

## **Teacher Learning through Self-Regulation: An Exploratory Study of Alternatively Prepared Teachers' Ability to Plan Differentiated Instruction in an Urban Elementary School**

**By Katie Tricarico & Diane Yendol-Hoppey**

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The recent federal mandates influenced by 2001's No Child Left Behind Act have had an impact on staffing schools throughout the nation. One of the requirements of the act is that a "highly qualified teacher" must teach each child. The United States Department of Education predicts that by the 2011-12 school year, between 3.2 and 3.9 million teachers will be needed to fill vacancies in public schools (U.S. Department of Education Institute of Education Sciences, 2007). Although universities in the United States are producing a large number of education graduates, the National Commission on Teaching and America's Future states that nearly one-fourth of new teachers leave the profession within their first three years of teaching. In urban areas, the attrition rate is even greater with about half of the new teachers in urban schools leaving

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the profession within five years (National Commission on Teaching and America's Future 2002, as cited in Curran & Goldrick, 2002). Furthermore, teachers working in schools in which the minority enrollment is greater than 50% tend to leave at rates more than twice those of teachers in schools with fewer minorities (NCES, 1998 as cited in Haycock, 2000).

Alternative Certification programs have been developed to recruit people to teaching who possess bachelor's degrees or higher in another field. Although the nature of these programs varies by school district, they share the goal of placing qualified teachers in often hard to staff classrooms. These new teachers often earn their teaching certificates by taking certification classes each year while they teach full time. Typically, these teachers who possess the least amount of teaching experience are most often placed with little support in the most challenged classrooms (Carey, 2004), many of which are difficult for an experienced teacher to handle.

Assuming the role as classroom teacher without preparation is difficult at best. First, because these alternative entry teachers have not previously taken child development, planning, methods, or classroom management classes, they often lack important foundational professional knowledge. Second, although research indicates that teachers teach best the subjects they know best, only one-third of teachers in high-poverty schools are certified to teach their subject (Carey, 2004). As they encounter these challenges, alternatively certified teachers typically "learn on the job" and need tremendous support as they learn to create, instruct, and evaluate curricula that maximizes student learning (Haberman, 1991).

For those entering the teaching profession, learning to plan lessons appropriate both for students' needs and grade level requirements is imperative. According to Ornstein (1997), novice teachers need to practice writing plans, and then implement those plans within their field placements. The opportunity to link theory and practice provides the experience needed to bring what is learned in teacher education classes into the elementary classroom. Without this experience, new teachers struggle to bridge theory and practice. John (1991) agrees that practical experiences are the primary influence on how novice teachers learn to plan. Because the importance of practical experience is a common theme in the existing literature, alternative certification elementary teachers, many of whom do not receive a range of methods classes, need support as they learn to plan and implement instruction. By having opportunities to both design and implement instruction, these novice teachers learn to recognize their students' needs which helps them to plan more relevant, appropriate, and effective lessons.

Differentiated Instruction (DI) is an approach that recognizes the strengths and weaknesses of diverse learners and requires the teacher to base instructional accommodations on student strengths and weaknesses (Tomlinson, 2001). Specifically, teachers use DI strategies to adjust the content, process, or product of instruction depending on student needs (Tomlinson, 2001). Differentiated Instruction increases learning for all students by incorporating active learning, student interest, and student

learning style into lessons (Lawrence-Brown, 2004). McTigue and Brown (2005) agree that effective instruction takes into account these individual differences, and that the active, targeted learning promoted by differentiating is the best way for students to learn. Davenport and Smetana (2004) also state that novice teachers must learn to differentiate instruction if they are to meet the needs of all students.

DI allows students across the ability continuum to learn at their level. For example, curriculum for students with severe disabilities should be prioritized so they are learning both the goals on their Individualized Education Plans and their appropriate grade-level standards (Lawrence-Brown, 2004). Gifted students who may need enriched rather than grade level curriculum also benefit from differentiation. The main difficulties teachers face when trying to accommodate the needs of their gifted students include a lack of subject knowledge and difficulties modifying the curriculum (VanTassel-Baska & Stambaugh, 2005). By differentiating instruction, teachers learn how to make planning decisions in light of particular students and contexts. Applying DI strategies allows a teacher to meet the varied needs of all students by adjusting how students present information they have learned and how the students learn new material (Tomlinson, Callahan, Moon, Tomchin, Landrum, Imbeau, et al., 1995). Planning for DI is a complex process which requires extensive student knowledge. This planning requires additional work on the teacher's part because the teacher creates modifications to the original lesson plan that are tailored for specific student groups. Because this method of planning takes time and practice to master, collaboration is suggested as a vehicle for strengthening the planning process (Lawrence-Brown, 2004). In fact, collaboration provides an opportunity for novice teachers to hear how others who may have more experience planning for instruction conceptualize and enact their planning.

Given the complexity of DI as well as the unique situation that alternatively certified teachers face as they enter challenging classrooms with limited experience, we must acknowledge that their learning to teach process will require that knowledge be developed as one practices the profession. This knowledge *in practice* (Cochran-Smith & Lytle, 1999) results from the application of theoretical and research based concepts to one's teaching practice paired with on-going attention to whether the application led to the desired student learning results and, if not, attention to how the practice should be adjusted. Although this type of learning is imperative to teacher development across all pathways to teaching, the necessity to "learn on the job" that is typically required of those choosing alternative routes requires alternatively prepared teachers to rely on constructing teacher knowledge in practice. This process of constructing knowledge *in practice* can be supported by collaborative work with a mentor or coach.

