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The Renaissance Group

Transforming Clinical Practice in Teacher Education through Pre-Service Co-Teaching and Coaching

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Abstract

Teacher preparation programs on a national level have been called to change, focusing on clinical practice as a primary focus of teacher education rather than course work. Concurrently, performance based assessment is becoming the tool to measure candidate capacity to plan and instruct. This study highlights one teacher education program and the Pre-Service Co-Teaching Model (PSCT), which utilizes instruction in co-teaching models, co-teaching internships, and instructional coaching as a means for teacher development. Forty-three pairs of co-teachers and 14 coaches participated in this study. Each coach, collaborating teacher, and teacher candidate participated in professional development to better understand co-teaching models, as well as coaching techniques. Each co-teaching pair had a coach to observe and debrief the implementation of co-teaching models in classrooms for the purpose of planning, assessment, and instruction. Goal setting, conference notes, coaching reflections, as well as focus group interviews served as data. Analysis indicated that co-teaching strategies from the professional development were used primarily to facilitate differentiated instruction as well as classroom management. Analysis also indicated that coaches had a tendency to be more prescriptive regarding classroom management and have a more open-ended conversation when the focus was on differentiated instruction.

Keywords: teacher education reform, clinical practice, pre-service co-teaching, instructional coaching

As teacher educators, our capacity to educate competent, effective P-12 teachers who are prepared to meet the challenges of 21st century schools has been called into question due, in part, to low graduation rates and high teacher attrition rates (Darling-Hammond, 2010a). According to the Alliance for Excellent Education (2004), nearly 30% of new teachers leave the profession within the first two years, and 50% leave in the first five years of practice. New teachers frequently cite stress as the key reason for leaving their chosen profession. Stress often causes them to obsess over the needs of their students, as well as the constant and ever-changing demands of their schools. Even more troubling is that teachers who appear to be the most academically proficient are the ones most likely to leave the profession (Smith, 1993). High teacher turnover is costly to schools and even more costly to the P-12 students who lose their most proficient teachers to stress and frustration (National Commission on Teaching and America's Future, 2003).

In response to these chronic issues, the National Council of Accreditation in Teacher Education (NCATE) created a Blue Ribbon Panel on Clinical Preparation and Partnerships for Improved Student Learning to study and recommend changes to teacher preparation on a national level. In 2010, the panel issued its final report stating that teacher preparation must be "turned upside down" (p.2) focusing on clinical practice rather than course work. As the emphasis on clinical preparation has increased, there has also been an increased recognition that performance-based assessment is an effective tool to measure teacher candidates' capacities for planning and instructing. Similarly, when performance-based assessment data is used systematically to inform teacher preparation programs, it provides clarity in designing and measuring the effectiveness of clinical preparation.

The current study addressed teacher education reform, particularly related to preparing pre-service teachers to work with their collaborating teachers and grow into novice teachers. The broad intent of this study was twofold. First, we briefly described our collaborative approach that includes interactive seminars, instructional coaching, goal-setting sessions, observations and feedback, reflections, and reporting. Second, we reported the findings of a pilot study on the impact of our collaborative approach on the pedagogical practices of 43 pairs of teacher candidates and their collaborating teachers in elementary classrooms. Specifically, the research questions that guided this study were:

1. What, if any impact does the goal-setting process have upon the development of the pre-service teachers' pedagogical practices?
2. What, if any, impact does our collaborative approach have upon the co-teachers' selection of the PSCT Models to support classroom instruction and management?
3. What, if any, impact does our collaborative approach have upon teacher candidates' use of co-teaching during assessment, planning, and instruction of students in their P-5 classrooms?

Theoretical Framework

Darling-Hammond (2005) reported that teacher education was often characterized as highly theoretical, loosely connected to practice, fragmented, incoherent, and lacking a shared vision of teaching and learning. Given this characterization, teacher education has the urgent responsibility of transforming its curriculum, pedagogy, structure, and delivery. Substantive change is necessary to better prepare pre-service teachers to negotiate the changing landscape of educational policies that shape the daily practices of teachers in K-12 classrooms (Boyle-Baise &

McIntyre, 2008; Darling-Hammond, 2010a). This study is grounded in theory and research on teacher education reform and describes our approach to transform clinical practice by means of collaboration, pre-service co-teaching, and instructional coaching.

Teacher Education Reform

During the 1990s, teacher educators engaged in meaningful reform efforts to create preparation programs that were more coherent and situated in classroom practice (Hammerness & Darling-Hammond, 2002). With these reforms, the focus shifted from developing teachers who could implement a variety of strategies and techniques to developing teachers who were thoughtful and able to improve student learning by critically analyzing and resolving complex problems of classroom practice. In 2000, Darling-Hammond reported on a study conducted by the Association of American Colleges for Teacher Education (AACTE) to identify the characteristics of teacher education programs that had been recognized as exemplary in terms of preparing teachers to educate an increasingly diverse student body. Results of that study indicated six common characteristics of highly effective teacher education programs, including the following: (a) coherent vision of teaching and learning; (b) translation of theory to practice; (c) carefully crafted field experiences; (d) active pedagogy that includes modeling and reflection; (e) focus on the needs of diverse students; and (f) collaboration with colleagues.

To further extend the discussion, Darling-Hammond (2010b) called for the creation of a set of systematic, valid and reliable teacher performance assessments that could be used to evaluate beginning teachers, to monitor the progress of practicing teachers; and ultimately, determine the effectiveness of teacher education programs. This call is based upon the need for using multiple data sources to measure not only teachers' planning with various teaching strategies and techniques but also teachers' analysis and reflection of instruction and assessment practices. A byproduct of this assessment system would be the creation of a systematic collection of evidence that could be placed upon a continuum to describe the performance of effective teachers at various stages of career development. Currently, edTPA, an assessment developed by researchers and teacher educators of the Stanford Center for Assessment, Learning, and Equity (SCALE) at Stanford University, is being implemented nationally as such a program (American Association of Colleges for Teacher Education, 2013). Thus far, 28 states and the District of Columbia have adopted edTPA as the preferred method of evaluating the classroom teaching of teacher candidates.

