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Pre-service teachers (PST) clinical experiences are critical for transfering theory to practice (e.g., Brownell, Ross, Colón, and McCallum, 2005) and these experiences require effective mentoring, coaching, and supervision from university supervisors and cooperating teachers (e.g., Leko, Brownell, Sindelar, & Murphy, 2012). Yet, many special education teachers enter the field feeling under-prepared to teach effectively, especially in reading (e.g., Brownell et al., 2009). One solution is to maximize support provided by cooperating teachers (CTs).

CTs receive little or no training on how to provide mentoring, coaching, and supervision to PSTs (Gareis & Grant, 2014). Therefore, the purpose of this study was to examine the effects of elbow coaching on the CT's ability to provide online, in-ear *e*Coaching to the PST during literacy based clinical experiences. Specifically, I investigated how elbow coaching influenced the CT's provision of online, in-ear *e*Coaching to the PST; how coaching the PSTs (i.e., in-ear *e*Coaching plus side-by-side coaching) influenced the PSTs delivery of effective reading instruction; and how coaching the PST positively influenced student outcomes (i.e., student engagement, opportunities to respond, correct responses).

Participants for this single case research design included three CT/PST dyads, and their K-1 students with and without disabilities. Social validity and procedural fidelity were measured and IOA was conducted in accord with prevailing standards. Quality

standards for SCRD were met without reservation (Kratochwill et al., 2013). Data was analyzed visually based on mean, level, trend, and latency of change (Kratochwill et al., 2010), and effect size was based on Tau-U (Vannest, Parker, & Gonen, 2011). Results indicated that the elbow coaching was effective in modifying CTs' *e*Coaching behaviors, PSTs' provision of effective reading instruction, and student opportunities to respond, correct responses, and behavioral engagement. Results also confirmed the efficacy of an online module plus coaching as an effective way to support CTs as they provide instructional support to PSTs, serving students with and without disabilities. Limitations, implications, and future directions are discussed.

COACHING WHILE COACHING: THE FUNCTIONAL RELATIONSHIP OF ELBOW COACHING ON COOPERATING TEACHER'S *e*COACHING, PRE-SERVICE TEACHER'S READING INSTRUCTION, AND STUDENT OUTCOMES

by

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This dissertation written by Jennifer Leigh Jones has been approved by the following committee of the Faculty of The Graduate School at The University of North Carolina at Greensboro.

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I am crossing the finish line of my longest, most challenging race to date. This marathon required more than physical strength and endurance. It required mental and emotional persistence. But, like every great race there was plan and I never ran alone.

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CHAPTER I

INTRODUCTION

The No Child Left Behind Act of 2001 (NCLB) was intended to ensure that all children would be proficient in reading and math by the 2013–14 school year (U.S. Department of Education, 2010). Accordingly, with the enactment of NCLB, educators began to see increased attention on quality instruction, higher student achievement, and teacher effectiveness. NCLB sought to improve teacher quality by ensuring teachers were "highly qualified" in several ways. Specifically, "highly qualified" teachers have completed a teacher preparation program and are licensed to teach in the state in which they are employed, exhibit content knowledge in the area or areas in which they teach, and demonstrate successful ratings on teacher performance assessments. NCLB also required that teachers receive professional development on research based teaching methods to support them in teaching students content areas such as math and reading more effectively. Additionally, student test scores or students' ability to meet adequate yearly progress (AYP) could be used to prove teacher quality.

Reading First was included in NCLB legislation to encourage the use of scientifically based research as the foundation for K–3 reading instruction (NCLB, 2001). Reading First supported NCLB's goals of improving student achievement and implementing evidence based teaching methods by providing financial incentives for state grants used to improve reading instruction and student achievement using reading

instruction and assessment built on scientifically based research (Gamse, Jacob, Horst, Boulay, & Unlu, 2008). Funding was available to states for six years after receiving the grant and could be used for:

- Reading curricula and materials that focus on the five essential components of reading instruction as defined in the Reading First legislation: 1) phonemic awareness, 2) phonics, 3) vocabulary, 4) fluency, and 5) comprehension;
- Professional development and coaching for teachers on how to use scientifically based reading practices and how to work with struggling readers;
- Diagnosis and prevention of early reading difficulties through student screening, interventions for struggling readers, and monitoring of student progress (Gamse, et al., 2008, p. 1).

On average Gamse and colleagues (2008) found that Reading First had a statistically significant impact on: (a) the total time that teachers spent on the five essential components of reading instruction in first and second grade, (b) the use of explicit instruction in first and second grade, (c) the amount of high quality student practice in grade two, (d) the amount of professional development in reading teachers reported receiving. Additionally, 20% more teachers in Reading First schools reported receiving coaching from a reading coach than would be expected from teachers without Reading First. However, Reading First was not statistically significant for (a) high quality student practice in grade one, (b) student engagement with print, (c) the availability of differentiated instructional materials for struggling readers, or (d) on

teachers reported use of assessments to inform classroom practice for grouping, diagnostic, and progress monitoring purposes (Gamse et al., 2008). Finally, Reading First schools did not show statistical significance on students' reading comprehension scaled scores or the percentages of students whose reading comprehension scores were at or above grade level in grades one, two or three (Gamse et al., 2008).

Like NCLB, the passage of Every Student Succeeds Act (ESSA, 2015) continued to advocate "effective instruction through the use of evidence-based and place-based interventions to teach academic skills, to foster college and career readiness, to enhance student outcomes, and to support school improvement" (Rock et al., 2016, p. 107). However, in the ESSA, policymakers eliminated the "highly qualified" teacher requirement put forth in NCLB, and reverted to state standards for determining eligibility for licensure. Regardless of whether national or state provisions prevail, determining success for all students, with and without disabilities, is at least partially contingent on the day-to-day effectiveness of the teachers who work with them (Smith & Ingersoll, 2004; Vannest & Hagan-Burke, 2009).

Despite more than two decades of national calls for changes in educational accountability, students with and without disabilities often perform below grade level expectations in reading. According to 2015 data from the National Assessment of Educational Progress (NAEP), 69% of fourth graders and 76% of eighth graders are not proficient in reading comprehension (NAEP, 2016). The NAEP scores were even lower for students with disabilities, who scored below the basic level of reading comprehension in both 4^{th} and 8^{th} grade assessments. Nearly 6.5 million students with disabilities are

served in American public schools, and 35% of these students are diagnosed with specific learning disabilities, such as a reading or math disability (USDOE, 2016). Moreover, most students with specific learning disabilities spend 80% or more of their instructional day within the general education setting (USDOE, 2016). This situation suggests that both general and special education teachers need to be better prepared to be effective as novice teachers.

To address teacher effectiveness and student learning, researchers have begun to investigate teacher preparation programs as one way to ensure teachers are more effective on their first day as an in-service teacher. For example, common features of effective general education teacher preparation programs emerged from Brownell, Ross, Colón, and McCallum's (2005) examination of two studies funded by the Association of American Colleges of Teacher Education (AACTE) and the International Reading Association (IRA), which include a coherent program vision that blends theory and knowledge with carefully designed opportunities to practice with feedback and to reflect on that practice. Additionally, effective preparation programs include collaboration between cooperating teachers and university faculty, and high standards for quality teaching, which are monitored. After comparing general and special education programs, Brownell et al. (2005) determined that carefully designed field experiences, faculty and student collaboration, focus on instructional methods, knowledge for addressing student diversity, and evaluation of teacher education program impact were chief among the distinguishing features of effective special education teacher preparation. Also, based on findings from their review of literature, Leko, Brownell, Sindelar, and Murphy (2012)

clarified promising factors to consider when designing effective special education teacher preparation programs such as: coursework that combines content knowledge (e.g., math and reading) with procedural or pedagogical knowledge, pedagogies that promote active learning (e.g., case based instruction, video modeling, and tutoring experiences), coursework aligned with high quality field experiences, collaboration between special and general education teachers during pre-service teaching, and extensive opportunities to teach with feedback. Regardless of general or special education, each of these reviews stressed the importance of improving teacher preparation through the integration of coursework and opportunities to practice with feedback, in the real-world classrooms, which are referred to hereafter as clinical placements or experiences in accord with prevailing Council for the Accreditation of Educator Preparation (CAEP) standards and guidelines.

Statement of the Problem

Approximately 45% of teachers leave the profession in their first five years (Ingersoll & Strong, 2011). This issue is even more critical for the field of special education, where new teacher attrition rates are even higher than those of general educators (Smith & Ingersoll, 2004).

Furthermore, Smith and Ingersoll (2004) noted that attrition rates increased if teachers do not receive induction support during the first year of teaching. These statistics suggest that teachers enter the field feeling unprepared and needing support during their beginning years as teachers.

An effective teacher preparation program that includes high quality clinical experiences is one way to combat lack of support teachers receive as novice educators (Bishop, Brownell, Klingner, Leko, & Galman, 2010; Brownell et al., 2005; Leko et al., 2012). Classroom teachers, professionals affiliated with various teacher organizations, and policymakers have frequently described school-based clinical experiences as "the most important learning experiences of preservice training" (Buck, Morsink, Griffin, Hines, & Lenk, 1992, p. 108). Additionally, general and special teacher preparation researchers alike call for high-quality clinical experiences with careful supervision (Brownell et al., 2005; CAEP, 2015; Darling-Hammond, 2014; Leko et al., 2012). With teacher preparation reformists focusing some of their accountability efforts on ensuring pre-service teachers (PST) can teach effectively, as evidenced in part by the impact they have on K-12 student learning (CAEP, 2016), the importance of receiving effective clinical supervision and support during clinical experiences cannot be overlooked.

Clinical experiences that include effective supports, such as supervision, coaching, and mentoring, are considered essential preparation practices for linking PSTs' development of content knowledge and pedagogical practice through the provision of opportunities to practice with feedback and to reflect critically on instruction (Buck et al., 1992; Brownell et al., 2005; Leko et al., 2012). Yet effective supports, such as supervision, coaching, and mentoring, are lacking for practicing teachers during clinical experiences. In a national survey that included 115 institutions of higher education (IHE) across the United States and Puerto Rico, Prater and Sileo (2004) found that special education university supervisors are responsible for between 1 and 35 PSTs during early

clinical placements and an average of 7.5 full-time student teachers. Although Prater and Sileo did not distinguish between formal and informal observations, the average number of observations reported by university personnel was 3.5 times during early experiences and 6.5 times during student teaching. This equates to one observation per 46.5 hours in early placements and one observation per 70.3 hours during student teaching (Prater & Sileo, 2004). Although researchers have not yet determined how many observations or how much feedback is enough to effectively support PSTs during clinical placements, one observation over 70.3 hours does not seem sufficient to provide PSTs with the much-needed feedback and reflection opportunities required to make changes to their instruction.

Given the infrequency of feedback during clinical experiences, it is not surprising that many special education teachers enter the field feeling under-prepared to teach – especially for critical skills, such as reading (e.g., Brownell et al., 2009). Specifically, Brownell et al. (2009) inferred that although beginning special education teachers had learned about reading instruction in coursework, they were not always able to put their knowledge into practice. Since coursework on theories and methods for teaching reading is insufficient, opportunities to apply information acquired from coursework through clinical experiences is also needed (Bishop et al., 2010). Many researchers have emphasized the number of hours spent in clinical placements (e.g., Maheady, Jabot, Rey & Michielli-Pendl, 2007; Prater & Sileo 2002, 2004; Spooner, Flowers, Lambert, &

Algozzine, 2008) and amount of supervision received (e.g., Prater & Sileo 2002, 2004) to better prepare PSTs. An alternative is to consider how supervision is carried out and by whom.

Rationale

Acknowledging the importance of clinical experiences, researchers, accrediting bodies, accountability reformists, and education policymakers have begun to push for a more practice based approach to teacher preparation (e.g., Benedict, Holdheide, Brownell & Foley, 2016; Grossman, 2010; NCATE, 2010). Accordingly, Grossman (2010) points out the importance of examining the quality of clinical experiences rather than stressing the number of hours spent in the field. Other recommendations for practice based approaches to teacher preparation include (a) seamless teacher development across the career span (Blanton & Pugach, 2017; Rock et al, 2016); (b) focus on collaboration on inclusion (Grossman; 2010; Rock et al, 2016); (c) attention to student outcomes (Blanton & Pugach, 2017; Deans for Impact, 2016; NCATE, 2010; Rock et al, 2016); and (d) systems of feedback (Deans for Impact, 2016; Dieker et al., 2014; Grossman; 2010; Rock et al, 2016). There must be coherence between the university and clinical setting for these elements to come together (Grossman, 2010).