Recently, a new body of literature referred to as self-regulation is emerging that can better help us understand how novice teachers might construct knowledge in practice whether working independently or with the help of an academic coach. According to Paris and Paris (2001), self-regulation requires "autonomy and con-

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trol by the individual who monitors, directs, and regulates actions toward goals of information acquisition, expanding expertise, and self-improvement” (p. 89). Randi (2004) has identified the importance of self-regulation in teacher learning. Her work, informed by the larger body of self-regulation literature focused on student learning, sets the stage for self-regulation as an essential teacher learning tool. Specifically, teachers need to develop and self-regulate their ability to successfully plan for student learning using and testing a gamut of instructional methods (Berry, 2001; Haberman, 1991). Self-regulation may be a tool which helps novices develop the knowledge *in practice* that strengthens their teaching and student learning.

Thus, the purpose of this research is to understand alternative certification candidates’ development as planners and implementers of DI. The literature already elucidates the importance of developing the professional skills of alternatively certified teachers (Berry, 2001; Carey, 2004; Haberman, 1991), and the importance of coaching in learning to plan for high quality instruction (John, 1991; Ornstein, 1997). However, less is understood about the elements that influence alternatively certified novices’ ability to address student needs through DI. Therefore, the research questions for this study include: How do apprentice teachers in an urban alternative certification program develop as planners, implementers, and evaluators of DI? And what are the key elements that facilitate or inhibit an alternatively certified teacher’s ability to plan for DI? This study’s findings will benefit teacher educators, teachers earning alternative certification, their coaches, and their mentor teachers. Knowing what factors are critical to learning to plan within the teaching context will make it possible for novices and their supervisors to accelerate novice teachers’ success as instructional planners. Furthermore, the conditions made explicit in this study will also allow apprentice teachers to be cognizant of the role they play in developing their own planning and differentiation skills.

### **Context**

The two schools involved in the apprenticeship program are members of a University-affiliated center that works to increase student learning in high-needs schools throughout the state. The center provides these schools with professional development opportunities for teachers and principals, creating a professional learning community relationship between school and university faculty (Davenport & Smetana, 2004). Palms Elementary School and River Bend Elementary School (pseudonyms) are both located in urban neighborhoods in the southeastern United States.

Palms Elementary School is a Foreign Language, Art, and Music Enrichment Magnet School. Eighty-two percent of the 508 students are on free or reduced lunch. Ninety-seven percent of the students are Black, two percent identify as mixed race, and one percent is White. In 2007, Palms Elementary School received a school grade of C, a statewide measure of student gains on the statewide standardized test. During the 2006-2007 school year, 318 students were enrolled at River Bend

Elementary School. Ninety-six percent of those students were eligible for free or reduced lunch. Ninety-six percent of the student population are Black, two percent identify as mixed race, and one percent White. In 2007, River Bend Elementary School received a school grade of D. Neither Palms Elementary School nor River Bend Elementary School showed enough improvement in their scores to make Adequate Yearly Progress according to federal guidelines. This is important to note because it illustrates the need for strong teachers who are capable of helping students make learning gains, especially in schools such as these where students are struggling on the statewide standardized test.

The apprenticeship studied required non-college of education students to simultaneously take classes geared towards certification, engage in inquiry-oriented professional development, and apprentice in elementary school classrooms for one school year. During the school year, apprentices were released from their co-taught classroom on Thursdays to engage in professional development which included, but was not limited to, a focus on differentiating instruction (Tomlinson, 2001) and engaging in teacher inquiry (Dana & Yendol-Silva, 2003). Practice of specific DI strategies became an integral part of the coursework and their teaching during the course of the school year. Differentiation was chosen as the focus for a major thread of their professional development workshops because differentiation heightened attention to the planning process and has been shown to increase student learning. Additionally, DI encourages new teachers to adapt the curriculum to student needs (Lawrence-Brown, 2004) in a way that helps all students find success (Davenport & Smetana, 2004).

Across the school year, apprentices wrote and revised three lesson plans that incorporated DI strategies, and then taught the lessons in their apprenticeship classrooms. A typical coaching cycle (Nolan & Hoover, 2005) was used in this study, where the novice teacher submitted to the observer/researcher via email the lesson plan, received feedback on the lesson, had an observation, and participated in a follow-up conference where the teacher and university-based observer/researcher discussed the lesson.

Within the coaching cycle, submitted lesson plans were read and detailed questions, comments, and suggestions regarding the lesson were made by the observer/researcher before emailing them back to the apprentice. The apprentice was then able to make revisions as needed before the lesson observation. Following the lesson observation, the apprentice and observer engaged in a post-observation conference, where the highlights of the lesson were discussed. Following the post-conference, the apprentice then submitted a reflection of the lesson, answering specific questions related to both the lesson plan and the observed lesson. This coaching cycle allowed the apprentices to integrate learned experiences into lesson, lesson reflection, and future lessons. Ornstein (1997) and John (1991) agree that coached field experiences help novices learn how to implement good teaching practices into their classrooms.

