

Clinical Experiences in Middle and High Schools: Results Of A One-Year Implementation of the Co-Teach Model

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ABSTRACT: The impetus for this study occurred when the principal of a secondary Professional Development School (PDS) questioned the traditional teacher education model utilized by the university partner. This principal asked the university to consider a model that better utilized both the teacher candidate and supervising teacher collaboratively to promote the growth of effective new teachers, ongoing professional development of supervising teachers, and improved student achievement. This research examines the self-reported benefits and challenges of a one-year implementation of the co-teach model for teacher education in both a large suburban middle and high school within the same school district from the perspectives of both grades 7-12 supervising teachers and teacher candidates. The findings reveal the strong desire to continue the model in support of the primary benefits of student learning and teacher preparation.

NAPDS Essentials addressed: 2. A school–university culture committed to the preparation of future educators that embraces their active engagement in the school community; 3. Ongoing and reciprocal professional development for all participants guided by need; 4. A shared commitment to innovative and reflective practice by all participants; 5. Engagement in and public sharing of the results of deliberate investigations of practice by respective participants; 6. An articulation agreement developed by the respective participants delineating the roles and responsibilities of all involved; 7. A structure that allows all participants a forum for ongoing governance, reflection, and collaboration; and 8. Work by college/university faculty and P–12 faculty in formal roles across institutional setting

The American Psychological Association’s Task Report, *Assessing and Evaluating Teacher Preparation Programs* (Worrell et al., 2014), and the National Council for Accreditation of Teacher Educators (NCATE) Blue Panel Report (2010) strongly recommend clinical experiences that support both the development of new teachers through effective field placements and promotion of P-12 student achievement. University teacher education programs and public school partners seek methods that better prepare effective new teachers and train the teacher candidate to work collaboratively with the supervising teacher in promoting student achievement. The responsibility for the successful preparation of the teacher candidate often remains the primary responsibility of the university while the school partners are most concerned with P-12 student achievement. For these reasons, tension may exist between the school partners when teacher preparation programs seek out clinical placements, as public secondary school principals are reluctant to place teacher candidates in high-stakes tested grades or subjects. This tension is exacerbated by the reluctance of supervising teachers to release control of their classrooms to a teacher candidate since student achievement is a measure of their own teaching success.

Researchers at St. Cloud University indicate that giving up control of the teaching and learning processes, and therefore responsibility for student achievement and testing accountability,

has made it difficult for teacher educator programs to find placements for teacher candidates (Heck & Bacharach, 2015). The traditional student teaching model for developing teachers typically begins with the teacher candidate observing the classroom teacher while slowly transitioning to the role of primary teacher. During this transition the supervising teacher segues into the observer role and eventually relinquishes most of the classroom instruction to the teacher candidate. Supervising teachers may be put in the uncomfortable position of allowing teacher candidates to teach “before that individual has proven an ability to teach” and may have good reason to believe that “the novice teacher is not as effective as the veteran instructor in positively impacting student achievement during the student teaching internship” (Darragh, Picanco, Tully, & Henning, 2011, p. 86).

It is possible for the clinical experience to be a positive contribution to the growth of the supervising teacher, the teacher candidate, and P-12 students. NCATE (2010) suggests that clinical placement of teacher candidates “blend practitioner knowledge with academic knowledge as they [teacher candidates] learn by doing” and to accomplish this “teacher education programs must work in close partnership with school districts to redesign teacher preparation to better serve prospective teachers and the students they teach” (p. ii). The National Association

for Professional Development Schools (NAPDS) also provides nine required essentials that distinguish Professional Development Schools (PDS) from other teacher education and public school partnerships (Brindley, Field, & Lessen, 2008).

The question must then be asked: Is there a teacher preparation model that will promote student achievement and successful completion of the teacher preparation standards recommended by NCATE (2010) and the PDS essentials (Brindley et al., 2008) while utilizing the expertise of both the supervising teacher and teacher candidate, without the supervising teacher being required to relinquish control of the learning environment? The answer is yes. Past research supports teacher preparation programs that both effectively prepare teacher candidates and positively impact student learning using the co-teach model (Bacharach, Heck, & Dahlberg, 2010; Morton & Birky, 2015). This research will chronicle more specifically how and why a university and its PDS partners engaged in promoting the co-teach model, as well as the impact co-teaching had on the various stakeholders.