Given that special education PSTs spend an average of 163 hours in the field during early placements and 457 hours during student teaching (Prater & Sileo, 2004), PSTs spend more hours with cooperating teachers (CTs) than with university supervisors during clinical placements. Therefore, CTs may be the single most influential aspect of

PSTs' clinical experiences (Clarke, 2001). Understanding the influence of CTs on PST preparation, AACTE (2010) recommended the following:

> Those who lead the next generation of teachers throughout their preparation and induction must themselves be effective practitioners, skilled in differentiating instruction, proficient in using assessment to monitor learning and provide feedback, persistent searchers for data to guide and adjust practice, and exhibitors of the skills of clinical educators. They should be specially certified, accountable for their candidates' performance and student outcomes for strengthening accountability for teacher preparation… (p. 6).

Although CTs are prepared to provide instruction to K-12 students using the skills described by AACTE, they often lack sufficient training in supervision of PSTs (Hoffman et al., 2015).

The Council for the Accreditation of Educator Preparation (CAEP) believes that clinical experiences are so critical to teacher development that they have dedicated an entire accreditation standard to practice in the field: STANDARD 2- Clinical Partnership and Practice. Furthermore, CAEP (2016) extends AACTE 2010 recommendations by describing clinical educators as teachers (i.e., school-based) and university faculty (i.e., provider) who should be prepared, evaluated, supported, and retained to demonstrate a positive impact on candidates' development and K-12 student learning and development. CAEP sets a guideline that CTs (i.e., school-based clinical educators) should be prepared and supported for their role in teacher development.

Taken together, AACTE and CAEP not only stress the skills required to support the next generation of educators, but insist that clinical educators, including CTs, are trained and supported for that role. Consequently, practice based teacher preparation

programs that train CTs for their role will increase the likelihood that PSTs will engage in higher quality clinical experiences while creating coherence between the university and the clinical setting.

Therefore, the purpose of this study was to examine the effects of elbow coaching on the CT's ability to provide online, in-ear *e*Coaching to the PST during literacy based clinical experiences. Specifically, I investigated how elbow coaching influenced the CT's provision of online, in-ear *e*Coaching to the PST; how coaching the PST (i.e., in-ear *e*Coaching plus side-by-side coaching) influenced the PST's delivery of effective reading instruction; and how coaching the PST positively influenced student outcomes (i.e., student engagement, opportunities to respond, correct responses).

Theoretical Foundation and Framework for Improved CT Professional Development

Although preparation for CTs is infrequent, when offered it is often presented as a one-shot workshop (Conderman et al., 2005; Graham, 2006; Hoffman et al., 2015; Prater & Sileo, 2004). Through situated learning, Lave and Wenger (1991) argued that learning happens best in the context in which the activity normally occurs. This means that rather than provide CTs with manuals or traditional workshops, preparing CTs to work with PSTs should be done while CTs are in their classrooms with their PSTs and K-12 students.

Providing side-by-side coaching to teachers in their classroom after they have received training (e.g., mentor training, literacy workshop) situates the learning in the classroom by providing teachers with real time feedback while they practice their newly

learned skills, which promotes the transfer of knowledge. Joyce and Showers (2002) determined that traditional professional development without coaching had no impact on teachers' use of skills (i.e., ES = 0.0), but with the addition of coaching there is a large impact, learning occurs, and new skills are used (i.e., ES = 1.42). Therefore, to facilitate the transfer of knowledge during situated learning, side-by-side coaching was used as the independent variable for both the CTs and the PSTs in this study. While both the CTs and PSTs received professional development on providing effective reading instruction, the CTs received side-by-side elbow coaching to support their ability to provide side-by-side, in-ear *e*Coaching to their PST while PSTs delivered literacy instruction to the students in the classroom.

Research Questions and Hypothesis

The purpose of this study was to examine the effects of elbow coaching on the CT's ability to provide online, in-ear *e*Coaching to the PST during literacy based clinical experiences. Specifically, I investigated how elbow coaching influenced the CT's provision of online, in-ear *e*Coaching to the PST; how in-ear *e*Coaching and elbow coaching influenced the PST's delivery of effective reading instruction; and how coaching and instruction positively influenced student outcomes (i.e., student engagement, opportunities to respond, correct responses). Therefore, I investigated three research questions:

1. What is the functional relationship between elbow coaching and the RISE based eCoaching the CT provides to the PST during reading instruction?

2. What is the functional relationship between in-ear *e*Coaching plus CT elbow coaching and the PST's delivery of effective reading instruction?
3. What is the functional relationship between in-ear *e*Coaching plus CT elbow coaching and the K-12 student outcomes (i.e., student engagement, opportunities to respond, correct responses)?

I hypothesized that, when provided with training that includes an online module and elbow coaching on reading instruction and coaching, the CT would provide immediate feedback to the PST, allowing the PST to deliver more effective reading instruction, which would in turn positively influence not only the K-12 students' opportunities to respond frequently and accurately, but also their engagement in instruction.

Limitations of the Study

There were several limitations related to the research methods and the online module portion of the training which I was unable to control. The first limitation was the small sample size of participants. Although single case research design (SCRD) is intended for use with small sample sizes (Gast, 2010), using only three CT/PST groups may not accurately represent a larger population of CTs working with PSTs, limiting the generalizability of the results to the general population (Horner et al., 2005). Second, participants were not randomly assigned to control and experimental groups. Since I used a SCRD, each participant acted as his or her own experimental control (Vannest, Davis, & Parker, 2013). Third, I set a five-day decision criterion for entering participants

from one phase of the research to the next, which may not have allowed for sufficient time to see changes or improvements in CT coaching, PST instruction, and/or K-12 outcomes. Fourth, there may have been threats of unintentional researcher bias because I provided the on-site, elbow coaching portion of the training throughout the study, and may have unintentionally provided more coaching feedback targeted toward increasing CT participants' feedback in specific areas. Similarly, observer contamination (Gall, Gall, & Borg, 2007) is a fifth limitation because the trained second observer was aware of the purpose of this study, which may have influenced her observations. A final limitation was the inability to assess reading outcomes since the school system only allowed the collection of observational data on students.

Limitations Regarding the Module

I did not restrict the participants' access to the online module. This means participants could return to the module at any time, which could have impacted the results of the study. Also, the module format lacked the analytic capabilities which would have allowed me to access the frequency of views and time spent on the module for each participant.

Delimitations of the Study

I established several delimitations, or boundaries, for this research. The first delimitation ensured the participants meet inclusion criteria and included purposeful selection and voluntary participation. The second was the geographic location of the participants. Since the intervention included observation and side-by-side, elbow coaching, which requires the researcher to be onsite daily, participants needed to attend

the same school. The third delimitation was the choice of methodology. I used a single-case, multiple-baseline across participant design (Gast, 2010; Kratochwill et al., 2013). Single case research design (SCRD) studies are experimental research methods used with individuals or small populations to investigate and document functional relationships between the independent and dependent variables (Gast & Ledford, 2014). Although using SCRD provides information about the functional relationship between the intervention and changes in behavior, it does not provide the same rich detail that could be gained through qualitative methods.

Assumptions of the Study

I established several assumptions for this research. First, I assumed that the content included in the CT and PST version of the online modules was adequate for building basic knowledge of effective reading instruction and *e*Coaching. Second, I presumed that CTs and PSTs would complete their respective online modules. Third, I presumed I had sufficient training and ability to provide onsite elbow coaching to the CT. My final assumption was that the participants would answer the social validity survey honestly, rather than simply providing socially desirable answers (Gall et al., 2007).

Definition of Terms

Behaviorally engaged: Students are involved in learning, such as staying on task and participating (Fredricks, Blumenfeld, & Paris, 2004). Students are putting forth an effort and demonstrating positive conduct through following rules and adhering to class norms (isbe.net, Illinois state board of education).

Clinical experiences: School-embedded practices (NCATE, 2010). Examples include classroom teaching and tutoring experiences with K-12 students. Clinical experiences are also known as field experiences, clinical practices, and internships.

Coaching: A more knowledgeable other "helping teachers analyze the content to be taught and the approach to be taken, and making a very specific plan to help the student adapt to the new teaching approach" (Joyce & Showers, 1980, p. 385).

Cooperating Teacher (CT): An in-service mentor teacher or classroom teacher who works with pre-service teachers (Feiman-Nemser, 1998).

Correct response: A student, or students, provides a specific, desired response, either verbally or in an observable manner (e.g., written response on the chalkboard) to an opportunity to respond (Sutherland et al., 2003).

*e*Coaching: "A relationship in which one or more persons' effective teaching skills are intentionally and potentially enhanced through online or electronic interactions with another person" (Rock et al., 2014, p. 162).

Elbow coaching: The coach provides training or verbal feedback in real time, on-site, while beside the individual receiving coaching.

Effective reading instruction: Domains of the Reading Instruction for Special Education (RISE; i.e., instructional practices, instructional environment, reading instruction, and classroom management).

Encouraging feedback: "Praise contingent on demonstration of a specific teaching behavior is provided" (Scheeler, et al., 2004, p. 399) by the coach.

Instructive feedback: “Objective information related to predetermined specific teaching behaviors is offered" (Scheeler, et al., 2004, p. 399) by the coach.

Opportunities to respond: Teacher asked a question (of an individual or the group) that required a specific response or was open-ended, with the purpose of having a student explain his/her thought process as is related to the lesson (Sutherland et al., 2003).

Pre-service teacher (PST): An individual taking coursework and/or involved in clinical placements prior to becoming an employed teacher.

Questioning feedback: The coach asks the person being coached to clarify information (Merriam-Webster, 2015).

Reading instruction: Instruction that includes one or more of the five components of reading (i.e., phonemic awareness, word study, fluency, vocabulary, comprehension).

Skype: “Free internet-based telephony, Voice-over-iP (VoiP) system, that allows teachers-in-training to use the mobile device (a Bluetooth headset) to receive real-time feedback and professional coaching while delivering classroom instruction” (Rock et al., 2012).

Summary

Researchers have shown that pre-service teachers’ (PST) clinical placements are critical for transfering theory to practice (Brownell et al., 2005; Leko et al., 2012) and that these experiences require effective support, including mentoring, coaching, and supervision from university personnel and cooperating teachers (CAEP, 2016; Leko et al., 2012; NCATE, 2010). Yet, many special education teachers enter the field feeling

under-prepared to teach – especially in critical skill areas, such as reading (e.g., Brownell et al., 2009). One possible solution is to improve the support provided by CTs to PSTs, to include coaching.

Although some CTs provide a myriad of supports (i.e., mentoring, coaching, supervision) to PSTs, the majority receive little or no training on how to do so (Gareis & Grant, 2014). When CTs do receive professional development on how to support PSTs, it is most often in the form of a stand alone workshop (Conderman et al., 2005; Graham, 2006; Hoffman et al., 2015; Prater & Sileo, 2004) rather than within the classroom with the PST and students, as theorized by situated learning (Lave & Wenger, 1991).

What is known is that CTs lack preparation to support PSTs who are learning to teach in the classrooms with K-12 students (Hoffman et al., 2015). The purpose of this study was to examine the effects of elbow coaching received by the CT on the CT's ability to provide online, in-ear *e*Coaching to the PST during literacy based clinical experiences. Specifically, I investigated how elbow coaching influenced the CT's provision of online, in-ear *e*Coaching to the PST; how in-ear *e*Coaching plus side-by-side coaching influenced the PST's delivery of effective reading instruction; and how coaching and instruction positively influenced student outcomes (i.e., student engagement, opportunities to respond, correct responses).

In Chapter II, I review the literature on the vital role clinical experiences play in teacher preparation, specifically as they pertain to PSTs' development of effective reading instruction; describe current roles, expectations, and training for CTs; and discuss a framework for improved CT training when working with PSTs' delivery of effective

reading instruction and K-12 student performance outcomes. In Chapter III, I discuss the methodology that was used to carry out this investigation, including the research design, participants, setting, independent and dependent variables, procedures, data collection, and proposed data analysis procedures.

CHAPTER II

REVIEW OF THE LITERATURE

The purpose of this study was to examine the effects of elbow coaching on the CT's ability to provide online, in-ear *e*Coaching to the PST during literacy based clinical experiences. Specifically, I investigated how elbow coaching influenced the CT's provision of online, in-ear *e*Coaching to the PST; how coaching the PSTs (i.e., in-ear *e*Coaching plus side-by-side coaching) influenced the PST's delivery of effective reading instruction; and how coaching the PST positively influenced student outcomes (i.e., student engagement, opportunities to respond, correct responses). In this chapter, I describe the vital role clinical experiences play in teacher preparation and training for CTs. First, I provide an overview of clinical experiences for PST preparation. Second, I describe special and general education PSTs' development of effective reading instruction during teacher preparation and clinical placements. Third, I explain the roles of the CT during clinical experiences, including the expectations university faculty and supervisors have for cooperating teachers. Fourth, I discuss current practices for training CTs. Finally, I describe a framework for improving CT training when working with PSTs to enhance the PSTs' delivery of effective reading instruction and to improve K-12 student performance outcomes.