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The format of the professional development sessions on differentiating instruction included lecture to provide the knowledge for practice needed to understand the concepts of differentiation, group planning and analysis of differentiated lessons, independent critique, and video analysis. Video was a selected medium for instruction because novice teachers in this context had no opportunity to observe master teachers correctly using effective differentiation strategies in their classrooms (Davenport & Smetana, 2004; Edwards, Carr, & Siegel, 2006). Each professional development session lasted approximately three hours. The first session, held in October when the apprentices had a rudimentary understanding of their students' needs, introduced the main concepts of differentiation, including types of grouping and possible places within the lesson that could be differentiated. Three video clips of teachers using differentiated strategies were shown and analyzed. Apprentices were then asked to create a lesson that differentiated according to readiness level, and were required to use pre-assessments in order to determine those groups. These lessons were taught and observed.

The second session took place in January, when apprentices were beginning to assume more leadership of the classroom. The ideas presented at the first session were reviewed, and the apprentices were asked to create a lesson to be implemented during the next month that differentiated by interest or learning style, or both. They worked with a grade level partner, and then finished the lesson on their own before submitting the lesson for review. These lessons were taught and observed.

The final session took place in March, and was presented by both the researcher and another graduate student. During this session, culturally responsive teaching strategies were introduced to deepen their understanding of DI. The focus of the workshop was to help apprentices identify ways to get to know and better understand their students, a prerequisite to effective differentiation. The final lesson plan assignment was to create a lesson for any subject that differentiated by any method. These lessons were taught and observed. Important to note was that although these three professional development opportunities occurred across time, between these formal planning and observation opportunities coaches continued conversations coupled with observations about DI.

### **Methods**

The research questions guiding this study included: How do apprentice teachers in an urban alternative certification program develop as planners, implementers, and evaluators of DI? And what are the key elements that facilitate or inhibit an alternatively certified teacher's ability to plan for DI?

Given the nature of these research questions, this qualitative study is epistemologically grounded in constructivism (Patton, 2002). In a constructivist study, the researcher uses naturalistic methods which require that a great deal of time be spent in the participants' natural setting in order to discover how they experience

their surroundings (Hatch, 2002). In the course of this study, we were able to witness the apprentice teachers' thoughts and actions as they talked us through their lessons in a string of pre- and post-observation conferences, which allowed us to capture instances where the apprentice teachers revealed how they conceptualized and enacted differentiated instructional planning. Case study methods (Hatch, 2002) such as participant observation, data reduction, analysis of documents, and interpretation of data (Crotty, 1998) were used. Lesson plans, reflections on practice, and observation notes were collected for each apprentice teacher, and analyzed in search of unifying conditions related to the development of lesson planning skills. Of the two researchers involved in this study, one was a former elementary teacher who had worked in an elementary setting for several years, but not in the same context where the apprentices were employed. Through the course of this study, this researcher became a participant observer by engaging as both the workshop instructor and observation coach. The second researcher served as the graduate advisor and apprenticeship program coordinator, supervising the study and the apprenticeship program.

#### **Participant Selection**

The three cases in this study were chosen from a larger pool of 15 apprentices based on purposeful sampling targeting maximum variation (Patton, 2002). The following section introduces each apprentice, Rose, Mary, and Jane (pseudonyms).

*Apprentice 1: Rose:* Rose came to the apprenticeship program from a position as a program manager for a child protection agency. In her placement, Rose spent most of her time teaching math and reading lessons. Throughout the year, Rose showed tremendous growth in her lesson planning and implementation, much of which can be attributed to working closely with her coach and mentor teacher, and taking their advice to heart. Not only did Rose incorporate their feedback into her lessons, but she was also self-reflective and put new knowledge from that self-reflection into practice. Rose had also developed some of the classroom management skills necessary to transition students during a lesson, allow children to work in small groups, and include children as participants in instruction. Additionally, Rose demonstrates the ability to identify and ask probing and clarifying questions that help her understand what her students are learning.

*Apprentice 2: Mary:* Mary spent the majority of her time during each day of her apprenticeship teaching reading. She is considered a more developed apprentice because, from the start, she had an understanding of basic teaching behaviors, including using a consistent classroom management system and creating a positive classroom atmosphere. As a result of these skills, Mary was able to focus on more sophisticated functions, such as openness to consider feedback in lesson planning and developing collegial relationships in order to improve her own practice. Mary has also developed some of the classroom management skills necessary to transition

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students during a lesson, allow children to work in small groups, and differentiate instruction. Additionally, Mary demonstrates the ability to work with two groups of students engaged in different tasks.

*Apprentice 3: Jane:* Jane regularly taught science, often connecting the science curriculum to math and language arts standards. Most of her time as an apprentice was spent working on the rudimentary skills of teaching, including classroom management and navigating collegial relationships. Although Jane was capable of planning creative lessons, she had difficulty presenting and implementing them at the students' levels because she spent so much time working on management related issues. Jane has not yet developed the classroom management skills necessary to keep her students focused and on task. Additionally, although she made an attempt to attend to student needs, her lack of awareness regarding her students' actions kept her from being a particularly effective teacher.

