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Building Capacity: Principal Leadership to Develop Collective Teacher Efficacy

Jacie Maslyk
Carlynton School District

Research on leadership practices has shown that school principals can have significant effects on student learning. With all that principals are required to accomplish in a day, it is imperative that they focus on the responsibilities that will have the greatest effect on student success in school. With the accountability pressures that surround school leaders today, establishing and enhancing efficacy is critical to the success of schools. This article defines efficacy as it relates to school leadership and details the importance of developing collective teacher efficacy in schools. Four paths are presented through which principals can develop collective efficacy, including limitations and practical strategies for school implementation. Lastly, the potential effects of improving efficacy are discussed.

The Common Core State Standards adopted by Pennsylvania as the PA Core Standards present an increased level of challenge for schools and school leaders. These standards define the knowledge and skills that students should acquire during their K-12 education so that they will graduate high school able to succeed in college and career. Principals must prepare schools for a new level of rigor and relevance to meet the demands of these new standards (Maslyk & Burch, 2013).

Building capacity within schools will be critical to the successful transition to the PA Core (Maslyk & Burch, 2013), and supporting teachers during this time of change is one responsibility of the principal. This new demand, in addition to pressures from state and local education agencies, makes the work of school principals challenging. The transparency involved in the School Performance Profile has also put pressure on school principals. This web-based tool communicates performance results to various constituencies and assists districts and schools in aligning and focusing resources for continuous improvement. The site publishes a numeric score for all schools based on multiple academic indicators that are intended to provide an overview of academic growth and achievement in public schools. While the demands of the No Child Left Behind Act (NCLB, 2002) are gone, school leaders are still faced with public pressures to meet high standards and lead schools to academic success.

There are intensifying pressures on building principals to increase student achievement and raise standardized test scores (Ylimaki, Jacobson, & Drysdale, 2007) to 100% proficiency,

while also maintaining the general operations of the school building, managing student behavior, communicating with parents, and supervising staff. The responsibilities of school leaders have grown significantly over the last 50 years. Today's principal no longer spends time behind a desk shuffling papers, instead taking responsibility for all aspects of the educational process. Looking to build capacity within their staffs, principals must consider strategies that will engage teachers deeply in effective practices that bring about student achievement.

Leadership practices of school principals can have significant effects on student learning (Leithwood & Riehl, 2003; Marzano, Waters, & McNulty, 2005). With all that principals are required to accomplish in a day, it is imperative that they focus on the responsibilities that will have the greatest effect on student success in school. While many studies on school leadership have been conducted, researchers continue to search for specific leadership practices that contribute to school success.

Efficacy is a relevant framework when considering the current challenges of leadership, specifically the collective efficacy created by leadership practices (Leithwood & Jantzi, 2008). Bandura and Locke (2003) explained that efficacy beliefs “affect whether individuals think in self-enhancing or self-debilitating ways, how well they persevere in the face of difficulties, the quality of their well-being and their vulnerability to stress and depression, and the choices they make at important decision points” (p. 27). With the accountability pressures that surround school leaders today, establishing and enhancing efficacy is critical to the success of schools. This article details the importance of building capacity through the development of collective efficacy in schools and provides four paths through which principals can develop collective efficacy among classroom teachers. Limitations exist with any leadership initiative; these are addressed following a discussion of the four strategies.

Defining Efficacy

Wood and Bandura (1989) defined self-efficacy as “belief in one's abilities to mobilize the motivation, cognitive resources, and courses of action needed to meet situational demands” (p. 408). Bandura's social cognitive theory (1997) provided the foundation for understanding of teacher efficacy as well as collective efficacy. Efficacy is the key for individuals and groups to choose tasks in which they believe they will succeed. Collective teacher efficacy (CTE) in the educational context describes a group's beliefs about achieving goals and making improvements to teaching and learning processes. It is an organizational characteristic that provides the faculty as a whole with the ability to influence student learning.

Positive collective efficacy promotes a group's beliefs that they can engage and perform successfully. Unless educators believe that they can succeed, there is little incentive for them to persevere through difficult challenges (Bandura, 2009). For schools, collective efficacy refers to the perception of teachers in a school that they can plan and implement what is needed to have a positive effect on students (Goddard, Hoy, & Woolfolk Hoy, 2004). Leadership practices can contribute to this belief through the way schools are structured to support collaboration and

skill building, the manner in which teachers are engaged in decision making, and feedback that professionals receive on their performance and growth. Leaders who effectively build efficacy create situations for success and avoid placing teachers in situations where they are likely to fail (Bandura, 2009). Through these leadership efforts, principals can contribute to school success and positive student outcomes.

Over the last 30 years, educational researchers have recognized the important link between teachers' sense of efficacy and student achievement. The initial investigation of this relationship occurred in a RAND study of Los Angeles city schools by Armor and associates in 1976. They found that teacher efficacy was strongly related to increases in reading achievement. The results of study revealed that teachers' beliefs in their ability to influence student motivation and achievement were stronger predictors of student academic success than any factors outside of school including socioeconomic status.

Goddard and Goddard (2001) proposed that "when a school as a unit experiences genuinely high levels of student achievement, it is axiomatic to conclude that one or more teachers were directly successful with their students" (p. 810). In their study, teachers were surveyed on both teacher efficacy and collective efficacy. Teacher efficacy was higher in schools where collective efficacy was higher. The researchers concluded that strong leadership and teacher empowerment may build collective efficacy.

Principals and district leaders should turn their attention to improving CTE as it has shown a positive impact on schools in recent decades. The Center for Comprehensive School Reform and Improvement reported that strong collective efficacy improves student performance, reduces the negative effects of low socioeconomic status (SES), enhances parent/teacher relationships, and creates a work environment that builds teacher commitment to the school (Brinson & Steiner, 2007). Principals would be neglectful in overlooking the opportunity to develop CTE as its impact on critical school factors is evident.

Development of Collective Teacher Efficacy

Creating a classroom environment that is conducive to learning is partially determined by a teacher's sense of efficacy (Jahnke, 2010). Chase, Germundsen, Brownstein, and Distad (2001) agreed that when a teacher's disposition toward learning is one of confidence, this attitude is often transferred to his or her students. Teachers with a high sense of efficacy, who communicate high expectations for all students, are less likely to give up on struggling learners and are more likely to put forth a greater effort (Chase et al., 2001). Considering the pressures to increase student achievement, the importance of effective classroom teachers is imperative.

Principals hold the key to enhancing or diminishing the collective efficacy of a school. The climate that principals set, the interactions that they have with others, and the structures that are put in place impact collective teacher efficacy. When the principal is actively involved with instruction and works cooperatively with teachers, efficacy is increased (Fancera, 2008; Goddard

et al., 2004; Hoy, Sweetland, & Smith, 2002). One study of elementary principals of Blue Ribbon Schools revealed that these successful schools are often led by principals who employ strategies to develop CTE including engaging in professional development with teachers, serving as an instructional coach, and sharing roles and responsibilities (Maslyk, 2012). While many principals may take this shared approach to leadership, only consistent implementation will lead to positive outcomes in the classroom.

Fostering CTE can be accomplished in many ways, but this article will focus on four primary pathways, with an emphasis on the ease of implementation and the ability to execute these practices in a cost-effective manner. These pathways—building knowledge and skills, collaboration on school processes, engagement in teaching and learning, and feedback for professional growth—are presented in Table 1 and will be discussed in the following section.

Table 1
Four Pathways to Develop CTE

Pathway	Educational Practices	Principal Leadership Responsibilities
Focus on building knowledge and skills	Professional development	Active participation in teacher development sessions
	Ongoing instructional coaching	Support teachers in instructional initiatives and programs
Collaboration on school processes	Developing school goals	Include teachers in decision making
	Design curriculum	Provide access to materials/resources
	Common planning time	Create a schedule to support team planning and minimize classroom interruptions
Engagement in teaching and learning	Professional learning communities	Facilitate discussions and provide relevant resources
	Action research projects	Encourage exploration of educational topics and foster teacher creativity
	Peer observations	Allocate time for teachers to observe, discuss, and reflect
Feedback for professional growth	Classroom walkthroughs and observations	Recognize efforts and emphasize accomplishments
	Differentiated supervision	Demonstrate flexibility in the supervision model, when possible

Focus on Building Knowledge and Skills

Effective teachers invest time in teaching and learning. They engage in practices that will help them to increase their knowledge and skills in an effort to improve classroom practices. Ongoing development of knowledge and skills in content area subjects and pedagogical strategies is critical to the improvement of all educational professionals. It is essential for “fueling high engagement in continuous learning that expands and deepens educators’ knowledge and skills, striving to ensure that all children learn well” (Wahlstrom & York-Barr, 2011, p. 23). Teachers may build their knowledge base through professional reading, participating in educational webinars, or attending conferences and workshops. Principals who support this pathway not only plan quality professional development for teachers; they also actively participate in teacher development sessions. Providing professional texts and articles and encouraging attendance at relevant workshops are also ways in which principals can contribute to collective teacher efficacy through this pathway. When teachers show an interest in new instructional initiatives and programs, supportive principals explore the opportunities alongside their staff and provide guidance and reinforcement.

Strategy in action. A teacher is interested in trying a new math intervention program with her students. The principal encourages the teacher to read the research on the intervention and attend a webinar about intervention strategies and program materials that might work in her classroom. When the teacher hears that a neighboring district is piloting the program, the principal provides time for the grade-level team to visit the school and provide feedback to colleagues on the program’s implementation. Teacher interest affirmed by principal support builds knowledge for the teacher and contributes to CTE as the principal prioritizes growth of teacher knowledge and skills and provides time and resources to support teacher initiatives.

Collaboration on School Processes

Principals who collaborate with teachers on school processes demonstrate shared decision-making practices that engage faculty in school leadership. Teachers who participate in planning and goal setting feel more connected to their school. In a study by Hoy, Sweetland, and Smith (2002), teachers from 97 Ohio high schools were surveyed to investigate school climate and school trust. They suggested that principals monitor school climate and solicit ongoing feedback from teachers to make improvement to the overall collective efficacy of the school. For teachers, these experiences include collaborating on school goals, developing curriculum, and spending time planning with colleagues (Fancera, 2008). Bandura (1997) described these types of activities as mastery experiences. Principals can support mastery experiences by providing consistency in their schools and allotting planning time for teachers. At the building and district levels, principals who are developing CTE should include teachers in curriculum writing and implementation and strategic planning processes. Teacher engagement in these types of school processes builds ownership and deepens commitment to school improvement.

Strategy in action. At a recent faculty meeting, several teachers voice concerns over playground behaviors and the carryover into their classrooms. One solution includes the development of a school-wide positive behavior support plan (SW-PSBP). Interested teachers join a team to develop the program with the principal. The team collaborates on what the plan should look like, how it will be communicated to students and parents, and how the plan will be implemented successfully. Teachers take a leadership role in identifying potential behaviors, consequences, and rewards that the plan must address. The principal ensures that the teachers have time to meet during an upcoming in-service training and provides the committee with materials and resources. Once the plan is generated, the team presents the plan to the rest of the staff. Each member of the team agrees to serve as a team leader for subcommittees that will help to ensure the fidelity of school-wide implementation. The principal enhances CTE in this pathway by ensuring that collaboration is encouraged for school processes.

Engagement in Teaching and Learning

Highly-efficacious teachers take part in reflective practices that allow them to focus on improving teaching and learning. “Powerful learning occurs when teachers witness and engage in reflection about practices” (Wahlstrom & York-Barr, 2011, p. 23). Reflection can be strengthened through peer observations and lesson study. As teachers deepen their expertise and expand their repertoire of teaching strategies, they also become energized in their work (Wahlstrom & York-Barr, 2011). Teachers build confidence in themselves and in the team when they share knowledge and experiences, persevere through difficult situations, and find solutions to problems (Moolenaar, Slegers, & Daly, 2012). In turn, teachers become engaged in improving their teaching practices using more effective strategies to instruct their students.

Principals who encourage peer observations and allocate time for this practice help to develop efficacy among teachers. Reflecting on teaching practices and engaging in a professional dialogue further involve teachers in their work. As principals serve as instructional models and provide instructional coaching, the collective efficacy of teachers is enhanced. Mawhinney, Haas, and Wood (2005) surveyed 2,448 teachers in Connecticut and found that elementary teachers perceived higher collective efficacy and a willingness to engage in professional learning communities (PLCs) when compared to teachers in middle and high schools. Organizing PLCs in schools puts a focus on a collaborative culture where professionals can engage in collective inquiry with a goal to improve their practice. PLCs may include lesson studies, examining student work, or conducting a book group. Effective educational leadership is a mechanism that can impact student achievement by creating teacher networks, like PLCs and other tools for fostering strong teacher relationships (Moolenaar et al., 2012).

Strategy in action. As the principal reviews weekly lesson plans, she wonders if the plans are meaningful to teacher preparation and classroom instruction. Teachers submit weekly lesson plans, but are these documents a meaningful representation of teaching and learning? In an effort to increase reflective practices among teachers, the principal offers teachers an alternative: Instead of submitting traditional lesson plans, teachers may provide a reflection on one lesson

implemented that week. Consider the following questions: What went well? How do you know that students learned? What changes would you make if you taught this lesson again? What supports do you need to extend and enhance this lesson?

Providing this option afforded teachers the opportunity to engage in self-reflection. It also served as a conversation starter. The principal was able to follow up with teachers periodically, providing additional encouragement and support. This practice also became a way to connect teachers who reflected on similar topics or grappled with similar issues, rather than continuing the practice of submitting lesson plans in isolation.

Feedback for Professional Growth

If teachers are going to improve practice and maintain commitment to teaching, they need feedback that will allow them to grow professionally. Verbal encouragement and thoughtfulness by the school leader serve as guiding forces in fostering teacher efficacy. Providing relevant professional development, conducting regular walkthroughs, and sharing feedback with teachers are all examples of principal behaviors that support CTE. Effective building leaders not only plan professional development but are actively involved in conducting in-service training and follow-through on the instructional strategies through classroom visits.

Teacher efficacy can be influenced by the principal (Goddard et al., 2004; Moore & Esselman, 1992). Leithwood, Anderson, Mascall, and Strauss (2009) emphasized the strategies that schools leaders can implement with teachers to influence student learning: encouraging a sense of confidence, empowering teachers, and recognizing teacher efforts. As principals take on the responsibility of encouraging, empowering, and fostering teacher success, schools experience positive collective teacher efficacy. This sense of positive CTE is achieved through shared decision making and the collaborative culture established by the principal. Leaders who promote an academic focus and emphasize accomplishments (both of students and teachers) contribute to teacher efficacy.