Background

Defining Co-teaching

Co-teaching was originally defined as a strategy to provide instructional services to students with special needs in inclusive classrooms (Cook & Friend, 1995). Friend, Embury, and Clarke (2015) later altered this definition to “a widely implemented service delivery option for students with disabilities, as well as those who are learning English as a second language” (p. 80). This definition of co-teaching should not be confused with the definition currently utilized in defining an alternative approach to teacher preparation. The preferred terminology, in the opinions of Friend, Embury, and Clark (2015), would be to label the teacher preparation model as “apprentice teaching” (p. 81). The differences in the two models are important and may confuse special education teacher candidates as they prepare to become co-teachers. Their special education clinical experiences prepare them to become co-teachers that share parity, accountability, and defined responsibilities within the special education co-teach model. This distinction should be discussed with all teacher candidates so that they understand that there is a distinct difference.

The special education co-teach model involves the partnership of a general educator and a special education teacher. A different co-teach model involves the partnership between a supervising teacher and teacher candidate. While there is some difference in opinion as to whether co-teaching as it was defined originally in the context of special education should be applicable to all teacher candidates in all classrooms, teacher education programs are presently utilizing this approach to develop future teachers (Friend, Embury, & Clarke, 2015). While acknowledging the difference in definitions of co-teaching, this study will utilize the definition as put forth by researchers at St. Cloud University for teacher preparation

programs. They define co-teaching in the context of teacher preparation “as two teachers (teacher candidate and cooperating teacher) working together with groups of students; sharing the planning, organization, delivery, and assessment of instruction, as well as the physical space” (Heck, Bacharach, Mann, & Ofstedal, 2005, n.p.). St. Cloud University utilizes the original co-teaching models of Cook and Friend (1995) in application to their definition of co-teaching as a method for teacher preparation programs and emphasizes that teacher candidates are involved in all aspects of the classroom learning environment from the first day of their field experience (Heck & Bacharach, 2015).

Benefits of Co-teaching

The benefits of the co-teaching model for teacher candidates include the establishment of social and cultural networks, reduced feelings of isolation, improved collaboration skills, and more support (Scantlebury, Gallo-Fox, & Wassell, 2008; Morton & Birky, 2015). The reduction of the student to teacher ratio is one obvious benefit to classroom students and the implementation of response to intervention becomes instantly achievable when two teachers are present (Darragh et al., 2011; Murawski & Hughes, 2009). The benefits for classroom students are greatest when the entire process focuses on student learning. The focus on student learning, when promoted through the co-teaching model, “requires communication...about collectively generated practice, a mutual sense of co-respect for one another’s contributions to the practice, and a shared sense of co-responsibility for meeting the students’ needs” (Scantlebury et al., 2008, p. 971). Researchers at St. Cloud University provide evidence of statistically significant learning gains in elementary mathematics and reading when co-taught classrooms were compared to those that were not co-taught (Bacharach et al., 2010).

Benefits to supervising teachers hosting teacher candidates as co-teachers ultimately results in benefits to their students. The presence of both the supervising teacher and teacher candidate provides for more consistent classroom management, a decreased student to teacher ratio, greater student participation and engagement, enhanced collaboration skills, and increased differentiation and instructional options for all students, as well as an enhanced ability to collect ongoing student data (Darragh et al., 2011; Morton & Binky, 2015; Murawski & Dieker, 2008). While it can be argued that some of these benefits occur in a traditional teacher preparation model, the co-teach model is unique in that the expectations for both supervising teacher and teacher candidate are to be active participants in classroom instruction and planning at all times (Heck & Bacharch, 2015). Tobin and Roth (2006) believe that the benefit of two teachers co-teaching in one classroom is actually “colearning in praxis,” whereby both partners involved learn from each other as teaching progresses (p. 17). For these reasons, the benefits of the co-teach model for teacher preparation are as substantial to the

supervising teacher as benefits to the teacher candidate, and ultimately the students in their classrooms.

Rationale for the Study

Professional Development Schools can provide unique support for a co-teach model of teacher preparation when the nine Essentials are kept in mind. The university and two of the associated PDS sites in this study specifically had 7 of the 9 essentials in mind when they decided to engage in a new PDS initiative. Essential #2 identifies PDS sites as places where school faculty are committed to working with university faculty to offer a meaningful introduction into teaching. The co-teach initiative would not have been implemented if there had been no provision for public school principals and university faculty to attend a common national conference concerning teacher education. The relationships between PDS administrators and PDS university faculty were already established and provided the springboard for conversations concerning positive change within the existing teacher education program.