Although common patterns could be established between the cases, as described the three apprentices selected for the study varied in success as measured by early teaching evaluation feedback from the mentor co-teaching partner and university coach. By studying these three cases, the study sought to illuminate the complexity of instructional planning as experienced by these teachers.

#### **Analysis**

Analysis uncovered three assertions and a common set of conditions that emerged among the three apprentices (Patton, 2002). Throughout this analysis, both investigator and data triangulation occurred (Patton, 2002) to build study trustworthiness. With the involvement of multiple researchers, member checking with the school-based coach who worked daily with the apprentices, and the use of a variety of data sources, deeper insight into how apprentice teachers developed their ability to plan was permitted. The first step of analysis was to engage in data reduction by only identifying and coding data that shed light on the research questions.

Analysis included attention to description, analysis, and interpretation as described by Wolcott (1994). The first step of analysis focused on constructing a narrative description of the nature of the apprentice's development of instructional planning over the course of the year. These narratives organized the apprentices' development over time and provided the researcher early analysis opportunities. This early analysis consisted of coding and analyzing the data at three different points during the year.

However, simply describing three unique cases does not shed light on the key concepts that differentiated one's ability to plan. Thus, after completing the descriptions of each apprentice's development, this study included analysis that uncovered common conditions, which emerged among the three apprentices (Patton, 2002). Using open coding, a set of codes was developed specific to the type of data they came from. For example, lesson plans had codes such as, "activity aligned to stan-

dard,” “used outside research to prepare,” and “planning using feedback.” Similarly, feedback codes included items such as, “request for more detail” and “suggestion.”

Five major conditions emerged as a part of the first assertion identified in this study, “Certain learning conditions facilitate or inhibit successful DI” (see Table 1). These conditions, whether present or absent, were central to the apprentices’ ability to plan for instruction. They included: collegial relationships, classroom management, planning for a standard, planning for student need, and openness to considering feedback. In looking at each of these conditions within and across each case, we later determined a second assertion that the role that opportunities for applying new knowledge paired with frequent coaching played in their ability to implement differentiation. The third assertion culled noted that the degree to which the apprentice developed self-regulation within and across these areas highly influenced the ability to plan and implement DI. Finally, the stages representing each apprentice’s growth within each condition emerged on a continuum moving from emerging, to developing, to accomplished. Emerging constituted the lowest degree of self-regulation and accomplished signified the highest degree of self-regulation. Apprentices who were most successful in their differentiation of instruction possessed the ability to self-regulate their learning.

## **Findings**

The brief narrative descriptions of each apprentice illustrated the apprentice’s general teaching ability. Mary and Rose show that they are more able to reflect and take immediate action in their classrooms, especially as seen in their ability to monitor student behavior, while Jane demonstrates uncertainty in knowing what she should do first. The following assertions help to explain the differences between how the apprentices approached learning to differentiate instruction even when they received the same degree of support.

## **Assertions**

Three assertions were culled from this study: (1) Certain learning conditions

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**Table 1**  
**Five Conditions Needed for Self-Regulation**  
**in Planning for Differentiated Instruction**

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### **Conditions**

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Establishing collegial relationships  
Classroom management  
Planning for a standard  
Planning for student needs  
Openness to consider feedback

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facilitate or inhibit successful DI; (2) New knowledge + application + coaching = greater self-regulation of teaching; and (3) Apprentices with strong self-regulatory capabilities demonstrate a stronger ability to plan and implement differentiated lessons. Together these assertions offer insight into how novice teachers develop their ability to plan and implement instruction as well as the key elements that facilitate or inhibit their ability to become accomplished planners and implementers of differentiated instruction.

*Assertion One: Certain learning conditions facilitate or inhibit successful differentiated instruction.* Prior to learning how to plan lessons to meet students' individual needs, we noticed that the apprentices needed to develop professional skills that created ripe conditions for successful differentiation. The types of knowledge needed became apparent as we analyzed lesson plans, reflections, portfolio entries, and various personal communications between the apprentices and their teachers. Five main conditions emerged that either facilitated or inhibited an apprentice's ability to plan for DI. These included the collegial relationships, effective classroom management, ability to plan for a standard, understanding of student need, and openness to feedback.

Both Rose and Mary possessed positive collegial relationships by interacting with other adults at their school. These interactions included regularly co-teaching, collaborative planning, and informally seeking advice from others. In both cases, they each were able to negotiate tricky interpersonal relationships that allowed them to continue to collaborate even when differences emerged. For example, Rose and her mentor initially had some difficulties resulting from their conflicting ideas about noise level and the communication style they individually used with the children (coach, personal communication, September, 2006). However, by communicating with each other and their coach, Rose and her mentor came to understand each other's perspective and reached a consensus regarding which student behaviors truly needed attention. Working through this tension strengthened their ability to work together and taught Rose how to integrate multiple perspectives into her reflections on her teaching. When the apprentices had strong collegial relationships (e.g., Rose and Mary), they had more opportunities to openly discuss their teaching and the challenges they faced in their planning. As a result, their learning about differentiated instruction was also strengthened.