Strategy in action. A new building principal is struggling with time management and all the directions in which he is pulled each day. He knows that visiting classrooms is important and understands that giving feedback to his teachers is also important. He sets aside 30 minutes each day with a goal to visit five classrooms. He conducts a five-minute walkthrough, observing instructional strategies, classroom environment, and student engagement. At the end of the walkthrough, he leaves an encouraging note on the teacher's desk, emphasizing at least one positive attribute that he observed. The principal made notes for himself, as well, documenting commonalities among his teachers. Later, he was able to suggest teacher partnerships and cross-curricular opportunities to foster teacher collaboration. The teachers appreciated the positive feedback, and the comments from the principal boosted CTE.

Challenges of Building Capacity through CTE

The intent of this article was to provide strategies that can be implemented with little cost or few resources. The example strategies are sensitive to the time demands of schools. The creative allocation of time is a skill that effective principals develop. Devoting time for school visits or peer observations, PLCs, or SW-PSBP committees can be carved out of the schedule by principals who see the importance of building capacity.

Finding the financial resources to support initiatives is an obvious barrier for school leaders. While using substitute teachers (for coverage, allowing teachers released time for other activities) may not be feasible for all principals, it is a low-cost strategy compared to the higher costs incurred through professional development provided by outside organizations and consultants.

Access to relevant informational resources may also be an obstacle for schools. Developing a network with local districts may enable the sharing of ideas through school visits or costs incurred through professional development. With the transition to the PA Core, the amount of resources available online has increased. States such as New York, Washington, and Georgia are sharing model curricula, performance tasks, and videos of effective instruction. In addition, resources like the Teaching Channel, Smarter Balanced, and the Pennsylvania Department of Education's Standards-Aligned System portal are all free tools that principals and teacher can use.

Benefits of Collective Teacher Efficacy

Building collective teacher efficacy can have positive effects at the school level (Goddard et al., 2004; Jahnke, 2010; Supovitz & Christman, 2003). Many positive outcomes occur when CTE is cultivated by the building principal. The following effects are critical to the success of any school: increased student achievement, positive impacts on parent relationships, and teacher commitment to improvement.

Goddard, Hoy, and Woolfolk Hoy (2004) suggested that principals who work to build CTE can make greater strides toward closing the achievement gap. A similar focus on learning and collective responsibilities was found in Supovitz and Christman's study (2003) of the relationships between instructional practices and student work. Their research suggested that when principals provide guided opportunities for teachers to focus on discussing and improving their teaching practices, teachers are able to transfer this new knowledge into more effective classroom instruction. Their research also indicated that schools achieve better academic results when their leaders provide ongoing opportunities for instructional discussions. Jahnke's study (2010) likewise found that an important factor in teacher success is making sure teachers believe that the principal supports their efforts to educate the students in their classroom. When teachers feel supported by principals in this way, collective efficacy increases.

“Building capacity appears most evident in the actions that leaders take to build self and collective efficacy among those being led” (Wahlstrom, & York-Barr, 2011, p. 22). As principals, we must ensure that teachers have the confidence and skills needed to reach all students effectively. With the goal of school improvement, principals are encouraged to foster strong ties among teachers and work to cultivate their collective beliefs (Moolenaar et al., 2012). Teachers in schools with high CTE have the attitude that “together we can make the difference” (Protheroe, 2008), and principals have the power to build capacity through CTE to lead their schools to success.

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Personalized Student Growth Through Data Analysis: Leadership in Action

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Since the passage of the No Child Left Behind Act in 2002, data analysis has come to forefront of school-wide decision making. A district-wide, personalized, student-centered approach is described that features multiple indicators to demonstrate district growth and includes multiple opportunities for student choice and reflection. Student assessment results were analyzed within a public school district that is currently undergoing a steady transition toward a focused and diverse learning community. This data-laden initiative grew out of discussions from a comprehensive/strategic planning process when the school leadership team gathered information to revisit and recreate the mission and vision statements for the district. The personalized approach includes activities which involve all school personnel by arranging cooperative and productive work sessions that are rooted in visionary leadership, data driven strategies, and a personalized action plan for each and every student.

Since the passage of the No Child Left Behind (NCLB) Act in 2002, data analysis has come to forefront of school-wide decision making. In response, school officials and stakeholder groups across the country began to develop procedures to help explain student assessment results in addition to the limitations and implications of using various data sources. Meanwhile, they searched for ways to use data to improve educational efficiency and, ultimately, student achievement.

Successful leadership in times of change often entails convincing people that gains will outweigh losses. Bernhardt (2004) asserted, “Analyses of demographics, perceptions, student learning, and school processes provide a powerful picture that will help us understand the school’s impact on student achievement.” An important skill set that school leaders need to acquire are the abilities to gather, develop, and apply data to the school improvement process. A key component of this process involves using data to affect change.

Improving educational efficiency is a necessary component of these changes, but schools that focus solely on improving efficiency often stall in their efforts to sustain growth. For schools to reach the increasing standards of NCLB, they must do more than push marginal students over the next NCLB benchmark. Moreover, to reach a plane of sustained growth and improvement, school personnel must collectively explore ways of working together to produce fundamentally different kinds of results.

A Personalized Approach

A personalized approach and a “can do” culture are a school district’s keys to sustaining student achievement. This district-wide approach was put into action at three schools within the Greenville Area School District (GASD). This data-laden initiative grew out of discussions from the district’s comprehensive/strategic planning process, when the leadership team gathered information to revisit and recreate the mission and vision statements for the district. The new mission statement provided a renewed sense of direction: “We believe every child is a candidate for greatness, therefore our mission is to equip all students with desire, knowledge, and competencies to face the challenges necessary to achieve fulfillment in a global society” (GASD, n.d.). While the mission challenged the entire district to reach out to everyone within the school community, it was the district’s vision that provided the means to create a road map of personalized student-centered opportunities, greater student choice, and more relevant curricular programming.

Community representatives, teachers, and administrators from the leadership team met with the district faculty to explain the intent of the mission and vision for the district. Faculty members soon realized that part of the Greenville Area School District’s vision was to provide a personalized and caring environment in which the district mission could be accomplished. To achieve this mission, personalized instructional strategies such as periodic student-teacher conferencing were implemented featuring pro-active approaches. These pro-active approaches included introducing Responsive Classroom Morning Meetings (Kriete, 2002) in grades K-6 and the Olweus Bullying Prevention Program (Limber, 2004) in grades 7-12, which promoted the development of skills, habits, and attitudes that facilitate a caring environment in which students and teachers experience success in their work.

One of the major purposes of Greenville’s personalized approach was to help students perform to their potential in reading and mathematics. Since the impetus for the plan was to meet the threshold of Adequate Yearly Progress (AYP) as measured by the Pennsylvania System of School Assessment and the more recent Keystone examinations, direct connections with the Pennsylvania Department of Education’s Academic Standards (2013a) had to exist during daily instruction. To ensure this alignment, the approach included expectations that teacher on-line lesson plans contain identification of the specific academic standard, assessment anchors, and eligible content addressed in each core content area. Purposeful lesson planning and direct instruction designed to develop mastery on grade level content also provided focus for the instructor and relevance to students. To ensure compliance and provide reinforcement, classroom observation reports also contained specific references to eligible content and explicitly identified the instructional strategies that enabled students to demonstrate proficiency in the eligible content strands in reading or math.

At the building level, site-based Personalized Student Growth Plans (PSGP) were created collectively by teachers and building administrators. Multiple assessment data sources such as the Pennsylvania State System of Assessment (PSSA); Terra Nova; and Studyisland.com

results, including projections using Pennsylvania Value Added Assessment System (PVAAS) were reviewed to develop an “album” rather than a “snapshot” approach to informed decision making. These student growth plans were then adjusted based on current data and compared to data recorded over time. These data tools helped teachers and administrators to monitor student progress on eligible content in a realistic, time-efficient manner, but it was apparent that to achieve this goal faculty and administrators needed to maximize the performance of students who were on the verge of moving to the next level by actively analyzing both formative and summative assessment data and subsequently adjusting instruction to address gaps in student performance.

Alignment to the Standards

Development of a successful process to sustain student achievement at Greenville required that teachers and administrators translate into individual PSGP plans their core belief that all students can perform at higher standards. While most employees agreed with this concept in principle, the challenge was to establish structures and systems that fundamentally changed practices within the school to support the data-driven philosophy. The schools had to combine data analysis and organizational reform to create an environment driven by an abiding belief that all students can and will meet local and state standards. This approach presented a major shift in the way in which the school gathered school improvement evidence and required careful collection and analysis of data to sustain its implementation and maintain its progress.

Below I present four strategies used by the leadership team at Greenville to deliver targeted instructional efforts for students at all levels.

Shift from a group instructional approach to a personalized individual student focus. In the past, each school in Greenville centered its data analysis efforts and instructional interventions on broad groups or subgroups of students. Typically, only students who were performing just slightly below the proficient level and who could contribute the most to improving the school’s overall performance received individual attention. The real but unfortunate reality of this approach was that school personnel gave only modest attention to other groups, such as those students who were already at or above the proficiency level and those students who were performing well below the proficiency benchmark. In effect, individualized attention was less available for students in these groups, unless a student was eligible for Special Education services.

As a result, schools within GASD shifted the focus from groups to individual students. Individual classroom performance was collected via an online grade book (Edline) and combined with data from online formative assessments to create report cards that resembled individualized student learning profiles.

Enhance personalized learning. Educators today understand that traditional school structures related to time and class organization limit their ability to address the individual

needs of the students. While students at Greenville are still organized into traditional classes, each school focuses on sustained improvement through routine data collection and analysis to personalize learning opportunities for them. Flexibility is necessary to adjust to the learning needs of each student. Most importantly, the use of grouping structures must remain flexible, and group membership needs to be adjusted based on the results of frequent assessments. For example, the elementary schools now use an electronic version of benchmarks from the Everyday Mathematics program to measure math performance every nine weeks. At the end of each quarter, teachers analyze the results, and students are regrouped to maximize and personalize their learning experiences.

Add added value. NCLB's (2002) benchmarks are based on a percentage of students in a particular group reaching a defined level of proficiency. Through 2014, incremental improvement is required in this percentage. These requirements do not require individual students to demonstrate improved performance over time. As long as a student scores above the proficiency benchmark, his or her performance is applied to the school's and school district's Adequate Year Progress (AYP) profile. In fact, a student could score significantly lower in eighth grade compared to fifth grade, but not hurt the school's overall performance as long as he or she stayed above the proficiency level. Conversely, a student could make significant gains in performance from third grade to fifth grade, but still not contribute to the school's AYP goal because his or her fifth grade performance remained proficient. This situation has led many schools to maintain focus mostly on students near the proficiency benchmark and provide less individual attention to those either well above or below the cut-off point.

Schools in Greenville looked beyond the requirements of NCLB and tracked individual student performance longitudinally with a goal of improved performance from all students during their time at school. Through use of PVAAS (Pennsylvania Department of Education, 2013b) added value was reported in terms of the average gain in performance for students from one assessment to the next. This gain was then indexed against expected performance improvement targets. School-wide performance was monitored and based on student improvement rather than increasing the number of students over a particular NCLB benchmark. Consequently, a steady, continuous improvement of all students was expected for the school to meet its performance targets.

Use multiple ways to measure accountability. School leaders at Greenville established indicators of accountability that ensured that teachers regularly analyzed student performance data; talked about it in functional units; and enacted specific action plans at the classroom, team, grade, and school level. School administrators conducted "walkthroughs" and routinely talked with teachers and staff about practices conducive to teaching and learning. Examples of these indicators included teaching "bell-to-bell," conducting individual charting student performance goals, and sharing information during one-on-one student-teacher conferences. By asking guiding questions about general trends and specific students, teachers were coached through the difficult task of customizing teaching to meet the learning needs of all students.

Anticipate Change

Moving a school from one level to another requires change. Schools must not only adopt new core beliefs. They must be willing to restructure time and teams based on frequent data collection and analysis. This endeavor creates extraordinary organizational challenges. Questions that were raised in the GASD experience included: How can teachers hope to provide customized instruction to dozens or even hundreds of students? Where do you find the time to do additional assessments, analyze the data, develop action plans, and implement changes?

Preparing for Change

While there were no instant solutions to these challenges, the following suggestions proved helpful to build the capacity for change.

Use all available resources. It was important for all schools within the district to use all available resources to personalize learning. For example, all qualified employees were involved in facilitating peer tutoring groups. In turn, students were provided peer tutoring in structured settings. Creative arts and physical education teachers offered support in achieving student performance goals through integrated learning units which combined reading and mathematics content within their instructional disciplines. In short, district wide efforts meant everyone and every subject would reinforce and help students achieve higher academic standards in reading and mathematics.

Streamline and integrate technology tools. It was an important goal of this process to establish student information systems, formative assessment systems, and student performance tracking tools that provided a seamless system coupled with continuous improvement activities. Steps were taken to train teachers and staff in these tools and minimize use of multiple data systems simultaneously.

Provide opportunities for ownership. The ultimate key for sustaining improvement is for students to share responsibility for their own learning. When this goal is accomplished, the capacity of the organization to grow increases dramatically. When students have the skills to analyze their own formative assessment data they can take ownership of their learning. At Greenville, this process meant showing students how to interpret their own performance. Specifically, students needed to learn how to look beyond scores to the conceptual and overall skill-level of their performance. Likewise, when teachers and staff have been trained to analyze organizational as well as student performance data a collective ownership of the teaching and learning process has the best chance to increase substantially.

The Challenge of Change

The leadership team and teachers in Greenville have shown concern about school improvement and high regard for colleagues and other stakeholders including intermediate unit staff, parents, and local school community members. In a sense, learning has extended far beyond the classroom walls. Evidence of this result has come in the following forms.

1. A clearly displayed and consistently articulated shared vision within the school community that demonstrates members' commitment to student learning
2. Collegial and facilitative participation of administrators, who share leadership, power, and authority by inviting staff input in decision making.
3. Collective learning among staff members and application of that learning to solutions that address students' needs
4. Reviews of teachers' classroom behavior as feedback and assistance to support professional improvement

Conclusion

The Greenville Area School District is undergoing a steady transition toward a focused and diverse learning community. Data analyses have revealed numerous areas of strength and concern. Since the 2005-2006 school year, the district has consistently achieved Adequate Yearly Progress in reading and mathematics for participation, attendance, graduation, and performance. For instance, during the 2011-2012 school year, district participation in PSSA testing in reading and mathematics was 99.4% for both, district attendance was 94.6%, and the graduation rate was 90.3%. The district's AYP targets were also achieved in grades 3-5 and 6-8.

