficacious beginning teachers were toward using differentiation strategies when working with groups of students of diverse race, culture, and learning needs within one classroom. While the literature reports increasing diversity among schoolchildren, it also shows that teachers are ill-equipped to handle such learner variance (Schlechty, 2009; Tomlinson, Brighton, Hertberg, Callahan, Moon, Brimijoin, Conover, & Reynolds, 2003).

Differentiated Instruction is a teaching philosophy based on current brain research, learning styles and types of intelligence, the influence of culture and gender on how we learn, motivation, and how people construct meaning (Heacox, 2009; Tomlinson, 2000a; Wormeli, 2006). Teachers who differentiate instruction proactively plan varied approaches to what students need to learn, how they will learn it, and how they will show what they have learned in order to increase the likelihood that each student will efficiently learn as much as he or she can (Tomlinson, 2003).

Although the needs and benefits for teachers to differentiate instruction are high, Tomlinson claims that many teacher education programs are not preparing future teachers for the inevitable increase in academic and cultural diversity among students, seldom giving instruction in how to differentiate (Holloway, 2000; Tomlinson & Allen, 2000). Many studies suggest that more efficacious

teachers are more likely to differentiate instruction (Wertheim & Leyser, 2002). Since a teacher's sense of efficacy is directly related to their perceptions of how well they were prepared, it is important to assess levels of teacher preparedness for implementing differentiated instruction strategies to the diverse groups of students with whom they will be expected to teach.

Bandura (1977) identified teacher efficacy as a type of self-efficacy; the cognitive process in which people construct beliefs regarding their capacity to perform at a given level of attainment which then influence how much effort they put forth, how long they will persist in the face of adversity, how resilient they are in dealing with failures, and how much stress they experience in demanding situations (Bandura). Tschannen-Moran et al. note that self-efficacy involves self-perceptions of competence rather than actual levels of competence. Because people often overestimate or underestimate their actual abilities, these estimations may impact the courses of action they choose to pursue or the amount of effort they exert. Bandura (1997) clarifies that "a capability is only as good as its execution" since "insidious self-doubts can easily overrule the best of skills" (p. 35). The research illustrates that teachers with a stronger sense of efficacy exhibit the following behaviors (Jerald, 2007, p. 43; Protheroe, 2008; Tschannen-Moran et al., 1998):

- Tend to exhibit greater levels of planning and organization.
- Are more open to new ideas and are more willing to experiment with new methods to better meet the needs of their students.
- Are more persistent and resilient when they make errors.
- Are less inclined to refer a difficult student to special education.

Teachers, who have a high sense of efficacy and act on it, are also more likely to have students who learn (Shaughnessy, 2004). Similarly, Jerald concludes that “teachers who believe in their own ability to influence student achievement are more likely to take responsibility for the learning of all students-including those who are harder to teach” (p. 4).

Theoretical Framework

Failure to Consider Student Needs

Despite the fact that academic and cultural diversity has increased in the US and is expected to increase further, traditional school structures, pressures of content coverage for standardized tests and limited budgets for staff development all serve as barriers to true differentiation for students (Erickson, 2008). Sarason (1990) believes that students are calling for a different way to learn since the “...one-size-fits-all delivery system-which mandates that everyone learn the same thing at the same time, no matter what their individual needs - has failed them” (p. 114-115; Tomlinson & Allen, 2000). Wagner agrees that the US system of public education, which was created in a different century for different needs, is now obsolete. The implementation of No Child Left Behind (NCLB) is putting children even further behind in their acquisition of the new “survival skills” for learning, work, and citizenship (Schlechty, 2009; Wagner, 2008). Without these new skills, which are not being taught nor tested in the best schools, children are “at an increased risk of not being able to get and keep a good job, grow as learners, or make positive contributions to their community” (Wagner, 2008, p. 14). Wagner offers the following core set of survival skills that

are the “new basic skills” for success in the 21st Century: Critical Thinking and Problem Solving, Collaboration Across Networks and Leading by Influence, Agility and Adaptability, Initiative and Entrepreneurialism, Effective Oral and Written Communication, Accessing and Analyzing Information, and Curiosity and Imagination (2008, p. 14-38). Research shows that the most essential skill for learning, work, and citizenship in the twenty-first century will require our students to know how to think (Schlechty, 2009; Wagner, 2008). However, Wagner laments the fact that these skills and this kind of knowledge are rarely taught in schools today. Educators need to shift their focus from the acquisition of facts and skills, to the meaning and transfer of those skills (Sergiovanni, 2000; Wiggins & McTighe, 2008). Wiggins and McTighe (2008) recommend that school curricula reflect a central mission of learning for understanding. Although critical-thinking skills have become essential competencies for life in the twenty-first century, our schools, which were never designed to teach every student how to think, have remained unchanged (Robinson, 2009; Schlechty, 2009; Sergiovanni, 2000; Wagner, 2008). Mehlinger (1995) believes that “to customize schooling for individual learners, rather than mass produce students who have been taught the same thing in the same way in the same amount of time...is not a superficial change; it is a deep cultural change” (p. 154; Tomlinson et al., 2003).