Additionally, a lack of consistent classroom management seriously inhibited growth in the area of DI. Here, classroom management refers to the apprentice's ability to manage student behavior, and includes creating a rapport with the students, using a consistent system, setting guidelines for movement around and outside of the classroom, and establishing or following existing class rules. Given the complexity of classroom organization when differentiation is in place, classroom management skills became an obvious and necessary pre-requisite to effective instruction. For example, Jane struggled with classroom management yet she declined to use the

school behavior program, CHAMPS (Sprick, 1998). CHAMPS was offered to these new apprentices as a tool for classroom management and many of the apprentices used CHAMPS successfully. Instead, Jane struggled until April before creating an elaborate token system in which students earned money to be spent at the end of the year. This plan was only moderately successful and Jane's mentor teacher had to assume responsibility again for management. When Jane could not maintain discipline, she had little time and energy to dedicate to understanding individual student learning needs. Jane could not monitor the learning that was occurring or not occurring within the classroom because she was spending most of her time addressing student misbehavior. Thus, the apprentice's ability to manage a classroom greatly impacted their ability to monitor student learning and differentiate instruction.

Being able to plan for a standard requires the pre-requisite knowledge of state learning goals as well as knowledge of how to teach those goals in ways that are suitable for a variety of individual learning needs within a single classroom. Since each apprentice was new to the field of education, the role of standards in lesson planning was unfamiliar. In order to properly incorporate state standards into a lesson plan, apprentices needed to connect their lesson objective, activity, and assessment to the selected standard. This was no easy task and the data from all three apprentices indicated that much email and dialogue was spent discussing the critical links between standard and lesson development. Differentiating a lesson required careful attention to linking the lesson objective, identifying different activities that meet that objective, and carefully considering alternatives for assessing the learning that has occurred.

In addition to learning to plan for the state standard, all three apprentices needed to learn how to plan based on their students' needs. This is not a process that came naturally for any of the three apprentices as each of the apprentices initially focused primarily on the standard and content that needed to be taught. Planning for differentiation required creating a lesson plan geared toward student need, including interest, readiness, or learning style, and may also include using group, paired, or individual assignments. For example, Mary's first observed DI lesson plan, implemented in November, was thorough and appropriate for her audience. Her objective, "Students will identify author's purpose," was measurable and clear. The objective directly related to her selected standards, the first being to identify author's purpose, and the second being to read and organize information for different purposes. She divided her students into two groups for this activity, and in both cases, they were given activities in which they determined the author's purpose of at least one piece of writing. Because Mary gave her students a pre-assessment prior to dividing them into groups, she was sure that the work they were doing paralleled their ability level in relation to the selected standards. As Mary discussed, "Knowing my students is central to my ability to differentiate instruction. I was able to determine students' readiness levels based on prior student work, and grouping then became flexible based on student learning need."

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The final condition within this assertion is the importance of openness to feedback. Feedback requires taking ideas into consideration. Throughout the year, apprentices were given regular feedback regarding their lessons from their mentor teachers, coaches, and other observers. Apprentices varied in their ability and willingness to consider this feedback in future lessons or experiences. Although the researchers can't claim that the feedback inherent in the coaching and mentoring process caused the growth in Rose and Mary's ability to differentiate instruction, this study does indicate that these two apprentices' ability to plan for DI was stronger than Jane who did not embrace coaching and mentoring. Field notes also indicated that Mary and Rose worked regularly with coaches and mentors, discussing challenges they faced as they differentiated to improve instruction. Mary and Rose stated that collaboration with other educators benefited their ability to differentiate instruction.

The study also documented that when collegial relationships and feedback were not highly valued by the apprentice, less development in the apprentice's ability to differentiate instruction occurred. For example, early in the year, Jane was given feedback regarding her first differentiated lesson, which included questions about student experiences and materials. None of the feedback suggested that her lesson needed to be redone. Instead, the feedback offered suggestions for preparing and organizing student materials that would help with classroom management. Rather than address the feedback when revising her lesson, Jane chose to completely revamp the lesson before the observation, not giving the observer time to review the changes. Her new lesson did not include any part of the original plan, nor did it appropriately differentiate. Jane continued to show resistance to incorporating feedback from others into her lesson throughout the year.

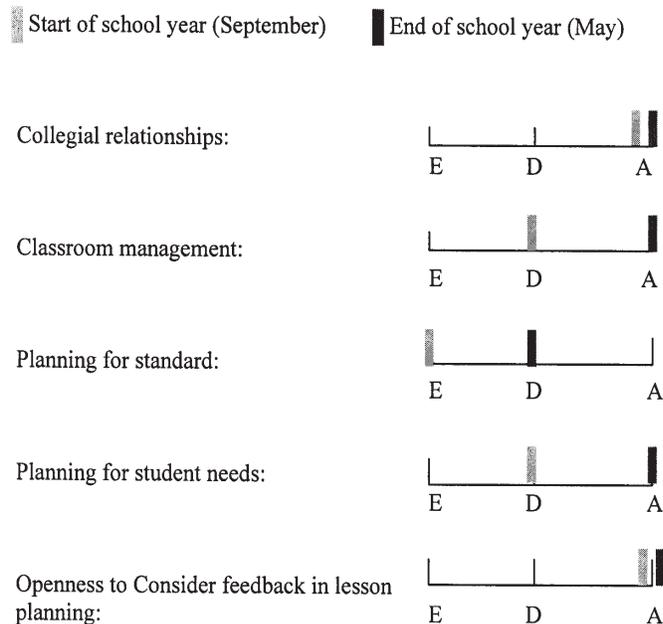
Also important to note was that these five conditions for facilitating DI were interdependent in facilitating the apprentices' growth. For example, by mastering certain skills early in the year, such as classroom management and developing collegial relationships, Rose and Mary were then able to focus on understanding the unique differences between their students, planning appropriate lessons, and learning from their own reflection and from reflection with others. Equally apparent was that when classroom management was not developed or feedback was not embraced, as in Jane's case, learning about and implementing DI suffered. Figures 1, 2, and 3 illustrate the growth of each of the apprentices in each of the conditions across the school year. As indicated, Rose and Mary make more progress than Jane. Assertion Two provides insight into why Jane did not make the same degree of progress in her ability to differentiate instruction.