By using a projected growth model, the percentage of students scoring proficient or advanced in reading was 68% in 2011 and increased to 70% in 2012 in grades 3-5. The percentage of students scoring proficient or advanced in mathematics was 74.3% in 2011 and increased to 74.7% in 2012 in grades 3-5.

In addition, by using a projected growth model, the percentage of students scoring proficient or advanced in reading was 78.3% in 2011 and increased to 80% in 2012 in grades 6-8. The percentage of students scoring proficient or advanced in mathematics was 78% in 2011 and increased to 80.6% in 2012 in grades 6-8.

Although strengths in reading and mathematics and meeting student needs is evident in grades 3-8, there are still areas of concern regarding continued attainment of meeting AYP at all grade levels, especially as the incremental benchmarks increase. After achieving AYP status in 2011, grades 9-12 received a warning from the Pennsylvania Department of Education in 2012 based upon student performance in the economically disadvantaged sub-group. The percentage of students in this sub-group who scored proficient or advanced in reading declined to 53% in

2012 in grades 9-12, while the percentage of students in this sub-group who scored proficient or advanced in mathematics declined to 41%.

While the majority of students within GASD are performing at satisfactory levels and the faculty continues to be focused on individual student academic needs, underperforming subgroups remain a chronic reminder that the school improvement process must continue. PSSA data over the past decade regarding student performance in reading and mathematics continue to show that students in the IEP and economically disadvantaged subgroups have difficulty achieving proficiency in reading and mathematics.

As teachers have become more proficient at targeting students for specific interventions, the need to continue to focus on individual students and tailor instructional plans to meet their specific needs remains a challenge. Child study teams at all levels must continue to meet, analyze, and recommend topics for professional development. Instructional interventions need to help teachers to their use of classroom technology to create opportunities for students to receive quality instruction. In addition, the connection between the school and the family must be nurtured if it is grow into a supportive and vital resource.

The good news is that Greenville's personalized student-centered approach uses multiple indicators to demonstrate district growth and includes multiple opportunities for student choice and reflection. The hope is that Greenville's personalized approach will stand the test of time. This aspiration hinges on recognizing the need for change; combining caution with optimism; and engaging all personnel in cooperative and productive work sessions that are rooted in visionary leadership, data driven strategies, and personalized action plans for each and every student.

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The Nuances of Various Modes of Differentiated Supervision

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Differentiated supervision (DS) is an approach to teacher learning that offers tenured educators who have displayed proficiency a variety of options for professional growth based upon their interest, experience, skill level, and/or need. This article, designed in alignment with the new PDE guidelines for differentiated supervision, explores how teachers can engage in goal setting in each of four specific modes of supervisory practice: self-directed projects, action research, peer coaching, and reflective growth portfolios. The case study explains how the modes of differ and what each might look like within the Danielson Framework. It is designed to help school districts as they create, adapt, and/or implement a differentiated supervision plan with integrity and accountability.

With the implementation of the Pennsylvania Department of Education’s (PDE) Educator Effectiveness Model, many school districts will avail themselves of the opportunity to build in systems of differentiated supervision to encourage teacher growth relative to its impact on student learning. Differentiated supervision is an organizational function with the goal of fostering teacher learning. It offers competent, tenured educators a variety of research-based, authentic options to meet their professional development needs (Nolan & Hoover, 2011). According to PDE’s Differentiated Supervision Guidelines (2013), “Differentiated supervision recognizes the level of experience, the effectiveness, and the professionalism of teachers as well as the intensity and time commitment of the formal observation process” (p. 45). Danielson’s Framework for Teaching (2013) provides four domains and 22 specific competencies within those domains to guide teacher goal setting and action planning as part of the differentiated supervision. Moreover, all modes within differentiated supervision integrate well with Danielson’s Domain 4: Professional Responsibilities, including Reflection on Teaching, Participating in the Professional Community, and Showing Professionalism.

The following narrative presents a case study that explains four modes of differentiated supervision—self-directed projects, action research, peer coaching, and reflective growth portfolios—and what each might look like incorporated within Danielson’s Framework (2013).¹

¹ The design of this case study is adapted from Bevan (2010).

The Case of Mrs. Bruner

Mrs. Bruner teaches second grade. Her class consists of 21 students representing a variety of developmental ages. This year Mrs. Bruner's principal will not formally evaluate her. She will "cycle" into differentiated supervision, where she, in collaboration with her principal, will select a goal for professional growth, develop a plan with a concrete timeline to meet that goal, and spend the academic year working toward achieving it. Mrs. Bruner recognizes that the most effective way to meet her goal is to embed new learning into classroom practice (Bevan, 2010).

To begin her goal selection process, Mrs. Bruner sits quietly with the rubrics of the Danielson Framework to self-assess her current teaching practice. She reflects upon her strengths: she has distinguished characteristics in many areas of Domain 2, including Respect and Rapport, and Managing Student Behavior. Next, she focuses on areas where she would like to improve: She wants to delve more deeply into science content (1a), improve her questioning and discussion techniques (3b), and make a more significant contribution to her profession (4e). She asks herself which goal would yield the most direct benefit to her students and decides upon 3b as her focus. Her task now becomes consulting the rubric to clearly define where she is and where she wants to be. While Mrs. Bruner feels that she promotes genuine discussion and asks questions that challenge her students to think, she quickly comes to the realization that 3b is really about what *students* will do (Bevan, 2010). Since enhancing her students' learning is at the forefront of all her actions, she wants to encourage her students to develop their critical thinking skills by formulating their own questions, initiating topics, and challenging their peers' thinking. She wonders if she can relinquish enough control so that students are encouraging one another to participate, but she feels the goal is attainable.

What Might This Goal Look Like with Each of the Four Modes of Differentiated Supervision?

Regardless of the mode of differentiated supervision that the teacher chooses, the goal might be nearly similar. After reflection and self-analysis, it is important that (a) the teacher matches the goal to his or her current level of need, knowledge, skill level, and experience in the existing teaching context; (b) the teacher aligns the goal with the standards and with district and/or building-level priorities; and (c) the teacher collaborates with her principal in creating and implementing the action plan.

Self-Directed Project

When she reflects on her students' taking more responsibility for questioning and discussion, Mrs. Bruner sets the improvement/renewal goal of refining current teaching practice through acquiring new knowledge and skills. This mode centers upon teacher learning and then putting that learning into practice to meet the objective (Nolan & Hoover, 2011). In other words, Mrs. Bruner has chosen the path, but she does not currently possess substantive knowledge to achieve

her goal. In this particular instance, self-study becomes paramount as the first step of the self-directed mode.

Mrs. Bruner’s goal statement. To address component 3b, Mrs. Bruner develops a goal statement: I will work toward creating and documenting classroom questioning and discussion opportunities where students take more responsibility for initiating higher-level questions and encouraging one another to participate. I will explore the research base to create a menu of possible strategies that I can add into my repertoire to refine what I currently do. I will then work to incorporate practical examples of ways I might place students at the center of their own learning during classroom discussion.

Action plan. The first step of Mrs. Bruner’s action plan is a review of the current literature on higher-order thinking and student-centered instruction, particularly as it pertains to questioning techniques. She asks herself a question she has never really pondered: “What is best practice in equipping seven- and eight-year-old students to frame high-level questions?” Thus, one method of documentation might be an annotated bibliography of the books and/or articles that she peruses.

Because of the age and developmental level of her students, and because of her strength in Domain 2 (Classroom Environment), Mrs. Bruner is drawn to research on classroom meetings as a first step in encouraging students’ problem posing, problem solving, and student-led discussions. She is particularly drawn to the ideas of Charney’s (2002) classroom meetings because they encourage all students to have an active voice. As she introduces and role plays conducting classroom meetings, documentation toward meeting her goal can include video clips of her students’ conducting classroom meetings initially and after practice, followed by an analysis of types of questions that her students ask, and a seating chart illustrating the degree of participation by each student. Note that in setting this concrete goal and writing an individualized action plan, Mrs. Bruner follows the SMART framework, a standard guide to goal setting that is “*Specific* (relates to Danielson 3b), *Measurable* (data driven with specific examples of documentation such as an annotated bibliography and video clips of classroom meetings, analysis of types of questions students ask, and a seating chart record of individual student participation), *Attainable*, *Realistic*, and *Timely*” (Stanford University Human Resources Group, 2012, p.1.).

Action Research

Action research is a process by which teachers formally ask and answer questions about their own practice. It encourages a deeply self-reflective inquiry stance toward teaching. Teachers who engage in action research are driven by the “not knowing”—while their ultimate aim is to change their practice, they are unsure what impact certain changes may have on their students (Nolan & Hoover, 2001). In an action research mode, Mrs. Bruner’s goal may garner the same results but take a slightly different approach.

Mrs. Bruner’s goal statement. To address component 3b, Mrs. Bruner develops a goal statement: I will work toward creating and documenting classroom questioning and discussion opportunities where students take more responsibility for initiating higher-level questions and encouraging one another to participate. My action research question is, “What types of strategies and prompts will most effectively impact my students’ asking and answering good questions and increasing their participation in classroom conversations?”

Action plan. In this differentiated supervision mode, as in the prior one, Mrs. Bruner will most likely begin with a review of the research during the first few months of school to identify the techniques she might introduce to achieve her goal. Again, one method of documentation could be an annotated bibliography. For example, she might choose to explore three different strategies: incorporating Webb’s Depth of Knowledge levels, familiar to her from a prior in-service presentation (Webb, 2009); introducing Good-Better-Best questions, loosely based on Bloom’s taxonomy (1956); and using “invitational language” to encourage peers to participate in classroom discussion (Bevan, 2010).

She would then prepare lessons that include each of these strategies and subsequently collect and analyze data on the differences in students’ work in each case. Routine data (embedded as a part of the daily classroom activity) might include teacher materials such as adapted lesson plans. She might also record video clips of student participation, especially teacher-directed questions and student-directed questions and responses during discussion. Further documentation might be a concrete list of those questions with accompanying analysis. Helpful non-routine data might include a teacher blog in which Mrs. Bruner “unpacks her thinking” as she adapts and experiments. Action research culminates with the teacher’s findings, including conclusions to answer her original question about the efficacy of these different strategies and implications for future practice (Nolan & Hoover, 2011).

Peer Coaching

In this mode of differentiated supervision, Mrs. Bruner possesses the knowledge base to experiment with effective techniques to engender increased student-initiated questions and more encompassing student-led participation. She may want to discover how effectively she is implementing these strategies in terms of student learning and elicit the assistance of a peer to help with data collection. Peer coaching offers the venue for competent professionals, who are adequately trained to do so, to observe, collect, and analyze nonjudgmental data (evidence), and subsequently conference with one another. Peer coaching provides an opportunity for teachers to share their expertise and experience, to provide one another with feedback and support, and to consciously reflect on the consequences of their actions in terms of their students’ learning (Nolan & Hoover, 2011). Once again, the resulting goal statement might be very similar; however, it is the collaboration and resulting data collection and analysis that will look different.

Mrs. Bruner’s goal statement. To address component 3b, Mrs. Bruner develops a goal statement: I will work toward creating and documenting classroom questioning and discussion

opportunities where students take more responsibility for initiating higher-order questions and encouraging one another to participate. My partner will collect various types of data in at least two clinical observation cycles so that we might collaboratively analyze what I currently do well and reflect upon how I might be more effective in achieving my goal.

Action plan. Mrs. Bruner is excited about the opportunity to work with another second-grade teacher in her building, someone who can provide another set of eyes and ears. First, they attend district-sponsored training on how to collect nonjudgmental data/evidence during an observation. They subsequently begin the coaching process with a preconference where Mrs. Bruner explains her goal. She asks her partner, Miss Murphy, to observe her and collect some baseline data. During her initial observation, Mrs. Bruner suggests that her partner use selective verbatim. Selective verbatim is a targeted, word-for-word record with a telescopic focus: in this case, all her students' questions. During the postconference, they will analyze the number of student-initiated questions posed during the discussion as well as whether those questions were convergent or divergent.

This first observation will be followed by another in which Miss Murphy will use a SCORE instrument (Seating Chart Observational Record; see Nolan & Hoover, 2011) to record verbal flow. Verbal flow data provide detailed information on each individual student, such as type of verbal interaction and/or number of times each student participates. Mrs. Bruner requests that Miss Murphy use a seating chart that she prepared and a simple code that they have agreed upon to record each student's participation: *A* (asking a question), *R* (responding to a question asked), or *I* (inviting another child to share his or her thinking). After the data collection, they will search for patterns about who is and is not participating and draw conclusions that will lead to future teacher actions and observation foci. Unlike selective verbatim, which emphasizes the *content* (or substance) of participation, verbal flow hones in on *type* and *frequency* of communication (Nolan & Hoover, 2011). Both types of data are salient to Mrs. Bruner's achieving her goal.

Reflective Growth Portfolio

The reflective growth portfolio is an *intentional* collection of "before and after" artifacts that demonstrate progress toward achieving a goal. Once again, the stated goal would be very similar to those preceding; what differs is the action plan and data collection. Perhaps what separates this mode of differentiated supervision from any of the others is the accompanying written reflective analysis or inquiry into teaching that explores the meaning and significance of each artifact chosen for inclusion. Many advantages are inherent in creating a reflective growth portfolio:

- The ongoing nature of the portfolio promotes job-embedded learning and professional development that occurs over time.
- The data within (both artifacts and accompanying reflective captions) provide a tangible body of evidence, which is important because as Lee Shulman, president of the Carnegie Foundation for the Advancement of Teaching notes, "a significant obstacle to improving

instructional effectiveness is that teaching is like dry ice at room temperature—it evaporates in front of our eyes” (as cited in Wolf, Whinery, & Hagerty, 1995, p. 30).

- Done well, a reflective growth portfolio provides a visible record of teacher thinking, self-assessment, and analysis of decisions leading to adjustments and improvement in practice relative to impact on student learning. It is Domain 4a, Reflection on Teaching, in its most concrete sense.

Portfolios must be created and organized not as a “catch-all” for voluminous artifacts, but rather as a methodical, standards-based journey. Quality, not quantity, is paramount in assembling evidence to make a compelling case for professional growth over time. Using the value-added principle, the teacher thoughtfully and deliberately examines each potential artifact to determine, “Does this add any *additional* evidence to what I have accumulated thus far?” If the answer is yes, the artifact and accompanying caption are included, if it is no because of repetitiveness, the artifact is discarded (Nolan & Hoover, 2011).