Essential #6 clarifies that roles should be defined and redefined to further the relationship. The unique structure of formal roles and collaborative relationships within the PDS organization of this university and associated partner public schools allowed for ongoing support of the co-teach initiative as existing responsibilities of PDS faculty evolved to include co-teach professional development. Essential #3 supports ongoing and reciprocal professional development for all participants, Essential #4 supports improved and enhanced educational opportunities, and Essential #8 requires formal roles across institutional settings and the role of PDS faculty members.

These three Essentials were critical in supporting the implementation of a co-teach model. The structure was already in place to train administrators, university liaisons, and site coordinators to provide the requisite professional development to support the co-teach initiative. The university liaisons and site coordinators also were on campus daily and met with the principals every few weeks so that any issues that occurred between the university program and the schools, or between the supervising teachers and teacher candidates, could be resolved quickly. Additionally, Essential #7 supports a structure that allows for ongoing governance, reflection, and collaboration of all participants. The financial structure and agreements between the university and partner schools allowed for initial and ongoing training of all constituents. And finally, Essential #5 encourages PDS participants to reflect and share their findings with others. The established partnership allowed for PDS faculty to conduct research on the campuses, which provided data that contributed to decisions concerning what was best for both the teacher preparation program and the public school campuses and their students.

While the benefits of the co-teaching model for the clinical preparation of teacher candidates has been researched primarily in elementary schools, researchers have also reported benefits of this model to teacher candidates, supervising teachers, and

classroom students in secondary classrooms (Eick, Ware, & Jones, 2004; Weillbacher & Tilford, 2015); however, more studies are needed. This study will provide additional support to the research on co-teaching as a model for teacher candidate preparation as defined by Heck and Bacharach (2015) in both a middle and a high school. In addition, researchers will share the benefits and challenges of co-teaching for teacher candidates and supervising teachers on both campuses.

Context of the Study

The university teacher preparation program engaged in this study is designed to provide six semesters of various field experiences; teacher candidates are in P-12 schools during one semester of both the freshman and sophomore year, complete a two-semester clinical experience during the junior year, and complete a full year internship during the last two semesters of the program. The mission of the university and school PDS partnership is to prepare new teachers, support professional development, conduct inquiry to improve professional practice, and improve P-12 student learning. The impetus for this study occurred when the principal of the PDS high school attended a NAPDS conference with the university liaison and site coordinator and experienced sessions concerning the use of the co-teach model as a method of teacher preparation. He questioned the current traditional teacher education model, where the senior teacher candidate and their supervising teacher (referred to in this study and the following discussion as the intern and mentor) alternate full teaching responsibilities (PDS Essential #5). Consequently, this principal collaborated with the PDS faculty members to consider a model that better utilized all constituents to promote the development of effective new teachers, ongoing professional development of supervising teachers, and improved student achievement (PDS Essential #2, 3, & 4).

As a result of subsequent discussions concerning a change in the teacher preparation model, the PDS partnership decided in 2014-15 to alter the traditional model of interns taking the lead in a classroom only during the full-teach weeks when the mentor teacher transitions to assistant. The PDS partners determined that all interns and mentors would engage in co-teaching in order to impact professional practice and improve student learning. While co-teaching has many definitions and can fall under a variety of paradigms, the PDS partnership defined co-teaching based on the St. Cloud University definition: two teachers (the mentor and the intern) working simultaneously with groups of students, sharing in the planning, organization, and delivery of instruction, as well as the assessment of student understanding (Bacharach, Heck, & Dank, 2004).

During the spring of 2015, the university and school partners hosted trainers from St. Cloud University and offered professional development for specific participants in the PDS partnership to learn about the impact of co-teaching and how to implement the seven co-teaching models as defined by The

Table 1. PDS Partnership Participants

Partnership school principal	The instructional leader of a Partnership campus, who upholds the goals and policies of both MISD and Baylor and, with the University Liaison and Site Coordinator, facilitates communication between the two entities.
University liaison (UL)	A university-based representative with primary responsibility for facilitating communication and interaction between the University and a particular Partnership school campus.
Site coordinator (SC)	A school-based Partnership representative who holds broad responsibility for teacher candidates/candidates as well as facilitating Partnership operations at a particular Partnership campus.
Intern supervisor	A university-based faculty member who teaches intern seminar and supervises clinical requirements in Partnership schools.
Mentor	The teacher in a Partnership school qualified to mentor and facilitate senior interns in assuming the teacher role, demonstrating attainment of state and professional standards and program competencies, and completing other program clinical requirements.
Intern	Senior teacher candidates. They serve a one-year internship on one campus with the same mentor teacher.