Pre-Service Preparation on Collaboration

According to Griffin, Jones, and Kilgore (2006), less than 1/3 of all pre-service teachers enrolled in elementary, middle or secondary programs are provided with content related to collaboration. There are numerous reasons for the dearth of preparation in this critical area. According to Friend (2002), many members of the education faculty assume that collaboration is intuitive, and therefore, do not see the need for formal preparation and instruction in collaborative methods. In other cases, faculties value the content in collaboration, but feel constrained by accreditation requirements (Ross & Blanton, 2004). These individuals often elect an infusion model, which embeds the content on collaboration into existing coursework. Infusion is used when the faculty feels that content does not necessitate the development of a complete course, or that the curriculum is already too packed with content required for accreditation purposes (Cook, 2002). Even though the infusion method may solve immediate problems, it has been criticized as highly ineffective (Cook, 2002; Stayton & McCollum, 2002).

Pre-Service Preparation in Co-Teaching

Co-teaching in the United States emerged in the early 1970s (Trump & Miller, 1973) but did not begin to proliferate until the late 1980s and early 1990s when co-teaching became a preferred administrative arrangement to support inclusion of student with disabilities (Cook & Friend, 1995). Cook and Friend (1995) recommended six models of co-teaching that general education and special education teachers could employ to co-instruct large and small groups of students, including (a) one-teach/one observe; (b) one teach/one assist; (c)alternative teaching; (d) parallel teaching, (e) station teaching, and (f) team teaching. While co-teaching in inclusive classrooms has been widely supported in policy and practice, there is little information on the effectiveness of co-teaching in improving the outcomes of students with disabilities (Zigmond & Mariera, 2001).

Since 2000, co-teaching has been employed at the university-level to model co-teaching practices in preparing general and special educators to include students with disabilities in P-12 classrooms (Alverez-McHatton & Daniel, 2008; York-Barr, J., Bacharach, N., Salk, J., Frank, J. & Beniek, B., 2004). Most recently, co-teaching has been used at the pre-service level to prepare student teachers to co-teach with their collaborating teachers during their clinical practice (Bacharach, Heck, & Dahlberg, 2010; Badiali & Titus, 2012). These authors argued that pre-service co-teaching has the potential to be a highly effective vehicle for teacher preparation because it removes many of the challenges associated with traditional student teaching. Furthermore, Bacharach, et al., (2011), found that pre-service co-teaching resulted in improved outcomes of P-12 learners on statewide assessments. These results held for students growing up in poverty, those with disabilities as well as those who were English learners.

Our model of pre-service co-teaching emerged from two separate bodies of literature, one in science education and the other in special education. In the late 1990s, a group of Canadian researchers explored the benefits of co-teaching and how it supported the teaching and learning of such complex subjects as nuclear physics (Roth & Boyd, 1998; Roth, Bowen, Boyd, & Boutonne, 1998). Their work described three types of teacher learning, including (a) learning-in-practice; (b) learning to talk about (or theorize) practice; and (c) learning by applying theory to practice. Roth and Tobin (2002) found that as teachers co-instructed, their co-participation entwined with their own understanding of theory and applying theory to their daily practice. When analyzing co-teaching between pre-service and practicing teachers, these researchers found that co-teaching was co-learning for both individuals, not just for the inexperienced teacher. They described co-teaching as an appropriate vehicle for both pre-service preparation as well as professional development of practicing teachers (Roth & Boyd, 1999).

Program Context

The collaborative approach used in this study was designed, developed, implemented, and reviewed by faculty who teach in a large public state university in the Southeastern United States. At this institution, the College of Education annually prepares approximately 960 prospective teachers in early childhood, elementary, middle and secondary education, special education, and instructional technology. The unit has met all of NCATE's accreditation standards, as well as those by all related professional fields. Teacher preparation in elementary education provides the context for the present investigation.

It is projected that by the spring of 2015, all teacher education programs in this unit will use edTPA to measure teacher candidates' preparation to teach in classroom. The tasks involved

are similar to those required in the program's student teaching, and the three tasks of the assessment align with the vision of pre-service co-teaching. The elementary education programs are making changes to their course work in an effort to incorporate activities that are consistent with knowledge and skills in the edTPA framework. Even though edTPA has been mandated at the state level, the teacher candidate's scores will not affect their eligibility for certification until a later time when the state requires full implementation. The teacher candidates who consented to participate in this study enrolled in two-semesters of field experiences during their senior year and were observed and provided feedback from university supervisors who evaluated the candidates' progress in meeting the professional standards (American Association of Colleges for Teacher Education, 2013).

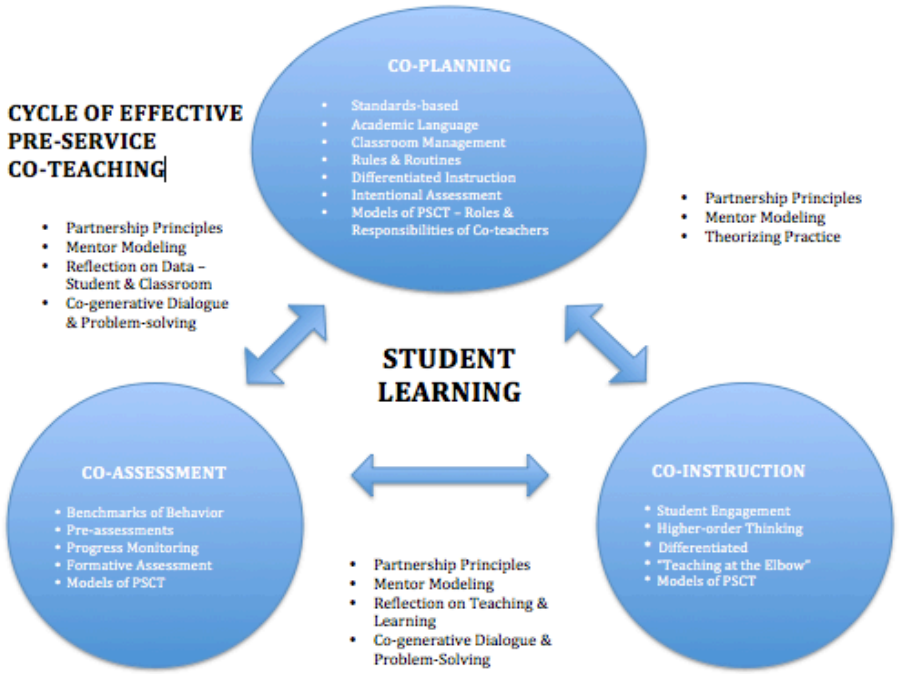
Preparation of Prospective Elementary and Early Childhood Teachers

Our teacher education program emphasizes high expectations for knowledge and skills as well as positive attitudes for educating an increasingly diverse student body in P–5 schools. The teacher preparation program is couched in the constructivist philosophy and emphasizes the integrated nature of the curriculum and the importance of collaboration with colleagues. Traditionally, during the fall semester of their senior year, pre-service teachers enroll in a methods block comprised of four courses, one of which is a 135-hour (minimum) field experience. Over the course of the semester, the teacher candidates assume increasing responsibility for instruction, ultimately taking control of the class for a unit of study that they prepared with guidance from professors and within their field experience.