Differentiated Instruction

Tomlinson and Allen (2000) define *differentiation* “as a teacher’s reacting responsively to a learner’s needs” (p. 4). Attending to learner variance not only makes sense, but it is based on current brain research, learning styles and types

of intelligence, the influence of culture and gender on how we learn, motivation, and how people construct meaning (Heacox, 2009; Tomlinson & Allen; Wormeli, 2006). Many experts agree that students are more successful in school and more engaged in their learning if their instruction is responsive to their readiness levels, interests, and learning profiles (Csikszentmihalyi, 1990; Sternberg, Torff & Grigorenko, 1998; Vygotsky, 1986). According to Edwards, Carr, and Siegel (2006), effective teachers consider their students' unique academic needs, talents, interests, and learning styles in planning, teaching, and assessing lessons. The more teachers learn about their students, the more they are able to design effective experiences that elicit real learning (Edwards, Carr, & Siegel, 2006). Differentiated instruction enables teachers to create lessons that begin where the students are (Edwards, Carr, & Siegel, 2006). Other features of this approach include the engagement of students through varying modalities, the student's competition with self, flexibility, student-centered lessons with multiple approaches, reliance on qualitative research, and a proactive attitude (Edwards, Carr, & Siegel). The following indicators of the current state of education make a strong case for the need and benefits of adopting differentiated instruction

(Heacox, 2009; Tomlinson, 2005):

- The United States is becoming a nation of racial and ethnic minorities, forcing teachers to consider the student's language, economic status, background experience, and world view.
- Most districts now include students receiving special education services and gifted services within the general education classroom.
- Tracking students by ability has proven to lower expectations for all students.

- Tracking reinforces the achievement gap that exists between Caucasian students and many minority groups.
- It is questionable whether pull-out programs succeed in raising achievement levels of its students.

According to Kelly (2001), an essential characteristic of best practice teaching is the ability to understand how to create curriculum and deliver instruction that is differentiated for a wide range of learners and learning styles. Similarly, Gardner (2004) advocates for *understanding* to be the primary goal of the American educational system. Cognitive research documents the fact that students “possess different kinds of minds and therefore learn, remember, perform, and understand in different ways” (Gardner, 2004, p. 11). Gardner’s (2006) multiple intelligences theory posits that students come to know the world through the following seven intelligences: language, logical-mathematical analysis, spatial representation, musical thinking, bodily-kinesthetic, interpersonal, and intrapersonal. Since students perform best when they are taught to their strengths, Gardner believes that “...the insistence on having twenty to fifty students in a classroom seated at desks while the teacher lectures, and moving arbitrarily from one subject to another at preordained timed intervals, makes the achievement of an education for understanding virtually impossible” (2006, p. 134). In an attempt to address this issue, Tomlinson, and Allen (2000) strongly advocate for differentiation to be a focus of school change.

Today’s classrooms are more diverse than ever, but are ill-equipped to deal with the wide range of student needs (Schlechty, 2009; Tomlinson et al., 2003). It is common for one classroom to include students with various learning

disabilities, highly advanced learners, students whose first language is not English, students who underachieve, students with diverse cultural and economic backgrounds, students of both genders, students with varying interests and preferred modes of learning, and motivated and unmotivated students. By the year 2035, students of color will be in the majority in our schools, cultural diversity will continue to expand, and half of all children will live in single parent homes (Tomlinson et al.). These demographic realities, in conjunction with an emphasis on the elimination of tracking, inclusion of students with disabilities, and the intent to reduce segregation of gifted and remedial students, will add to teachers being held responsible for addressing learner variance within the classroom (Schlechty, 2009; Sergiovanni, 2000; Tomlinson et al.; Valli & Buese, 2007). Since learning experiences for teachers have focused primarily on improvement rather than personal growth and exploration of new ideas, cutting edge developments, or new pedagogies, few teachers are prepared to make significant changes in pedagogy.

Teacher Efficacy

A personal characteristic, which may be linked to teachers' behavior and motivation in diverse classrooms, is teachers' sense of self-efficacy (Sergiovanni, 2000). Bandura (1977) provides a theoretical framework, social learning theory, which "approaches the explanation of human behavior in terms of a continuous reciprocal interaction between cognitive, behavioral, and environmental determinants" (p. vii). Bandura claims that within this process is the opportunity for people to control their own destiny (Bandura, 1977). Self-efficacy beliefs

influence what choices people make, how they behave, and ultimately, their level of achievement. The higher the sense of efficacy, the greater the levels of effort, motivation, and resilience a person will possess (Bandura, 1993).

Teaching efficacy refers to the belief that a teacher's ability to elicit change is limited by external factors such as home environment, family background, and parental influences. Personal Teaching Efficacy is a teacher's belief that he or she has the skills or abilities to influence student learning and behavior (Gibson & Dembo, 1984; Sergiovanni, 2000). The literature reports that several variables including coursework, student teaching, and experience are associated with teacher efficacy beliefs (Wertheim & Leyser, 2002). Many studies investigating educators' perceptions and efficacy beliefs of the desirability, feasibility, and actual use of differentiated instruction suggest that more efficacious teachers are more likely to differentiate their instruction, favor inclusion, and reject a custodial perspective of school (Wertheim & Leyser, 2002). Darling-Hammond, Chung, and Frelow (2002) note that teachers' sense of efficacy is related to their perceptions of how well they were prepared. This finding illustrates the importance of assessing teacher preparedness since teacher efficacy has been found to be related to student achievement, motivation and student's own sense of efficacy (Darling-Hammond, et al.). In addition, teachers' sense of efficacy also appears to be related to behaviors that effect student learning, such as willingness to try new instructional techniques, teachers' affect toward students, persistence in trying to solve learning problems, their level of planning and organization, and their practices (Darling-Hammond, et al.). Teacher training

programs, especially during the initial teacher preparation stage can be effective in the development and enhancement of teacher self-efficacy beliefs (Sergiovanni, 2000; Wertheim & Leyser, 2002).