Academy for Co-teaching and Collaboration at St. Cloud State University (Heck & Bacharach, 2014) (PDS Essentials #3 & 4). The professional development focused on four phases for promoting co-teaching:

1. Understanding co-teaching, why it is critical for mentors and interns to engage in the process, and the importance of examining that impact.
2. Focusing on the roles of the mentors, interns, and intern supervisors, and the stages of concern for intern.
3. Introducing the seven models of co-teaching.
4. Discussing the importance of co-planning and how the PDS partnership could support this critical aspect of co-teaching.

Definitions for the PDS partnership participants are provided in Table 1 (PDS Essential #6). After the PDS university liaisons, site coordinators, and administrators completed the co-teaching professional development to become “trainers of trainers,” they were charged with delivering co-teaching professional development for all 2015-2016 mentors and interns. Preparation of both mentor and intern to co-teach was imperative because of the shift in traditional teacher preparation roles, and participants of co-teaching should understand the nature, goals, and challenges of co-teaching before beginning the process as well as understand “specific how-to information about co-teaching approaches” (Murphy & Beggs, 2006; Murawski, 2005, p. 80).

Prior to reporting to their assigned professional development campus in August 2015, interns engaged in a half-day professional development on co-teaching facilitated by the university liaisons. The foundational training session provided information to answer the following questions:

- What is co-teaching and what are the benefits?
- What are the various roles and stages of concern?
- What are the models of co-teaching?

In addition, prior to the start of school, mentors participated in the same co-teaching professional development that was facilitated by the university liaisons and site

coordinators on each campus. When interns arrived to their PDS campus on the first day of school, both interns and mentors had already received the foundational training for co-teaching, including the development of an understanding of the seven co-teaching models (PDS Essentials #3 & 4).

After the first week of school, mentors and interns engaged in a half-day pairs training on co-teaching. This professional development session consisted of three phases:

- intern/mentor team building activities;
- review of the co-teaching models; and
- learning to co-plan lessons.

Following the half-day pairs training, the afternoon was then dedicated to mentor and intern pairs co-planning lessons for their upcoming classes. Administrators realized the importance of the training and co-planning and scheduled a full day substitute for each participating mentor teacher. The buy-in from mentor teachers was especially strong upon realization that administrators, colleagues, university professors, and PDS campus and university personnel had each participated in the co-teach professional development training with the common goal of promoting K-12 student achievement. This commitment was supported by the provision of funds for substitutes and the time for co-planning (PDS Essential #4).

While administrator participation and support were extremely important, the day-to-day process of supervising implementation of the model was ultimately the responsibility of the university intern supervisors, university liaisons, and campus site-coordinators. Ongoing support for both mentors and interns was provided by the PDS university liaisons and site-coordinators during the school year on each of the participating campuses. This support included classroom observations, meeting with interns and mentors as needed or requested, and mentor/intern/UL/site-coordinator participation in research for presentation at the yearly NAPDS conference. Support for interns was also provided through weekly seminars with university intern supervisors. Additionally, participation of university liaisons on the Campus

Advisory Committees (CAC) of both the middle and high schools researched provided a conduit for information that guided PDS/campus partnership yearly goals concerning the co-teaching initiative (PDS Essentials #7 & 8).

Methodology

Participants

The study occurred over one academic year in an initial teaching certification program at a large private university in the central United States. A total of 16 interns and 16 mentors participated in the study—six middle school (grades 7-8) mentor/intern pairs and ten high school (grades 9-12) mentor/intern pairs.

Data Sources

All participants received the same professional development in preparation for co-teaching and the collection of data was the same for participants at both the middle and high school campuses. The mentors and interns completed an open-ended survey at the end of the first semester and at the end of the full-year internship. The open-ended survey prompts asked mentors and interns to identify: the challenges of co-teaching, the benefits from co-teaching, and the level of their desire to continue using the co-teaching model. Only the survey collected at the end of the academic year was used in this analysis since it reflected the views of the participants after engaging in co-teaching for a full year.

Data Analysis

All written responses to the open-ended surveys were transcribed and independently read and verified by three members of the research team, which began a qualitative analysis by coding the data based on an inductive analysis—where themes, categories, and patterns emerge from interactions with the data (Patton, 2002). After the researchers independently coded the data sources, they compared, discussed, and verified their coding as a means to assure validity and accuracy of the findings. Nvivo (11.2.0) software was used to provide additional consistency to the analysis. Had a discrepancy occurred in the emerging themes and supporting evidence, a fourth researcher would have been consulted; however, this was not necessary.