Throughout this field experience, the collaborating teacher and a university supervisor evaluate the teacher candidate's performance on institutional and professional standards. If the teacher candidates adequately demonstrate the required competencies, they are recommended to student teach the following semester. In the spring semester of 2012, 328 teacher candidates graduated with a B.S. in Elementary or Early Childhood Education. Of those graduates, approximately 276 self-reported as white, non-Hispanic; 26 as black, non-Hispanic; 13 as Hispanic; three as Asian; four as multi-racial; three as Hawaiian or Pacific Islander; and five were undeclared.

In 2011, faculty within our college of education rallied to the national call to transform clinical practice. To that end, members of an interdisciplinary team reviewed the literature, and ultimately developed a new collaborative approach that was aligned with the common variables of highly effective teacher education programs reported by Darling-Hammond (2000), including a common vision of teaching and learning, carefully crafted field experiences, theorizing and justifying practice, focusing upon the needs of the students, reflecting on active pedagogy, engaging teachers as life-long learners, and collaboration with colleagues. The following figure illustrates how the theoretical framework is directly related to our model Pre-Service Co-Teaching and learning.

Coherent Vision of Teaching and Learning
Figure 1. A Model of Pre-service Co-teaching



This collaborative approach was designed, developed, implemented, and evaluated by an interdisciplinary team of university faculty and school officials who, collectively, had expertise in elementary education, early childhood education, special education, and middle level education. All members of the interdisciplinary team shared a common vision of constructivist teaching and learning. All substantively agreed upon how pedagogical content related to collaboration and co-teaching could be successfully embedded throughout the cycle.

Furthermore, the use of performance-based assessment (i.e., edTPA) presented the opportunity to examine how our approach impacts teacher candidates' performance in the critical areas. In particular, the edTPA portfolio has three specific tasks: (a) planning, (b) instruction, and (c) assessment (American Association of Colleges for Teacher Education, 2013). These tasks coincide with the vision of pre-service co-teaching. Each task also requires the candidate's capacity for analysis and reflection, which can be supported by collaborative dialogue.

Throughout the clinical experience, the co-teachers engage in collaborative dialogue as they co-plan instruction, co-assess student engagement and performance, co-reflect upon teaching and learning, and co-generate solutions to problems of practice. PSCT provides the vehicle for classroom teachers to act as mentor models for teacher candidates; thereby, providing continuous, and often, instantaneous feedback and modeling of teaching, assessment, and classroom management strategies. The mentor modeling approach allows the classroom teachers to maintain greater control over the quality of their classroom instruction, instead of merely being a *host*. According to our model, effective PSCT is comprised three components (e.g. co-planning, co-assessment and co-instruction) that are essential to the teaching and learning of the

teacher candidate as well as the P-12 students. These crucial components are supported by the classroom teachers by means of on-going mentor modeling and the on-going dialogue with the instructional coach via the partnership principles.

Co-planning. One fundamental concept that underlies our approach is freedom and flexibility within form (Knight, 2013). Teacher candidates are encouraged to use a district-approved lesson plan format to frame their co-taught lessons. In addition, co-teachers are encouraged to use the prevailing state standards as well as the Common Core and P-12 student performance data to plan their lessons. Throughout the process the collaborating teachers use think aloud procedures to model critical thinking about all aspects of the lesson, including classroom management, formative and summative assessment, and differentiated instruction. To co-create responsive lessons, co-teachers continuously theorize their practice, making conscious decisions about how they can use PSCT to support the learning and behavioral needs of their students.

Co-assessment. Because this is an evidence-based model, co-assessment is central to its effectiveness. As noted in other sections, this model focuses upon performance assessment to measure student engagement and academic learning. In addition, the co-teachers are encouraged to use multiple forms of pre-assessments to measure academic language, background knowledge, student interest and learning styles in preparation for differentiated or responsive instruction.

Co-instruction. Co-instruction is the heart of pre-service co-teaching because this where the teacher candidates literally teach at the elbow of the of the collaborating teachers, who model best practice as they employ high leverage strategies to increase student engagement and learning (Badiali & Titus, 2012).With this model, the collaborating teachers act as a safety nets for the teacher candidates until they are ready to teach solo. The execution of co-teaching is at the discretion of the co-teachers as they engage in on-going formative assessment, classroom management, and differentiated instruction.

Instructional coach. An instructional coach who is a specialist in co-teaching supports a team of co-teachers, comprised of a teacher candidate and a collaborating teacher. According to Knight (2012), effective instructional coaches use active listening, questioning, and relationship building strategies to help teachers improve practice. What distinguishes Knight's model from other approaches is that instructional coaches teach others how to learn very specific, evidence-based teaching practices such as formative assessment (Stiggins, Arter, Chappuis, & Chappuis, 2009). Teachers who work with a coach report that that they are four times more likely to implement new strategies when working with a coach, as opposed to attending a traditional workshop (Knight, 2007). Coaches have an abiding respect for teachers and intentionally seek to develop partnerships by employing the principles established by Knight (2007) that include equality, choice, voice, dialogue, reflection, praxis and reciprocity. All members of the collaborative team (the teacher candidate, collaborating teacher, and co-teaching coach) understand the partnership principles and use them as a common language to discuss and develop their relationships with one another. Similarly, all coaches, teacher candidates, and collaborating teachers learn the partnership principles and apply them to their relationships with their colleagues, parents and students as well as instances where they are attempting to resolve complex problems of practice.