I conducted a systematic, narrative review of empirical peer reviewed literature (Gall et al., 2007) to identify literature relevant to the training of CTs when working with

PSTs during clinical experiences. I systematically searched six databases (i.e., Academic Search Complete, EBSCO, Education Source, ERIC, PsychINFO, and SocINDEX) from 2000-2016, using combinations of the following search terms: mentor*, mentor teacher, coach*, supervisor, supervision, cooperating teach*; in combination with train*, training, supervisory training, coach training, preparation, professional development; and pre-service teach*, student teaching. Additionally, I completed a hand search of the past ten years in the following educational journals: *Journal of Teacher Education, Teacher Education and Special Education, Exceptional Children, Mentoring and Tutoring, Remedial and Special Education, Journal of Special Education,* and *Review of Educational Research. Review of Educational Research* was specifically search reviewed for additional literature reviews on CT training. Finally, I conducted an ancestral search by reviewing references of relevant articles for potential studies. The initial search yielded 548 articles; however, the review that follows consists of peer-reviewed research articles relevant only to the purpose(s) of this study.

The Role of Clinical Experience in Special and General Education Pre-Service Teacher Development

Clinical experiences in teacher preparation are considered the school-embedded practices in which PSTs engage (NCATE, 2010). Clinical experiences are situated learning (Lave & Wenger, 1999) opportunities which allow PSTs to actively engage with the theories and content learned during coursework. Examples include, but are not limited to, one-on-one or small group tutoring, observation of teaching practice in a classroom, assisting a classroom teacher with instruction and non-instructional duties,

and small group or whole classroom teaching and tutoring experiences with K-12 students. Clinical experiences are also known as field experiences, clinical practices, and internships. Based on findings from their review of literature on general and special education teacher preparation, Leko, et al., (2012) discovered promising factors to consider when designing effective special education teacher preparation programs such as the following: coursework that combines content knowledge (such as math and reading) with procedural or pedagogical knowledge; pedagogies that promote active learning- case based instruction, video modeling, and tutoring experiences; coursework that is aligned with high quality clinical experiences; collaboration between special education and general teacher education during pre-service teaching; and extensive opportunities to teach. Interestingly, four of the five promising practices involve clinical practice and opportunities to learn to teach with feedback.

Clinical experiences are so vital to high quality preparation practices (Buck et al., 1992; Brownell et al., 2005; Leko et al., 2012) that they comprise The Council for the Accreditation of Educator Preparation's (CAEP), formerly known as the National Council for Accreditation of Teacher Education (NCATE), second accreditation standard. Specifically, CAEP's accreditation Standard 2 centers solely on clinical preparation in teacher education. The sub-standards (i.e., 2.1, 2.2, & 2.3) include developing partnerships between the university, the school, and other community members to establish "mutually agreeable expectations for candidate entry, preparation, and exit; ensure that theory and practice are linked; maintain coherence across clinical and academic components of preparation; and share accountability for candidate outcomes"

(CAEP, 2016, para. 1). In addition, CAEP recommends that CTs who demonstrate a positive impact on PSTs' development and K-12 student outcomes should be prepared, evaluated, supported, and retained and that PSTs' clinical experiences must have "sufficient depth, breadth, diversity, coherence, and duration to ensure that candidates demonstrate their developing effectiveness and positive impact on all students' learning and development" (CAEP, 2016, para. 3).

Acknowledging the importance of clinical experiences, researchers, accrediting bodies, accountability reformists, and education policymakers have begun to push for a more practice based approach to teacher preparation (e.g., Benedict et al., 2016; Grossman, 2010; NCATE, 2010). Accordingly, Grossman (2010) points out the importance of examining the quality of clinical experiences rather than stressing the number of hours spent in the field. Other recommendations for practice based approaches to teacher preparation included (a) seamless teacher development across the career span (Blanton & Pugach, 2017; Rock et al, 2016); (b) focus on collaboration on inclusion (Grossman; 2010; Rock et al, 2016); (c) attention to student outcomes (Blanton & Pugach, 2017; Deans for Impact, 2016; NCATE, 2010; Rock et al, 2016); and (d) systems of feedback (Deans for Impact, 2016; Dieker et al., 2014; Grossman; 2010; Rock et al, 2016). For these elements to come there must be coherence between the university and clinical setting (Grossman, 2010).

Clinical support, including supervision, coaching and mentoring, is an essential element of practice based preparation aimed at linking PSTs' development of content knowledge and pedagogical practice through the provision of opportunities to practice

with feedback and to reflect critically on instruction (Buck et al., 1992; Brownell et al., 2005; Leko et al., 2012), yet it appears that effective supports, such as supervision, coaching, and mentoring, are lacking for practicing teachers during clinical experiences. Often supervision is the responsibility of a university supervisor, a university faculty who visits clinical sites, to monitor progress, provide feedback, and assess the development of PSTs during clinical experiences. However, in a national study surveying 115 institutions across the United States and Puerto Rico, Prater and Sileo (2004) found that special education university supervisors are responsible for between 1 and 35 PSTs during early clinical placements and an average of 7.5 full-time student teachers. Also, while Prater and Sileo did not distinguish between formal and informal observations, the average number of observations reported by university personnel was 3.5 times during early experiences and 6.5 times during student teaching. This equates to one observation per 46.5 hours in early placements and one observation per 70.3 hours during student teaching (Prater & Sileo, 2004). Although researchers have not yet determined how many observations or how much feedback is enough to support PSTs during clinical placements, one observation over 70.3 hours in the field does not seem sufficient to provide PSTs with the much-needed feedback and reflection opportunities required to make changes to their instruction.

Given the infrequency of feedback from supervisors during clinical experiences, it is not surprising that many special and general education teachers enter the field feeling under-prepared to teach – especially for critical skills such as reading (e.g., Brownell et al., 2009). Several researchers have emphasized the number of hours spent in clinical

placements (e.g., Maheady et al., 2007; Prater & Sileo, 2002, 2004; Spooner et al., 2008) and amount of supervision received (e.g., Prater & Sileo, 2002, 2004) to better prepare PSTs. An alternative is to consider how supervision is carried out and by whom, especially during clinical experiences where PSTs are practicing newly learned instructional strategies.

Types of Clinical Experiences with Reading Instruction

Many teacher education researchers examining reading-based clinical experiences have explored either tutoring experiences, early clinical placements, or student teaching internships. There is some research supporting the use of this continuum of supports (e.g., tutoring, early and mid-clinical placements, and student teaching) to scaffold teaching experiences for PST development. For example, Buck and colleagues' 1992 review of field based practices in special education from 1980-1991 revealed that tutoring and early clinical experiences provided scaffolded support for both coursework and for student teaching. More recently, Henning, Erb, Randles, Fults, and Webb (2016) shared their process for developing the *Developmental Curriculum for Clinical Experiences*, a clinical curriculum intentionally designed to provide scaffolded teaching experiences through early, mid, and late teacher education. In this section, I describe what is known about clinical experiences in reading and how CTs have been involved in these training efforts.

Tutoring experiences. Tutoring is one-on-one instruction which supplements classroom teaching (Elbaum, Vaughn, Hughes, & Wood, 2000) and is often used in early teacher education to connect coursework with real world application of skills and

knowledge (Haverback & Parault, 2008). Opportunities to tutor a student one-on-one, in part, provide scaffolding that prepares a PST for whole class teaching. Intentional planning beginning with a one on one tutoring experience allows novices to move from "simpler to more complex teaching skills, from working with fewer to larger numbers of students, and from requiring less to more planning and decision making" (Henning, Gut, & Beam, 2015, p. 151). Tutoring also supports the development of teacher self-efficacy (e.g., Shaw, Dvorak, & Bates, 2007). Importantly, tutoring not only supports the development of PST skills, but the tutee also benefits from this experience. For example, in their 2000 meta-analysis investigating 29 studies of reading tutoring reported between 1975 and 1998, Elbaum and colleagues determined that reading tutoring had a mean weighted effect size of 0.41 when compared with controls. This means tutors can provide meaningful support to struggling readers.

To determine the effectiveness of code-based reading tutoring for English language learners (ELLs) and PSTs, Al Otaiba (2005) conducted a case study examining eight K-3rd grade ELLs and eight 3rd year PSTs in a 5-year Masters of Special Education program who had received one language arts course and completed several practicum experiences, but had not experienced tutoring. Code-based reading places the emphasis of instruction on decoding sounds and words rather than on meaning making. Al Otaiba provided the tutors with pre- and post- assessment measures of vocabulary, phonological awareness, and reading knowledge. The tutors administered progress monitoring measures for their tutees and provided written reflections on tutoring sessions and on final reports about their tutees' responsiveness to instruction. The tutors received a 3-

hour training in scientifically-based reading research (SBRR)/Code-Based Reading prior to tutoring. Most PSTs provided 15 sessions of tutoring over 10 weeks.

After the sessions were completed, the tutors improved to nearly 100% mastery on a measure of knowledge about reading and language structure, and they reflected on the importance of building rapport, individualizing instruction, and behavior management. The tutees' raw scores improved significantly on Word Attack, Passage Comprehension, and Sound Matching. Finally, it is important to note two factors which Al Otaiba (2005) posited may have had some influence on the success of the tutoring experience. First, the teaching philosophy of the school's core reading program was consistent with the tutoring the PSTs provided. Second, the tutors were closely observed and supervised, although by whom and how were not described. Similar to the findings in Elbaum et al.'s (2000) meta-analysis, these trained PSTs were able to support reading gains for their tutees, but this study also confirmed that PSTs had gained more knowledge of reading instruction after training as evidenced by post scores on the Structure of Language assessment (Mather, Bos, & Babur, 2001). However, Al Otaiba did not report in what ways PSTs applied newly acquired reading knowledge during tutoring sessions.

Shaw and colleagues (2007) conducted a larger mixed methods study examining the literacy knowledge, beliefs, and self-efficacy of 52 undergraduate elementary PSTs in a reading methods course with a tutoring component paired with their second reading course. Each PST completed the Theoretical Orientation to Reading Profile (TORP; DeFord. 1985), the Teacher Self-Efficacy Literacy Scale (TSELS; Johnson & Tschannen-Moran, 2004), an instructor-made questionnaire documenting their knowledge about

reading, and provided a written description of their personal reading practices. Based on quantitative results, Shaw and colleagues determined that the PSTs' tutoring experiences influenced changes in the PSTs' theoretical orientations to reading. Also, the PSTs began their second literacy course with a self-efficacy mean score of 6.45 on a scale of 1-9, indicating that they felt "some degree" or "quite a bit" of self-efficacy toward teaching reading. After the tutoring experience, PSTs' mean self-efficacy scores increased significantly (M=7.48), indicating that tutoring, or applying their knowledge of literacy instruction, further developed their confidence in instructional ability. Finally, qualitative results indicated that the PSTs' knowledge about reading instruction aligned with their beliefs about reading. Overall, Shaw and colleagues found that these tutors came into their second reading course and tutoring experience feeling confident about their knowledge of literacy and reading instruction and this confidence grew with more knowledge and practice. PSTs' theoretical orientation toward reading shifted as they saw how their instructional practices shaped student learning. Shaw et al. also found that PSTs' beliefs and instructional practices aligned (e.g., as one shifted, so did the other).

In 2009, Spear-Swerling sought to understand whether PSTs would have accurate perceptions of their pedagogical content knowledge; if PSTs' content knowledge would improve after coursework; if children being tutored by PSTs would show improvements in basic reading skills, spelling skills, and phonics concept knowledge after tutoring; and if there would be any significant relationships between PST reading knowledge and tutees' reading progress. A total of 45 special education PSTs, from three separate cohorts across three consecutive semesters of a special education language course, which

included supervised tutoring of second-grade students, participated in the study. The tutees were all second graders struggling with reading but not receiving special education services. The PSTs received approximately 8 hours of reading instruction before beginning tutoring sessions, which lasted an hour and occurred once a week for eight weeks.

Overall, the PSTs in this study did not have accurate perceptions of their general knowledge about reading, reading development, phonemic awareness, or phonics. PSTs improved significantly on all five knowledge areas after course instruction, but posttest scores remained well below ceiling level. Spear-Swerling (2009) posited that although teacher candidates acquire knowledge about reading and reading development, 8 hours of course instruction may not have been sufficient for some candidates to reach high levels of performance at posttest. However, the student tutees showed significant improvement from pre- to posttest on all six reading and spelling measures used in the study.