Results

Gathered data were analyzed to examine both mentor and intern perceptions of the implementation of the co-teaching model for teacher preparation based on the benefits, challenges, and desire to continue co-teaching. The following sections summarize the findings by comparing results of the open-ended survey between mentors and interns at both the middle and high school levels.

Table 2. Benefits of Co-Teaching as Identified by Subgroups

	<i>n</i>	<i>Impact on Student Learning</i>	<i>Collaborative Learning</i>	<i>Classroom Management</i>
MS interns	6	43%	43%	14%
MS mentors	6	75%	25%	0%
HS interns	10	64%	29%	7%
HS mentors	10	73%	18%	9%

Benefits of Co-teaching

Three themes emerged from the analysis of the self-reported data regarding the benefits of co-teaching: (1) collaborative learning between the mentor and intern, (2) impact on student learning, and (3) impact on classroom management. The researchers agreed upon the following definitions for each of the emerging themes. *Collaborative learning* was defined as mentors and interns learning from each other. Both mentors and interns were viewed as two knowledgeable teachers co-planning and implementing lessons. *Impact on student learning* was defined as decreasing the student to teacher ratio allowing for more customized learning to meet individual needs. *Classroom management* was defined as more opportunities to observe and monitor student and teacher behavior, which increased knowledge and confidence.

Middle school. Middle school interns ranked the impact on student learning and the importance of collaborative learning between interns and mentors equally as the greatest benefit (43%), whereas the middle school mentors significantly viewed the greatest benefit to the co-teaching model as the impact on student learning (75%).

An example of collaborative learning can best be captured when one intern stated, “Planning fun and engaging lessons with one another that betters students’ overall learning experience, is the best. With co-planning, we feed off of one another, getting different ideas and putting it all together for a well-planned lesson.”

Middle school mentors, however, saw the greatest benefit as the impact on student learning. According to one mentor, “The greatest benefit of co-teaching is that it allows more individual student needs to be addressed. The teacher and student ratio is increased and strategies can be incorporated to target both struggling and high-achieving students.”

Collaborative learning was reported as a benefit by only 25% of the mentors. Interestingly, classroom management was not reported as a benefit by any of the middle school mentors and only 14% of interns reported it as a benefit (Table 2).

High school. The greatest benefit reported by both high school interns (64%) and mentors (73%) was the impact on student learning. According to one intern, “I believe that the greatest benefit of co-teaching is having an additional person in the classroom whom students and the other teacher know they can rely on. It aids in classroom management as well as supplements instruction for the students.” A mentor added, “The greatest benefit for my classroom is the flexibility we get with each lesson. It allows us to teach the whole group together,

Table 3. Challenges of Co-Teaching as Identified by Subgroups

	<i>n</i>	<i>Consistency in Communication</i>	<i>Content Knowledge</i>	<i>Planning and Preparing</i>
MS interns	6	83%	0%	17%
MS mentors	6	17%	33%	50%
HS interns	10	50%	30%	20%
HS mentors	10	30%	20%	50%

split the class into groups, or even work one on one with students that need to be caught up.”

Collaborative learning between mentors and interns was the second most often cited benefit for both groups, reported by 29% of interns and 18% of mentors. Improved classroom management was reported as a benefit by only 7% of interns and 9% of mentors (Table 2).

Challenges of Co-teaching

Three themes emerged from the analysis of the self-reported data regarding the challenges of co-teaching: (1) planning and preparing lessons, (2) consistency in communication, and (3) content knowledge. The researchers agreed upon the following definitions for each of the emerging themes. *Planning and preparing lessons* was directly connected to the challenge of time required. In order for mentors and interns to co-plan, which is a critical factor to co-teaching, there must be an appropriate amount of time in which both parties can meet to discuss ideas and prepare lessons for implementation. *Consistency in communication* is a cohesive relationship between the mentor and intern in which communication is constant and can flow freely. Mentors and interns must communicate when there is a change in plans and welcome discussions that allow for both individuals to “get on the same page.” *Content knowledge* is defined as subject matter knowledge (Shulman, 1986), and in the case of this study, content knowledge is referencing the lack of subject specific knowledge.

Middle school. While the emerging themes were consistent between the middle school interns and mentors, the cohorts reported the challenges very differently (Table 3). The middle school interns saw the greatest challenge of co-teaching as the consistency with communication between the mentors and themselves. Eighty-three percent of the interns self-reported that they did not feel well informed at times. According to one intern, “The greatest challenge of co-teaching is that it requires continuous communication between the two teachers. This can

be difficult when unexpected changes happen in the classroom, such as a need to speed up or slow down the pace of the lessons.”