Methodology

Beginning teacher perceptions of how efficacious they are toward using differentiation strategies were explored through the following research questions;

1. To what extent do beginning teachers feel efficacious to differentiate instruction among diverse groups of students?
2. Are there differences among beginning teachers' perceived level of efficacy toward differentiating instruction among diverse groups of students with respect to the number of years since graduation from their teacher preparation program?
3. Are there differences between beginning teachers' perceived levels of efficacy toward differentiating instruction among diverse groups of students with respect to the number of certifications held?
4. Is there a relationship between beginning teachers' perceived level of efficacy toward using differentiation strategies and their perceived level of preparedness to differentiate instruction?
5. What are beginning teachers' perceptions of how efficacious they are toward differentiating instruction?

Instrumentation/Data Collection

Perceptions of efficacy were assessed using the *Survey of Beginning Teachers' Perceived Preparedness and Efficacy for Differentiating Instruction*, a 10 item Zoomerang survey ($\alpha = .90$) for $N = 36$ graduates from one MAT teacher preparation program. A focus group with $N = 10$ purposively selected 2010 graduates and interviews with $N = 2$ graduates each from the 2008 and 2009 classes, and $N = 2$ faculty were conducted.

Table 1

Cronbach's Alpha Reliability for the Data from the Survey of Beginning Teachers' Perceived Efficacy for Differentiating Instruction

Dimension	Number of Items	Alpha Reliability α
Efficacy	10	.90

Table 1 lists the alpha internal consistency reliability for the Efficacy dimension data which yielded an acceptable coefficient of .90.

Data Analysis

Descriptive statistics, one-way ANOVA, and *t*-test were used to examine research questions 1, 2, and 3. Research question 5 was analyzed using a qualitative focus group and interview data. Document analysis served to triangulate the data and facilitate a more thorough understanding of the findings.

Limitations/Delimitations

This study exhibited limitations, including a low response rate from the sample and the possibility of respondents producing socially desirable responses. The purposive sample utilized study could limit the ability to generalize findings to the larger population, since it draws a small number of participants from a relatively homogenous demographic. Several other sources of error can be attributed to situational factors. Factors such as participant mood, fatigue or motivation could lead to inaccurate responses. A variation in administration procedures such as different environments, different timeframe, differences in technological skill, unclear instructions, and errors in scoring the responses all could have threatened the validity of the study (Creswell, 2009; Gable & Wolf, 1993). Issues

of social desirability and anonymity were addressed by assuring the participants that their responses to the scale were anonymous.

Qualitative data reliability was achieved through the following procedures: The researchers checked the transcripts from the focus groups for obvious errors, a codebook was maintained to prevent shifts in the definition and meaning of the codes during the process of coding, and inter-coder agreement was used to cross-check the accuracy of the codes. The researchers ensured that the consistency of the coding was in agreement at least 80% of the time (Creswell, 2009). Trustworthiness, authenticity, and credibility of the data were achieved through the uses of multiple validity strategies. The researchers triangulated the data from the focus group, interviews, open-ended questions, and document analysis to establish themes. Accuracy of the findings was corroborated through member-checking and peer-debriefing and findings were conveyed through the use of rich, thick descriptions. We clearly defined and controlled for any existing bias by conducting an external audit through a “disinterested expert” and selecting a neutral party to serve as the focus group moderator (Krueger & Casey, 2000; Patton, 2002, p. 562). Although the intent of the qualitative data was not to generalize the findings to other teacher preparation programs, this type of generalization could occur if additional programs are studied and findings are generalized.

Results/Discussion

Research Question 1

A total of $N = 30$ beginning teachers responded to the 10 survey items on a 5-point Likert-type response scale, rated from *Not Confident At All* to *Very Confident*. Scores were ranked according to mean and ranged from 3.63 ($SD = 3.83$) to 4.23 ($SD = .68$). Mean ratings for preparedness to differentiate instruction approached the *Confident to Very Confident* range.

Notable, were response data for items 7 and 15, which were found to be negatively skewed as 80% of participants reported feeling *Very Confident* in *Preassessing students* ($M = 3.83$, $SD = .70$); and, 74% reported feeling *Very Confident* to *Escalate expectations* ($M = 3.83$, $SD = .79$), respectively.

Table 2

Dimension 1: Self-Efficacy - Descriptive Statistics; Frequency, Percentage, Mean, and Standard Deviation

Item		Rating					M	SD
		Not Confident At All	Somewhat Confident	Undecided	Confident	Very Confident		
Utilize active learning 14	<i>f</i>	-	4	5	19	2	3.63	0.81
	%	-	13	17	63	7		
Grading reflects individual growth 16	<i>f</i>	1	4	2	20	3	3.67	0.96
	%	3	13	7	67	10		
Ensure respectful assignments 11	<i>f</i>	-	4	2	21	3	3.77	0.82
	%	-	13	7	70	10		
Pre-assess students 7	<i>f</i>	-	3	1	24	2	3.83	0.70
	%	-	10	3	80	7		
Escalating expectations 15	<i>f</i>	1	1	3	22	3	3.83	0.79
	%	3	3	10	74	10		
Develop student centered classroom 10	<i>f</i>	-	5	-	20	5	3.83	0.91
	%	-	16	-	67	17		
Identify student profiles 9	<i>f</i>	-	3	2	21	4	3.87	0.77
	%	-	10	7	70	13		
Vary pace of learning 13	<i>f</i>	-	2	2	21	5	3.97	0.72
	%	-	7	7	70	16		
Assess student interests 8	<i>f</i>	-	3	3	16	8	3.97	0.89
	%	-	10	10	53	27		
Use flexible grouping 12	<i>f</i>	-	1	1	18	10	4.23	0.68
	%	-	3	3	60	34		

Additionally, response data for items 15 and 16 were found to be distributed in a bimodal fashion as 3% of participants reported feeling *Not Confident At All*, while 10% reported feeling *Very Confident to Escalate expectations* ($M = 3.83$, $SD = .79$) for item 15. With respect to item 16, 3% of participants reported feeling *Not Confident At All* and 10% reported feeling *Very Confident to Reflect individual growth while grading* ($M = 3.67$, $SD = .96$).