Carefully crafted field experiences. While many universities define their clinical experiences as collaborative, ours is unique in that the teacher candidates are supported their yearlong clinical experience through pre-service co-teaching (PSCT) and instructional co-teaching coaching. When PSCT and coaching are combined, they create the infrastructure to

ensure that the teacher candidate is able to meaningfully apply his/her knowledge and skills to classroom practice.

For these purposes, PSCT is defined as a systematic approach to clinical practice for teacher candidates who are supported by collaborating teachers who serve as on-going mentor-models and share all responsibilities for the teaching and learning of a group of P-12 students. Throughout the experience, the teacher candidate and mentor teacher establish a fully functioning co-taught classroom in which they share instructional space, materials and other resources. PSCT is an evidence-based approach that focuses simultaneously upon the development of the teacher candidate and the learning of P-12 students. Throughout the clinical experience, co-teachers are encouraged to co-reflect upon the teaching and learning process, engage in co-generative dialogue to find creative solutions to complex problems of classroom practice.

PSCT differs dramatically from traditional student teaching where collaborating teachers *host* student teachers that take over the control of the class within a few weeks of entering the classroom, and teach alone for the duration of the semester. With PSCT, the shift of control in the classroom happens more gradually, when the teacher candidate is ready, rather than withdrawing the school support rather immediately. As noted above, our approach deploys a cadre of instructional coaches who specialize in co-teaching. In addition the university supervision, these individuals provide an extra layer of support as the teacher candidate and his or her mentor teacher, co-plan, co-assess, and co-instruct. In summary, our collaborative approach is designed to maximize all of the human resources available to better meet the needs of the teacher candidate; and ultimately, of the students.

Theorizing and Justifying Practice

Researchers of science education have repeatedly found that pre-service co-teaching is highly effective in learning to teach complex subject matter (Roth, 1998; Roth, et al., 1998). In conducting their research, these authors defined three types of constructivist teacher learning, including: (a) learning during practice; (b) learning to justify their practice with research and theory; and (c) increasing their ability to apply theory to practice. In our model, the instructional coaches, who specialize in co-teaching, facilitate dialog and teacher reflection on how to use co-teaching and other research-based practices to improve the learning of the teacher candidate as well as the P-5 students.

Focus on the Needs of Diverse Students

According to recent research (Heckert, Strieker & Shaheen, 2013), one benefit of our systematic approach is the increased ability of co-teachers to meet student needs. By its very nature, having two teachers in the classroom increases the ability to meet the needs of a diverse group of students, particularly those in need of individualized instruction or behavior management. PSCT also provides opportunities for P-5 students to benefit from teachers with different teaching styles and pedagogical preferences. Thus, our overarching goal is to prepare a teacher workforce with the knowledge, skills and dispositions to effectively educate and increasingly diverse population of P-5 learners.

Reflection Upon Active Pedagogy

Our systematic approach provides the collaborative infrastructure for classroom teachers to model research-based practices for teacher candidates, thereby providing continuous, and

often, instantaneous feedback. Collaborating teachers and teacher candidates literally "teach at the elbow" of one another, which allows the collaborating teacher to step in and provide support or mentoring immediately (Roth & Tobin, 2002). The partnership between the co-teachers provides comfort and support to the teacher candidates as they become more confident with their abilities in the classroom and increases the collaborating teachers' confidence in the teacher candidates' abilities as well. With increased confidence, the collaborating teacher and the teacher candidate begin to take more creative, pedagogical risks. As the teacher candidates increase their own self-efficacy, the collaborating teacher also feels more comfortable implementing new strategies. As the co-teaching partnership evolves, the co-planning of lessons and co-generation of ideas becomes commonplace (Heckert, Strieker, & Shaheen, 2013). Teacher candidates and collaborative teachers report a smooth transition and shift of power as the prospective teacher assumes an increasing leadership role in the classroom. The ongoing, mentoring found in the PSCT model increases the self-efficacy and confidence of teacher candidates because the P-12 students perceive them as another teacher with co-authority in the classroom and not a traditional or typical student teacher (Heckert et al., 2013).

This model recognizes co-reflection as an on-going process that occurs as teacher candidates and collaborative teachers co-plan new lessons, co-instruct, and co-review student performance data. This cycle of co-reflection provides multiple and ongoing opportunities for co-teachers to engage in co-generative dialogue and bring their knowledge and experience to bear in solving unique problems of practice relative to their own students and their particular teaching environment. It is during these times, the co-teaching coaches facilitate meaningful conversations that provide opportunities for the teacher candidate to understand and articulate how theory translates to practice, and conversely, how practice must be explained by theory.

Professional Development for Teacher Candidates and Collaborating Teachers

To ensure that all of the participants have a common understanding and language, the co-teaching coaches, collaborating teachers and teacher candidates participate in a hybrid course created by an interdisciplinary team of faculty and school district representatives, entitled *A Partnership Approach to Pre-service Co-teaching,* which addresses the foundations of the partnership principles and relationship development, pre-service co-teaching and coaching, as well as ways to use PSCT to maximize student engagement and learning through assessment, differentiated instruction, and classroom management. During the opening seminar, the co-teachers were taught ways to establish their co-taught classroom as well as the specific models of pre-service co-teaching and how they can be used to support assessment, differentiated instruction, and classroom management. While the co-teachers are encouraged to use co-teaching during their daily practice of co-teaching, co-assessment, co-instruction, and co-reflection, they are not required to co-instruct all day, every day. The co-teachers were encouraged to employ all of the co-teaching models based upon the learning needs of the teacher candidate as well as those of their K-5 students. It is important to note that the teacher candidate was required to teach solo at various times during the student teaching experience so that the university supervisor could evaluate the candidate's ability to meet the all of the professional standards.

Professional Development for Instructional Coaches

All of the instructional coaches attend a minimum of two, full-day interactive seminars, which include personality and communication assessments, as well as readings on cognitive, executive, and instructional coaching. In addition, they watched video on the Teacher Channel

that demonstrated effective coaching practices and made decisions about how those practices could be embedded into their approach. One of the team leaders attended six days of professional development at the Instructional Coaching Institute at the University of Kansas in Lawrence, Kansas. The approach to instructional coaching, particularly Knight's partnership principles were adopted by the coaches and embedded in all of our work.