Finally, with the purpose of understanding which tutoring program would best prepare PSTs for reading instruction and provide the best outcomes for tutees, Al Otaiba, Lake, Greulich, Folsom, and Guidry (2012) conducted an experimental comparison of two tutoring programs. PSTs (n=28) enrolled in an early literacy instruction course were randomly assigned to one of two tutoring programs: Book Buddies and Tutor Assisted Intensive Learning Strategies (TAILS). Both tutoring programs were grounded in shared reading but differed in the presentation of code-focused skills. TAILS used explicit, scripted lessons, while the Book Buddies required code focused instruction take place more authentically during shared reading. The PSTs were assessed in several areas.

First, their knowledge of teaching reading was pre- and post-assessed. Next, they provided responses to a self-report survey regarding their preparedness to teach reading. Finally, PSTs submitted bi-weekly lesson logs as evidence of their knowledge and application of reading instruction. The tutees (i.e., kindergarten and first grade students) received pre- and post-assessments on the Dynamic Indicators of Basic Early Literacy Skills (DIBELS; Kaminski & Good, 1998), and The Early Reading Diagnostic Assessment second edition (ERDA-2; The Psychological Corporation, 2003).

Using a mixed methods approach, Al Otaiba and colleagues (2012) determined that all PSTs demonstrated similar gains in reading knowledge, but PSTs using the TAILS program demonstrated broader and deeper application of knowledge and higher self- ratings of preparedness to teach reading. Per their lesson-logs, Book Buddy tutors often had difficulty aligning their goals and objectives with their actual instruction; however, this was not a problem for TAILS tutors who were using a scripted program. Also, student tutees in both conditions made similar comprehension gains, but students tutored with TAILS showed significantly stronger decoding gains in DIBLES nonsense word fluency suggesting that the scripted direct instruction of code based reading provided by the TAILS program was more effective at supporting phonics than incidental code based reading instruction.

Early clinical experiences. Unlike tutoring, early clinical experiences provide PSTs with an opportunity to work alongside a cooperating teacher in a classroom. These experiences are often highly structured (Maheady, Rey, & Michielli-Pendl, 2007), but

PSTs receive limited support from university supervisors (Prater & Sileo, 2004) and the role of CTs is often unclear.

Harlin (1999) examined the changes in PSTs' images and perceptions of teaching literacy during a reading course which included a six-week clinical placement in an elementary school working alongside a CT. This placement was the first field experience for the 18 elementary and special education PSTs who participated in this study. PSTs worked in groups of three to plan lessons that they taught to a different small group of students in their shared CT's classroom. After teaching each lesson, they met to debrief and complete a self-evaluation of the lesson. The professor observed each student three times during the field placement, provided written feedback, and held individual conferences. The CTs served as mentors who discussed personal teaching practices, observed one group member each day, provided written feedback and conferenced individually with the PST teaching the lesson. The CTs also shared a whole language philosophy that aligned with the professor of the course and was familiar with the strategies and techniques the PSTs were taught to use.

Three times during the semester each PST created a semantic map of his or her self-perception as a reading teacher. Each map was accompanied by a narrative explanation which provided details and clarifications. The maps and narratives were analyzed using a constant comparative method (Glaser & Strauss, 1967) to discover commonalities and establish categories. Harlin (1999) described four factors (i.e., influences beyond the classroom, influences from children, influences from other professionals, and influences from teachers' personal and professional development) that

developed across the three stages of the clinical experience (i.e., entering the field, developing new perceptions, and refining perceptions). Overall, while the core concepts remained the same, the way the concepts were described, the frequency of appearance, and perceived importance for reading shifted as PSTs gained more knowledge about and practice with reading instruction.

Eight years later, Maheady and colleagues (2007) examined a highly structured early clinical experience to determine the amount and type of instructional support PSTs provided to K-12 students during early clinical placements, how these placements impacted PST's ability to use evidence based practices, and if these experiences impacted K-12 student outcomes. Participants in this study included 422 special education, elementary education, and adolescent education PSTs over four semesters. The PSTs worked mostly in pairs; were required to design, teach, and evaluate two formal lessons which could be co-taught with a PST partner; and were assessed using Teaching/Learning Projects (TLPs), an adaptation of the Teacher Work Sample (TWS; Renaissance Partnership for Improving Teacher Quality, 2002). This TLP cycle was completed three times by each PST.

Maheady and colleagues (2007) determined that the PSTs in this study provided 16,880 hours of assistance from spring 2003 through fall 2004 and taught more than 844 formal lessons. PSTs' lesson plans demonstrated the use of evidence-based strategy instruction (e.g., response cards, graphic organizers) and PSTs who planned for evidence based practices demonstrated a high degree of accuracy for implementation (total M = 5.92; range = 5.84–0.96). Furthermore, only four of the randomly selected 225 lesson

plans did not include evidence based practices. Finally, according to PST pre- and post-student assessment data, 60% of students receiving instruction from the PSTs showed noticeable improvements, 23% showed marginal effects, and 10% showed no impact.

In 2011, using an activity theory framework to guide their qualitative grounded theory study (Charmaz, 2000; Glaser & Strauss, 1967), Leko and Brownell examined various influences on special education PSTs' appropriation of pedagogical tools for teaching reading to students with high incidence disabilities. More specifically, the researchers sought to understand the individual and contextual influences on special education PSTs' adoption of pedagogical reading tools for students with disabilities and how those influences impacted the special education PSTs' ability to use evidence-based practices in reading for students with disabilities.

The six PSTs participating in this study had various backgrounds and prior reading knowledge but were all in their first semester as Masters-level special education majors, had completed one reading course, and were in a clinical placement where they could teach reading to students with high incidence disabilities. Data were collected from observational field notes and PSTs were evaluated using the Reading Instruction for Special Education instrument (RISE; Brownell et al., 2009) to "provide evidence of the extent to which preservice teachers appropriated evidence-based practices in reading, as well as to document changes in their reading practices over time" (p. 236). PSTs also engaged in three semi-structured interviews before observation, at observation, and after data collection. The researchers interviewed CTs, reading methods instructors, and field

supervisors. Finally, the researchers collected teaching artifacts from the beginning and end of study (i.e., concept map and open ended survey).

Overall, Leko and Brownell (2011) determined that the PSTs' personal qualities, motivation for knowledge assimilation, access to knowledge, and opportunities to use knowledge in practice influenced PSTs' adoption of evidence-based practices in reading. Specifically, in regards to the clinical placement, the most important factor for reading knowledge acquisition was the CT. PSTs placed with CTs who had extensive knowledge of special education and the instructional needs of students with disabilities were able to receive feedback that was specific to explicit, systematic reading instruction and behavior management, while CTs with less knowledge about reading instruction for students with disabilities provided feedback to PSTs on "general reading knowledge and instructional practices such as instructional pacing and use of specific feedback" (p. 244). Knowledge acquisition from reading methods coursework was reviewed favorably by several of the PSTs, who felt that the clinical experience extended what they had learned in class, but others felt they had not learned anything from the university reading course that was helpful during their clinical experience.

Student teaching. Student teaching is often the final requirement for graduation from a teacher education program. Unlike the one-on-one experience of tutoring and the small group or limited teaching time in early clinical experiences, student teaching is usually the time when the PST can teach more frequently and with more freedom. During student teaching, the PST spends every day in the CT's classroom; therefore, the CT typically has more influence on the PST than the PST's course instructors or

university supervisors once did. Yet, little research has been done examining how PSTs develop their reading instruction during this time.

Hamman et al. (2007) examined the impact of CTs' reading instructional practices on PSTs' developing reading instructional practices. The participants included 18 CT and PST dyads across seven schools. CTs were considered effective reading teachers by their literacy coach and the CTs' instructional practices aligned with the requirements of the state level Reading Excellence Act.

CTs and PSTs were videotaped twice during the spring semester as they provided guided reading instruction to students who were struggling. CTs were taped in January and February while PSTs were taped during March and April. Both teachers provided instruction to the same group of students. The videos were then rated using an adaptation of Lyons and Pinnell's (2001) Detailed Guided Reading Scale to determine similarities and differences of instructional quality and occurrences between the CT and PST in their respective dyads, and how the instructional practices of the CT influenced those of the PST. Overall, Hamman and colleagues determined that PSTs used instructional practices that were almost identical to their CT's (e.g., size of groups, frequency of support to students, and limited attention to fluency). However, Hamman et al. (2007) also determined that the quality of support given by the PSTs was overall lower than that provided by the CT. In other words, the PSTs did not provide as much support to students in the areas of word meaning and word solving.

One inference Hamman et al. (2007) made from their findings was that even experienced and effective CTs have difficulty influencing the quality of PST reading

instruction. Moreover, Hamman and colleagues challenged teacher preparation researchers and program developers to find ways to help PSTs move beyond imitating what they see their CTs do to provide higher quality reading instruction.

In this section, I described various PST clinical experiences with reading instruction. Overall, in the literature reviewed thus far, researchers reported gains, albeit small in some cases, in student reading progress (e.g., Maheady et al., 2007). They also reported that reading-based clinical experiences support PSTs' developing reading knowledge (Harlin, 1999; Leko & Brownell, 2011) and PSTs' self-efficacy as teachers of reading (Shaw et al., 2007). However, in many of these studies, the researchers did not address the effectiveness of PSTs' reading instruction or what type of clinical support they received from their CT.

As noted earlier, classroom teachers, professionals affiliated with various teacher organizations, and policymakers have frequently described school-based clinical experiences as critical for learning how to teach (e.g., Buck, et al., 1992). In addition, novice special education teachers often have reported feeling underprepared to teach critical skills such as reading (Brownell et al., 2009; Bishop et al., 2010). Therefore, teacher preparation researchers and program developers must consider ways to leverage the support of the CT during PST reading-based clinical experiences. To do so, it is important to understand CTs' current roles, university faculty members' expectations for CTs, and current trends in CT training.

The Role of Cooperating Teachers in Clinical Experiences

The literature on clinical experiences often depicts the importance of the CT in field experiences, or, as Ganser (1996) poignantly offered, the CT is "the pivotal person in connecting university coursework with field experiences" (p. 103). Ganser attributed the influence of CTs to the multiple roles they assume during their work with PSTs.

CTs adopt many roles that require evaluative, technical, and interpersonal skills (Glickman, Gordon, & Ross-Gordon, 2014). For example, CTs complete evaluation forms rating their PSTs' abilities. They engage in technical skills of teaching as they model instructional practices and scaffold opportunities for PSTs to practice teaching (Krull, 2005; Roberts, Benedict, & Thomas, 2014). Additionally, CTs use interpersonal skills to provide feedback aimed at helping PSTs develop the ability to make effective instructional decisions (Roberts et al., 2014).

In their literature review examining the participation of CTs in teacher education, Clarke, Triggs, and Nielsen (2014) described three roles CTs typically take that reflect a continuum of involvement from detached to engaged: (a) place holder, (b) supervisor, and (c) coach. Since researchers (e.g., Ambrosetti, 2014; Fairbanks, Freeman, & Khan, 2000) and PSTs (e.g., Fairbanks et al., 2000) also identify CTs as mentors, I have added this role to the continuum posited by Clarke and colleagues.

Place Holder Role

CTs acting as place holders share their classroom and K-12 students but interact minimally with their PSTs (Clarke, 2007). Place holders often provide PSTs with opportunities to observe and practice teaching, but may not provide feedback,

opportunities for reflection, or emotional support. However, Clarke et al. (2014) noted that this detached role is no longer a common practice. Yet, the role of the CT is not discussed in much of the research regarding PSTs' clinical experiences with reading instruction (e.g., Maheady et al., 2007). Therefore, it is difficult to determine what role, if any, many of the CTs may have played when supporting PSTs' literacy instruction during tutoring and early clinical experiences.

Supervisor Role

A supervisor is "a person who is in charge of others" ("supervisor," 2015). As supervisors, CTs track PSTs' development of instructional skills. Clarke et al. (2014) described a supervisor as a CT who "observes, records, and reports" (rather than provides feedback) on PSTs' application of the knowledge learned in coursework (p. 167). For example, CTs often evaluate PSTs using tools provided by university faculty (e.g., Praxis III/Pathwise Framework, Giebelhuus & Bowman, 2002; Performance Assessment for California Teachers [PACT] standards, Kopcha & Alger, 2011; Council for the Accreditation of Educator Preparation [CAEP] standards, Paulsen, DaFonte, & Barton-Arwood, 2015). Depending on the relationship formed with the PST and the expectations of the preparation program, the supervising CT may or may not discuss the outcomes of the evaluation with the PST. Without opportunities to discuss evaluations, including strengths and areas for growth, the PST loses an opportunity for timely feedback and the power of reflection is limited or disconnected from the PST's classroom experiences.