Participants reported feeling most confident in varying the pace of learning for differing learner needs, assessing student interests, and using flexible grouping daily (including whole class groupings, small groups, partners, etc.). Participants were least confident to utilize active learning (i.e., putting responsibility of the learning on the learners through role-playing, debates, cooperative learning, etc.), to grade students as a reflection of individual growth and progress (with the goal of maximizing each student's growth and individual success versus comparing students to each other), and to ensure respectful assignments for all learners (i.e., present assignments that encourage students to work in preferred modes of learning). Overall, participants reported feeling confident to very confident in their ability or preparedness to differentiate instruction for diverse learners.

Research Question 2

The ANOVA evaluated the relationship between the number of years since graduation (i.e., 1-2-3 years out) and perceived efficacy to differentiate instruction ($F = .52$, $p = .60$). While examination of the data indicated no significant

differences, efficacy was associated with relatively high ratings within all three graduation years, approaching the *Confident* range.

Research Question 3

The *t*-test examined differences between the number of certifications held (i.e., 2 or 3) with respect to perceptions of preparedness to differentiate instruction. A “trend” was detected for the teachers with three certifications to have slightly higher ratings of efficacy. While not statistically significant ($t = 1.59$, $p = .18$), ratings approached the *Confident* range, suggesting that teachers with multiple certifications “tended” to feel more confident in using differentiation strategies.

Research Question 4

Examination of the relationship between the 30 beginning teachers’ perceived levels of *self-efficacy* toward using differentiation strategies and their perceived levels of *preparedness* to differentiate instruction revealed a correlation of $r = .91$ ($r^2 = .81$, $p < .001$). Using Cohen’s effect size guidelines, the relationship between these two variables can be classified as a “large effect size” (Cohen, 1988). Higher levels of perceived *self-efficacy* to differentiate instruction were related to higher levels of perceived *preparedness* to differentiate, indicating that respondents who perceived themselves to be prepared, also felt more confident.

Research Question 5

Examination of concepts and themes across a focus group and interviews served to describe teachers’ perceptions of efficacy toward differentiated instruction. The following factors emerged as key findings:

1. Confusion existed between pre-existing beliefs and the philosophy of differentiated instruction.
2. Beginning teachers did not distinguish between “surface-level differentiation” and “deep structure differentiation” (Brighton et al., 2005).
3. Classroom management skills relate to the level of differentiated instruction.
4. Self-efficacy is connected to perceptions of preparedness.

Confusion exists between teachers’, professors’, and cooperating teachers’ pre-existing beliefs and the philosophy of differentiated instruction. Despite feeling prepared to differentiate instruction, beginning teachers’ pre-existing beliefs about teaching and learning presented challenges when attempting differentiation. Participants reported conflicting beliefs regarding differentiated instruction among their prospective cooperating teachers, schools, or communities where traditional teaching approaches continue to remain the norm. A first year teacher explained this contradiction when she revealed, “I think I struggled a bit in my placement because some of my teachers had issues themselves with differentiated instruction.” This confusion continued into participants’ first teaching experiences where colleagues also held many different views regarding differentiation. Traditional approaches to teaching conflict with differentiated approaches (Brighton et al., 2005). Figure 1 illustrates this difference.

<u>Deep Structure Beliefs</u>	<u>Beliefs Underlying Differentiated Instruction</u>
The teacher is the center of the classroom. A single curriculum is appropriate for all learners.	The student is at the center of the classroom. Multiple curricular and instructional approaches are necessary to meet individual student needs.

Discussions of student differences are avoided except as explanations for different levels of achievement.	Student differences are acknowledged in instructional planning and appropriately responded to.
The teacher's responsibility is to direct learning.	The teacher's responsibility is to facilitate learning.
Curriculum and instruction are pre-determined by a curriculum guide, textbook, standards, or established teacher routine.	Curriculum and instruction are responses to demonstrated student need.
Student success or failure depends on how well that student can work within a pre-determined curricular and instructional approach.	Student success or failure depends on how well curriculum and instruction meet that student's needs.
Assessment is summative and used to compare student to student.	Assessment is formative and summative in that it guides instruction and is also used to measure student learning.

(Brighton et al., 2005, p. 305)

Figure 1. Differences between Traditional and Differentiated Teaching

Approaches

In traditional approaches to teaching, students are treated as though they are all the same. Teachers may rely on a pre-determined curriculum and avoid responding to student differences. Within this structure, a student's success is dependent on his or her ability to work within the traditional structure, rather than on the teacher's ability to accommodate the student. In a differentiated classroom, teachers respond to a student's individual needs. A student's success indicates that the provided instruction is appropriately matched to the needs of the learner (Brighton et al., 2005).