On the other hand, 50% of the mentors viewed the greatest challenge to be planning and preparing to implement a co-taught lesson and ranked consistent communication as the least challenging area. One mentor stated, “The greatest challenge of co-teaching is the planning time involved. Co-teaching is not something that comes naturally or easily to most people. We need more time to plan and practice.”

Another discrepancy was the fact that middle school mentors (33%) viewed content knowledge as a challenge to co-teaching, whereas not one intern identified content knowledge as a challenge. Based on the survey responses, mentors were concerned with interns providing incorrect information at times and, depending on the co-teaching tasks, it was not always easy to correct content mistakes. For example, one mentor teacher stated, “It is hard to hear what the intern is telling the students so at times, it makes it difficult to correct wrong information.” Overall, there was no consistency in the rank order of the three challenges of co-teaching when comparing results between middle school interns and mentors.

High school. The challenge cited by 50% of the high school interns was consistency in communication (Table 3). “The greatest challenge is consistency in the classroom. Making sure that you are both on the same page with rules and routines is important or else the students get confused.” Only 30% of the high school mentors reported that consistency in communication was a challenge.

The challenge cited most often by high school mentors was time for planning and preparing (50%), while only 20% of interns reported that as a challenge. One mentor explained, “The greatest challenge of co-teaching is planning time together. It is imperative that both teachers are aware of the plan to implement the lesson, teaching the skills and strategies that are going to be introduced.”

Content knowledge was a challenge to co-teaching for 30% of the interns and 20% of the mentors. As with the middle school interns and mentors, there was no consistency in how the high school interns and mentors ranked the challenges of co-teaching.

Desire To Continue Co-teaching

A Likert scale was used to rank the desire to co-teach from very weak (1) to very strong (5). Table 4 illustrates the differences between responses (in percentages) for middle and high school interns and mentors.

Table 4. Desire to Continue Co-Teaching as Identified by Subgroups

	<i>n</i>	<i>Very Weak</i>	<i>Moderately Weak</i>	<i>Neutral</i>	<i>Moderately Strong</i>	<i>Very Strong</i>
MS interns	6	0%	0%	17%	50%	33%
MS mentors	6	0%	0%	33%	0%	67%
HS interns	10	0%	0%	30%	20%	50%
HS mentors	10	1%	0%	10%	10%	70%

Middle school. Approximately 33% of middle school interns ranked the desire to co-teach as very strong. Middle school mentors were either very supportive of co-teaching or neutral. Sixty-seven percent of the middle school mentors indicated a very strong desire to continue to implement the co-teach model whereas 33% of the mentors indicated they were neutral to this approach to pre-service teacher development.

High school. Fifty percent of high school interns ranked the desire to co-teach as very strong. One of the high school interns shared, "There are so many benefits (to co-teaching). Having someone to collaborate with to create lessons allowed us to create more engaging lessons in addition to catching more mistakes and better adapting."

Eighty percent of the high school mentors ranked the desire to co-teach as moderately strong to very strong, with one teacher (10%) ranking the desire at neutral and one (10%) at very weak.

Mentors and interns at both the middle school and high school indicated a desire to continue utilizing the co-teaching approach to teacher preparation. Overall, 56% reported a very strong desire to continue co-teaching, 19% reported a moderately strong desire, 22% reported a neutral desire, and only one mentor (3%) reported a very weak desire.

Discussion and Implications

This study is an important contribution to the research concerning implementation of a co-teach model for teacher education, including the benefits and challenges of a co-teach model and the desire to implement the model at the middle and secondary levels. The data collected support affirmative responses to a co-teach approach at a secondary level. In addition, the study advances the literature and profession in the area of co-teaching in PDS settings.

After one year of implementing the co-teach model, analysis of the open-response surveys identified three critical benefits to support the use of this model: (1) impact on student learning, (2) impact on professional growth through collaborative learning, and (3) impact on classroom management.

First, the co-teach model allowed for a greater impact on student learning. According to prior studies, the presence of two content experts who are actively and collaboratively involved in student learning and lower the student to teacher ratio are very positive contributions to student achievement (Tobin & Roth, 2006; Scantlebury et al., 2015; Darragh et al., 2011; Murawski & Hughes, 2009). Researchers at St. Cloud University also found that students in co-taught classrooms reported that the presence of two teachers provided students "additional and timely support in meeting their individual learning needs" (Bacharach, et al., 2010, p. 12). As a result of implementing the co-teach model as a PDS program expectation in this research, mentor and intern roles were redefined so that there were two full time teachers consistently present in the classroom with clearly defined roles. As a result, findings from this study support previous work enumerating the decreased student to teacher ratio. According to one mentor, "Students have access to two

instructors. Their questions are answered in a more timely fashion. Instructors often have different methods for solving problems, so students get to see two perspectives." High school interns also ranked student learning as the most important benefit, as supported by the statement, "Co-teaching allowed my mentor and I the ability to teach and interact with students on a more individual level. We were able to identify and help students who were struggling because there were two of us watching the class."