Coach Role

Clarke and colleagues (2014) referred to the CT who acts as a teacher educator as a coach. Teacher educators, or coaches, provide feedback that encourages teacher development (Joyce & Showers, 1982), promotes continuous learning (Knight, 2009), and fosters sustainable change (Passmore, Peterson & Freire, 2013) for improved teaching and learning for both the PST and the K-12 students. Coaching in teacher development is often achieved through the observation cycle, which includes pre-observation conferences, observations, and post-observation conferences. In a recent review of 46 empirical articles examining CTs coaching PSTs, Hoffman et al. (2015) found that during post conferences, CTs focused more on planning or instructional actions of the PST than on reflection. This type of coaching session tends to be more directive (e.g., the CT directing the PST in how to improve planning or instruction), limiting the opportunities for the PST to reflect on his or her work with students.

Rather than using a traditional observation cycle with feedback occurring after the lesson, researchers have also explored coaching in real time, using bug-in-ear technology (e.g., Scheeler & Lee, 2002; Rock et al., 2009, 2012, 2014). Both Rock et al. (2009, 2014) and Scheeler and Lee (2002) found that immediate feedback created immediate changes in teacher behavior. In addition, general educators enrolled in a special education degree program, found that in-situ bug-in-ear feedback provided a cycle of reflecting in the moment (Rock et al., 2012). Although the coaches in these studies were university faculty, it seems plausible that CTs can also use bug-in-ear technology to coach their PSTs in real time.

Mentor Role

A mentor is a more experienced teacher who provides career development (Ragins & Kram, 2007) and psychosocial support (Mullen, 2012) to his or her mentee. CTs often mentor their PSTs by providing supports ranging from active listening to offering advice. Although many researchers may not distinguish the differences between mentoring and coaching (Hoffman et al., 2015), Dennen (2004) described mentoring as being relationship focused whereas coaching is task focused. In other words, CTs impart the skills needed for pedagogical development through instructional coaching (Knight, 2009), and provide mentoring when offering psychosocial supports through emotional assistance (Kram, 1985), such as showing confidence in the PST's ability to be successful, providing opportunities to experiment, and introducing PSTs to other teachers and parents (Sayeski & Paulsen, 2012).

Clarke and colleagues (2014) did not suggest that the roles described are mutually exclusive; rather they may be used at different times for various reasons. Also, CTs may strategically or intuitively choose the roles they take with their PSTs (Clarke et al., 2014). However, it is apparent that the individual role chosen by the CT may influence the types of feedback and opportunities for reflection they provide for their PSTs.

Requirements and Expectations for Cooperating Teachers

Clearly CTs can take on many roles when hosting PSTs and these roles impact the support CTs provide to PSTs. As such, it is likely that the CT's role also impacts the way the PST provides instruction and interacts with students in the classroom. Since CTs are charged with providing an environment for PSTs to connect theory to practice, it is

important to examine what types of training program developers have provided to CTs to be effective in their role of supporting PSTs' growth and development. Therefore, in this section the researcher will discuss university requirements and PSTs' expectations for CTs as well as describe some of the tensions that emerge between university supervisors, PSTs, and CTs.

University Requirements for Cooperating Teachers

There appears to be a lack of training, support, or guidance from university faculty for teachers assuming the role of mentor or CT (Asphors & Franson, 2015; Prater & Sileo, 2004; Valencia, Martin, Place, & Grossman, 2009). Prater and Sileo (2002, 2004) found requirements for CTs include one to five years of teaching experience, a valid teaching license, and a recommendation from school or university personnel. Overall, CTs seem to be chosen because they have a "good reputation" and only 3% of the universities surveyed required CTs to participate in professional development or training (Prater & Sileo, 2004, p 258). Hoffman et al. (2015) found that of the 46 articles examining CT and PST coaching interactions, only four studies included CTs who had received training or participated in university sponsored programs to support coaching PSTs. Similarly, only three of the 95 CTs who responded to a survey developed by Graham (2006) received CT professional development through coursework or workshops. On the contrary, in a survey of 61 special education undergraduate programs, Conderman et al. (2005) found that 49% of the institutions indicated that CTs are required to have some training in supervision before accepting a student teacher. Specifically, the most common training format reported was a workshop (53%) followed

by seminars (18%), brief meetings (18%), and courses (11%). These reports suggest that CTs' qualifications vary widely between individuals and university programs. Given the importance placed on creating high quality clinical experiences, the effectiveness of CTs cannot be left to chance.

Pre-Service Teachers' Experiences

Several researchers have looked at PSTs' experiences with their CTs to help determine what skills and dispositions should be required for effective mentoring of PSTs. In this section I provide two examples. First, Killian and Wilkins (2009) used the Supervisory Effectiveness Continuum and interviews with 13 CTs and their PSTs to determine the effectiveness of the CTs. The five CTs ranked as highly effective had similarities in their behaviors and backgrounds. The highly effective CTs were all able to push their PSTs toward independence by supporting independent problem solving, providing many opportunities to teach, and giving corrective feedback when needed. Interestingly, there were no major differences between the highly effective and less effective CTs regarding years teaching, experience with PSTs, relationships with university faculty, or mentoring workshops. However, every teacher determined to be a highly effective CTs had an advanced degree, specifically in teacher leadership, or had National Board Certification. Killian and Wilkins inferred that this result suggests that there may be variables in advanced degree programs and in the National Board Certification process that are more influential for CT effectiveness, such as the ability to critically examine and discuss teaching practices, than the university mentoring workshops alone.

Several years later, Sayeski and Paulsen (2012) used 389 PSTs' opened-ended online evaluations of CTs, collected over a three-year period across elementary education, special education, and secondary content specific Masters of education majors, to determine which practices noted by PSTs aligned with "educative" mentoring. Sayeski and Paulsen described "educative" mentoring as extending beyond traditional technical and emotional support given to PSTs, and moving toward helping the novices shape the way they think about the processes of teaching and learning. Using content analytic methods (Krippendorff, 2004) to analyze the evaluations, Sayeski and Paulsen determined that CTs can support PST development in several ways: (a) pre-planning and sharing resources, (b) providing specific feedback, (c) modeling effective practices and engaging in conversations about effective teaching, and (d) demonstrating trust and confidence. These themes were derived from PST descriptions of supportive and problematic experiences with CTs. Accordingly, the researchers concluded that CT professional development should include technical support and transformative (e.g. educative) mentoring, balancing when to provide ideas versus when to let the PST experiment or explore, and the relationship between good teachers and successful mentors.

Taken together, these studies suggest that effective CTs scaffold problem solving to support independence (Killian &Wilkins, 2009), and that scaffolded support may happen through the provision of specific and corrective feedback (Killian &Wilkins, 2009; Sayeski & Paulsen, 2012), and through modeling and conversations about effective

teaching practices (Sayeski & Paulsen, 2012). Also, effective CTs show confidence in their PSTs' teaching abilities (Sayeski & Paulsen, 2012).

Tensions Between CT, PST, and Preparation Program

Researchers have determined some skills needed for CTs to effectively mentor, supervise, and coach PSTs, yet there are still many reports of tensions and problems that arise between the CT, the PST, the university supervisor, and/or the expectations of the preparation program. For example, in a systematic literature review examining 113 empirical studies examining various aspects of practicum setting in teacher education programs between 1996 and 2009, Cohen (Sayag), Hoz, and Kaplan (2013) found that tensions were reported by many of the PSTs, their mentors, and their university supervisors. More specifically Cohen (Sayag) et al. noted seven sources of tension described in the few studies that discussed the work among CT, PST, and university supervisor. These tensions included the following:

(a) Time - CTs and university supervisors did not have adequate time to meet with and provide feedback to PST;
(b) Power struggle - CTs tried to maintain control over classroom while PSTs tried to gain independence;
(c) Differing obligations - CTs, PSTs, and university supervisors each had different responsibilities (e.g., CTs to their classroom students, university supervisors to PST, PSTs to meeting practicum requirements);

(d) CTs' confidence as a mentor teacher - mentor efficacy can be impacted by PSTs' willingness to follow CT's models and feedback;

(e) PSTs' attitude toward CTs - PSTs became frustrated when CTs could not help them bridge theory and practice, if the CTs were unwilling to let the PST become independent, or if the CTs were too demanding;

(f) Dual mentors - the CTs and university supervisors often had different expectations and provided different ratings and feedback to PSTs;

(g) Differing educational perceptions - PSTs, CTs, and university supervisors often had different educational backgrounds, world views, and experiences, which often inhibited cooperation.

Given the complexity of the CT, PST, university supervisor triad, it is not surprising that tensions arise. However, effectively preparing CTs for their roles in supporting PSTs during clinical experiences may minimize some of the tensions.

Current Practices for Cooperating Teacher Professional Development

Considering that special education PSTs spend an average of 163 hours in the field during early placements and 457 hours during student teaching (Prater & Sileo, 2004), PSTs spend more hours with CTs than with university supervisors during clinical placements. As such, CTs may be the single most influential aspect of PSTs' clinical experiences (Clarke, 2001). Understanding the influence of CTs on PST preparation, AACTE (2010) recommended the following:

> Those [CTs] who lead the next generation of teachers throughout their preparation and induction must themselves be effective practitioners, skilled in differentiating instruction, proficient in using assessment to monitor learning and provide feedback, persistent searchers for data to guide and adjust practice, and exhibitors of the skills of clinical educators. They should be specially certified, accountable for their candidates' performance and student outcomes for strengthening accountability for teacher preparation… (p. 6).

Although CTs are prepared to provide instruction to K-12 students using the skills describe by AACTE, they are not often trained in implicitly teaching their pedagogical practices or in providing high quality feedback to adult learners. Therefore, in this section, the researcher describes how CTs are prepared to work with PSTs and the shortcomings associated with current approaches to CT professional development. Using the aforementioned systematic literature review search procedures, combined with further refinement of keywords searched, and an inclusion and exclusion criteria (see Table 1) the researcher identified 15 studies that described CTs' professional development for supervision, mentoring, and coaching strategies.

Overall, researchers conducting these 15 studies examined CT professional development programs designed to teach CTs how to be more effective mentors, supervisors, or coaches to PSTs. The studies occurred in the United States (n = 7), Australia (n = 2), New Zealand (n = 1), and the Netherlands (n = 5). The methods researchers used to explore the effects of training CTs varied, and included pre-post designs (n = 6), qualitative, (n = 5), survey (n = 2), causal comparison (n = 1), and quasi-experimental (n = 1). Participants in these studies included CTs (range 6-101) and PSTs

(range 6-303). Approximately one third of the CTs who received training were special education teachers (*n* = 103).

Table 1. Cooperating Teacher Preparation Inclusion and Exclusion Criteria

Inclusion	Exclusion
Empirical, peer reviewed studies	Dissertations, books, reports, non-empirical
Described mentor teacher (MT) or CT training	Training was delivered but not described
MT or CT worked with PST	In-service teachers/induction mentoring
Training on how to mentor or on effective coaching/supervision strategies	Training on support for content only (reading, math, science)
School-based mentor participants	Training only included a manual/handbook
Qualitative or quantitative outcomes	Mentors were University Supervisors
Program evaluation and descriptions included if training was described	No description of outcomes

Multiple Approaches to Professional Development

Most the preparation programs (*n* = 13) were delivered through face-to-face interactions with the CTs, while two programs provided a hybrid blend of face-to-face and IRIS modules (i.e., Childre & Van Rie, 2015; Paulsen et al., 2015). Interestingly, of

the face to face professional development sessions, five included additional technological advances. Four programs incorporated the use of video analysis (i.e., Crasborn et al., 2008, 2010, and Hennissen et al., 2011; Fairbanks et al., 2000; Giebelhaus & Bowman, 2002; Thompson et al., 2015), and one used Facebook to support an online community of practice (i.e., Thompson et al., 2015). Like reports from Prater and Sileo (2004) and Conderman (2005), face-to-face professional development remains the most common practice for training CTs.

Duration of Professional Development

The length of CT professional development ranged from eight hours to multiple sessions over the course of one school year. In addition, three trainings lasted only one or two sessions (i.e., Hudson, Sooner-Lane, & Murray, 2013; Veeman & Dennesen, 2001; Veeman et al., 2001), while ten continued over multiple sessions (i.e., Ambrosetti, 2014; Childre & Van Rie, 2015; Crasborn et al., 2008; Crasborn et al., 2010; Fairbanks et al., 2000; Giebelhaus & Bowman, 2002; Henson et al, 2011; Parker-Katz & Hughes, 2008; Paulsen, DaFonte, Barton-Arwood, 2015; Timperly, 2001). Two programs (i.e., Gareis & Grant, 2014; Thompson et al., 2015) embedded follow up sessions throughout the semester or year. The average time CTs spent in training was approximately 21 hours (range 8-36 hours). However, for five studies (i.e., Fairbanks et al., 2000; Gareis & Grant, 2014; Paulsen et al., 2015; Thompson et al., 2015; Timperley, 2001), the investigators did not provide enough information to determine the number of hours spent training and were excluded from the average.