Participants in this study reported that it was necessary to differentiate instruction in order to accommodate the diversity inherent in their classrooms. While both quantitative and qualitative data analyses indicated that participants felt prepared to use differentiation strategies daily, qualitative data further revealed the fact that many aspects of differentiation challenged participants'

beliefs about fairness, equity, and how classrooms should be organized to allow students to learn most effectively. For example, a first year teacher reported that, “oftentimes the students are learning when they are with each other versus the teacher lecturing.” Differentiation requires beginning teachers to confront their existing beliefs about teaching and learning; beliefs that are reinforced by other teachers, principals, parents, and the community (Brighton et al., 2005). Participants acknowledged that the diverse nature of their classrooms required them to differentiate and that more flexible classroom environments were preferable for their students. Even so, participants reported struggling with traditional beliefs about the way classrooms should be organized. Participants used self-talk to continuously remind themselves that although many people believe fairness is achieved only when all students work on the same tasks, the alternate view of fairness, which involves matching curriculum, instruction, and assessment to the individual student’s needs, is more appropriate in their classrooms.

Beginning teachers did not distinguish between “surface-level differentiation” and “deep structure differentiation”. Qualitative data analysis revealed factors such as lack of school wide support, lack of resources, lack of time to collaborate with other teachers, and the pressures of high-stakes tests as complicating differentiation in the classroom. Despite these difficulties, participants voiced the belief that differentiation was a good idea and reported making an effort to add differentiated instruction to their teaching practices. However, the strategies most participants reporting using in their classroom

resulted in intermittent “surface level differentiation”, including such strategies as the uses of cooperative learning groups or learning stations, and providing choice, rather than “deep structure differentiation”, which requires teachers to deviate from traditional structures and address issues such as grading, individual differences, and equity (Brighton et al, 2005). For example, participants reported:

I do a lot of different flexible grouping, including on-on-one strategies.

My students are on different grade levels for science and math. I teach whole group but might provide graphic organizers, such as checklists. Sometimes I will have class discussions instead of having my students physically write out a lecture.

I differentiate with homework. The students have to pick between three or four different assignments and then show us that they have mastered the assignment they have picked.

Fewer participants reported using deep structure differentiation, including strategies such as differentiating assignments according to readiness level, assessing students with rubrics, or allowing students to progress at their own pace.

One reason for this could be that many administrators, other teachers, parents, and students expect teachers to conduct their classrooms according to traditional structures. Traditional structures define the way we “do school” for members of society, posing a challenging and risky task for those teachers who wish to deviate from society’s expectations. This finding mirrors the research which states that fewer teachers attempt differentiation according to readiness levels as opposed to providing students with options based on interests or learning preferences (Brighton et al., 2005). Differentiation according to readiness conflicts with many classroom realities in ways that differentiating for interest and learning profile do not. Differentiating by readiness level challenges

teachers' perceptions of fairness, requires teachers to have a deep understanding of their discipline, and forces teachers to confront classroom dialogue regarding academic differences (Brighton et al.). Without such conversations about each student's strengths and weaknesses, however, deep level differentiation cannot exist.

Participants' use of mainly surface-level differentiation could also be attributed to an unclear grasp of what true differentiation is. Participants revealed that faculty from the MAT School of Education, their cooperating teachers, schools, and communities all held different beliefs about the philosophy and practice of differentiated instruction. First year teachers reported:

I think within the program there were some discrepancies on how instructors defined differentiate instruction.

The definition needs to be direct and explicit no matter what class you take. Our instructors need to be on the same page.

Different school systems and different teachers see it differently. Some teachers see differentiating instruction as how you are going to challenge students who are on level.

This confusion may have contributed to participants' lack of awareness on the differences between surface-level differentiation and deep structure differentiation. According to Tomlinson and Allen (2000), upon hearing about differentiation, it is common for teachers to respond, "We already do that" (p. 52). Shulman (1987) believes that while teachers are being honest with their answers, frequently what they are doing is supplementing instruction with the occasional use of choice and coaching or modifying questions based on their perceptions of student need. For example, teachers may "tailor" their instruction by coaching a student for whom a particular assignment is not working.

What the teacher perceives as differentiation is not proactive or planned in that the teacher does not yet regularly seek to understand student differences and modify instruction based upon analysis of student need. (Tomlinson & Allen, 2000, p. 52)

Tailoring is often not a systematic, regular part of planning (Shulman, 1987).

Adopting a framework for differentiation establishes a common vocabulary, focuses staff development, reinforces teacher collaboration, provides a basis for evaluating differentiation efforts, and reduces misunderstanding (See Appendix A; Tomlinson & Allen, 2000).

According to Johnson (2010), the use of surface-level differentiation enables beginning teachers to add innovative practices to their teaching without making a significant change to the structure of the classroom or confronting traditional beliefs about teaching and learning. Participants in this study reported that surface level attempts at differentiation had a positive impact on their students. Participants noted that the use of flexible groupings and the provision of choices increased student interest and the performance of struggling learners. These positive experiences may give teachers confidence and motivation to continue to use differentiation practices.

Classroom Management Skills Affect Differentiation. Successful implementation of differentiation requires that teachers have an understanding of their content knowledge, a variety of pedagogical approaches, and effective classroom management skills (Johnson, 2010). For participants in this study, classroom management presented the biggest challenge to the full use of differentiation. Participants wished they had a "...a bit more in-depth understanding of behavior management", with two first year teachers offering the following suggestions:

...students should observe at the school they are going to student teach at so they can build a relationship with the students and see how they behave on a regular basis.

Continue to mix the student teaching among urban and suburban nets...

A faculty member from the School of Education mirrored these sentiments when she recommended:

Increasing the interactive experiences our candidates have in diverse settings and have a regular seminar/dialogue regarding what they have seen, what's working, what isn't working.