Collaboration with Colleagues: The Coaching Process

The instructional coaches met with the co-teaching teams a minimum of four times during the semester. At the initial coaching session, the instructional coach used the discussion protocol GROW to facilitate a collaborative conversation to establish team goals and a simple action plan. Specifically, the GROW protocol frames a discussion on the following: (a) the current reality; (b) a goal for the teacher candidate or the co-teachers; (c) options to reach the goal; and (d) a potential course of action, including who will do what in co-teaching. Given that all of the co-teaching teams had successfully completed the professional development, *A Partnership Approach to Pre-Service Co-Teaching,* the practices presented were considered as part of the goal setting and action planning process. Once the goals were established, the instructional coach observed each team and then facilitated a reflective conversation on the impact of their instruction. Based upon the conversations, the co-teaching teams were free to change or establish new goals (Knight & van Nieuwerburgh, 2012).

Over the course of the semester, each instructional coach conducted a minimum of three additional site visits per team. The purpose of each session was twofold. First, the instructional coach observed a lesson that was designed to demonstrate the co-teaching team's progress in meeting their stated goal. For example, if the co-teachers established a goal to use flexible groups to manage student behavior, the coach might observe the pre-assessment, regrouping, and station teaching. During each observation, the coach chronicled the co-teaching model(s) employed to support the instruction, the level of student engagement and learning as well as other notations. Based upon the observation, the coach facilitated a reflective dialogue to consider all aspects of the instruction and its impact. Throughout the process, the coaches provided non-threatening, supportive feedback and provided the co-teaching teams with a safe environment to engage in honest conversation. In that regard, the coaches encouraged the co-teaching teams to theorize their practice and discuss how co-teaching could be used to support research-based practices in assessment, instruction, and management. These discussions gave the collaborating teacher the opportunities to model their thought processes for selecting, and employing, specific instructional and assessment practices. The coaches also encouraged and supported purposeful experimentation of the PSCT models that created the safety net for the co-teaching teams to move outside their comfort zones.

The GROW (Whitmore, 2002) and the Observation Form were used to document the events and conversations that occurred in each coaching session, and were ultimately, submitted to the university research team. At the close of this conversation, the co-teaching team determined whether they would continue working on this goal or establish another one.

At the completion of the semester, all co-teaching teams participated in focus group interviews to discuss their experiences with PSCT, coaching, and student teaching in general. The data were quantitatively and qualitatively analyzed to determine efficacy of instructional coaching in assisting teacher candidates and collaborating teachers in applying their learning to their daily practice in terms of using PSCT to improve their planning, assessment, and instruction. Each instructional coach was required to reflect upon each team's progress on a

monthly basis. These reflections were also submitted to the university research team. It is important to note that all of the co-authors in this study are also coaches, but only the second and third authors are coaches of elementary co-teaching teams.

Method

Self-study in Teacher Education Research

According to Grossman (2005) and Loughran (2007), self-study is being widely accepted in teacher education research. This study responds to this call by situating the present research in the larger research programs on teacher education reform, particularly as it relates to clinical practice through collaboration, pre-service co-teaching, coaching, and mentor-modeling. The aim of this study was to examine the impact of the PSCT collaborative approach, particularly the instructional coaching in rich detail. The researchers specifically intended to examine this complex process from the perspective of the instructional coaches; therefore, qualitative case study research was chosen as the methodology for this study. In this study, each case consisted of multiple teams of co-teaching teacher candidates, collaborating teachers, and instructional coaches. Using case study methodology, there were a total of 43 instructional coaching cases examined in this study.

Participants

The teacher educator research team requested and received institutional review board permission from the university to conduct the research. From the fall of 2011 through the spring of 2012, 43 elementary pre-service teachers, along with 43 collaborating teachers and 14 coaches participated in this study.

Instructional coaches. The team of elementary coaches was comprised of 14 females, five were retired elementary school principals, and nine were university faculty. All of the coaches were Caucasian. All of the coaches hold at least a master's degree and two-thirds hold doctoral degree. According to their self-reporting, all coaches were white females with a distribution of ages between the early thirties and to the mid-sixties. All of the coaches met the prevailing state guidelines for certification in Elementary Education, Leadership, Social Studies, Math, Language Arts, Science and/or Special Education.

All of the coaches were selected based upon their experiences as coaches, co-teachers, and/or working with new teachers in the induction process. The retired principals had an average of 25 years of experience supervising co-teachers and assisting new teachers with induction. One of the former administrators had extensive experience in providing professional development in collaboration and co-teaching. All of the former administrators had completed professional development in cognitive coaching that was offered by their school districts. Two members of this group also worked for the college of education as a university supervisor. All of the coaches who were also members of the university faculty had experience (average of five years) co-teaching at the university or classroom levels. Three of them had either taught classes or professional development on collaboration and co-teaching. All of the faculty had prior relationships with the student teachers in some capacity, typically as a former instructor. All of the elementary coaches had completed approximately twenty clock hours of professional development on coaching that focused upon the tenants of instructional coaching and how to use this approach with co-teachers. Two of the co-authors in this study served as elementary coaches during the specified time frame.

Teacher candidates. During the spring semester, 14 co-teaching coaches met with the 43 elementary teacher candidates, along with their collaborating teachers, in fourteen elementary schools. Of the 43 candidates, 41 were female and Caucasian. Two of the candidates were male: One male was black and the other white. The average age of the elementary teacher candidates was 22. All of the teacher candidates were in the second semester of their senior year and had completed all of the required coursework for their elementary degrees and were ready to begin student teaching. These students had all completed a survey course in special education that had included content, readings and assignments on collaboration and co-teaching.

Elementary collaborating teachers. Of the 43 teachers, 40 were female and three were male. Of the total number of elementary collaborating teachers, 38 were Caucasian and five were African American. All of the collaborating teachers were certified in elementary education according to the prevailing state guidelines had at least three years of teaching experience. Nearly all of the teachers had previously earned at least one CEU in collaboration and co-teaching by their local school district.

Data Analysis

The data for this study consisted of three sets of data sources: coaching documents, observation notes, and focus group interviews. Documents completed by the instructional coaches included the following: (a) the GROW form, (b) Observation form (one for each of the three required observations); and (c) Coaching Reflection. In addition to documents, observations were completed a minimum of four times per team throughout the semester and observation notes were collected each time using a consistent coaching observation form. Finally, focus group interviews were conducted with the coaches and the interviews were recorded and transcribed. All three sets of data sources were used for triangulation during the qualitative analysis.