*Assertion Two: New knowledge + application + coaching = greater self-regulation of teaching.* In order to successfully differentiate instruction, apprentices needed to develop new knowledge, have the opportunity to apply that knowledge and receive feedback. The new knowledge was provided through professional development dedicated to understanding the principles of differentiated instruction.

In this study, we identified several components that scaffolded the apprentice's development of differentiation. First, new knowledge about differentiation was presented through reviewing clear examples of differentiated lesson plans. This modeling provided the apprentices with goal clarity (Brimijoin & Alouf, 2003, Davenport & Smetana, 2004). For example, during the second workshop, we explored one apprentice's differentiated lesson, going over each part of the lesson in depth to identify instances where the lesson showed differentiation, as well as places where the lesson seemed incomplete or unclear. This lesson deconstruction helped the apprentices understand the importance of clarity and description in their plans, as well as the benefit of learning from peer review and collaborative discussion. In addition to modeling and deconstructing apprentice lesson plans, video was a highly effective way to observe differentiation by an experienced teacher. Videos provided the apprentices with new knowledge about what differentiation looked like in a classroom. This knowledge of what differentiation looked like was essential to their learning as there were not opportunities to observe master teachers within

**Figure 1**  
**Rose's Developmental Themes Continuum**

E=Emerging behavior      D= Developing behavior      A= Accomplished behavior



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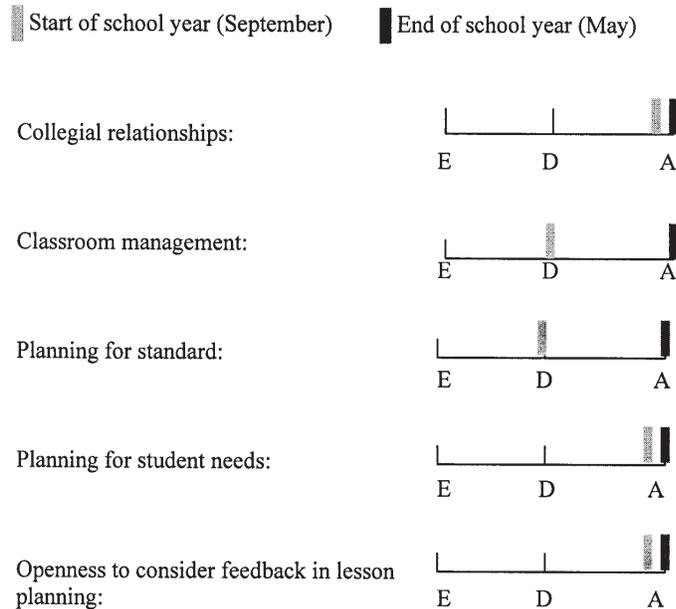
these schools who effectively differentiated instruction. The videos demonstrated how master teachers move through the planning process, implement the lesson, and engage in lesson reflection. The video models helped the apprentices see when master teachers find differentiation critical and understand that teachers do not differentiate every lesson.

Once the workshops were over, coaching continued providing feedback on lesson plans and lesson implementation. The daily field experience, paired with feedback from an on-site coach, allowed the concept of differentiation presented in the coursework to be tested in practice. The following excerpt from our field notes demonstrate how feedback benefited Rose's growth as an instructional planner:

Rose's general attitude regarding feedback was that she wanted as much feedback as possible from anyone who would give it to her because she wanted to be a good teacher. She and her coach spent many hours reviewing and adding detail to her lesson plans, since thinking about the small details needed to get through a lesson was one of Rose's self-identified weaknesses. Rose worked hard to improve her plan writing and uses feedback to improve her teaching practice. Rose's motivation to learn from others is a key element of her learning to differentiate instruction. Over