The high mobility of differentiated classrooms require teachers to facilitate small and large group work, encourage student independence, and manage several different tasks simultaneously. The literature states that "effective differentiation requires teachers to be capable facilitators of small and large group work, knowledgeable about methods of encouraging greater levels of student independence, and effective at managing several different tasks at once" (Brighton et al., 2005, p. 318). Without effective classroom management skills, teachers' initial attempts at differentiation will be unsuccessful (Brighton et al.). Qualitative findings suggest that participants may have benefitted from more extensive training and practice in the areas of differentiated instructional techniques and responding to various behavior needs. Participants across the focus group and interviews consistently identified classroom management as presenting the biggest challenge to appropriate use of differentiation.

Self-efficacy is connected to perceptions of preparedness. Both quantitative and qualitative data revealed that teachers with high perceptions of efficacy to differentiate also report high perceptions of preparedness to differentiate. This finding is consistent with the literature that states that beginning teachers with a high sense of efficacy tend to rate the quality of their

preparation higher. Bandura's (1986) theory of self-efficacy suggests that efficacy is most easily influenced early in learning. Therefore, student teaching experiences are a powerful influence on the development of teachers' sense of efficacy. The correlational analysis results of the relationship between *preparedness* and *efficacy* revealed a large effect size, which indicates that the relationship has both statistical and practical significance.

Quantitative data analysis revealed that participants felt "confident" and "well prepared" to differentiate instruction for diverse learners across all three graduation years; 2008, 2009, and 2010. Participants reported feeling most confident in varying the pace of learning for differing learner needs, assessing student interests, and using flexible grouping daily (including whole class groupings, small groups, partners, etc.). Participants are least confident to utilize active learning (i.e., putting responsibility of the learning on the learners through role-playing, debates, cooperative learning, etc.), to grade students as a reflection of individual growth and progress (with the goal of maximizing each student's growth and individual success versus comparing students to each other), and to ensure respectful assignments for all learners (i.e., present assignments that encourage students to work in preferred modes of learning). A "trend" was revealed indicating that respondents with perceived higher levels of efficacy also felt more prepared to differentiate instruction. This finding supports the research suggesting that teachers with a high sense of efficacy also tend to feel that the quality of their preparation is higher than those who are less efficacious (Johnson, 2010).

Number of Certifications. Findings revealed an additional “trend” indicating that respondents with multiple certifications felt more prepared and confident to differentiate instruction among diverse learners. Similarly, the research states that pre-service teachers benefit from the perspectives of teachers at different grade levels and placements in addition to their required practicum exposure (Johnson, 2010).

Influencing Self-Efficacy. The most powerful determinants for influencing teaching self-efficacy are the following: *mastery experiences* through extensive, hands-on teaching opportunities supported through coaching, *vicarious experiences* through opportunities to observe other teachers effectively differentiating and subsequent debriefing, and *social persuasion* opportunities where beginning teachers receive feedback from supervisors, cooperating teachers, and peers regarding their effective teaching behaviors along with constructive suggestions. These experiences will add to beginning teachers’ beliefs that they are competent and able to solve problems that may arise (Darling-Hammond, 2006; Tschannen-Moran et al., 1998). Johnson (2010) discovered that when pre-service teachers observed master teachers using best practice strategies in literacy instruction, saw the methods in use by the children, and witnessed the thinking and experience of these master teachers, the pre-service teachers developed stronger self-efficacy beliefs for being able to implement these methods themselves. Johnson believes that a central task of teacher education is to increase teachers’ efficacy to differentiate when faced with pressures to conform.

Conclusions

Differentiating instruction is a complex endeavor. As one participating teacher observed, “Good teachers don’t happen overnight”. Brighton and colleagues (2005) agree that differentiation is not a quick fix.

Most importantly, learning to differentiate requires teachers to see the big picture behind differentiation. Teachers need to realize and understand that differentiation is not a formula for success that can be mechanically applied, but that it is instead a commitment to improvement in teaching practice by developing a deeper understanding of content area, adopting new and different goals for themselves and for students, implementing new strategies, and making connections to students’ lives. It requires time, commitment, trial and error, and the support of the whole school community. (Brighton et al., 2005, p. 324)

When differentiating instruction, teachers must be able to create multiple learning experiences and activities tied to the same concept, facilitate small groups engaged in different tasks, possess a deep understanding of their discipline, balance conflicting curriculum initiatives, and shift their role from front-of-the-room controller to that of facilitator of student learning (Brighton et al., 2005). While the vast majority of participating teachers reported feeling prepared and confident to differentiate instruction, they also revealed that many aspects of differentiation challenged their beliefs about teaching and fairness, ultimately limiting their attempts at differentiation to surface-level.

The research claims that many teachers lack training in ways that ensure all students opportunities to actively participate and profit from classroom instruction (Rock et al., 2008; Tomlinson et al., 2003). Teacher education programs are not preparing future teachers for the inevitable increasing diversity of students, rarely instructing them in how to differentiate instruction (Holloway, 2000).

Beginning teachers felt that differentiated instruction was necessary to address the diversity in their classrooms. Quantitative survey results and

document analysis indicated that beginning teachers felt confident to differentiate instruction. Qualitative findings indicated that participants lacked a universal concept of differentiated instruction and, as a result, unknowingly implemented mostly surface-level differentiation strategies. Behavior management was identified as a challenge to differentiation and a connection was found between perceptions of self-efficacy and preparedness.

Educational Implications

Teacher education is more complex today because teacher educators "...must prepare teachers for schooling as it should be, while enabling them to cope with schooling as it is" (Darling-Hammond, 2006, p. 40). Teacher education programs must address pervasive teacher beliefs, create environments for efficacious learning, and provide opportunities for beginning teachers to practice what and how they are expected to teach (Edwards, Carr, & Siegel, 2006; Johnson, 2010; Tomlinson et al., 2003). Today, teacher preparation programs have the additional responsibility of equipping beginning teachers with the knowledge and strategy base to meet the unique needs of each student while ensuring high levels of achievement. The recommendations derived from this research may serve to inform teacher preparation programs, educational leaders, and teachers how to best meet the needs of all students while overcoming seemingly insurmountable challenges. The findings of this study add to or support the body of literature in the areas of differentiated instruction and effective teacher preparation.