Initial entries in the growth portfolio might be from previous years of teaching (the “before”). For example, Mrs. Bruner could include artifacts such as a video clip of the class as students engage in small group discussions during a unit about weather. A detailed reflective analysis of how often each child participated and the cognitive level of reasoning or explanation in student responses would comprise the caption that accompanies the video clip. Mrs. Bruner might then include an adapted lesson as a value-added second artifact. In this mini-lesson she first models and then engages students in a role-play, explaining to others the reasoning (metacognition) that led to reaching a particular answer. The mini-lesson could then build in opportunities for guided practice. Subsequently, a third artifact might be a recording of small group discussion once again, now with data to draw a comparison between the previous year’s responses/explanations in small group discussion and the new progress toward achieving the goal.

Conclusions

Moving to a differentiated supervision model as described in the aforementioned scenarios requires districts more than ever before to integrate professional development with supervision. All these options require time. Administrators must be mindful of creatively structuring individualized and ongoing teacher learning time into their overall schedule of annual professional development, particularly for those faculty members who are not engaged in the formal evaluation year of the cycle.

In summary, a differentiated approach to supervision harnesses the power of experiential growth opportunities for teachers who are performing at the proficient or distinguished levels. The examples outlined in this article offer Mrs. Bruner many advantages including the chance to take ownership in her professional development, matching her goal to her skill level and experience according to the Danielson Framework and nudging her to stretch beyond her current level of performance. Perhaps most significantly, the opportunity would provide Mrs. Bruner with the experience of job-embedded learning that occurs when she delves more deeply into

the question of “What is best practice?” The learning is supported through following an action plan that requires goal setting, data collection, analysis of that evidence, and reflection upon the findings and their implication/impact on her students’ future learning. Finally, in a larger sense, district supervision and evaluation plans that build in differentiated supervision implemented with integrity embrace teachers’ professional responsibility to regard themselves as a community who constantly seek ways to refine their practice through professional inquiry.

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Designing for Increased Teacher Self-Efficacy: Graduate Students' Perceptions of Embedded Field Experiences

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This article reports on the results of an exploratory qualitative study in which a field experience was embedded in a special education teaching methods course. The study sought to determine the impact of the embedded field experience in shaping the students' feelings of teacher self-efficacy and to explore their perceptions of an embedded field experience format. For the purposes of this study, embedded field experience denotes a field experience that is a component of a teaching methods class in which the course instructor provides on-site supervision of the field experience. A total of 16 graduate students responded to an online survey consisting of eight constructed response questions. Evidence from student responses indicated increased teacher self-efficacy on the part of the participants and a preference for having their course professor present at the placement site. Additionally, based upon the results of the study, recommendations for the design of pre-service teacher field experiences are offered.

With the emphasis that the Individuals with Disabilities Education Act (IDEA, 1990) places on full inclusion of students having disabilities in regular education settings, many colleges and universities offering graduate-level teacher certification programs have seen an increased interest in course offerings in special education. Since many of the students enrolling in special education master's degree programs are in-service teachers, flexibility is required on the part of colleges and universities, particularly when it comes to the design and scheduling of field experiences. In-service teachers enrolled in graduate programs in special education frequently need to complete course projects and field experiences in the settings where they teach. This can limit the extent to which their graduate faculty can be involved in those field experiences. As a result, graduate students can perceive a disconnect between what they learn in class and what they see practiced in the field. Professors find themselves relegated to an ivory tower, limited in their capacity to model specific skills for their special education teacher candidates, as well as in their ability to mentor and foster their students' developing sense of teacher efficacy as special educators.

This article reports on the results of an exploratory qualitative study about the effect of embedding a field experience in a special education teaching methods course. The study had two purposes. First, the professor wished to investigate the impact of the embedded field experience in shaping the students' feelings of self-efficacy as special education teachers. Second, he wanted to explore the students' perceptions of an embedded field experience format. It was believed that such information would prove useful for planning future course experiences. For the purposes

of this study, embedded field experience denotes a field experience that is a component of a teaching methods class in which the course instructor provides on-site supervision of the field experience. Additionally, based upon the results of the study, recommendations for the design of field experiences are offered.

Literature Review

Teacher self-efficacy has been defined as “the teacher’s belief in his or her capability to organize and execute courses of action required to successfully accomplish a specific teaching task in a particular context” (Tschannen-Moran, Woolfolk Hoy, & Hoy, 1998, p. 233). Much has been written about how self-efficacy impacts teacher effectiveness and how teachers develop their beliefs about their professional self-efficacy as teachers. Teacher educators are particularly concerned with the development of feelings of teacher self-efficacy in their student teachers and practicum students. Consequently, it is important to consider the sources of self-efficacy in designing field experiences.

Bandura (1977) identified four sources of efficacy expectations: mastery experiences, vicarious experiences, verbal persuasion, and emotional arousal. Each of these sources contributes to the individual’s development of self-efficacy beliefs. Much contemporary research on teacher self-efficacy relies on Bandura’s conceptualization of these sources (e.g., Flores, Desjean-Perotta, & Steinmetz, 2012; Jamil, Downer, & Pianta, 2012; Knoblauch & Woolfolk Hoy, 2007; Lee, Patterson, & Vega, 2011; Leyser, Zeiger, & Romi, 2011; McDonnough & Matkins, 2010; Palmer, 2011; Siwatu, Frazier, Osaghae, & Starker, 2011; Swackhamer, Koellner, Basile, & Kimbrough, 2009; Tschannen-Moran & McMaster, 2009).

This literature supports the importance of mastery experiences as a source of efficacy information. Mastery experiences include personal experiences of success and are particularly powerful in shaping self-efficacy beliefs because such experiences affect the individual on a deeply personal level (Bandura, 1977). The adage “nothing succeeds like success” holds true as the individual grows in confidence through achievement. This result is especially true when such success is experienced early in a learning history.

A second source of information that certification candidates use to develop their perceptions of teacher self-efficacy is vicarious experiences (Bandura, 1977). Observing a model perform a task successfully, particularly if that model is perceived to be similar to the observer, can help to build the observer’s confidence to perform that task. Therefore, students may benefit from teacher educators’ modeling of teaching and classroom management skills for them in field experience settings.

Verbal persuasion is the third source of self-efficacy information identified by Bandura (1977). Receiving praise and corrective feedback from others can help to boost one’s sense of competence. The more immediate the feedback is to the performance situation, the more likely it

is to support the development of self-efficacy because alone, verbal persuasion leads to weaker feelings of efficacy than authentic experience (Bandura, 1977), but the more readily one is able to associate the feedback with a specific performance, the more credible and stronger that feedback becomes in shaping self-efficacy. This notion is supported by the findings of Jamil, Downer, and Pianta (2012). In their study of 509 teacher certification candidates they asserted that the candidates “need opportunities to receive accurate, yet constructive feedback about their teaching performance during field placements in order to make well-balanced judgments about effective and less effective teaching moments” (p. 131).

Emotional arousal is the fourth source of self-efficacy according to Bandura (1977), who noted that “people rely partly on their state of physiological arousal in judging their anxiety and vulnerability to stress” (p. 198). States of excitement or agitation can influence an individual’s sense of self-efficacy.

Each of these four sources of information comes into play when a teacher certification candidate is engaged in a field experience. For this reason, it is important for teacher educators to structure field experiences in ways that provide rich opportunities for authentic student mastery experiences, professor modeling (vicarious experiences), and supportive and constructive feedback (verbal persuasion), and in which students can feel reasonably safe and comfortable (emotional arousal).

In supervising a field experience, college faculty serve as mentors charged with the task of facilitating the professional development of their teacher certification candidates. Daloz (1986) has described the roles of mentors as supporting, challenging, and providing vision. The degree of challenge and support presented is believed to impact the developmental outcomes for the individual being mentored, including their sense of self-efficacy. Supportive activities include active listening, providing structure, expressing positive expectations and serving as an advocate.

According to Daloz (1986), effective mentors also challenge their students by setting tasks, requiring reflection, engaging in discussion, and setting high standards. Depending on the level of challenge in relation to the level of support presented, one of four outcomes is likely. When low levels of support and challenge are present in a situation, little change will be instigated. The individual finds himself or herself in a state of “stasis” (Daloz, 1986, p. 214). When support is high but little challenge is presented, the individual is “confirmed,” but growth is also unlikely (p. 214). Where challenge is high but little support is presented, the learner can find himself or herself overwhelmed by the task and “retreat” from the situation (p. 214). When both challenge and support are high, opportunities for growth abound.

By presenting situations that provide a high degree of challenge coupled with high levels of appropriate support, mentors promote professional and personal growth. This effect has been documented in the literature. Tschannen-Moran and McMaster (2009) conducted a study comparing four professional development formats and their relationship to teacher self-efficacy.

Their findings support the presentation of mastery experiences with individualized verbal persuasion to increase feelings of self-efficacy.

The current study explored the impact of an embedded field experience on the teacher efficacy beliefs of graduate students in special education. Two research questions were posed in the study: (1) How do graduate students describe the impact that a professor-supervised, embedded field experience has on their feelings of teacher self-efficacy? and (2) How do graduate students perceive professor-supervised, embedded field experiences compared to field experiences completed independently under the supervision of a mentor teacher?

Method

Context

The context of this study was a seven-week, summer, graduate-level special education teaching methods course that focused on the instruction of students with significant and multiple disabilities. In addition to mastery of relevant instructional methods, the goals of the course included mastery of the field research process and the related processes of summarizing research results in manuscript and research poster forms. These academic skills are presented and assessed in this course initially and are subsequently required and assessed in other special education teaching methods courses in which the graduate students design and implement interventions in various educational and therapeutic contexts independently. Consequently, the role of the field experience in this course is to provide students with direct experience teaching and implementing an intervention with students having significant disabilities, as well as to provide an initial experience in field-based research.

The field experience component of this course differs from other field experiences that students complete in their master's degree program in two ways. First, it is the only field experience that is directly supervised by the course professor. Second, it is the only field experience in which students work collaboratively. In all other field experience opportunities, because they occur in methods courses taught during the school year when the graduate students are themselves working every day, field assignments are completed independently under the loose supervision of a "mentor" special education teacher. These mentors are identified by the graduate student upon admission to the master's degree program and teach in the school in which the graduate student works as a regular education teacher. The mentor teachers have no formal relationship to the college. Consequently, the professors have no opportunity to discuss their instructional goals for field experience assignments with the mentors and have to assume that the criteria they have laid out for a field assignment connected to their class have been followed.

Participants

The participants in this study were the 16 graduate students enrolled in the course. Of these students, one individual held a bachelor's degree and certification in special education, and two others reported some degree of experience working with individuals with significant disabilities. All other graduate students enrolled in the course, though certified in some area of regular education, reported minimal exposure to and experience with students having significant or multiple disabilities. Because of their limited background with this population, it was believed that the graduate students, though certified regular education teachers, would likely experience a process of efficacy development for working with students having significant and multiple disabilities.

The Field Experience

The professor arranged the field experience for the course in collaboration with the principal at an approved, private, licensed school for exceptional children in western Pennsylvania. The principal identified four students in the Extended School Year (ESY) program whom the graduate students could teach four days per week over a three-week period.

The professor then solicited input from the parents of the ESY students, who identified a cooking skill that they considered desirable for their children to perform independently. Examples of these cooking skills included making a pizza and scrambling eggs. After a review of the relevant literature, it was determined that a video modeling intervention would be used to teach the cooking skills.

The graduate students were randomly assigned to teams of four members. Each team was assigned to work with one of the ESY students. The teams collaboratively developed a task analysis for the assigned cooking skill as well as a learning objective, setting a mastery criterion and developing a data collection sheet. Then the teams each created a video to train the particular cooking skill they were assigned. The professor, however, provided the procedural protocol according to which the teams were to implement the video modeling intervention. Portable DVD players were used to present the video to the ESY students.

Each team of graduate students was responsible for developing a field schedule in which every team member was required to work with the assigned ESY student one morning each week during the three weeks of ESY. The teams then collaborated to summarize their data in the form of a research manuscript and to create and present a research poster describing their project. The graduate students understood that they would be evaluated on their field performance, including punctuality, appropriate dress, knowledge of and competency with the teaching protocol, and management of their student. Additionally, at the conclusion of the course, team members were responsible for completing self-evaluations of their performance as well as evaluations of their teammates' performance on the field work, manuscript, and poster.

Procedure

Approximately nine months after the conclusion of their methods course on multiple and severe disabilities, students who had been enrolled in the course were sent an e-mail message inviting them to complete a survey anonymously on Zoomerang. The survey was delayed to allow time for the students to reflect on their experience and to graduate from the program so that the respondents would feel free of any risk in relation to commenting about their field experience. Students were given three weeks to complete the survey, which included eight open-ended questions (see Appendix).

Of the 16 students who had completed the course and received the e-mail invitation, 14 completed the survey. At the end of the survey period, another professor who does not teach in the graduate programs at the college reviewed the data to ensure that no information was provided that would render individual survey responses identifiable. The data were then released to the author for analysis. Participants' responses to the open-ended questions were analyzed inductively using a grounded theory methodology to determine whether any themes might emerge from the data that would shed light on the research questions. Birks and Mills (2011) have argued that surveys and questionnaires can be used to collect data in studies using grounded theory methodology (p. 66). Another faculty member with an earned doctorate in Curriculum and Instruction and expertise in the areas of qualitative research and teacher self-efficacy independently reviewed the instrumentation, the data, and the analysis to ensure that researcher bias was not present in the reported results.

Results

The stated purpose of this study was to survey special education graduate students about the impact of an embedded field experience on their feelings of teacher self-efficacy and to explore their perceptions of an embedded field experience format. The data gathered through the surveys showed sufficient consensus among the graduate students to provide answers to both research questions.