**Figure 2**  
**Mary's Developmental Themes Continuum**

E=Emerging behavior      D= Developing behavior      A= Accomplished behavior

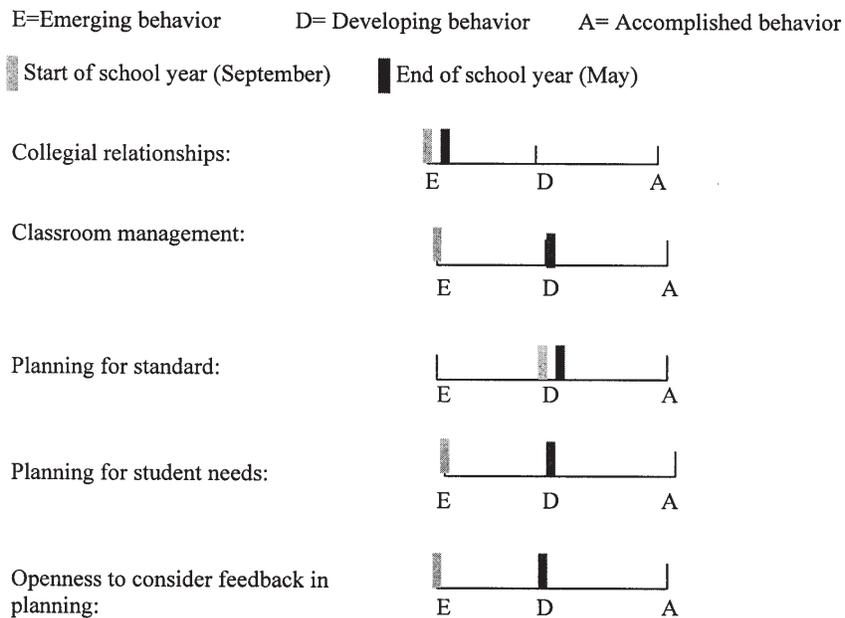


time, Rose internalized the feedback given to her, and thus wrote stronger plans. Due to her evidenced improvement as a result of how Rose embraced feedback, her accomplished status in this area is clear.

These conversations allowed the coach to understand the specific needs of each apprentice, thus giving them the opportunity to differentiate their support for each apprentice. Differentiated coaching is in alignment with Brimijoin & Alouf (2003), who argue that professional development should be differentiated just as classroom instruction is differentiated. This system gave the apprentices the opportunity to plan, implement, and reflect upon their work. The cycle encouraged self-regulation as apprentices determined how to integrate feedback and resolve dilemmas related to planning differentiated lessons.

*Assertion Three: Apprentices with strong self-regulatory capabilities have more success planning and implementing differentiated lessons.* As indicated in assertion one, five conditions facilitated growth in the apprentices' ability to differentiate instruction and assertion two identified the role of feedback in strengthening the apprentices' planning ability. Assertion three suggests that the apprentices who grew most quickly in their ability to differentiate instruction seemed to naturally embrace self-regulation as a part of their professional orientation.

**Figure 3**  
**Jane's Developmental Themes Continuum**



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In reviewing the data, something about Mary distinguished her ability to plan for DI from Rose and Jane, and something similar between Mary and Rose separated them from Jane. Pintrich's (2000) model of self-regulation served as a basis for understanding these differences. Table 2 builds on Pintrich's work and illustrates the self-regulation skills of all three apprentices to illustrate the self-regulatory activities of each apprentice. As illustrated in Table 2, Rose and Mary are most adept at self-regulating their teaching. Rose uses forethought and planning in all categories of Pintrich's self-regulation model (2000). Both Rose and Mary show an ability to monitor situations and take action as they deemed necessary. They also show a greater ability to self-regulate their thinking, behavior, and context.

Jane, on the other hand, shows a lesser degree of self-regulatory ability. Although she made progress in planning for, monitoring, and controlling her context during the year, she did not take the next step to reflect on her actions. Additionally, she was not able to self-regulate within any other aspect of her teaching. As individual learners, Rose, Mary, and Jane show different degrees of self-regulation in their work. By placing examples of their work together on the same chart, the difference in their orientation toward self-regulatory behavior became clear. Additionally, being able to self-regulate in one area does not guarantee self-regulatory ability in another area, which accounts for the varied developmental stages that can be found across the conditions in Figures 1 through 3.

### **Discussion**

Self-regulation, in part, concerns a teacher's conscious goal-setting and proactive stance towards making a change in the classroom. We consider Pintrich's framework (2000) to be a beginning organizer for the idea of self-regulation, but because as a process, it can be likened to a cycle rather than a linear design. Similar to the inquiry process (Dana & Yendol-Silva, 2003), self-regulation begins with a question: What is my goal? What is wrong with this classroom picture? From here, a self-regulating teacher will make a cognitive effort to monitor the conditions in question, consciously think about the situation, and then work to control it by making an attempt to reach the set goal or change the context in question. Next, the teacher evaluates the situation, comparing the results with the goals set. The teacher also reacts to the results, reflecting on the consequences and deciding what to do next. Again, this model parallels the inquiry process, where, in the final stages before repeating the cycle, the teacher analyzes collected data and moves forward from that point. Self-regulation is a constant process of action and reaction, where the teacher is learning and making decisions based on experiences and reflection.

The important role of self-regulation in apprentice development is an overarching conclusion in this study because the development of each of the other conditions (collegial relationships, classroom management, planning for a standard and student need, accepting feedback) was greatly influenced by the apprentice's ability

**Table 2**  
**Combined Growth and Development in Self-Regulation Skills among Rose, Mary, & Jane:**  
**Phases & Areas of Self-Regulation**

From Pintrich, P.R. (2000). The role of goal orientation in self-regulated learning. In M. Boekaerts, P. Pintrich, & M. Zeidner (Eds.), *Handbook of self regulation* (pp. 452-502). New York: Academic Press.