Recommendations for Teacher Preparation Programs

The following recommendations incorporate strategies for the MAT School of Education program to develop a model that might best enable teachers to enter the profession with knowledge and attention to student variance and to continue to develop responsive teaching:

- **Focus on explicit strategies to help students (1) confront their own deep seated beliefs and assumptions about learning and students and (2) learn about the experiences of people different from themselves.** Address and revisit the misperceptions and rationale behind differentiated instruction so that it may be fully internalized and articulated by beginning teachers. Include opportunities for novice teachers to spend time in the communities where their students live and reflect on challenging the habitual practice of one-size-fits-all teaching (Darling-Hammond, 2010).
- **Foster strong relationships, common knowledge, and shared beliefs among university-based faculty regarding differentiated instruction.** Develop a common, clear vision of differentiated instruction that permeates all coursework and clinical experiences. Provide clear expectations for implementing differentiated instruction. Differentiation is *not* simply about providing multiple options or “a series of tricks to use upon a whim”; rather it is a thoughtful response to student need (Brighton et al., 2005, p. 326). Introduce the concept of differentiation according to readiness early on and encourage them to address student differences in readiness through their instruction and assessment. Include a commitment to diversity within each class instead of isolating content to a single class.
- **Ensure that curriculum is grounded in knowledge of child and adolescent development, learning, social contexts, and subject matter pedagogy, taught in the context of practice.** Provide opportunities for teacher candidates to observe teachers who use differentiated instruction in their classrooms and/or videotape lessons and create DVDs that exemplify differentiated instruction. Teaching portfolios can present opportunities for extensive documentation of practice and reflection for beginning teachers in learning to differentiate. Problem-based learning strategies, such as case methods and projects, support reflection and link theory to practice (Tomlinson & Allen, 2000).
- **Create environments for efficacious learning, based on Bandura’s model, in order to increase beginning teachers’ efficacy for differentiating instruction and behavior management.** Provide experiences contributing to self-perception of competence (i.e., mastery

experiences, physiological and emotional arousal, vicarious experiences and social persuasion. Provide pre-service teachers with successful and supportive learning experiences in coursework and student teaching. Give careful attention to selecting diverse observation and student teaching sites to ensure that pre-service teachers are placed with competent, credible teacher models who effectively differentiate instruction, have a positive attitude, and are skillful in managing behaviors. Research indicates that by observing master teachers using effective teaching strategies, beginning teachers can cultivate stronger self-efficacy beliefs for being able to implement similar methods themselves and are also more likely to relinquish a custodial perspective of school (Johnson, 2010).

- **Consider modeling the principles and practices of differentiated instruction in higher education classrooms.** Current and future educators are expected to differentiate instruction, yet the lecture format of instruction is not conducive to learning such complex skills. Sands and Barker (2004) believe that modeling and experiential learning are highly effective instructional strategies for adult learners when learning complex skills such as differentiation.
- **Extend clinical experiences (at least one full year) and develop them to support the ideas and practices presented in simultaneous, closely interwoven coursework focusing on classroom management and differentiated instruction. Provide student teaching experiences in varied settings with cooperating teachers who model differentiated instruction.** According to Brighton et al. (2005), teachers who are learning to differentiate require support from knowledgeable individuals who are able to observe and provide constructive feedback. Provide differentiated coaching during the practicum experience and allow time for peer support to plan or reflect on differentiation. Use case methods to provide an opportunity for candidates to observe, interview, examine student work, or analyze data for perspective case studies on students, schools or communities. Candidates can compare, contrast, and reflect on examples of differentiated and traditional variations of teaching and products of student learning.
- **Institute Collaboration between universities and school districts to create coherence between training and practice, as well as establish connections for recruitment, preparation, hiring and induction** (Darling-Hammond, 2010; 2006).
- **Integrate practical behavior/classroom management skills.** Present structured performance tasks for candidates to encounter certain kinds of behavior problems and demonstrate or develop certain skills in response. Include specific courses and field experiences focusing on the needs of

exceptional learners. Combine content knowledge about specific student needs and learning disabilities with practical work in diagnosis and teaching strategies so candidates develop the abilities to evaluate classroom environments and understand how to manage behaviors and differentiate. Incorporate classroom management skills into every class instead of isolating content to a single class (Brighton et al, 2005).

- **Keep abreast of policymakers current curricular initiatives and plans for raising student achievement and decipher what is required for teachers to carry out new role expectations.**
- **Demonstrate how to differentiate through the use of a range of technology tools.** Research shows that through the use of technology, teachers can most effectively engage learners at varying levels of readiness in multiple ways and offer students options for demonstrating their understanding and mastery of material (Smith & Throne, 2007).