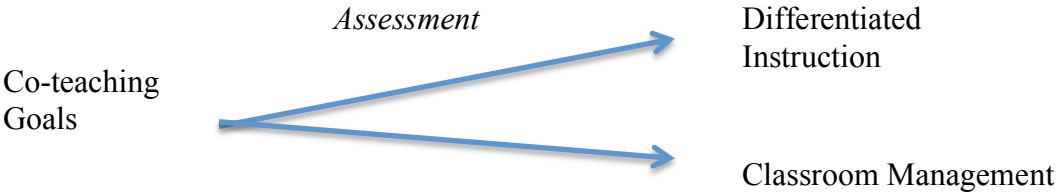
During data analysis, data from individual cases were coded and a cross-case analysis was conducted using an ongoing, recursive process. Data analysis occurred in several stages including summarizing data, generating and refining themes, and ensuring trustworthiness. Two authors independently coded the data and then compared and revised themes to reach agreement. Finally, two additional researchers provided independent support for the final themes (Denzin & Lincoln, 2008).

Results

Goals

Over the course of the semester, our 43 teams identified a total of 153 goals on the Grow form, all of which were aligned with the content of the professional learning series. Sixty-two of the goals addressed increasing the type and number of PSCT models to support their practices. As time progressed, 37 teams identified additional goals that addressed how co-teaching could be used to differentiate instruction. These goals were tailored to the needs of the co-teachers, as well as those of the K-5 students. Another 20 goals addressed assessment and how it could be used to differentiate instruction. Another 20 addressed classroom management. It was interesting to note that the majority of classroom management goals were established for the teacher candidate and not the co-teaching team. In addition, the planning goals emerged from discussions on how off task behavior often resulted from instruction that was not carefully planned.

Figure 2. Goals Established by Co-teaching Teams



These findings suggest that, as the semester progressed, the co-teachers tended to focus the majority of time in their coaching sessions addressing one of two broad practices: differentiated instruction and classroom management. It was interesting to note that the coaching approach to assisting the teacher candidate was strikingly different from the approach used with the co-teaching teams. When the goal was differentiation, it was stated for the two teachers; assessment goals were often embedded within or tightly connected to the instructional goal, and the coaches typically approached the reflective dialogue with open-ended questions. For example, one coach asked questions regarding how groups were formed for station-teaching, and the candidate and co-teacher provided evidence of assessment to determine groups.

When the goal was classroom management, it was usually stated solely for the teacher candidate, at which point, the coach became much more dominant force, providing a great deal of specific feedback and detailed recommendations, tailored to the needs of the teacher candidate's planning, instruction, and management. As examples, one coach specifically reminded the candidate about the importance of scanning the room on a regular basis. Another coach specifically addressed the importance of body position when teaching, as opposed to asking open ended questions about the management practices. It was also interesting that two of the three planning goals seemed to emerge from the discussions on management.

Differentiated instruction. For the purposes of this study, differentiated instruction was defined in terms of Tomlinson (2005) model of content, process, product, and culture. When one coach observed a first grade co-teaching team, she noted:

> Materials were not tiered based on the students' approximate levels of functioning. All students did all the same assignments since they rotated through all three groups. Groups were not purposefully comprised of like ability students. This would have allowed the teachers to tailor the activities based on student ability.

Coaches guided the discussion with open-ended questions. In this situation, the co-teaching teams were often asked several things, including: (a) Would grouping students based on specific needs help with differentiation? (b) Would tiered assignments assist with groups of students at different levels? (c) What PSCT Models would best support these groups of students? Following the conversation, the team set goals that addressed the following: (a) using specific co-teaching models (parallel or station teaching) that would allow them to better differentiate instruction, and (b) exploring ways to tier the same assignment to fit the needs of students at various levels of ability. Through this conversation, the teacher candidate gained a richer understanding of the necessity of differentiated instruction to meet the needs of her students.

Assessment. Assessment was cited as a goal by 20 teams and focused on ways to use assessment to differentiate instruction. Most observation reports threaded assessment throughout the narratives. For example, coaches noted the following in relation to assessment:

1. Coaches asked questions to prompt discussion related to assessment (Example: How might you use assessment data to differentiate instruction for center placement?; How do you ensure readiness levels?)
2. Coaches also noted ongoing assessment within the observation (i.e. differentiated center groups based on assessment data; daily assessments to place students; choosing co-teaching model based on assessment data).
3. In a few cases, the coaches made specific recommendations for the co-teaching teams in relation to assessment (i.e. ensure content is based on readiness levels; use pre-test/post-test for differentiation; assess daily for differentiation).

It should be noted that throughout the instructional coaching reports, the researchers identified a tendency of the coaches to recommend strategies and offer suggestions, rather than to ask questions and facilitate the dialogue in ways that elicited responses for the co-teaching teams.

Classroom management. As previously noted, many teacher candidates requested that their coaches assist them in developing their classroom management skills. While the collaborating teachers were always part of the process, in these instances our coaches routinely made very specific recommendations, exclusively to the teacher candidates. In most of these situations, the coaches made recommendations to increase appropriate behavior, in some instances the coaches were able to assist the teacher candidates in obtaining a deeper understanding of the complex nature of the classroom. For example, a fourth grade coach noted that, over the course of the semester, one teacher candidate needed to work on four behavior strategies that spanned management and instruction, including the following: (a) effective use of flexible groups; (b) planning engaging lessons; (c) preparing and implementing effective student transition strategies; (d) preparing and using a variety of guided reading approaches. The impetus for these recommendations was a lack of classroom management, but resulting dialogue required the teacher candidate to think deeply about the connections between student behavior, planning, and instruction. In cases such as this, the collaborating teacher served as constant mentor and model of appropriate, research-based practices as well as a sounding board during the conversations on complex problems of practice. In cases where specific recommendations were not necessary, the coaches were able to guide the conversations by asking more open-ended questions for the teacher candidate to ponder:

> As students finish, engagement issues start to come into play. What are some strategies to keep students engaged when others are still focusing on the activity? How do you balance the attention that students need as well as ensuring engagement of others? How does engagement impact classroom management?

Our coaches often assisted teacher candidates by conducting assessments of student engagement during the observation. One first grade coach offered to observe the class and take data on the number of students who were off-task, at 5-10 minute increments, after the teacher candidate gave the class instructions for completing the assignment. Once the teacher candidate realized how many students were and were not engaged, she was able to adjust her instruction to increase attention to task.