Feelings of Teacher Self-Efficacy

Graduate students' feelings of teacher self-efficacy were addressed through three open-ended survey questions. One of these questions asked students to describe how they felt on the first day of the field experience. Nine of the respondents reported feeling "nervous" at the beginning of the field experience. One respondent noted, *"I was very nervous on the first day of Video Modeling. I was unsure about everything even though I was prepared. I believe I showed up an hour early just to orient and mentally prepare myself for what I needed to do. I was also nervous because I had limited experience working with a student who had multiple and significant disabilities. I was relieved that I had another student working with me and that the professor was also there."*

Another student commented, *“I felt extremely nervous on the first day of the project... Because I had a very modest amount of experience working with students with significant and multiple disabilities, had no formal experience teaching students with significant and multiple disabilities, and had a very minimal understanding of the proper instructional techniques to use with students with significant and multiple disabilities, I was very concerned that I was not going to effectively communicate and work with the student and/or incorrectly implement the instructional procedures.”*

Not all the graduate students characterized their feelings as nervousness. One student stated, *“I felt excited about getting the experience to be a part of [a] research group and see how the video modeling could work with a student with a significant disability.”* Another student reported feeling *“anxious and excited. I was nervous as to how I would perform and execute the experience, yet excited to engage in the experience with the individual and see their [sic] progress.”*

Asked how their feelings about the field experience changed during the field experience, the students replied in terms of increasing confidence and comfort. One student explained, *“After each session, my confidence built. I felt more at ease even after the first session and discussing my performance as well as my student’s performance with the professor. Performing inter-rater reliability checks with my professor also helped me build my confidence.”*

Another student responded, *“[D]uring the Video Modeling field experience my feelings changed drastically from being nervous and unsure of myself to loving it and being more confident. Each day, I became more excited to work with our student. I even went in a few days I wasn’t scheduled to observe the other members of our group and other groups... I became more focused on my student’s success and I was less focused on my nerves everyday [sic] I came in. I also became more comfortable in the school.”*

Student responses demonstrated a growth in pride in their performance as well. For example, one student shared, *“Over the course of the experience, I became more confident in the process. I took pride in what I was doing because I saw how much the student improved over the course of the experience with the video modeling intervention. I was also more comfortable having the professor on-site to have immediate feedback and ability to ask questions if necessary.”*

Additionally, changes in self-efficacy were addressed by a question directly querying whether students believed that their sense of self-efficacy, defined in the question as the “belief that you are capable of being successful in working with students with significant and multiple disabilities,” had changed during the field experience. Of the 14 respondents, 10 explicitly stated that their sense of self-efficacy had increased. One graduate student stated, *“[T]o be honest, I did not think that I would be able to help students with significant and multiple disabilities at first. This was my first class in Special Education and I was not planning on entering into the field. However, since this class made such an impact on me and how I felt accomplished by making this*

child reach a high level of achievement because of the video modeling, I am now finishing my master's degree in Special Education."

Another student replied, *"[M]y feelings of efficacy did change during the video modeling field experience. I felt that after the first week of working on the project that I was going to be able to work with students with significant and multiple disabilities because I was taught and shown how to work with this population. The point that my efficacy significantly changed was when the student that I was working with reached criterion for the first time. That night an email was sent to all the group members about his achievement, and we (our group members) boasted like new parents to one another about his accomplishment. When the student reached criterion was the first time that I really felt that I would be able to successfully work with students with significant and multiple disabilities."*

A third student observed, *"[T]his experience did build my confidence in my ability to work with students with multiple and severe disabilities. My success in performing the video modeling procedures and my student's success made me feel very confident in my abilities. It also made me want to work more with students with multiple and severe disabilities. This work feels so rewarding and it is energizing."*

Several students specifically mentioned the presence of the professor being one cause of their increased efficacy. One wrote, *"I attribute my change in feelings to the day-to-day experience and also to our professor. Once I had his reassurance that I was doing what I needed to do and was doing it professionally, I was more confident."*

Survey evidence suggests that an embedded field experience may lead to increased feelings of teacher self-efficacy in graduate students in special education.

Students' Preference for Field Experience Format

The second research question explored through the survey concerned students' preference for embedded, professor-supervised field experiences vs. independent field experiences. Among the graduate student participants, a clear consensus of student responses favored the presence of a course professor as the field experience supervisor in a course-embedded field experience. All 14 respondents indicated that they liked having the course professor present on site. Comments such as, *"I liked the structured, professor-supervised experience because I got immediate feedback about things that I was doing well and those things that needed improved,"* and *"I loved it; I loved it because I felt that I was supported every step of the way,"* suggest that the presence of the course professor is seen as supportive.

Several students commented on the structure and immediacy of the professor's feedback as being helpful components in the field experience. One student indicated, *"I really liked the structured, professor-supervised field experience. I was very nervous when beginning*

experience, so having a professor on site helped keep me focused and calm. I felt it was beneficial because I was able to ask questions and get immediate feedback on how the field experience was progressing. It made me feel more confident in my performance and the progress that was being made with the student. I liked being able to discuss the data that was being collected one on one with the professor.” Another student reported, *“I felt much more comfortable with my professor being there and giving us structure on what to do, especially since it was my first time teaching a student with significant disabilities. I felt that if something did go wrong that we had someone there to guide us on what the next step should be.”*

A particularly candid student stated, *“Yes, the experience was intense because of the structure and professor supervision, but I felt that this is what made it as effective as it was for our student and for us as educators. Our professor can be very intimidating with his knowledge at times, which can make one feel unconfident and nervous, especially when he calls you out on a mistake you made. I look at this as being helpful because you’ll never make that same mistake again! I also believe that this pushed me to work for perfection, be prepared, and to be aware of what I’m doing at all times. I feel that these are all important characteristics of an effective special education teacher. I also appreciated the professor supervision because questions could be answered on the spot, he modeled how to interact with these students, and we were able to converse the positives and negatives of what occurred while it was fresh in our minds.”*

Even those graduate students who had experience with other courses requiring a field assignment expressed a positive impression of the embedded field experience. One student noted, *“I liked it very much. I felt like I was truly learning at a graduate level. It fit the schema I had of graduate level field work. During more independent field experiences, I often felt like I was the expert on site and mentoring teachers were learning from me.”* Another student stated, *“This was the most rewarding field experience I felt I had in my masters [sic] program. I felt I just learned so much more having a professor on site to directly observe my work and my student’s work and provide me with immediate feedback.”*

The data suggested that the presence of a course professor on site was deemed beneficial by the graduate students surveyed.

Discussion

The findings from this study suggest several factors for teacher educators to consider as they develop their courses and field experiences for teacher certification candidates. First, the graduate students surveyed indicated that they found having a professor on site to be effective in providing support and encouragement for the development of their feelings of teacher self-efficacy. This finding mirrored that of McDonnough and Matkins (2010), whose data suggested that an embedded field experience “led to a greater sense of self as teacher” (p. 20).

The literature on self-efficacy has indicated that mastery experiences, vicarious experiences, verbal persuasion, and emotional arousal each contribute to the development of self-efficacy. Based upon the information provided by survey respondents, the embedded field experience provided each of these factors, which may be the reason that the students experienced enhanced self-efficacy.

Second, many of the students referred to the design of the field experience as “structured” and described that structure as a source of comfort to them. The professor had provided a very specific protocol according to which the students were required to execute the video modeling intervention. The presentation of a task-specific mastery experience has been shown to be of importance in the development of teacher efficacy (Tschannen-Moran & McMaster, 2009).

Third, vicarious experiences also provide a source of information on which individuals base their efficacy beliefs. Since the professor was on site, he was able to, as one student described it, “*model how to interact with these students,*” which provided a rich source of vicarious experience for the graduate students. Further, prior research has suggested that teacher certification candidates may not readily make connections between the content they learn in their campus-based courses and their field experiences. Tang (2003) noted that the teacher certification candidates in her study found it “difficult for student teachers to cross-reference their learning from regular teachers in the socio-professional context with the more theoretical forms of knowledge learned in the campus-based part of the teacher education programme” (p. 491). This difficulty may be a reason why the students in the current study expressed a preference for an embedded, professor-supervised field experience. The professor was on hand to make a direct connection between content explored through course preparation and lectures and experiences in the field, a factor also described in a study by McDonnough and Matkins (2010), who found that “the participation of the methods instructor in the field experience seemed to support connections of research to practice” (p. 20).

Perhaps second only to the impact that the task-specific mastery experience made on the graduate students’ self-efficacy beliefs was the impact that they reported verbal persuasion to have had on fostering their growth. Each the 14 respondents indicated having enjoyed the course professor’s presence on site with them. In every case, they cited as a key reason the immediacy of feedback, available from both the instructor and their peers. This finding is consistent with previous work of Tschannen-Moran, Woolfolk Hoy, and Hoy (1998), who observed that “specific performance feedback from supervisors, other teachers, and even students can be a potent source of information about how a teacher’s skills and strategies match the demands of a particular teaching task” (p. 230), as well as of Philippou, Charalambous, and Kyriakides (2003). It suggests that a fourth factor to consider in designing a field experience is the immediacy and quality of feedback provided to the students.

The last source of efficacy information on which an individual draws, according to Bandura (1977), is emotional and physiological arousal. This arousal can be understood as either excitement or anxiety, and the graduate students surveyed in this study reported both.

Where adequate support is provided, however, excitement becomes motivational and anxiety less crippling. The presence of a professor on site can encourage this balance, as evidenced by the statement of one of the graduate students: *“I was very nervous when beginning this field experience, so having a professor on site helped keep me focused and calm.”* By designing field experiences that are carefully structured with high but clearly articulated expectations, teacher educators can reduce feelings of anxiety that are part of any new situation and support development of teacher self-efficacy.

Finally, it is important that students reflect on their experiences in the field. The graduate students in the current study engaged in reflection through participation in a team discussion board while they were active in the field and through self- and peer-evaluations at the end of the field work. Such engagement can create a sense of a learning community, and much like the “collegial development groups” described by Nolan and Hoover (2004), it can help teacher certification candidates to articulate their beliefs about theory and its relationship to practice.

The results of the current study, though limited by its scope and the small number of participants, suggest that what graduate students seek as they build their teacher self-efficacy are field experiences where their course professors set specific mastery tasks, provide modeling, feedback and support on site, and engage them in active reflection that requires them to link theory to practice in a collegial dialogue with peers. One graduate student used the metaphor of an effective lesson to describe of how embedded field experiences support efficacy: *“To relate it to an effective classroom lesson, an effective lesson does not provide students with in-class instruction in a new skill or set of skills and then immediately move them to independent practice opportunities. Rather, an effective lesson involves teaching and modeling a new skill or set of skills and then engaging students in multiple guided practice opportunities that allow them to practice the new skill while also receiving immediate support, reinforcement, and corrective feedback as necessary. And I believe that the structured, professor-supervised nature of the project enabled me to have the guided practice opportunities I needed to learn, refine, and feel more confident about my skills for teaching students with multiple and significant disabilities.”*

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Appendix: Open-Ended Survey Questions

1. Describe your experiences teaching students with significant and multiple disabilities prior to the Video Modeling field experience.
2. How much practical knowledge did you have about the characteristics of students with multiple disabilities before your Video Modeling Field Experience?
3. Some students have said that they loved the structured, professor-supervised field experience. Others say they hated it. How do you feel? What aspects of the experience made you feel that way?
4. Describe how you felt on the first day of your Video Modeling field experience.
5. How did your feelings about the Video Modeling field experience change during the field experience?
6. Did your sense of efficacy (belief that you are capable of being successful in working with students with significant and multiple disabilities) change during the Video Modeling field experience? In what ways and at what point during the field experience did you notice this change? To what do you attribute your change in feelings?
7. If you could design the ideal field experience for training special educators, what would it look like?
8. Is there anything else about your feelings about the process and experience of your Video Modeling field experience that you think I should know?

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Perceptions and Benefits of Co-Teaching in the Student Teaching Experience

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With increasing demands by the public on today's P-12 classrooms, traditional teacher preparation programs are under attack for failure to prepare teacher candidates effectively to meet these demands. Specifically, teachers must be learner-ready; they must understand the needs of their students and apply data-driven instructional decision making. Often, the traditional student teaching experience does not give candidates the necessary support to develop these higher-order application skills. This mixed-methods pilot study examines the perceptions of 15 candidates and cooperating teachers who collaborated to implement a more innovative approach: co-teaching during the student teaching experience. Results of the pre-to-post survey administration indicate that participants' perception of their knowledge of and confidence in implementing co-teaching increased. Further, participants reported that co-teaching was beneficial to classroom management, led to implementation of differentiated instruction, enhanced professional collaboration, and led to higher student-achievement levels. Results, which have implications for both teacher preparation and P-12 programs, are discussed.

With increasing federal legislation over the last decade, P-12 schools have experienced major changes in curriculum, instructional methods, delivery formats, and expectations for student achievement. Educators have witnessed a push for improved access to the curriculum for students with disabilities; an emergence of response to intervention as a tiered approach for struggling learners in the general education setting; and an emphasis on ensuring effective instruction for all students, specifically differentiated instruction (Parker, Diedre, Alvarez-McHatton, & Rosa, 2010). As a result, there is a call for new models of teaching and learning.

Within this context of heightened focus of teaching and learning, the Council of Chief State School Officers (2012) issued a report that described growing concerns about the shortcomings of traditional teacher preparation programs in preparing teachers to face the demands of today's classrooms. The report calls for *learner-ready* teachers who “understand the differing needs of their students ... collect, interpret, and use student assessment data to monitor progress and adjust instruction ... systematically reflect, continuously improve, and collaboratively solve problems” (Council of Chief State School Officers, 2012, p. iii-iv). That is, today's effective teachers think critically and apply extensive data-based decision making to their teaching.

Further questions focus on the traditional student teaching experience, highlighting the fact that little is known about the effectiveness of the traditional teacher preparation model (Bullough et al., 2003). Student teaching is one of the most significant and influential components of teacher preparation. Despite the importance of the student teaching experience and the changes in P-12 schools, however, the traditional model has remained mostly unchanged for at least a century. Guyton and McIntyre (1990) suggest that it has remained the same since the normal school curriculum of the mid-1800s. Like today, a prospective teacher would work with an experienced practitioner as an apprentice (Labaree, 2008) and assume full responsibility of the classroom in a few short weeks. Unfortunately, this traditional model may not continue to hold up in 21st century P-12 schools. While the model has remained the same, the challenges of teaching have expanded.

To address this issue, institutions are reforming their teacher education programs. Specifically, many of them are now focusing their curriculum on preparing pre-service teachers to meet the needs of diverse learners (Cochran-Smith & Power, 2010), one of the many challenges facing educators today. There is also a need to rethink student teaching to enhance teacher candidates' capacity for collaboration. Alternative models related to collaborative practices assist candidates and their mentors with the obstacles that they face in the field, improve teacher education, and ultimately maximize P-12 students' opportunities to learn (Darling-Hammond, 2006).