References

- Bandura, A. (1977). *Social learning theory*. Englewood Cliffs, NJ: Prentice-Hall, Inc.
- Bandura, A. (1993). Perceived self-efficacy in cognitive development and functioning. *Educational Psychologist*, 28(2), 117-148.
- Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York, NY: W.H. Freeman and Company.
- Brighton, C. M., Hertberg, H. L., Moon, T. R., Tomlinson, C. A., & Callahan, C. M. (2005). The feasibility of high-end learning in a diverse middle school. *The National Research Center on the Gifted and Talented*. Storrs, CT: University of Connecticut.
- Creswell, J. W. (2009). *Research design: Qualitative, quantitative, and mixed methods approaches*. Thousand Oaks, CA: Sage.
- Csikszentmihalyi, M. (1990). *Flow: The psychology of optimal experience*. New York, NY: Harper & Row, Publishers, Inc.
- Darling-Hammond, L. (2010). *The flat world and education: How America's commitment to equity will determine our future*. New York, NY: Teacher's College Press.
- Darling-Hammond, L. (2006). *Powerful teacher education: Lessons from exemplary programs*. San Francisco, CA: Jossey-Bass.
- Edwards, C. J., Carr, S., & Siegel, W. (2006). Influences of experiences and training on effective teaching practices to meet the needs of diverse learners in schools. *Education*, 126(3), 580-592.
- Erickson, H. L. (2008). *Stirring the head, heart, and soul: Redefining curriculum, instruction, and concept-based learning*. Thousand Oaks, CA: Corwin Press.
- Gable, R. K. & Wolf, M. B. (1993). *Instrument development in the affective domain: Measuring attitudes and values in corporate and school settings*. (2nd ed.). Norwell, MA: Kluwer Academic Publishers.
- Gardner, H. (2006). *Multiple intelligences*. New York, NY: Basic Books.
- Gardner, H. (2004). *The unschooled mind: How children think and how schools should teach*. New York, NY: Basic Books.

- Heacox, D. (2009). *Making differentiation a habit: How to ensure success in academically diverse classrooms*. Minneapolis, MN: Free Spirit Publishing, Inc.
- Holloway, J. H. (2000). Preparing teachers for differentiated instruction. *Educational Leadership*, 58(1), 82-83.
- Johnson, D. (2010). Learning to teach: The influence of a university-school partnership project on pre-service elementary teachers' efficacy for literacy instruction. *Reading Horizons*, 50(1), 23-48.
- Kelly, C. (2001). Creating advocates: Building preservice teachers' confidence using an integrated, spiral-based, inquiry approach in mathematics and science methods instruction. *Action In Teacher Education*, 23(3), 75-83.
- Krueger, R. A., & Casey, M. (2000). *Focus groups: A practical guide for applied research*. (3rd ed.). Thousand Oaks, CA: Sage Publications, Inc.
- Mehlinger, H. (1995). *School reform in the information age*. Bloomington, IN: Indiana University, Center for Excellence in Education.
- Patton, M. Q. (2002). *Qualitative research & evaluation methods*. (3rd ed.). Thousand Oaks, CA: Sage Publications, Inc.
- Robinson, K. (2009). *The element: How finding your passion changes everything*. New York, NY: Penguin Group, Inc.
- Rock, M. L., Gregg, M., Ellis, E., & Gable, R. A. (2008). REACH: A framework for differentiating classroom instruction. *Preventing School Failure*, 52(2), 31-47.
- Sands, D. I., & Barker, H. B. (2004). Organized chaos: Modeling differentiated instruction for preservice teachers. *Teaching and Learning: The Journal of Natural Inquiry & Reflective Practice*, 19(1), 26-49.
- Sarason, S. (1990). *The predictable failure of educational reform*, San Francisco: Jossey-Bass.
- Schlechty, P. C. (2009). *Leading for learning: How to transform schools into learning organizations*. San Francisco, CA: Jossey-Bass.
- Sergiovanni, T. J. (2000). *The lifeworld of leadership: Creating culture, community, and personal meaning in our schools*. San Francisco, CA: John Wiley & Sons, Inc.
- Shulman, L. (1987). Knowledge and teaching: Foundation of the new reform. *Harvard Educational Review*, 57(1), 1-22.

- Smith, G. E., & Throne, S. (2007). *Differentiating instruction with technology for k-12 classrooms*. Belmont, CA: ISTE.
- Sternberg, R. J., Torff, B., & Grigorenko, E. L. (1998). Teaching for successful intelligence raises school achievement. *Phi Delta Kappan*, 79, 667-669.
- Tomlinson, C. A. (2000a). Differentiation of instruction in the elementary grades. Eric Digest: Clearinghouse on Elementary and Early Childhood Education, EDO-PS-00-7.
- Tomlinson, C. A. & Allen, S. D. (2000). *Leadership for differentiating schools & classrooms*. Alexandria, VA: ASCD.
- Tomlinson, C. A., Brighton, C., Hertberg, H., Callahan, C., Moon, T., Brimijoin, K., Conover, L., & Reynolds, T. (2003). Differentiating instruction in response to student readiness, interest, and learning profile in academically diverse classrooms: a review of the literature. *Journal for the Education of the Gifted*, 27(2/3), 119-145.
- Tomlinson, C. A. (2005). Traveling the road to differentiation in staff development. *Journal of Staff Development*, 26(4), 8-12.
- Valli, L., & Buese, D. (2007). The changing roles of teachers in an era of high-stakes accountability. *American Educational Research Journal*, 44(3), 519-558.
- Vygotsky, L. S., (1978). *Mind in society: The development of higher psychological processes*. Cambridge, MA: Harvard University Press.
- Wagner, T. (2008). *The global achievement gap: Why even our best schools don't teach the new survival skills and what we can do about it*. New York, NY: Basic Books.
- Wiggins, G., & McTighe, J. (May, 2008). Put understanding first. *Reshaping High Schools*, 65(8), 36-41.
- Wormeli, R. (2005). Busting myths about differentiated instruction. *Principal Leadership, middle school ed.*,(5), 28-33.

Appendix A

Tomlinson's DI Framework Model