The second benefit allowed for the intern and mentor to collaborate and learn from each other (PDS Essentials #2, 4, & 5). Prior to the implementation of the co-teach model, mentors and interns certainly learned from each other; however, based on the PDS co-teaching expectations, mentors and interns were "forced" to communicate more on lesson planning, instructional roles, assessing student understanding and reflecting on the impact of the lessons. Scantlebury, et al. (2008) found that co-teaching promotes professional growth and co-respect, "teachers viewed each other as peers and had the expectation that each person provided valuable insight and knowledge that improved her/his teaching" (p. 975), which is supported by the findings in this study. One high school intern observed, "You have two brains collaborating to figure out the best way to present the content to your students, so there is a better product in the end," with a mentor providing similar input "Co-teaching brings fresh ideas into the classroom and new perspectives."

Third, classroom management was identified as a benefit to co-teaching (PDS Essential #4). Consistent classroom management, including classroom transitions and procedures, were also improved through the implementation of co-teaching (Bacharach, et al., 2010; Darragh, et al., 2011). This is supported by the observation of one intern, "The class seems to be in control more often with two teachers present. Both teachers can walk around the room and make sure students are on task." Not only were students more focused, but relationships between the teachers and students were stronger, resulting in better classroom management. According to one mentor teacher, "Co-teaching gave me the freedom to mentor kids I otherwise would not have; it allowed me to have more personal connections."

Likewise, the current study identified challenges with implementing the co-teach model at the middle and secondary levels. Interns and mentors identified three areas of challenge when faced with implementing a co-teaching approach: (1) communication, (2) content knowledge, and (3) planning and preparation.

Research by Scantlebury et al. (2008) emphasizes the importance of communication between co-teachers, as co-teaching requires teachers to communicate about instructional practices and their rationale for decisions they make in the classroom. The results of this study support the importance of communication between mentors and interns, noting particularly that co-teaching is a challenge when collaboration on planning and instructional roles are not present. Both middle and high school interns found communication to be the biggest challenge of the co-teach model. As stated by one high school

intern, “The greatest challenge of co-teaching is ensuring that both co-teachers are on the same page when it comes to instruction. Communication is paramount in order to ensure that students are receiving the most appropriate information from both teachers.” Another intern stated, “It took lots of planning to know who was doing what and when. I still had to be mindful that it was still her classroom I was teaching in.” This sense of being “guests” in the classroom and not co-collaborators was felt by both mentors and interns as summarized by one mentor’s statement, “I realized that at times, I did not allow my co-teacher [intern] to fully manage things on her own, because I am just so accustomed to handling everything myself.” Whether it is a matter of instructional approaches or changes in the instructional plans, communication is critical and often proved to be the biggest challenge in this study. While collaboration and communication are often both benefits and challenges to co-teaching, a PDS model with a focus on the nine essentials, can support ongoing professional development in needed areas, share innovative strategies for collaboration, and continue to define roles and responsibilities to support a co-teach model.

Having confidence in content knowledge appeared to be a concern for interns at the high school level and mentors at both the middle and high schools. Interestingly, middle school interns did not self-report having a concern or challenge with content knowledge. In 1986, Lee Shulman claimed that the emphases on teachers’ subject knowledge and pedagogy should be treated as mutually exclusive. Pedagogical knowledge refers to the “how” of teaching and content knowledge to the “what” of teaching. Additional researchers such as Ball, Thames, and Phelps (2008), have tried to clarify the understanding of Shulman’s work by describing this knowledge as common content knowledge (CCK). This, for example, is where a mathematics teacher has the knowledge to calculate an answer or correctly solve problems. In short, the teacher must be able to do the work that they assign their students. Knowledge of content is a shared concern in all teacher preparation programs. According to the National Research Council, (2001):

Public opinion overwhelmingly favors “ensuring a well-qualified teacher in every classroom” as the top education priority. Indeed, teachers—once viewed as central to the problem of student underachievement—are now being recognized as the solution. In teacher preparation there is a “multiplier effect” that can span generations. . . . The refrain, “You can’t teach what you don’t know,” surely applies. (p. 45)