In light of these developments, this pilot study explores the paradigm of co-teaching in the student teaching experience as an alternative to traditional student teaching models. A review of the literature indicates that, although co-teaching is historically associated with the field of special education, it is a new and promising approach in teacher preparation. This article describes the perceptions of 15 teacher candidates and cooperating teachers who implemented co-teaching. The results of pre- and post-implementation surveys indicate positive implications for both teacher preparation programs and P-12 schools.

Review of the Literature

Interpretations of Co-Teaching

Interpretations of co-teaching vary greatly. Team teaching, collaboration, and inclusion are terms often used interchangeably with co-teaching (Friend, 2008). In addition, there are many teaching arrangements that are promoted or labeled as co-teaching (Friend, 2008; Villa, Thousand, & Nevin, 2008). In general, co-teaching is defined as two or more professionals jointly delivering substantive instruction to a diverse, or blended, group of students in a single physical space (Cook & Friend, 1995). The teachers share responsibility in planning the curriculum, teaching the lessons, managing the classroom, and evaluating students in an ongoing cycle (Villa, Thousand, & Nevin, 2008). Cook and Friend's (1995) definition is the most widely accepted in the literature; however, there are other related definitions that include phrases such as collaborative teaching, cooperative teaching, shared instructional responsibility, collaborative special education, and team teaching (Muller, Friend, & Hurley-Chamberlain, 2009). In

addition, some states have chosen to adopt their own definitions. For the purposes of this study, co-teaching in student teaching can be defined as two teachers (a cooperating teacher and a teacher candidate) working together with groups of students; sharing the planning, organization, delivery, and assessment of instruction, as well as the physical space (Bacharach, Heck, & Dank, 2003).

As noted, the co-teaching model has been presented as an inclusion model for special education. Prospective special education teachers are typically the only university students required to take coursework involving collaborative approaches such as co-teaching due to the mandates of inclusion in public education. Special education teacher candidates' coursework focuses on diverse instructional strategies and means to accommodate exceptional learners, but it provides little general curriculum content knowledge (Pugach & Warger, 1995; Winn & Blanton, 2005). In contrast, general education teacher candidates' courses usually provide information concerning legal requirements and eligibility classification regarding disability (Winn & Blanton, 2005) but often do not provide information on successful instructional strategies for students with disabilities. These circumstances hinder the capacity for general and special education teachers to work cooperatively.

To prepare all teacher candidates to meet the needs of diverse learners, teacher preparation must encourage collaboration, knowledge about differentiation and inclusion, and professional interaction. Although these topics can be addressed in coursework, prospective teachers should be provided realistic opportunities to practice these skills in authentic classrooms. One solution is unifying the training of general and special educators through overlapping courses and field experiences (Brownell, Ross, Colón, & McCallum, 2005; Ross, Stafford, Church-Pupke, & Bondy, 2006; Van Laarhoven et al., 2006). While there is movement toward preparing all teacher candidates with the skills to implement collaborative approaches in teacher education (Brownell et al., 2005); more work needs to be done.

Co-Teaching in Student Teaching

How is co-teaching in the student teaching experience different from the traditional student teaching experience? The traditional experience varies significantly across institutions but typically involves teacher candidates spending their initial weeks as silent observers, gradually assuming the role of teacher. Eventually, they have full responsibility for the classroom. As they assume this full responsibility, teacher candidates are unassisted in a classroom. On the other hand, co-teaching in student teaching essentially involves the teacher candidate in all aspects of the teaching and learning environment, sharing, planning, teaching, assessing, and managing from day one. Bacharach, Heck, and Dahlberg (2010) identify nine key components of student teaching to help differentiate between a co-teaching model and non-co-teaching model of student teaching. Table 1, adapted from Bacharach, Heck, and Dahlberg (2010), provides a comparison of the two models.

Purpose of the Study

The primary purpose of this mixed-methods pilot study was to examine teacher candidates' and cooperating teachers' perceptions of the co-teaching model in the student teaching experience at a university in southwestern Pennsylvania. At this research site, the College of Education and Human Services has planned a new and expanded Professional Development School model to train pre-service teachers and enhance the skills of professional educators. The project involves new program initiatives in collaboration with several local area school districts. One of the initiatives is co-teaching in which teacher candidates and classroom teachers share the teaching load for up to a year-long experience. The desired result is learner-ready graduates with a thorough grasp of both theory and practice of teaching. This study was a pilot designed to specifically examine the teacher candidates' and cooperating teachers' perceptions about their knowledge and confidence of co-teaching as well as the advantages and disadvantages of using it in the student teaching experience. Ultimately, the results will guide the Early, Middle, and Special Education Department in implementing the model in future semesters and inform the researchers for improving or redesigning the study.

Research Questions

The research questions were:

1. What are the teacher candidates' and cooperating teachers' perceptions of their knowledge of co-teaching?
2. What are the teacher candidates' and cooperating teachers' perceptions of their confidence to co-teach in the student teaching experience?
3. What are the teacher candidates' and cooperating teachers' perceptions of the advantages and disadvantages of co-teaching in the student teaching experience?
4. Have the teacher candidates' and cooperating teachers' perceptions of co-teaching in the student teaching model significantly changed as a result of their experience?

Methodology

Participants

This study involved a rural, southwestern Pennsylvania university. The identified participants included 10 undergraduate teacher candidates in the Early, Middle, and Special Education program who were enrolled in student teaching for the Spring 2012 semester and five cooperating teachers from two school districts that include urban, suburban, and rural schools. No attempt was made to identify age, gender, race, or employment longevity, and whether these characteristics influenced beliefs, as these aspects were unnecessary to fulfill the intent. Pre-surveys were given to 10 teacher candidates during their first practicum session and to 10 cooperating teachers during their training session. Surveys were provided by the graduate

Table 1
Nine Key Components of Co-Teaching Model vs. Non-Co-Teaching Model of Student Teaching

	Co-Teaching Model	Non-Co-Teaching Model
Preparation	Roles and expectations of all members (mentor, teacher candidate, supervisor) are made clear prior to the experience.	Teacher candidates are randomly assigned to mentors who have little support in guiding their growth.
Introduction	Cooperating teachers refer to their teacher candidate as a co-teacher rather than a student teacher and include them in classroom activities from day one.	Cooperating teachers refer to their teacher candidate as a student teacher and gives them minimal participation until later in the experience.
Involvement	Teacher candidate and cooperating teacher work together to remain actively involved with the students.	One teacher is generally passive while the other leads instruction.
Relationship Building	Co-teaching participants are brought together at the beginning of their shared experience to establish a foundation of trust and respect.	Cooperating teachers and teacher candidates have little opportunity to build a relationship before beginning their work.
Communication and Collaboration	Participants receive guidance on the importance of communication and collaboration with instruction and opportunities to practice these skills.	Candidates are expected to inherently possess the communication and collaboration skills necessary to succeed in the classroom.
Planning	Cooperating teacher and teacher candidate are expected to identify specific planning time to plan specific co-teaching strategies for upcoming lessons.	Teacher candidates typically plan lessons in isolation and present them to the cooperating teacher before delivery.
Solo vs. Lead	Teacher candidates and cooperating teachers partner through all aspects of teaching, leading the candidate to become the lead teacher in co-teaching as well as solo teach.	Teacher candidates initially observe for a period of time, eventually taking full responsibility with the expectation that he or she will meet the needs of all students on his or her own.
Modeling and Coaching	Cooperating teacher provides ongoing modeling and coaching, explicitly sharing rationales for decisions.	Teacher candidates are expected to enter the experience skilled in various instructional strategies, possessing the ability to take over after weeks of observation.
Power Differential	Cooperating teachers and teacher candidates are taught to address issues or parity and working as a team.	Cooperating teachers are the authority in the classroom and teacher candidates follow suit.

assistant who provided an introduction of the study. All participants had the opportunity of opting out of the study by not completing the survey. All 10 teacher candidate and cooperating teacher pre-surveys were returned. Identifying information was concealed by the graduate assistant for confidentiality purposes. At the end of the study, teacher candidates were provided a post-survey during practicum and cooperating teachers were provided a post-survey by the graduate assistant and asked to return it via mail. All 10 teacher candidate post-surveys were returned, and five cooperating teacher post-surveys were returned. For the purpose of comparing pre- and post-survey results, only those participants who completed and returned both pre- and post-surveys were included in the analysis, so results were analyzed from 15 participants' surveys. No incentive was provided to the research study participants.

The researcher conducted a one-day co-teaching training for each type of participant separately prior to the start of the semester. The training included an overview of co-teaching, a brief history and rationale of the model, modeling and training on the six different co-teaching strategies, and suggestions on how to co-teach in a teacher candidate/cooperating teacher partnership. Teacher candidates were required to try at least one co-teaching strategy with their cooperating teacher during the semester for the purpose of this research project rather than for a formal evaluation or grade.

Data Collection

Pre- and post- surveys for this research provided responses about participants' knowledge and perceptions of the co-teaching model in the student teaching experience as well as the advantages and disadvantages of the use of the model. The instruments, included in Appendices A and B, consisted of Likert-type scales of 10 response items ranging from "very unsure" to "very confident," which were assigned a number from 1 to 5 to ensure equal distribution across the scale. The survey questions were adapted from the Colorado Assessment of Co-Teaching (Friend, 2008). In addition, three open-ended questions were included to solicit participants' knowledge and perceptions of the advantages and disadvantages of co-teaching. A matrix showing the relationship between the research questions and the survey tool is included in Table 2.

A group of teacher candidates and their cooperating teachers were asked to complete the Likert-type surveys at the start of the spring semester. Post-surveys were given to the teacher candidates in practicum and to cooperating teachers at the end of the semester, and they were asked to return to the graduate assistant via mail. As noted above, to permit the comparison of pre- and post-surveys, only data from respondents who returned both the pre-survey and post-survey were used, resulting in an N of 15. Qualitative data from the pre- and post- surveys were examined to gain insight into the participants' views of the advantages and disadvantages of co-teaching. Additionally, quantitative data were used to enhance the qualitative data of their self-perceptions of their knowledge and confidence of co-teaching in the student teaching experience and evaluate whether cooperating teachers' scores and teacher candidates' scores changed after training and using the co-teaching model.

Table 2
Survey Matrix Showing Relationship to Research Questions

Survey Question	Research Questions	
1. I am confident in my skills as a co-teacher.	2	4
2. I feel confident in planning for co-teaching lessons.	2	4
3. I feel confident in implementing co-teaching lessons.	2	4
4. I feel that co-teaching benefits student learning.	1	4
5. I understand the goals of co-teaching.	1	4
6. I feel confident in my abilities of classroom management.	2	4
7. I felt confident about my time management skills.	2	4
8. I am willing to share my knowledge and skills with my co-teacher.	1	4
9. I am confident in my communication skills.	2	4
10. I have expanded my knowledge base and skills.	1	4
11. What are the advantages of co-teaching?	3	4
12. What are the disadvantages of co-teaching?	3	4
13. What are some things that you might do differently related to co-teaching?	3	4

Data Analysis

This study used mixed methods in which quantitative and qualitative data were collected simultaneously and analyzed. Table 3 summarizes the data analysis methods and the measured dimension for each research question.

For research questions 1 and 2, descriptive statistics in terms of percentages were used to examine two specific dimensions: knowledge and confidence. Percentages of “very confident” responses were calculated from aggregated scores of respondents; changes in individual

Table 3
Data Analysis Methods

Research Question	Data Analysis Method	Measured Dimension
1	Quantitative Analysis: Descriptive Statistics	Knowledge and Confidence
2	Quantitative Analysis: Descriptive Statistics	Knowledge and Confidence
3	Qualitative Analysis: Emerging Themes	Advantages and Disadvantages
4	Quantitative Analysis: Inferential Statistics	Changes in Individual Responses

responses were not tabulated for this particular portion of analysis. For question 4, inferential statistics were conducted to compare pre-survey item responses to post-survey item responses. Specifically, paired sample t-tests with the significance level for statistical tests set at .05 were performed. This test was initially conducted for all participants combined, followed by teacher candidates and cooperating teachers separately, to compare the means of each item response on the pre- and post-survey and determine the statistical significance. During this particular analysis, attention was given to changes in individual responses as the researchers considered it necessary for drawing conclusions. Overall, performing the t-test allowed the researchers to make inferences from the sample—not necessarily to the population—and make more informed conclusions of the results rather than relying solely on percentages. Lastly, for question 3, which sought qualitative data, responses to the three open-ended questions on the surveys were analyzed-by examining trends in participant responses.

Results

The findings of this pilot study reflect pre- and post-surveys of the 10 candidates and five cooperating teachers who participated in both surveys. This comparison of pre- and post-survey responses sheds light on the potential for changes in participants' perceptions of the personal prerequisites for co-teaching. Survey items 1-10 were coded into the two categories: knowledge and confidence. None of the percentages of responses remained the same or decreased from pre- to post-survey; they only increased. Quantitative data were analyzed to answer questions 1, 2, and 4, and these findings are presented first. Qualitative data were analyzed to answer Question 3, and these findings are presented second.

Research Question 1: What are the teacher candidates' and cooperating teachers' perceptions of their knowledge of co-teaching?

Ten items using a five-point scale make up the first portion of the survey instrument. Survey items analyzed for the knowledge dimension included 5, 8, and 10, as shown in Table 4. In this dimension, there is more understanding of co-teaching goals as the post-survey percentage nearly triples in participants' evaluation of the impact of the semester-long co-teaching experience. In addition, more participants were willing to share their knowledge and skills with their co-teacher and responded that they have expanded their knowledge base and skills as a result of the experience. On the whole, participants' knowledge of co-teaching as measured by pre- and post-survey administration suggests that they developed more knowledge over the course of the semester.

Research Question 2: What are the teacher candidates' and cooperating teachers' perceptions of their confidence to co-teach in the student teaching experience?

Eight survey items were analyzed for the dimension of confidence. These items were 1, 2, 3, 4, 6, 7, and 9. Table 5 displays that the post-survey percentage more than doubled for the

Table 4

Pre- and Post-Survey Percentage of Teacher Candidates' and Cooperating Teachers' Self-Perceptions of Co-Teaching Knowledge, N=15

Knowledge	Pre-Survey Percent	Post-Survey Percent
I understand the goals of co-teaching.	(4) 27%	(12) 80%
I am willing to share/have shared my knowledge and skills with my co-teacher.	(8) 53%	(13) 87%
I am eager to expand/have expanded my co-teaching knowledge base and skills.	(11) 73%	(14) 93%

majority of items, which suggests that participants developed a greater confidence in their ability to co-teach and collaborate over the course of the student teaching experience. The greatest self-confidence is revealed in participants' ability to implement co-teaching lessons. Participants had the least amount of self-confidence in time management skills. In regard to collaboration, a hallmark of co-teaching, more participants indicated that they were confident in sharing their knowledge and skills than they were before implementing co-teaching.