Rose, Mary, and Jane: Combined Examples of Regulation R= Rose; M= Mary; J= Jane				
Four Phases	Cognition	Motivation/ Affect	Behavior	Context
1. Forethought, Planning, Activation	<ul style="list-style-type: none"> <li>• R: goal: positive work environment</li> <li>• R: goal: collaborate with peers</li> <li>• R: goal: all students will learn</li> <li>• M: Goal 1: How to use 2 adults in the room?</li> <li>• M: Goal 2: teach students so they know author's purpose</li> <li>• J: Goal: Students will learn</li> <li>• J: Goal: create plans that address students' needs</li> </ul>	<ul style="list-style-type: none"> <li>• R: determining her weaknesses in lesson planning</li> </ul>	<ul style="list-style-type: none"> <li>• R: collaboration with peers</li> <li>• R: rubric review</li> <li>• R: lesson plan difficulty</li> </ul>	<ul style="list-style-type: none"> <li>• R: classroom noise level was stressful</li> <li>• R: negative work environment</li> <li>• M: Students not listening</li> <li>• J: Children's needs were not being met</li> </ul>
2. Monitoring	<ul style="list-style-type: none"> <li>• R: This classroom is a negative work environment</li> <li>• R: collaboration with peers</li> <li>• R: differentiating instruction is important to reach all students</li> <li>• M: There are 2 adults in the room</li> </ul>	<ul style="list-style-type: none"> <li>• R: realizing her lesson plan was not complete in time for her meeting with coach</li> </ul>	<ul style="list-style-type: none"> <li>• R: collaboration with peers is worth the time</li> <li>• R: rubric review took too much time</li> <li>• R: awareness that help with planning is needed</li> <li>• M: Awareness of the need to learn how to manage classroom</li> <li>• M: Awareness of the need to learn how to plan lessons</li> </ul>	<ul style="list-style-type: none"> <li>• R: classroom noise level was discussed with</li> <li>• R: conditions are not what would be preferred</li> <li>• M: CHAMPS training</li> <li>• J: Environment was not conducive to student learning</li> </ul>
3. Control	<ul style="list-style-type: none"> <li>• R: Need to address negative work environment</li> <li>• R: collaboration with peers allows more ideas to be shared</li> <li>• R: differentiating instruction done during certain lessons</li> <li>• M: Need to utilize both adults through use of co-teaching.</li> <li>• M: Borrow others' lesson ideas</li> </ul>	<ul style="list-style-type: none"> <li>• R: deciding to redo lesson after coming to help session with coach without a finished plan</li> </ul>	<ul style="list-style-type: none"> <li>• R: collaboration with peers about math</li> <li>• R: rubric review would be done a different day next time</li> <li>• R: request of help from coach</li> <li>• M: Didn't see enough examples of lesson planning, so asked to meet with mentor</li> <li>• M: Took CHAMPS training</li> </ul>	<ul style="list-style-type: none"> <li>• R: classroom noise level was adjusted in some situations</li> <li>• R: considered own feelings on this matter</li> <li>• M: More consistent use of classroom management</li> <li>• J: Email sent to principal requesting meeting</li> </ul>
4. Reaction & Reflection	<ul style="list-style-type: none"> <li>• R: A negative work environment can be adjusted with a positive attitude</li> <li>• R: collaboration with peers is beneficial</li> <li>• R: differentiating instruction allowed students to be successful learners</li> <li>• M: Upon reflection, students improved ability to identify author's purpose</li> </ul>		<ul style="list-style-type: none"> <li>• R: collaboration with peers helps with writing strong plans</li> <li>• R: rubric review is important, but not at that time</li> <li>• R: lesson plans improved</li> <li>• M: Student behavior improved</li> </ul>	<ul style="list-style-type: none"> <li>• R: classroom noise level is improved and tolerable</li> <li>• R: reflection upon own attitude and how this will be addressed</li> <li>• M: Students better behaved</li> </ul>

### *Teacher Learning through Self-Regulation*

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to self-regulate. Apprentices with strong self-regulatory capabilities demonstrated a stronger ability to plan and implement DI. This stronger ability is possibly due to the fact that teachers who engage in self-regulatory behaviors are more likely to know what is going on with students, lessons, and the general goings-on in the room because they consciously think about these things throughout the day. When something happens, they are aware, and make a decision to act, or not act, as they see fit (Manning & Payne, 1993). Although the five major conditions identified in this work are pivotal pieces of the learning novices will experience, they should not to be considered the only things that new teachers need to master.

Knowing that novice teachers develop in several specific areas while on their way to becoming self-regulated teachers will help teacher educators focus their instruction and support in these areas. When novices become aware of these developmental milestones, teaching will become less of a mystery; they will be aware of what they need to accomplish before they can focus on the more teaching-specific areas, like planning for a standard or planning for student needs. Self-regulation is an important part of the teacher's role since teachers make hundreds of decisions that affect their students during the school day. By making those decisions based on experiences and reflection, the teacher will have better control over her teaching, and therefore, what her students are learning. The findings from this study raise three important questions for future research. First, how do we facilitate the development of self-regulatory behaviors? Second, what happens when we make the components of self-regulatory behavior transparent to teachers? And third, how can we use our understanding of self-regulation to improve teacher selection to alternative preparation programs?

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