A high school mentor shared, “When a teacher [intern] is not prepared in the content area, time is lost by having to teach the co-teacher the materials expected to already be learned.” One of the high school interns who had not previously read the literature selections she would be teaching lamented, “One of the main challenges I had was not being prepared to teach the content. I had to learn and read at a fast pace in order to teach because I have never learned the material myself.” Again, PDS

settings can aid in the challenge of content knowledge. Essential #2 identifies a culture committed to the preparation of future educators that moves beyond a place where teacher candidates complete their teaching experiences. A PDS setting allows for university faculty and school faculty to work collaboratively to develop teacher candidates’ content knowledge and content pedagogy while embracing them into the school community. The continuation of co-planning, co-teaching, and co-reflecting is certainly an avenue to reduce the challenge of common content knowledge.

Time for planning and preparation was also a challenge for participants, particularly for the mentors. Friend (2008), described planning time as a two-component process. The first component involved key decisions and discussions for the topics to be covered in a particular unit of study or allotted time frame. The second component involved critical conversations that needed to take place daily. Several mentors shared comments such as: “The greatest challenge of co-teaching is finding the time to plan” and “Finding time to plan effectively.” According to one intern, “The greatest challenge of co-teaching is that it requires continuous communication between the two teachers and planning far in advance. This can be difficult when unexpected changes happen in the classroom, such as a need to speed or slow the pace of lessons.” A PDS setting can allow for the challenge of time to be less cumbersome when there is a shared commitment by all stakeholders for innovative and reflective practice (PDS Essential #4).

While interns and mentors identified benefits and challenges to co-teaching at a middle and high school PDS campus, the support to continue co-teaching as a teacher preparation model was overwhelmingly positive. Yet, the information gathered from the survey indicates that improvement to the model should continue. Even interns who indicated that they were very strongly in favor of the co-teach model made suggestions for improvement. One high school intern who indicated a very strong desire to continue the model observed, “The greatest challenge is not having the opportunity to teach independently. Although I feel I am ready to teach in my own classroom, I would have preferred to have more time teaching on my own.” A mentor who indicated only a neutral desire to continue the co-teach model said, “It is time consuming and takes longer to do anything because you have to teach the intern how to do everything when you could do it yourself much faster.”

Limitations and Future Considerations

This study provides information important to the ongoing preparation of teachers through university and district partnerships utilizing co-teaching as a model for teacher education. The study is also crucial to the particular partnership that was researched, as the examination of strengths and weaknesses will inform the ongoing decisions made concerning continuation of the co-teach initiative. One strength is the implementation of the same research on two different campuses and at two different

levels, middle and high school. While the research examined only one year of implementation of the co-teach model, the data collection continues and many of the same mentors are participating in the second year of implementation. Data will not only be compared in separate years, but there is a longitudinal component that can be examined when using the same mentors in consecutive years. The primary limitations of the study are the small number of mentor/intern pairs included in the initial research and the limitation of only one school at each level being included. Future research should be conducted with additional high schools and middle schools, perhaps in a different district, to compare and validate results.

While the purpose of this study did not include collection of student achievement data, there are implications that can inform future studies of the co-teach model for teacher candidate development and the impact on P-12 student learning. The data support that student learning is the most cited benefit of utilizing the co-teach model as a method of teacher preparation; therefore, future studies should concentrate on the collection of quantitative student learning gains in the co-taught classrooms. Yet, even without the quantitative achievement data, the ongoing preparation of teacher candidates using the co-teach model is well supported by this research. This study clearly implicates that mentors, interns, and P-12 students benefit from clinical experiences that collectively utilize both the mentor and intern during the preservice clinical experience. University faculty and P-12 administrators can use this data to inform the decision of whether the time and expense of co-teach training and implementation supports continuation of this model as a method of teacher development.

The heart of the PDS partnership includes the impact on learners and the impact on practice (Brindley et al., 2008). This university and district partnership enthusiastically engaged in an investment of time and money in implementing the co-teach model to ensure the preparation of future practitioners and the creation of an optimal environment for P-12 student learning. Unique to this study was the reason for change to the current teacher education model. The changes that took place in this teacher preparation model were a result of and a respect for PDS administrators' contributions as they reflected on present practice and strove to improve both the education of P-12 students and teacher candidate development. While stakeholders saw the co-teach model as an application of numerous NAPDS Essentials (Brindley et al., 2008), at the end of the day, the collaboration between administrators, site coordinators, and university liaisons, as witnessed in this research, reflects the true strength of the PDS partnership and the potential impact on all learners. ^{SUP}

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