It should be noted that when the teacher candidates were exclusively in need of support in developing classroom management techniques, the coaches clearly became much more directive, offering highly specific recommendations that were tailored to the needs of the students and the teacher candidates. During this situation, the coaches worked closely with the CT who was asked to make her classroom management strategies transparent and explicit.

PSCT Models Utilized to Support Instruction

During the seminar series, six models of co-teaching were discussed and analyzed for potential use within the elementary classroom instruction. According to the coaches' observation data for 43 teams, the following breakdown of PSCT models demonstrated that they were explicitly used and stated within the coaches' documentation.

Table 1. PSCT Models Employed During Student Teaching

One Teach/One Assist	27
Team Teaching	38
Parallel Teaching	19
Station Teaching	47
Alternative Teaching	12
Combination	19 (specified previously)

One of the concerns at the outset of the pilot study was that teachers may tend to use only co-teaching models with which they are the most comfortable, typically one teach/one assist, and not necessarily the models that best suit the needs for differentiating P-5 student instruction. In analyzing the reports from the coaches, our co-teachers utilized the PSCT models that they felt worked well for the content that they were teaching, indicating intentionality in choosing strategies to best meet the needs of students. Teachers in the lower grades showed a tendency for more station teaching, mirroring the center approach that is pedagogically sound for developmentally appropriate teaching.

In analyzing this data further, it appeared that there was intentionality in implementing a variety of co-teaching models. Of the 43 teams, only seven used one model during the course of each observation, while 17 teams used two models and 19 used three or more models at some point during their three observations. Extended use of the models demonstrated greater fluidity between the co-teachers and sophistication of their use of the pedagogical practices.

Reflective Dialogue

Of primary interest was the content of the reflective dialogue between the coaches, collaborating teachers and teacher candidates that typically followed the coach's observations. During these sessions, all three participants had a chance to co-reflect on the co-teaching, and "just in time" pedagogical discussions were held directly related to coach observations. Pedagogical questioning and recommendations fell into very specific categories (general co-teaching approaches, classroom management strategies, and content-specific learning strategies/ general learning strategies).

PSCT models. Our coaches facilitated a great deal of conversation that focused on ways to better utilize the various models for instructional purposes. For example, coaches helped teams focus not only on the importance of purposefully choosing and planning specific models to differentiate instruction, but also emphasized how the physical location of station teaching might lead to improved student outcomes. Additionally, the conversation addressed the use specific

models of PSCT to increase their ability to differentiate instruction, and to increase students' participation, independence, and engagement in the lesson.

Classroom management. As mentioned previously, many of our teacher candidates established goals that addressed classroom management. The subsequent observations and feedback sessions resulted in discussions on a wide range of research-based classroom management strategies, ranging from more general strategies (such as purposeful, flexible grouping, proximity of the co-teachers to students, and use of positive reinforcement) to more specific strategies (such as breaking down oral directions for individuals students, making material more manageable for struggling students, and having extensions available for advanced students). Additionally, our co-teachers regularly engaged in dialog related to using the CT's behavior management system to control students with disruptive behavior. Behavior management strategies were highly varied and were dependent on each teacher candidate's specific situation. Behavior management strategies suggested by the coaches ranged from simple strategies (i.e., non-verbal cues; wait time; planning engaging lessons; matching lessons to ability level; decreasing transition times; positive language; etc.) to more specific strategies (reviewing behavior plans with teacher candidates and offering suggestions; offering seating charts and checklists to monitor specific students off-task during lessons for the purpose of targeting strategies at specific students; etc.). Through these discussions, the teacher candidate's became more knowledgeable about how to apply research-based strategies to manage their classrooms. In addition, the candidates increased their ability to justify their instructional decisions to increase student learning. While the instruction provided to the teacher candidate may have been necessary and productive, the coaches in this situation did not appear to be engaged in practices consistent with those emphasized in their professional development.

Content specific strategies/general learning strategies. In addition to facilitating dialogue related to employing the co-teaching models to manage their classrooms, the coaches led discussions on a wide variety of topics related to improving student learning. The research-based strategies discussed ranged from general learning strategies (such as using teachable moments, setting expectations prior to the assignment, focusing more time on various portions of the lesson, and introducing one strategy at a time) to more content-specific strategies (i.e., using specific graphic organizers, guided reading strategies, pre-teaching vocabulary, strategies for struggling readers, and using assessment to inform instruction). The focus of these conversations was directly and intentionally related to the specific needs of each co-teaching team, specifically the teacher candidate.

Conclusions and Implications of the Study

As noted in the introduction, teacher education is under intense scrutiny and is being asked by national accreditation agencies to essentially to turn teacher preparation "upside down" and focus on providing high quality clinical experience. To that end, colleges of education are developing more intentional partnerships with local school districts to provide yearlong clinical experiences, but with those more collaborative and extensive clinical experiences, come the need for additional and different types of resources to support the teacher candidates and the collaborating teachers. One of the major implications of this study is that instructional coaching is a potentially promising practice for supporting not only the teacher candidate, but also the collaborating teacher. While coaching is new to pre-service education, it has been used effectively for many years as a form of professional development for practicing teachers (Knight, 2008).

Our results indicate that with the support of this model, our teacher candidates were capable of assessing the current reality of their teaching, and establishing their own professional goals to guide their development as a teacher, particularly in the area of differentiating instruction. Fostering teacher efficacy in this manner is unique within the context of a standards-based teacher education environment where teacher candidates are routinely evaluated against a detailed set of professional standards. Instructional coaching of pre-service teachers allows them to take risks and try new strategies in a safe space that is highly developmental. The developmental nature of the coaching was seen frequently when teacher candidates needed assistance with classroom management. Pre-service teachers were highly transparent and seemed to know that the coach was there to provide assistance and frame their thinking about managing and skills in classroom management, rather than to provide a graded evaluation of their competence.