Research Question 4: Have the teacher candidates' and cooperating teachers' perceptions of their knowledge and confidence of co-teaching in the student teaching model significantly changed as a result of their experience?

Tables 3, 4, and 5 present the analysis for the fourth question. The level of significance was calculated using a paired sample t-test to determine if there was a difference between pre- and post-survey item responses. The test revealed the participants' responses to be statistically significant as a combined group, meaning there was a reliable difference in pre- and post-survey responses. Similarly, this test demonstrated statistical differences in responses between teacher candidates and cooperating teachers separately. The results suggest that the co-teaching experience in student teaching significantly changed participants' perceptions of their knowledge and confidence of co-teaching. Particularly, the experience made a significant difference in teacher candidates' perceptions as opposed to cooperating teachers' which showed no statistical significance.

The mean for all participant responses increased for all survey items with a difference of the means ranging from 0.2 to 1.2, as summarized in Table 6. This result reveals an overall increase in the positive perceptions of co-teaching. Specifically, there is a strong significance for item 3, "I feel confident in implementing co-teaching lessons"; item 5, "I understand the goals of co-teaching"; and item 6, "I feel confident in my abilities of classroom management." In contrast,

Table 5
Pre- and Post-Survey Percentage of Teacher Candidates' and Cooperating Teachers' Self-Perceptions of Co-Teaching Confidence

Confidence	Pre-Survey Percent	Post-Survey Percent
I am confident in my skills as an individual teacher/co-teacher.	(5) 33%	(10) 66%
I feel/felt confident in planning for co-teaching lessons.	(5) 33%	(9) 60%
I feel/felt confident in implementing co-teaching lessons.	(3) 20%	(11) 73%
I feel/felt that co-teaching will benefit/benefited student learning.	6 (40%)	(12) 80%
I feel/felt confident in my abilities of classroom management.	(4) 27%	(9) 60%
I feel/felt confident about my time management skills	(3) 20%	(8) 53%
I am/was confident in my communication skills.	(7) 46%	(13) 87%
I am willing to share/have shared my knowledge and skills with my co-teacher.	(8) 53%	(13) 87%

there was no significance for item 1, “I am confident in my skills as a co-teacher,” and item 8, “I have shared my knowledge and skills with my co-teacher,” which was strongly trending with 0.055 significance.

The mean of teacher candidates’ responses, summarized in Table 7, increased for all survey items with a difference of the means ranging from 0.3 to 1.6 indicating an increase in perceptions of co-teaching. The analysis also reveals a strong significance for this sample population for the majority of the items. Similarly, the mean for cooperating teachers’ responses, summarized in Table 8 increased for most survey items except for items 2, 4, 7, and 9, which remained the same.

Table 6

Statistical Significance of Participants' Pre- and Post-Survey Knowledge and Perceptions Using a Paired-Sample t-Test, N=15

Question	<u>Pre-Survey</u>	<u>Post-Survey</u>	Mean Difference Pre to Post	T-test, p-value
	M	M		
1	4.3	4.6	0.3	0.164
2	3.7	4.5	0.8	0.017
3	3.5	4.7	1.2	0.0007
4	4.2	4.8	0.6	0.014
5	3.9	4.8	0.9	0.003
6	4.1	4.6	0.5	0.003
7	3.8	4.5	0.7	0.010
8	4.5	4.9	0.4	0.055
9	4.5	4.9	0.4	0.008
10	4.7	4.9	0.2	0.040

The difference of the means for cooperating teachers ranged from 0 to 0.4, indicating a slight improvement of co-teaching knowledge and perceptions for items 1, 3, 5, 6, 8, and 10 and no change for the remaining items.

Research Question 3: What are the teacher candidates' and cooperating teachers' perceptions of the advantages and disadvantages of co-teaching in the student teaching experience?

Two open-ended questions were included on the pre- and post-surveys for the purpose of identifying participants' perceptions about the advantages and disadvantages of co-teaching in the student teaching experience. The advantages were the main focus of this question. Several primary themes related to the benefits of co-teaching in the student teaching experience emerged during data analysis. These major themes are: (a) classroom management, (b) instruction, (c) collaboration, and (d) student learning. The aforementioned themes provided an organizational framework for reporting the open-ended response data and allowed for the data to be described qualitatively. In keeping with the core structure of the research, the participants' comments to the open-ended responses were analyzed as a combined group.

Classroom management. Both types of the participants consistently reported that co-teaching is beneficial for managing the classroom as it relates to behavior and instruction. Based on participants' responses, specific co-teaching strategies and the support of a co-teacher make managing a classroom less complicated.

Table 7

Statistical Significance of Teacher Candidates' Pre- and Post- Survey Responses Using a Paired-Sample t-Test, N=10

Question	<u>Pre-Survey</u>	<u>Post-Survey</u>	Mean Difference Pre to Post	T-test, p-value
	M	M		
1	4.1	4.4	0.3	0.278
2	3.2	4.4	1.2	0.012
3	3.1	4.7	1.6	0.001
4	3.9	4.8	0.9	0.009
5	3.5	4.7	1.2	0.008
6	3.8	4.4	0.6	0.005
7	3.4	4.5	1.1	0.003
8	4.4	4.8	0.4	0.103
9	4.3	4.9	0.6	0.005
10	4.6	4.9	0.3	0.081

Table 8

Statistical Significance of Cooperating Teachers' Pre- and Post- Survey Responses Using a Paired-Sample t-Test, N=15

Question	<u>Pre-Survey</u>	<u>Post-Survey</u>	Mean Difference Pre to Post	T-test, p-value
	M	M		
1	4.8	5.0	0.2	0.373
2	4.6	4.6	0.0	1.000
3	4.4	4.8	0.4	0.177
4	4.8	4.8	0.0	1.000
5	4.6	5.0	0.4	0.177
6	4.8	5.0	0.2	0.373
7	4.6	4.6	0.0	1.000
8	4.8	5.0	0.2	0.373
9	4.8	4.8	0.0	1.000
10	4.8	5.0	0.2	0.373

Different co-teaching strategies provide co-teachers with the opportunity to reduce class size—a management benefit that emerged from the data. One candidate expressed, “Students were much easier to manage considering the cut in class size.” Likewise, a cooperating teacher reported that splitting big classes into smaller groups was an advantage of co-teaching. Repeatedly, participants emphasized small groups as a benefit for both instructional and behavioral purposes. One cooperating teacher responded, “You’re teaching a smaller group, so behaviors are not a big problem.” In addition to class size, control was another advantage that stemmed from the data. A teacher candidate felt that co-teaching helped to keep students under control. Similarly, a cooperating teacher believed that co-teaching allowed “close proximity and more attention to decrease inappropriate behaviors.” Furthermore, the management of time was seen as a co-teaching benefit from two participants, one candidate and one cooperating teacher. The candidate reported that co-teaching maximizes teaching and learning time, and the cooperating teacher stated that “class goes quickly and smoother.”

The disadvantages mentioned in this study by the participants could be mainly classified in the classroom management category. They include students being distracted by other groups in the room, co-teachers keeping the independent groups on task during station teaching, and controlling the noise level. All these challenges have been identified by experienced co-teachers and are ones that the literature has addressed (Friend, 2008).

Instruction. Another recurring theme was the impact on instructional practices as teacher candidate and cooperating teacher partners performed co-teaching in the student teaching experience. Differentiated instruction was an instructional practice that participants consistently mentioned as a benefit of co-teaching. Two teacher candidates explicitly stated that they felt that co-teaching helped to differentiate instruction, while other participants expressed characteristics that reflect differentiated instruction, such as focusing on student modalities/learning styles, using different strategies and styles to reach the same objective, and identifying and focusing on different student needs. Emphasis was also placed on individualized and small group instruction. The majority of participants believed that co-teaching provided more opportunities for meeting students’ individual needs and “more attention for struggling and advanced students.” Another common perception of co-teaching advantages among the participants was utilizing different styles of teaching. As one candidate stated, “We were able to reach more learners by teaching with different strategies and styles.” Similarly, a cooperating teacher said, “The students were able to experience different styles of teaching at one time.” Another explained this advantage as “other ways in presenting the information to students.”

Collaboration. Participants emphasized the impact of having the support of two teachers. This kind of support is typically not available to all experienced teachers in their classrooms, let alone a single teacher candidate in the student teaching experience. One cooperating teacher reported, “My student teacher was able to have help planning and executing lessons.” Another teacher mentioned a similar benefit: “for the student teacher to see a veteran teacher teaching and interacting with students.” This teacher felt that co-teaching allowed reciprocal learning for both the mentor and the teacher candidate. One candidate noted, “Two people sharing thoughts

and ideas leads to better activities and management than if I were working alone.” As teacher candidates encountered the fears and challenges of student teaching, they had the support of their co-teacher. Cooperating teachers commented on the benefits of reciprocal support as well.

Collaboration through co-teaching was also advantageous in the respect that the partners became a source of information for one another. This finding was revealed through statements such as “two ideas coming together,” “getting experience and ideas from other professionals in the field,” and “there are two opinions in the room.” In the same way, participants felt co-teaching provided them with a professional development opportunity by sharing ideas and increasing their knowledge base, learning new strategies and techniques from one another, and developing professional relationships.

Student learning. Overall, the participants perceived co-teaching in the student teaching experience to have a positive impact on the children. The presence of multiple teachers allowed students to get more individual help and support. As one cooperating teacher said, “Learning can become more personalized for the students due to focusing on smaller groups.” A teacher candidate explained that “students are not only getting information from one teacher, but two. If one teacher is having trouble explaining the other one can help.” However, several teacher candidates suggested in the pre-survey that having two teachers in the classroom may confuse students prior to implementing co-teaching in their experience. This perception was not mentioned in the post-survey after the implementation of co-teaching.

Motivation also impacted student learning. One teacher candidate observed “increased interest by the students and they seemed to understand the content well.” Additionally, a cooperating teacher noticed, “The students seemed to enjoy the movement and the variety of station teaching.”

Other advantages reported by the participants in regard to student learning include the variety of backgrounds between co-teachers supports learning, more opportunities for students to receive feedback, and increased accountability among students for their work.

Discussion

In examining the findings of this pilot study, inferences can be drawn and possible explanations can be presented based on the significant outcomes. They will be addressed here in regard to a combination of results: teacher candidates and cooperating teachers combined, teacher candidates separately, and cooperating teachers separately.

Important to this study was the discovery that overall participants had positive perceptions of co-teaching in the student teaching experience. They constructed adequate knowledge about co-teaching and were confident in implementing this practice as a result of the opportunity to work “at-the-elbow” of another during the student teaching experience.

The majority of survey responses for teacher candidates and cooperating teachers combined showed a significant difference from pre- to post-test. An examination of the responses suggests that both teacher candidates and cooperating teachers increased their knowledge and confidence overall as a result of the co-teaching training and practice, but they specifically did not have confidence in their skills as a co-teacher. In addition, there was no difference in responses regarding the question related to willingness to share or experience with sharing their knowledge and skills as a co-teacher. The responses to these specific questions reveal that there may be a correlation between confidence as a co-teacher and willingness or ability to share knowledge and skills as a co-teacher. When pre-service teachers and in-service teachers feel that they can use certain instructional strategies and tools, the confidence transforms into their willingness to use it (Talsma, Levin-Messineo, Seels, Campbell, & Balach, 2002). Presumably, they would share their knowledge and skills with others as well. This practice, a form of reflection and professional development, is crucial in a co-teaching partnership. Particularly, reflection is a way for teachers to help themselves or help their colleagues improve as teachers. Through reflective practices in a group setting or partnership, teachers learn to listen carefully to each other, which also gives them insight into their own work (Ornstein, Thomas, & Lasley, 2000). With more time for co-teaching pairs to practice co-teaching, it is assumed that they would develop confidence as a co-teacher and be willing to share their knowledge and skills in a collaborative way.

Since a major component of co-teaching is collaboration and sharing between co-teaching partners, the response to item 8, which was specifically designed to address this characteristic, was surprising to the researchers and given particular attention. This topic was emphasized in the co-teaching training prior to the start of the semester, and it was expected that all participants would be willing to collaborate and share their knowledge and skills with their co-teachers and had shared them throughout the student teaching experience. In examining the results collectively, they show that 53% of participants (n=8) on the pre-survey were “very” willing to share their knowledge and skills with their co-teacher, and 87% of participants (n=13) on the post-survey had “very confidently” shared their knowledge and skills with their co-teacher. Again, this result could have been influenced by the training and practice; however, the difference on this item was statistically insignificant but trending. In analyzing individual responses, one candidate’s response to the statement decreased from “very confident” to “somewhat confident” pre-survey to post-survey. Several underlying factors may be the cause of these results. The survey items reflect personal traits which tend to be relatively constant but more malleable during the years of teacher preparation (Decker & Rimm-Kaufman, 2008). In this case, the willingness to collaborate and share knowledge and skills could depend on the participants’ personalities or attitudes related to that practice. Another cause could be related to the structure of the hosting schools in which the master schedule did not allow time for collaboration or sharing. Teacher candidates who were *willing* to collaborate and share may not necessarily have been *able* to do so. Generational differences related to the profession could impact responses as well. Making teachers active team players requires a new approach in the profession. Teacher candidates and cooperating teachers may have different views on collaboration based on their training and the era in which cooperating teachers entered the field.

For example, veteran teachers may not be as willing to collaborate and share compared to novice teachers due to ingrained anonymity, as Lortie (1976) famously characterizes the work of a teacher in his book, *Schoolteacher: A Sociological Study*. Another interpretation could be that the teacher candidates were more optimistic about their relationships with their cooperating teachers than were cooperating teachers, who may have become complacent after years of teaching and mentoring.

For item 1 on the survey, 33% of the participants (n=5) on the pre-survey and 66% of the participants (n=10) on the post-survey reported being “very confident” in their individual teaching skills. Again, this difference can be attributed to the training prior to the semester and the candidates’ teaching experience during their student teaching assignment, but the mean difference between pre- and post-survey on this item was small. Two candidates actually rated themselves lower on the post-survey than the pre-survey. This decrease in confidence of individual teaching skills could be linked to the complexity and challenges of co-teaching that the two candidates may have experienced in practice. Co-teaching is a sophisticated service option and is far more complex to implement than it might seem at first consideration (Friend, 2008). Since this research was done in a short period of time, establishing the necessary components for effectiveness such as co-planning time, building positive working relationships between co-teaching partners, and clarifying roles and responsibilities could have been difficult for candidates and their cooperating teachers, which could have lowered the two candidates’ confidence levels in teaching overall.