Content of Professional Development

The specific content taught to CTs varied, but three overarching topics emerged: 1) expectations of the program and the roles and responsibilities of PSTs, 2) supervisory and coaching skills, and 3) assistance through mentoring.

Expectations of the program and responsibilities of PST. Most the professional development programs focused on roles and responsibilities of pre-service teachers and/or the expectations of university program (n = 7). Examples included using IRIS modules to provide CTs with the content knowledge and skills that PSTs were expected to practice during student teaching (Childre & Van Rie, 2015; Paulsen et al., 2015) and explaining the PST portfolio process and how to provide support as the CT (Gareis & Grant, 2014).

Supervisory and coaching skills. A second content area presented to CTs was supervisory and coaching skills. Two programs (Giebelhaus & Bowman, 2002; Parker-Katz & Hughes, 2008) provided content on global supervisory and coaching skills (e.g., observation, data collection, assessment, and feedback), while five focused specifically on the provision of feedback or coaching conversations held before and after observations. For example, Crasborn et al., (2008, 2010) and Hennissen et al. (2011) each looked at different aspects of the same training, which consisted of supervisory skills used in mentor dialogues specifically designed to support PST reflection. Additionally, Giebelhaus & Bowman (2002) focused training on providing support based on the PST assessment used for licensure (i.e., Praxis III/Pathwise).

Mentoring. The third content area presented was the mentoring role of a CT. Similar to supervision and coaching, the coverage of mentoring varied. For example, Ambrosetti (2014) included the "nature of mentoring, roles in mentoring and approaches to mentoring" (p. 33) and Hudson and colleagues (2013) provided training on his five factors for mentoring model (i.e., personal attributes, systems requirements, pedagogical knowledge, modeling, and feedback).

In addition, of the eight programs that presented information on mentoring, five did so in conjunction with additional content. Gareis and Grant (2014) paired the role of mentoring with supervisory skills; Fairbanks, Freeman, and Kahn (2000) coupled mentoring with coaching conversations; and Parker-Katz and Hughes (2008), Paulsen et al. (2015), Veeman and Denessen (2001), and Veeman and colleagues (2001) covered supervisory skills, roles and responsibilities of the pre-service teachers, and mentoring roles.

Outcomes of Professional Development

Cooperating teacher outcomes. Overall, CTs across these studies perceived the training they received as helpful for working with PSTs. The CTs who participated in the training conducted by Childre and Van Rie (2015) provided high ratings for the content (e.g., IRIS modules), but six of 12 respondents requested additional content on mentoring. Similarly, Paulsen and colleagues (2105) found that CTs valued the IRIS modules for supporting pre-service teachers and their own development. CTs who participated in training reported having better understanding of their roles (Fairbanks et al., 2000), improving their mentoring skills to support PST outcomes (Ambrosetti, 2014;

Childre & Van Rie, 2015; Paulsen et al., 2015), and developing stronger relationships with their PSTs (Ambrosetti, 2014; Fairbanks et al., 2000; Hudson et al., 2013).

These self-reports were confirmed by many of the results from the pre-post observational design studies. For example, CTs improved their mentoring skills (i.e., emotional and task assistance) to support PSTs' outcomes after training (Henissen et al., 2011), and increased their ability to share concerns, engage in personal theories of teaching, and develop shared action plans (Timplery, 2001).

Nearly half the authors of these studies used causal-comparison/quasi-experimental research (n = 3) or same group pre/post designs (n = 4) to determine the effectiveness of training on CTs. The researchers of these studies determined that trained CTs were better able to provide PSTs with guided practice (Veeman & Denessen, 2001; Veeman et al., 2001), feedback, and opportunities for autonomy and self-reflection (Veeman & Denessen, 2001) when compared to untrained CTs. Trained CTs were also found to have more accurate ratings of pre-service teachers on university assessments than CTs without training (Veeman et al., 2001; Giebelhaus & Bowman, 2002).

Pre-service teacher outcomes. Few researchers provided information on pre-service teacher outcomes based on the CT professional development; of those who did, the researchers reported mixed results. On the one hand, there were positive reports. Fairbanks et al., (2002) and Hudson et al. (2013) described PST satisfaction with the relationship they developed with their trained CT. The six PSTs working with the CTs trained by Hudson and colleagues (2013) also reported that they gained more knowledge in the 4-week clinical placement with trained CTs than in all other placements. Also,

Giebelhaus and Bowman (2002) found that PSTs with trained CTs were more effective (e.g., statistically significant at or exceeding the 0.05 level) in planning, providing classroom instruction, and reflecting as measured by the Praxis III/Pathwise observation form than PSTs with untrained CTs. On the other hand, Gareis and Grant (2014) found no difference in perceived competence, effect on learning, or intent to stay in teaching between graduates who had trained CTs versus those who had untrained CTs during their clinical experiences. Thompson and colleagues (2015) found that trained CTs who focused on solely improving the PST and their teaching practices, rather than on improving teaching and student learning in the classroom together, were less able to support PSTs' professional development, and reported that these dyads often experienced more tension during their time together than dyads that focused on improving teaching and student learning.

Shortcomings Associated with Current Approaches to CT Professional Development

Overall, these 15 studies paint a picture of the current preparation practices for CTs. Specifically, the type, duration, and content of CT training varies among programs. Despite the variation, researchers have reported many successes. However, there remain shortcomings and unaddressed issues with these approaches, such as inadequate training, unclear expectations, and limited outcomes.

Inadequate training. For professional development to effectively support the acquisition of new skills, Joyce and Showers (1980, 1982) stressed the importance of 20 to 30 hours of theory presentation, 15 to 20 models or demonstrations of new skills, and 15 to 20 opportunities to practice new skills with feedback on performance. Similarly, in

a review of teacher professional development practices, Opfer and Pedder (2011) found that teachers were less likely to change behavior solely on presentations of new information, yet the majority of these authors described training which simply presented information, with limited models. Additionally, while many researchers provided opportunities to practice, few noted the provision of feedback from the researchers or training staff (Crasborn et al., 2008; Crasborn et al., 2010; Hennissen et al., 2011). With the low effect size of training without feedback (e.g., 0.0; Joyce & Showers, 2002) it is unlikely that these CTs will retain these skills for use with future PSTs.

Unclear expectations. Frameworks for coaching and mentoring provided a common language and a shared understanding of goals (Giebelhaus & Bowman, 2002) for the CTs, PSTs, and the university supervisors, yet five groups of CTs in these studies were responsible for assessing and evaluating their PSTs without formal training on how to do so. Without clarifying expectations of the CTs and the PSTs, the CTs are left to provide feedback and evaluate the PSTs' teaching ability based on instinct rather than an evidenced-based set of skills or dispositions.

Limited outcomes. The CTs in these studies were trained to perform various supervision, coaching, and mentoring skills. Interestingly, none of the researchers measured how CT training impacted K-12 student outcomes, and only Paulsen et al. (2015) noted that their preparation program had stronger relationships with schools and CTs as a result of continued training. With teacher preparation accountability measures focusing on the development of PSTs' ability to teach, as well as the impact graduates

have on K-12 student learning, the importance of receiving effective clinical support from CTs cannot be overlooked.

Given the limited number of studies examining the preparation of CTs and limitations within the studies that have been conducted, there is a need for researchers to continue to develop more effective ways to prepare CTs'. To do so, in the next section, I suggest a framework for improving CT professional development for working with PSTs to enhance PSTs' reading instruction and K-12 student outcomes. First, I describe the theoretical foundations. Then, I describe the Reading Instruction for Special Education observation tool (RISE; Brownell et al., 2009) used in evidence-based reading instruction. Next, I discuss the components of effective professional development. Finally, I present a specific model aimed at transforming professional development for CTs to support PSTs' reading instruction and improved student outcomes.

Framework for Improving Cooperating Teacher Training

Theoretical Foundation

As a shift in training practices takes place, teacher preparation researchers, developers, and university supervisors working with CTs must be mindful that providing scaffolded support to CTs is important to their development (Joyce & Showers, 1980, 1982). Through situated learning, Lave and Wenger (1991) argued that learning occurs in the context in which the activity normally occurs. This means that rather than provide CTs with manuals or a traditional professional development workshop session, preparing CTs to work with PSTs should be done over time while they are in their classrooms alongside their PSTs.

Reading Instruction for Special Education (RISE; Brownell et al., 2009) - A Framework to Inform Effective Reading Instruction

Since reading instruction is a critical area in which PSTs and K-12 students need support and frameworks are important tools used in coaching to provide a common language and a shared understanding of goals (Giebelhaus & Bowman, 2002), coaches should consider using a framework to inform effective reading instruction. Therefore, in this study, I used the Reading Instruction for Special Education (RISE) observation tool (Brownell et al., 2009) as a framework. The RISE not only supported effective reading instruction, but also provided a common language upon which shared expectations among the CTs, PSTs, and side-by-side elbow coach developed.

The development of the RISE. The Reading Instruction for Special Education (RISE) observation tool is a 22-item instrument addressing instructional practices, instructional environment, behavior management, and reading instruction (i.e., phonemic awareness, word study, vocabulary, and reading comprehension). Observers rate items on a 4-point Likert-type scale ranging from one (low-quality instruction) to four (high-quality instruction). Observers score an item as "not observed" if there was no observation of the practice occurring. The teacher's overall instructional effectiveness is determined by averaging the score across each subscale.

To create the RISE, Brownell and colleagues (2009) modified the English Language Learners (ELL) Classroom Observation Instrument (Gersten, Baker, Haager & Graves, 2005; Haager, Gersten, Baker, & Graves, 2003) initially developed to assess the quality of reading instruction provided to first-grade ELLs. The ELL Classroom

Observation Instrument was reported to have an overall internal consistency reliability of .92 and interobserver reliability of 73% (Gersten et al., 2005), which is considered in the acceptable range for observational systems requiring moderate to high inferences (Eddy, Stoolmiller, Reid, Dishion, & Bank, 1995).

To modify the ELL instrument, Brownell et al. (2009) examined the research on effective special education reading instruction (Gersten, Fuchs, Williams, & Baker, 2001; Swanson & Hoskyn, 2001), specifically, and on reading instruction, in general (e.g., National Reading Panel, 2000). Then, the team identified items on the ELL Observation Instrument that needed to be removed or modified and added items for teaching students receiving special education in intermediate grades. After pilot testing the modified instrument, the researchers analyzed teacher performance on individual items to identify classroom practices that differentiated effective from less effective teachers to determine whether the observation and rating process corresponded to the intended measurements of the observation instrument. Overall, Brownell et al. created an observation tool with high reliability (i.e., overall coefficient alpha of .96 and alpha coefficients on individual subscales ranging from .88 to .94; Brownell et al., 2009).

The RISE is a suitable framework for providing feedback on reading instruction because it addresses other components of instruction (i.e., instructional practice, general instructional environment, and classroom management) deemed critical for ensuring student learning (e.g., McLesky & Brownell, 2015; Simonsen, Fairbanks, Briesch, Myers, &Sugi, 2008). Additionally, because of the flexibility of its rating scale (i.e., 1-4 or n/a), and general description of effective instruction (e.g., *Provides comprehension*

instruction) followed by more specific elaborations (e.g., *Provides explicit instruction in comprehension skills and strategies; Models/explains comprehension skills and strategies [e.g., demonstrates how to find the main idea in a passage])* the RISE can serve as a common framework for CTs, PSTs, and university supervisors during PSTs' tutoring, early, mid, and late reading based clinical experiences. Given sufficient training, CTs can provide PSTs with effective coaching and feedback in each area of the RISE to improve PSTs' delivery of effective reading instruction and positively impact PST outcomes.

Components of Effective Professional Development

Teacher preparation researchers in general and special education have examined the components of effective training/professional development for in-service teachers. As noted earlier, Joyce and Showers (1982) identified four critical components to in-service teacher paraprofessional development. Their seminal work stressed the importance of the presentation of theory and skill, observations of models or demonstrations of the new skills, opportunities to practice the new skills with feedback on performance, and peer or group coaching for problem solving and continued use of the skill.

Almost three decades later, Desimone (2009) argued there was sufficient empirical research to determine the features that constitute effective professional development. She determined that the critical features of effective professional development which are critical to increasing teacher knowledge and skills, improving teacher practice, and impacting student achievement include (a) content focus, (b) active

learning, (c) coherence, (d) duration, and (e) collective participation. First, content focus refers to the subject matter and focused activities that increase teachers' knowledge, skills, and abilities. Second, active learning is characterized as observing expert teachers, reviewing student work, or leading discussions. Third, coherence is the alignment between what the teacher is learning and the teacher's beliefs. Fourth, duration of professional development should include 20 contact hours over time. Last, collective participation includes opportunities for interaction and discourse.