Results of this study also indicated that the instructional coach's approach to coaching, and the collaborating teacher's role in co-teaching, both changed rather dramatically when the teacher candidate required assistance in managing the classroom. At that point, the coach seemed to assume the roles of a clinical supervisor rather than a facilitator. When necessary, the coach focused exclusively upon the candidate and provided detailed direction, pointed out direct connections between instruction, engagement, and student behavior. Similarly, the collaborating teacher seemed to assume a position of instructor and role model, making her practices and thinking more explicit. While these results certainly demonstrated the flexibility of our coaches in tailoring their practices to the needs of the teacher candidates, these approaches seem more closely aligned with clinical supervision than instructional or cognitive coaching (Knight, 2008). When teacher candidates are under stress due to issues related to classroom management, the coaches and collaborating teachers are encouraged to remain in role and support the teacher candidate's reflection and problem-solving. Future research will need to address ways to support the coaches in increasing their facilitation and communication skills.

In conclusion, these finding support the national movement for a more evidence-based approach to teacher education such as the implementation of edTPA. While these findings are preliminary, our pre-service co-teaching model seems to have the potential to assist teacher candidates in mastering the metacognitive aspect of the analysis of their teaching in a developmental way. In particular, the edTPA assessment asks candidates to identify evidence to justify their teaching decisions and strategies. In the narrative piece of the edTPA portfolio, it recommends that candidates use research and theory in understanding children's learning behaviors or formulating action plans to improve instruction. Through the cycle of PSCT, coaches can help teacher candidates align theory to practice as they grapple with complex problems of practice related to academic language, differentiation, assessment, and management. Through the use of intentional goal setting strategies, teacher candidates can also monitor their own learning, reflect upon their growth, and devise personal plans of action to improve their practices. The instructional coaching approaches described in this paper, clearly mirror the edTPA process of assessing student learning, choosing pedagogical strategies that best match content and students, and analyzing teacher effectiveness. The effectiveness of using coaching as a means to support pre-service teachers with edTPA is an obvious next step in our research. For example, examining how collaborative dialogue impacts pre-service teachers' responses in their narratives of edTPA and how co-teaching models may correlate with specific skill sets categorized within the edTPA tasks merit further research.

Limitations and Future Directions

A major limitation of the study was the sample was one of convenience in that everyone who participated in the PSCT initiative was asked to participate in the study, and the researchers served as coaches or presenters in the professional development seminars. As previously noted, two of the researchers are also faculty in the department of elementary education and coached ten teacher candidates and their collaborating teachers. In the future, researchers in elementary education will research secondary programs and vice versa. The second limitation is that research participants are from elementary and early childhood teacher education program in a particular region in the United States, which reduces external validity of the study. To reach higher levels of external validity similar studies must be conducted in other colleges or universities in other parts of the United States.

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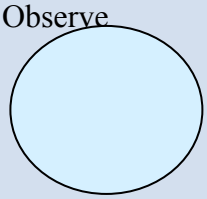
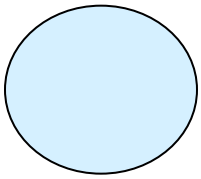
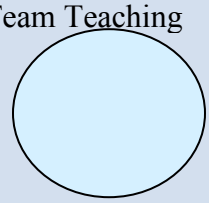
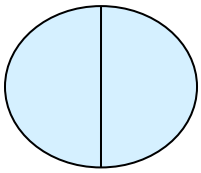
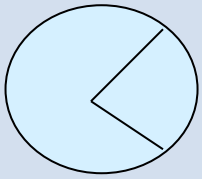
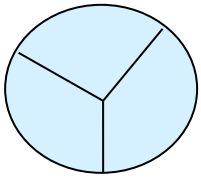
Appendix A

Pre-Service Co-Teaching Models

The models listed below provide a framework for co-teachers to improve student learning. The models help co-teachers to determine instructional roles and responsibilities, how to group students, and meet diverse student needs. There is flexibility in the way students are grouped according to the models.

Co-Teaching Models	Description
One Teach-One Observe 	• One co-teacher instructs whole group, and the other co-teacher observes teacher modeling/behaviors. • Co-teachers set systematic targets for observation at periodic intervals including: questioning strategies, interaction patterns with students, classroom management, and instructional strategies. • Through observation and note taking, one co-teacher takes data on checking for understanding. • Systematic collaborative dialogue between CT and teacher candidate should take place to reflect and plan for instruction.
One Teach-One Assist 	• One co-teacher takes the lead in instruction with whole group and the other co-teacher provides "on purpose instruction" when ready by providing: - short lessons/support to individuals, teams, or small groups of students -follow-up to whole group instruction -correctives or positive feedback as needed -visuals, charts, examples, and add-in comments • Both co-teachers stay tuned in to the progression of the lesson and anticipate where students may have difficulty. • Systematic collaborative dialogue takes place between CT and teacher candidate.
Team Teaching 	• Whole class instruction, both teachers synchronously teaching. • Instructional partnership with shared responsibilities. • Both teachers are active, working with the class as a whole. • Present content together building upon each other's comments spontaneously. • Can involve some short-term grouping of students with both teachers acting as facilitators. • Systematic collaborative dialog between CT and teacher candidate should take place to reflect and plan for instruction.

Parallel Teaching 	• Class is divided into 2 approximately equal heterogeneous groups. • The same content is taught, but the content may be presented in different ways. • With smaller teacher to student ratio, some students respond more to class discussion than in a whole group situation. • Provides more opportunities to differentiate. • Systematic collaborative dialog between CT and teacher candidate should take place to reflect and plan for instruction.
Alternative Teaching 	• Based upon assessment results, the class is divided into a larger group and a smaller group for a short period of time. • Different content/activities occur in each group based upon student needs. • The same students are not grouped each time – frequent assessments determine grouping strategies. • Provides more opportunities for re-teaching, additional practice, as well as extension activities to challenge learners close to or at mastery of standards. • Systematic collaborative dialog between CT and teacher candidate should take place to reflect and plan for instruction.
Station Teaching 	• The class is divided into 3 or more stations with each co-teacher manning one of the stations and one or more independent stations. • Stations (or centers) are designed around a standard with a breakdown of skills/knowledge. The lesson is segmented into important parts. • Each student goes through the stations (although the stations can be spread out over several days, not just one class session). • There is a lower teacher-student ration allowing for more individualization and the independent stations can encourage student responsibility and cooperative learning. • Teachers purposefully plan student groupings and consider many factors such as learning styles, abilities, student strengths, and weaknesses. • Systematic collaborative dialog between CT and teacher candidate should take place to reflect and plan for instruction reflect and co-problem solve.