Many of the advantages and disadvantages mentioned by participants in this study were similar to those typically expressed by practicing co-teachers (Cook & Friend, 2005). Although candidates and cooperating teachers received one day of training on co-teaching, they were left to figure the rest of it out for themselves. This structure provided an opportunity for participants to construct knowledge about the important elements of successful co-teaching.

Teacher candidates and cooperating teachers in this study emphasized several aspects of classroom management as benefits to co-teaching. This result was a hopeful finding since classroom management is a “survival” concern for novice teachers (Tomlinson et al., 1994). These findings in this pilot study are similar to those of Heck and Bacharach (2010) who investigated academic achievement in reading and math for students in grades 1-6 in co-taught classrooms with teacher candidates and cooperating teachers compared to non-co-taught classrooms. They found that co-teaching supported classroom management. The teacher candidates and cooperating teachers in their study reported that co-teaching improved classroom management skills and equipped them to deal with behavioral and instructional management issues.

Time as a benefit was an unexpected finding. It tends to be a dilemma most frequently mentioned by co-teachers in reference to common planning and preparation as revealed in Ashton’s (2003) study. One teacher candidate in the current study confirmed this challenge by

commenting, “Some forms of co-teaching are consuming to plan.” However, the data shed light on time as a benefit for instruction and student learning rather than planning and preparation. For example, a teacher candidate remarked, “Co-teaching allowed me to catch problems faster because I was able to pay attention to a smaller group of students and their needs.” Another candidate mentioned, “Students have the opportunity to learn more during a set time by having more than one teacher.” Although two teacher candidates found co-teaching enhanced instructional time, one co-teaching pair found that it was difficult for each of them to keep the same pacing of the co-taught lesson. The teacher candidate stated, “There were times when I would finish first, or the other teacher would finish first and that caused some difficulties.” This coordination is a valid teacher concern, particularly when a co-teacher is a teacher candidate who has little experience. With more experience, co-teachers can find ways to eliminate this issue by planning and debriefing on a regular basis, modeling a lesson’s activities before a lesson, scheduling time in the lesson for students to ask questions, or assigning independent tasks to students to release a co-teacher in order to offer guidance and feedback to the other (Villa, Thousand, & Nevin, 2008). Co-teachers in the current study reflected on this challenge and suggested as solutions a timer as well as written instructions and more in-depth work for independent groups.

Many participants commented that co-teaching supported the individual needs of students. The rationale provided by candidates and cooperating teachers in this study included a reduced student-teacher ratio, differentiated instruction, utilizing different teaching strategies, and the advantage of having different teaching styles between the co-teachers. These perceptions of instructional co-teaching advantages are consistent with the opinions of co-teaching expert Marilyn Friend (2008), who says co-teaching should be based on the needs of students in the classroom. In addition, it confirms the findings of Nevin, Thousand, Paolucci-Whitcomb, and Villa (1990) who studied collaborative teams to support students at risk. They found that co-teachers who shared knowledge and skills often generate novel methods to individualize learning. Consequently, this factor could lead to increased motivation for students which participants in this study observed as a benefit of co-teaching. In a study performed by St. Cloud University in which secondary students were interviewed to identify the benefits of co-teaching, over half the students felt that co-teaching resulted in more creative lessons by co-teachers (Bacharach, Heck, & Dahlberg, 2010). The current study’s finding of motivation as a benefit of co-teaching could be a result of innovative and creative lessons developed by the co-teachers

Although the participants in this study perceived that co-teaching improves student learning, the impact of co-teaching on student learning is inconsistent. Two participants commented on the pre-survey that students may get confused by having two teachers in the classroom, but there was no mention of student confusion as a disadvantage after co-teaching implementation. The occurrence of student confusion related to co-teaching seems to vary in the literature. Participants in a case study by Wilson-Kamens (2007) that explored pairs of pre-service teachers who were co-teaching in inclusive classrooms had conflicting views of having two or more teachers in a classroom based on their experience. One participant team claimed that students did not know to

whom to look for leadership, but the other team did not have that same observation. Perhaps the impact of multiple adults depended on the perceptions of the individuals involved and the context of the co-teaching setting.

In analyzing the participant groups separately, there was some distinction between the two. There were no significant differences between the cooperating teachers' pre- and post-surveys. In this case, their results revealed that they were more knowledgeable and confident in the prerequisites for co-teaching, which was expected. It is possible that the variation between the two types of participants can be attributed to the time spent in the field, particularly cooperating teachers' exposure to K-6 students and various teaching strategies, as well as their comfort in the classroom.

Limitations

There were several limitations to this investigation. First, the participant sample (N = 15) was small; however, every participant utilized the co-teaching model and returned a pre-survey and post-survey. This factor allowed the researchers to conduct paired sample t-tests with the data to compare before and after implementation responses. The limited number of subjects precludes firm conclusions from this data.

A second limitation that may have influenced the findings is the length of the study. The co-teaching was implemented in one 15-week semester, and teacher candidates were required to try co-teaching with their mentor at least once during that time. Participants' perceptions could change after having more practice with co-teaching. Presumably, they would gain more knowledge and confidence with more time.

A third limitation that may have influenced the results of the study is the use of a sole instrument for data collection: surveys. As a result, the depth and accuracy of the results are restricted. Although mixed methods were used in this research to provide alternate interpretations of the data, triangulation of instrumentation such as the use of surveys, observations, and interviews would help in validating the claims in this initial pilot study.

Finally, the study included one co-teaching training for teacher candidates and cooperating teachers separately prior to the experience. Providing more training or monthly meetings to examine the experience would support co-teachers, especially candidates who have no prior preparation of co-teaching.

Implications

The perceptions of the participants in this pilot study suggest implications for teacher education and P-12 schools. This study provides insight into the perspectives of teacher candidates and in-service teachers to design clinical experiences that prepare prospective teachers

for collaborative approaches such as co-teaching and support the needs of P-12 students during the student teaching experience.

Implications for teacher education. This pilot study examined the culminating student teaching experience, and the results revealed that more time could increase participants' co-teaching knowledge and confidence. If more time were embedded in the teacher education program for candidates to co-teach, they could have more experiences and possibly work with a variety of partners. In addition, experiences in a variety of settings would expose the teacher candidates to different structures that they may encounter in their own classrooms. Furthermore, participants would have time to employ a variety of co-teaching strategies. One teacher candidate expressed that she would like to practice all the different strategies to learn when it is best to implement them. As a result, it would be beneficial for teacher preparation programs to introduce collaborative experiences earlier.

Expected findings from this study showed that cooperating teachers were more knowledgeable and confident in co-teaching than teacher candidates. As a result, co-teaching with an experienced teacher may inhibit a candidates' confidence. A consideration for teacher preparation programs would be to pair teacher candidates with another candidate for co-teaching instead of a cooperating teacher.

It is also important to consider the timing of the experience. The participants began co-teaching in the spring, when classroom routines and procedures had already been established and students were accustomed to their teacher and styles of teaching. An extension for future research would be to investigate a similar fall experience. At times, classroom teachers are reluctant to accept teacher candidates at the beginning of the school year due to their own unfamiliarity with their students and wanting to initiate their classroom routines and procedures. Incorporating the co-teaching model in the student teaching experience could eliminate this issue for teacher preparation programs.

Co-teaching as a requirement in teacher preparation could support the assessment of teacher candidates' professional dispositions as outlined by the Interstate Teacher Assessment and Support Consortium (InTASC, 2011). Licensure standards require departments of education to provide assessment data demonstrating candidates' professional dispositions in addition to their knowledge and skills. Using a collaborative approach like co-teaching would aid in this practice.

Lastly, formal preparation for the co-taught clinical experience should be considered. Although one training was provided prior to co-teaching implementation in this study, teacher candidates and cooperating teachers in this study had little to no prior preparation in co-teaching. Ideally, knowledge and skills related to co-teaching and collaboration would be embedded in coursework for candidates. However, co-teaching partners such as those in this study might participate in training sessions together prior to the experience. Ongoing sessions could be provided throughout the semester to allow participants to examine the experience more deeply. Topics for these trainings could be suggested by the research for professional development of

co-teachers such as collaboration, differentiation, communication skills, reflection, and conflict resolution (Friend, 2008; Villa, Thousand, & Nevin, 2008).

Implications for P-12 schools. Currently, many school districts and teachers are rethinking their commitment to mentoring teacher candidates. The higher demands of teaching and learning has placed pressure on schools and teachers and made them apprehensive about giving to inexperienced teachers precious instructional time in the classroom. This attitude is detrimental to teacher candidates whose field and practicum experiences are the foundation of teacher training. As a result, the link between schools and universities is more critical than ever before. Alternative models such as co-teaching would be beneficial in this era of accountability and mandates by providing more support to students in the classroom as well as the classroom teacher.

An effective way to support collaboration and responsive classrooms in the long term is for districts to hire staff members who already have experience in these practices. The hiring process is critical for bringing on board educators who are ready for the challenge of today's varied student population. By developing partnerships with universities with a shared goal of collaboration and co-teaching, new teachers are more likely to develop competency in that area. Hence, districts with that goal can secure staff with the skill and will to co-teach and collaborate.

Another consideration for co-teaching in the student teaching experience is the benefit it provides to classroom teachers in regard to professional growth. It has afforded teachers with an on-going, site-based professional development opportunity. The experience gives cooperating teachers the opportunity to reflect on their practice and be innovative. They can learn new strategies from the teacher candidate. In addition, they can examine and improve their practice from debriefing sessions. Guskey (2003) asserts that professional development is most effective when it is embedded in teachers' work. This experience can be utilized as a reciprocal teaching experience for both the university and P-12 schools.

Participants in this study believed that co-teaching had a positive influence on student learning. Although the impact may depend on the individuals involved and the context, the literature has revealed increased student test scores for co-taught classrooms with candidates compared to traditional student teaching classrooms (Bacharach, Heck, & Dahlberg, 2010). This information, in addition to the current study's findings makes a good case for school districts and teachers to accept co-teaching candidates in their classrooms.

Conclusions

Although co-teaching is not a new trend in education, its utility in the student teaching experience is a rather new area of study. The data generated in this pilot study indicate that participants have an overall positive perception of co-teaching in the student teaching experience. In addition, the findings indicate that the co-taught student teaching experience

has potential value in supporting the development of prospective teachers, the professional development of practicing teachers, and the learning of students in the classroom.

This study provides a starting point for structuring co-taught experiences in the student teaching experience and offers a basis for teacher preparation programs to rethink the clinical experiences necessary to prepare their students for the realities of 21st century classrooms. Furthermore, it urges partner schools to support this alternative model as a benefit for student achievement. It is apparent that co-teaching is no longer an approach to be used exclusively for inclusion, as it originated. Its use in the student teaching experience is an innovative approach to teacher preparation reform and has promise for all stakeholders.

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Appendix A: Teacher Surveys

Pre-Implementation Cooperating Teacher Survey

Please answer the following questions to the best of your ability:

Place an “X” in the box that corresponds with your feelings.	Very confident	Somewhat confident	Neutral feelings	Somewhat unsure	Very unsure
1. I am confident in my skills as an individual teacher.					
2. I feel confident in planning for co-teaching lessons.					
3. I feel confident in implementing co-teaching lessons.					
4. I feel that co-teaching will benefit student learning.					
5. I understand the goals of co-teaching.					
6. I feel confident in my abilities of classroom management.					
7. I feel confident about my time management skills.					
8. I am willing to share my knowledge and skills with my co-teacher.					
9. I am confident in my communication skills.					
10. I am eager to expand my knowledge base and skills.					

I feel the advantages of co-teaching will be:

I feel the disadvantages of co-teaching will be:

I look forward to:

Note. Adapted from Friend (2008).

Post-Implementation Cooperating Teacher Survey

Please answer the following questions to the best of your ability:

Place an "X" in the box that corresponds with your feelings	Very confident	Somewhat confident	Neutral feelings	Somewhat unsure	Very unsure
1. I am confident in my skills as a co-teacher.					
2. I felt confident in planning for co-teaching lessons.					
3. I felt confident in implementing co-teaching lessons.					
4. I felt that co-teaching benefited student learning.					
5. I understand the goals of co-teaching.					
6. I felt confident in my abilities of classroom management.					
7. I felt confident about my time management skills.					
8. I have shared my knowledge and skills with my co-teacher.					
9. I have utilized my communication skills.					
10. I have expanded my knowledge base and skills.					

I feel the advantages of co-teaching will be:

I feel the disadvantages of co-teaching will be:

I look forward to:

Note. Adapted from Friend (2008).

Appendix B: Teacher Candidate Surveys

Pre-Implementation Teacher Candidate Survey

Please answer the following questions to the best of your ability:

Place an "X" in the box that corresponds with your feelings.	Very confident	Somewhat confident	Neutral feelings	Somewhat unsure	Very unsure
1. I am confident in my skills as an individual teacher.					
2. I feel confident in planning for co-teaching lessons.					
3. I feel confident in implementing co-teaching lessons.					
4. I feel that co-teaching will benefit student learning.					
5. I understand the goals of co-teaching.					
6. I feel confident in my abilities of classroom management.					
7. I feel confident about my time management skills.					
8. I am willing to share my knowledge and skills with my co-teacher.					
9. I am confident in my communication skills.					
10. I am eager to expand my knowledge base and skills.					

I feel the advantages of co-teaching will be:

I feel the disadvantages of co-teaching will be:

I look forward to:

Note. Adapted from Friend (2008).

Post-Implementation Teacher Candidate Survey

Please answer the following questions to the best of your ability:

Place an "X" in the box that corresponds with your feelings.	Very confident	Somewhat confident	Neutral feelings	Somewhat unsure	Very unsure
1. I am confident in my skills as a co-teacher.					
2. I felt confident in planning for co-teaching lessons.					
3. I felt confident in implementing co-teaching lessons.					
4. I felt that co-teaching benefited student learning.					
5. I understand the goals of co-teaching.					
6. I felt confident in my abilities of classroom management.					
7. I felt confident about my time management skills.					
8. I have shared my knowledge and skills with my co-teacher.					
9. I have utilized my communication skills.					
10. I have expanded my knowledge base and skills.					

I feel the advantages of co-teaching will be:

I feel the disadvantages of co-teaching will be:

I look forward to:

Note. Adapted from Friend (2008).

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