In special education, Leko and Brownell (2009) focused on the unique professional development needs of special educators. For example, many special educators graduate from broad preparation programs focusing on behavior and general instructional practices rather than specific content such as reading (Brownell et al., 2009). Despite the differences in initial teacher preparation, Leko and Brownell's recommendations for in-service special education teacher professional develop are comparable to those suggested for general education. Overall, Leko and Brownell's review of the literature revealed that effective professional development should have four components. First, professional development should be coherent and align with the goals and needs of the teacher. Second, it should be content-focused and include not only the general education content but also interventions and strategies to support students with disabilities. Third, professional development should be active and situated in the classroom. Finally, it should be collaborative and focuses on student data.

The critical features described in Desimone (2009) and Leko and Brownell (2009) align with the components described by Joyce and Showers (1982; see Table 2). For

instance, Joyce and Showers (1982) stressed the importance of presenting theory and skill which should be grounded in content (Desimone, 2009) and include specific evidence-based strategies (Leko & Brownell, 2009). This alignment is illustrated using the proposed CT professional development content of this dissertation research (i.e., the RISE and providing feedback on the RISE). For example, CTs first learn about the components of the RISE and how to provide feedback on reading instruction to their PSTs (i.e., theory, skill, content, and specific strategies). Then, CTs observe both the provision of instruction in each area of the RISE and the provision of RISE-based feedback to an individual teaching reading. The observations can occur on-site in a classroom setting or online via videos or learning modules. Next, CTs practice the new skills in their classrooms with their PSTs and students while receiving coaching (i.e., feedback) based on each CT's individual needs.

Online learning. As discussed previously, researchers who have designed current CT professional development have used various formats to deliver their professional development such as face to face workshops and hybrid, face-to-face and online IRIS modules. This range suggests that online learning is an alternative to traditional face to face workshops for preparing CTs working with PSTs to enhance PSTs' reading instruction and K-12 student outcomes. Additionally, in 2013, Blitz conducted a review of Professional Learning Communities (PLCs), including face-to-face, hybrid, and online versions. Blitz determined that online learning was consistently better at promoting self-reflection on learning and instructional practices than the face-to-face environment. Therefore, for this dissertation study, I presented content on both the

RISE (Brownell et al. 2009) and providing feedback using the RISE via an online training module.

When developing an online learning module, program designers should consider Mayer's (2014) research based principles of multimedia learning. Mayer's principles were chosen for this study because they are based on theories of how the mind works and specific research findings for presenting information so it is remembered. Mayer's principles are guided by the notion that adding pictures to words may facilitate better understanding than the presentation of text alone. In general, these principles for multimedia or online learning (e.g., modality [ES=1.02], redundancy[ES=0.75], coherence [ES=0.97], signaling [ES=0.52], spatial contiguity [ES=1.12], temporal contiguity [ES=1.31], segmenting [ES=0.98], pre-training [ES=0.85], and personalization, voice, embodiment, and image [ES=1.11]) suggest that people learn better when they can move through the information at their pace, attend to the important information with ease, and relate to the information.

Online learning should align with the components of professional development (Desimone 2009; Leko & Brownell, 2009; Joyce & Showers, 1982). For example, online learning implies that there is knowledge and or skill to be addressed, as such theory, content, and strategies are presented (e.g. RISE), followed by the observation of the skill (e.g. video of RISE based reading instruction). Also, online modules can offer opportunities to practice, albeit with limited or no feedback. For example, a CT can practice providing RISE based feedback to a YouTube video of a teacher during guided

reading instruction. I address feedback in the following section, which presents how coaching supports the transfer of new knowledge (Joyce & Showers, 1982).

Table 2. Alignment of Professional Development Models

Researcher	**Components of Professional Development**			
Joyce and Showers (1982)	Study of Theory and Practice	Observation of Models and Demonstration of skill	Practice with Feedback/ Coaching	Peer and Group Coaching
Desimone (2009)	**Content** - knowledge - skills - abilities **Coherence** - between what the teacher is learning and the teachers' beliefs - between school, district, and state reforms and policies	Active learning - Observation - Feedback - Discussion Collective participation - Interaction and discourse - Reviewing student work		
Leko and Brownell (2009)	**Content and Skill** - content area knowledge - general teaching principles **Coherence** - between special education interventions and general education curriculum	Active and situated in the classroom - Demonstrations - Explicit instruction in research-based practices - Frequent opportunities to practice with feedback/coaching Collaborative and focuses on student data		

Coaching. Current CT hybrid training practices that use face-to-face workshops combined with IRIS modules (i.e., Childre & Van Rie, 2015; Paulsen et al., 2015) may

include some of the critical components of effective professional development but these modules lack opportunities to practice new skills with the provision of feedback on performance (Joyce & Showers, 1982). In other words, current hybrid models of CT training are missing coaching – a key feature for the transfer of learning to occur (Joyce & Showers, 2002). Specifically, Joyce and Showers determined that traditional professional development without coaching has no impact on teachers' use of skills (i.e., ES = 0.0), but with the addition of coaching there is a large impact, learning occurs, and new skills are used (i.e., ES = 1.42). Consequently, coaching should also be included with hybrid and online learning professional development modules.

Joyce and Showers (1980) describe coaching as "helping teachers analyze the content to be taught and the approach to be taken, and making a very specific plan to help the student adapt to the new teaching approach," (p. 385). Researchers typically discuss two main types of coaching used in teacher professional development: supervisory coaching (i.e., a follow-up discussion after the coach observes a lesson) and side-by-side coaching (i.e., coaching while the teacher is teaching; Blakely, 2001). Side-by-side coaching can be provided in several ways. For example, side-by-side coaching can be provided onsite, at the elbow while the coach and the teacher are near one another. Side-by-side coaching can also be delivered online through *e*Coaching. For *e*Coaching, the coach is in a remote location and Skypes into the teaching session to provide feedback through a Bluetooth headset connected to a laptop computer. More information will be provided about onsite and online side-by-side coaching below.

In 2010, Kretlow and Bartholomew conducted a comprehensive literature review to identify the impact of coaching on changes in pre-service and in-service teachers' implementation of evidence-based practices. From the initial 457 studies spanning 20 years of literature (i.e., 1989 to 2009), Kretlow and Bartholomew identified a total of 13 studies meeting their criteria (i.e., used a research design that allowed for causal inference; published in peer-reviewed journal; participants were pre- or in-service teachers in general or special education working with preK-12th grade students; the independent variable was supervisory or side-by-side coaching; the dependent variable was a direct, observable measure of specific instructional characteristics; and coaching was related to an evidence-based practice with support for improving academic performance or appropriate classroom behavior). Overall, Kretlow and Bartholomew determined that coaching improved teachers' use of evidence-based strategies across the studies; however, from this review, it was less clear how coaching supported K-12 student outcomes.

Coaching is one way to support teachers' ability to practice targeted skills with purpose. In response to the call for quality clinical experiences, which require purposeful opportunities to practice what was learned in coursework, Deans for Impact (2016) adapted five of Ericsson, Krampe, and Tesch-Romer's (1993) seven features of deliberate practice. The five principles adapted for teacher education include: (1) pushing beyond your comfort zone, (2) working toward a defined goal, (3) focusing on practice and activities, (4) receiving and responding to high-quality feedback, and (5) developing a mental model of expertise. Each of these components is vital to coaching and to

coaching feedback. I provide an example for each principle as they relate to coaching pre-and in-service teachers below.

First, one way a coach pushes a teacher beyond his or her comfort zone is to provide feedback that supports the teacher when the teacher is struggling with a difficult situation. Second, a coach helps a teacher move toward a goal by providing specific actionable feedback related to the goal. Third, a coach encourages the teacher to focus on practice and activities though repeating the element of teaching in need of development. Fourth, a coach facilitates the teacher's ability to receive and respond to feedback by providing high–quality feedback on specific goals using shared language. Finally, a coach supports the development of a mental model of expertise by helping the teacher understand how students learn and showing the teacher how their instruction impacts student learning.

On-site coaching. On-site coaching occurs when the coach is physically located in the same room as the teacher and can provide immediate feedback to during instruction. In some cases, the coach may be sitting side-by-side, elbow to elbow, whispering feedback into the teacher's ear. Other examples include a co-teaching approach to coaching or onsite, bug-in-ear (BIE) coaching. This section describes research on onsite side-by-side coaching, which was chosen as the training intervention for this study because it is highly effective at supporting the transfer of skills. In this dissertation study, side-by-side elbow coaching was used to support the transfer *e*Coaching skills.

Neubert and Bratton (1987) conducted a two-year mixed methods study examining a side-by-side approach to coaching which began with a three-day in-service training on teaching writing for 20 teachers and two coaches. Next, coaches visited classrooms twice a week for as few as three months and as much as a year and coached by co-teaching during writing lessons. Qualitative data included audio and video recordings of lessons and coaching, group, individual, and student interviews, and teacher and coach reflective journals. Quantitative data included the teachers' ratings of the function of the coach (i.e., Joyce & Showers, 1982) on a scale of 1-5, with 1 being low quality and 5 being high quality for companionship, feedback, application of skill, adaption of skill for students, and personal facilitation. The average ratings on all functions ranged from 4.6-5. Overall, Neubert and Bratton determined that the coaches needed to be credible, available and knowledgeable, but did not need to know everything. Also, coaches needed to support teachers' efforts, meaning that praise, even for an approximation of the skill was important for teachers' acquisition of the new writing pedagogy. Finally, coaches were facilitators rather than bosses, which created the safe environment needed to implement and practice new skills associated with the writing training. Similarly, from survey research (n = 243 teachers) and in-depth interviews (n=23) examining impactful coaching, Akhavan (2015) found that teachers wanted their coaches to sit side-by-side with them, learning with them, encouraging them, and accepting them for who they are.

In 2002, Scheeler and Lee investigated feedback provided by a faculty supervisor via a wireless FM listening system (BIE) from the back of the classroom to determine the

effects of immediate corrective feedback on the completion of three-term contingency trials (i.e., teacher provides antecedent, student provides response or behavior, and teacher provides consequence) delivered by the pre-service teacher. Three PSTs participated in the single case across participant design and provided 90 minutes of direct instruction to a single student with academic Individual Education Program (IEP) goals in reading. During baseline, all PSTs received supervisory coaching, meaning they received feedback 10 to 15 minutes following the observation of their instruction. During the intervention, PSTs received immediate BIE feedback while they provided instruction to the target student. Overall, Scheeler and Lee determined that immediate in-ear feedback was more effective at increasing the PSTs' completion of the three-term contingency trials.

Extending the work of Scheeler and Lee (2002), Goodman, Brady, Duffy, Scott, and Pollard (2008) examined whether immediate prompts and feedback would increase teachers' accuracy and delivery rates of learning units and whether fading would have an impact on accuracy and delivery rates. Learning units are like three-term contingency trials, but they are unscripted and natural interactions between teacher and student.

Three in-service teachers participated in this multiple-baseline across participant design. Baseline consisted of observing teachers during instructional time and them providing praise, unrelated to the study, after the observation. During the intervention, teachers first became familiar with the BIE equipment (i.e., Motorola two-way radios, Model Number T4500, and single earbud-microphone systems). Then the teachers began teaching as usual with the researcher delivering in-ear feedback. Similar to Scheeler and

Lee (2002), the coach was in the back of the classroom and only the teacher could hear the feedback. Unlike Scheeler and Lee, Goodman and colleagues were observing whole class instruction. Immediately after the observation, the teacher and coach reviewed and discussed the lesson. A fading phase was completed with two participants. During this time the coach gradually faded prompts. Maintenance occurred with one participant three days after the last fading session. During this time the participant received no prompts. Each teacher in the study reached 100% accuracy for learning unit delivery during the intervention phase. The participant who participated in the maintenance phase could maintain both high accuracy and delivery rates of learning units. Overall, the results of this study indicated that when a coach delivered immediate feedback, both the rate and accuracy of complete learning units delivered by the teachers increased and maintained with fading of prompts.

Also in 2008, Farrell and Chandler used an ethnographic qualitative design to compare CT use of in-ear and traditional written and verbal post observation feedback during PST early field experiences in physical education. The eight CTs in this study had previously received at least some training as a CT. The 16 PSTs were partnered and then each pair was assigned to one of the participating CTs. One PST from each pair was randomly assigned to receive the in-ear feedback method. After being trained in how to use the 2-way radio used to provide in-ear feedback the CT and PST receiving the in-ear feedback practiced using the equipment and created codes and phrases used during feedback sessions. During instruction, the in-ear PSTs received in-ear feedback in addition to receiving written and verbal feedback following the lesson. At the end of the

semester, CTs were interviewed to about their experience with both types of feedback modes. CTs' also graded their PSTs based on the college teaching performance assessment form.

Farrell and Chandler (2008) presented serval findings from the interview questions. First, most of the CT indicated that the in-ear feedback helped them feel more connected to their classroom students without teaching them and that they had a better connection with the in-ear PST. Second, all eight CTs agreed that by providing in-ear feedback they kept the PSTs lessons moving without interrupting instruction, and almost all CTs noted that their in-ear PST progressed faster during the first few weeks of the internship when compared to their peer. Third, all CTs provided less in feedback in both modes (in-ear and traditional) as the semester progressed. Fourth, many of the CTs agreed that both their PSTs completed the field experience demonstrating the same level of teaching competency. Finally, most CT recommended a preference toward providing a combined approach to feedback that included in-ear, written, and verbal feedback. Overall, the results of this study indicated that CT could provide PSTs with in-ear feedback to support the PST develop instructional competencies for physical education.

To examine the effects of professional development and coaching on early childhood caregivers' knowledge of early literacy development and impact on quality language and literacy practices in center- and home-based early childhood care and education settings, Neuman and Cunningham (2009) conducted and experimental intervention study examining the difference between teachers receiving coursework, teachers receiving coursework plus coaching, and a control group of teachers. The

intervention consisted of a 45 hour, 3-credit course on language and literacy held at a community college. Those who also received coaching, worked with their coach to develop goals, outcomes, and strategies to achieve outcomes. Coaching sessions occurred weekly, for 15 weeks and lasted one to one and a half hours and were designed to align with the community college course.

Neuman and Cunningham (2009) used the analysis of covariance (ANCOVA), a general linear model, to examine the impact of the intervention. Results indicated that neither the course or course with coaching condition gained significantly more knowledge than the control group. However, teachers who received coursework and coaching scored significantly higher on posttest for the quality of their early language and literacy practices. Specifically, these teachers displayed more effective practices based on their book area, $F(2, 173)=8.13$, $p< .001$; writing area, $F(2, 110)=5.30$, $p<.01$; and the physical environment $F(2, 173)=3.48$, $p< .05$. Teachers who received coaching and coursework also showed statistically significant differences in characteristics such as support for learning, $F(2, 110)=4.19$, $p< .01$, and teaching strategies, $F(2, 110)=8.15$, $p< .001$. The teachers who received coaching and coursework may not have gained more knowledge on post-tests when compare to the control and coursework only groups, but they did demonstrate higher quality practices in their classrooms.

Neuman and Wright (2010) investigated how a smaller dosage of professional development compare with their previous research (i.e., Neuman & Cunningham, 2009). Specifically, they examined the effects of coaching or coursework on teacher knowledge and teacher practice compared to a control group. Participants were randomly assigned

to one of three treatment groups. Group 1 (*n* =58) received a three-credit professional development course in early language and literacy, Group 2 (*n*=58) received professional development through coaching only, and Group 3 (*n*=32), a control group that did not receive coaching or professional development.

The researchers used the analysis of covariance (ANCOVA), a general linear model, to examine the impact of the intervention and quantitative analysis to better understand the conditions that might have influenced their results. Results indicated that coaching was a more effective professional development form than coursework for improving the language and literacy classroom practices. Additionally, these improvements were maintained and, to some degree, enhanced five months following the intervention. However, the changes in the quality of language and literacy practices in classrooms that received coaching were more modest than the finding in their previous research. Based on these findings, Neuman and Wright (2010) posited that coursework paired coaching has a stronger impact than coaching alone.

Online eCoaching. Online *e*Coaching is defined as a "relationship in which one or more persons' effective teaching skills are intentionally and potentially enhanced through online or electronic interactions with another person" (Rock et al., 2014, p. 162). Online *e*Coaching is different than traditional side-by-side coaching because the coach can be anywhere. Due to technological advances, such as smartphones and video enabled laptops the coach can be in a remote location and "call" into the teacher's classroom to observe and provide feedback. While viewing the teacher and students, the coach provides "bug-in-ear" feedback via a Bluetooth headset from a location other than from

within the classroom. There have been several recent studies examining the effects of *e*Coaching on teacher's use of evidence based practices, which are described below.

In 2009, Rock and colleagues investigated the effects of coaching delivered through advanced, online technology on teachers' use of evidence-based practices. Participants included 15 special and general education teachers enrolled in Master's degree personnel preparation program. The participants' university professor provided *e*Coaching through BIE (i.e., webcam, Bluetooth USB adapter, Bluetooth headset, and Skype). Using a mixed methods sequential explanatory design, Rock and colleagues (2009) examined the changes in teacher behavior (i.e., teachers' use of high and low access instructional practices), classroom climate (i.e., teachers' use of redirects, reprimands, and praise; student engagement), level of disruption, and benefits of BIE feedback. As a result of coaching, teachers increased their use of evidence based instructional and behavioral practices and students increased their time on-task (i.e., engagement). Specifically, results of the matched-paired t-tests revealed statistically reliable reductions in the number of hand raisings ($t(14) = 4.58$, $p = .0005$, $\alpha_{\text{one-tailed}} < .016$, $\Delta = 0.99$); statistically reliable changes in the number of verbal and nonverbal choral responses ($t(14) = -2.509$, $p = .0005$, $\alpha_{\text{one-tailed}} < .0125$, $\Delta = 1.09$); statistically reliable differences between the mean number of partner strategies ($t(14) = -2.856$, $p = .0065$, $\alpha_{\text{one-tailed}} < .016$, $\Delta = 0.75$); statistically reliable differences between the mean number of cloze reading practices ($t(14) = -3.829$, $p = .001$, $\alpha_{\text{one-tailed}} < .016$, $\Delta = 1.00$);

and a statistically reliable increase in students' engagement ($t(14) = -3.996$, $p = .001$, $\alpha_{one\text{-}tailed} < .016$, $\Delta = 1.40$).

In 2012, Rock and colleagues extended their 2009 work by conducting a follow-up with a new cohort of Masters level special education teachers-in-training. All 13 participants were certified, elementary teachers. Again, the coach was also the participants' university instructor and supervisor, and the *e*Coaching intervention was the same as that employed in in Rock et al. (2009). Similar to the previous study, Rock et al. (2012), was interested in improving participants' research-based practices (i.e., teachers' provision of opportunities to respond and teachers' classroom climate). However, the coach also provided instructing, correcting, encouraging, or questioning feedback. Overall, findings from this mixed method explanatory design supported findings from Rock et al. (2009). Specifically, Rock et al. (2012) found positive changes in teacher's behavior, including a decrease in teachers' use of low access strategies (ES = 1.27) and increases in the use of high access strategies (ES = 0.83) and praise (ES = 1.20).

Also in 2012, Scheeler, McKinnon, and Stout (2012) extended Scheeler and Lee's (2002) earlier BIE work by examining the effects of immediate feedback delivered through a web camera and BIE technology on preservice teachers' performance on three-term contingency trials. Five PSTs participated in this single case multiple baseline across participants design. Just as in 2002, during baseline, the researcher provided the PSTs with feedback after observing their lessons. During the intervention, the *e*Coaching sessions lasted approximately 15 minutes, and the researcher provided immediate feedback to prompt the teachers to complete the trials through BIE. Unlike the research

conducted in 2002 for this study, researchers were no longer in the classroom and could view instruction offsite via the webcam. Results indicated that when feedback was delivered through a web camera and BIE, all five participants increased their completion of three-term contingency trials. Additionally, like findings from Goodman and colleagues (2009), most of the participants could maintain their new teaching behavior when feedback was withdrawn. Overall, results of this study further support the use of BIE and *e*Coaching to improve teacher behavior.

To begin their investigation of the longer-term impact of eCoaching, Rock and colleagues (2013) conducted an informal survey to determine whether participants who had completed teacher training and were no longer receiving the virtual coaching support described in 2009 and 2012 continued the use of evidence based classroom management practices. Sixty-eight percent (n = 19) of participants completed the survey. Survey responses confirmed that 1 year, for Cohort 2, and 3 years, for Cohort 1, after graduation the teachers continued to use the evidence based practices in which they had been coached on or at a rate that was higher than what is typically expected through traditional course-based teacher preparation programs (Simonsen, Myers, & DeLuca, 2010). Participants responded that some or most of their students had demonstrated behavioral improvements. Additionally, participants reported using the most effective strategies more frequently and the less effective strategies less frequently.

More recently, in 2014 Rock and colleagues conducted a mixed methods longitudinal investigation of the longer-term effects of *e*Coaching through advanced BIE technology to determine the effects after *e*Coaching was no longer provided. The 14

participants in this study had also participated in the Rock et al. (2009) investigation. The researchers gathered data from electronically archived video files. Quantitative data was retrieved by viewing participants' instructional practices at three specific points in time, Spring 1 (baseline), Spring 2 (after 1 year of *e*Coaching), and Spring 3 (2 years later after graduating from the program). As with the earlier studies, the researchers examined changes in teachers' research-based practices (i.e., teachers' provision of opportunities to respond and teachers' classroom climate) and participants' perceptions of *e*Coaching. Additionally, the researchers examined student engagement and responsiveness. Qualitative measures included participant interviews about their experiences with *e*Coaching (e.g., technology, coaching, and feedback).

Results indicated a decrease in low access strategies and an increase in high access strategies, a decrease in redirects, and an increase in praise statements. Student engagement also increased over time. Specifically, the differences in the means at the three points in time for high access instructional practices were statistically significant, $F(2, 12) = 33.82$, $p = .0001$, with an effect size of .85 and power of 1.00, and the test of linear trend was also statistically significant, $F(1, 13) = 73.01$, with an effect size of .85 and power of 1.00. Statistically significant mean differences for praise were also found, $F(2, 12) = 18.95$, $p = .0001$, with an effect size of .76 and power of .99, and the quadratic trend was statistically significant, $F(1, 13) = 12.61$, $p = .004$, with an effect size of .49 and power of .90. Finally, mean differences were statistically significant for student engagement, $F(2, 12) = 13.88$, $p = .001$, with an effect size of .70 and power of .99, and the test of linear trend was also statistically significant, $F(1, 13) = 17.95$, $p = .001$, with

an effect size of .58 and power of .97. Not only did the findings from Rock et al. (2014) support findings from the previous Rock et al. (2009, 2012) investigations, but they also validated the use of *e*Coaching for improved transfer of skill over time.

Ploessl and Rock (2014) used the *e*Coaching system developed by Rock and colleagues (2009) during cooperative co-planning sessions. Ploessl provided encouraging, correcting, questioning, or instructive feedback via the advanced online BIE for four sessions which lasted approximately 30 minutes each. The single case research design results confirmed each co-teaching dyad increased the number and type of co-teaching models they planned to use as well as implemented during lessons. Results of this study also indicated that *e*Coaching was effective during co-teaching with general and special educators when alternating the days in which each teacher used the BIE to receive immediate feedback during classroom instruction.

Then, Coogle, Rahn, and Ottley (2015) used a single subject, multiple-probe across participants design to investigate the impact of immediate feedback delivered through BIE on early childhood special education preservice teachers' use of communication strategies during free time activities. Participants included three early childhood PSTs enrolled in a 15-week clinical experience. *e*Coaching occurred during small group activities (e.g., sand table) and PSTs were instructed to use communication strategies (e.g., choice making, in sight out of reach, and wait time) with students with and without disabilities. Results indicated that PSTs increased their communication strategy use and demonstrated a strong effect that ranged from 86%-100% for percentage

of all non-overlapping data (PAND), robust improvement rate difference (IRD), and the omnibus test.

Finally, Ottley, Coogle, and Rahn (2015) explored the social validity of bug-in-ear coaching when provided as a form of professional development with preservice (*n*=3) and in-service (*n*=4) early childhood educators. Observational, interview, and questionnaire data from two single case studies were qualitatively analyzed to understand the participants' perceptions of bug-in-ear coaching on the learning opportunities provided, feasibility, difficulties, and student outcomes. Overall, the findings suggested that the PST and early childhood educators perceived the in-ear coaching as an important and effective tool for teacher learning and student outcomes. Also, participants were satisfied with the intervention (i.e., training and bug-in-ear coaching) and viewed it as an appropriate mode of professional development. These results were similar to findings from Rock et al. (2009, 2012, 2014) who verified the social validity of bug-in-ear *e*Coaching through participant interviews and written reflections.

The studies described above have some similarities and differences. For example, the type of coaching varied. Scheeler et al. (2012) used short phrases while Rock and colleagues (2009, 2012) used a narrative coaching style. Also, many of these the researchers focused on coaching practices that could be used across all content areas (e.g., evidence based practices, three-term contingency trials), but many of these researches did not focus on providing *e*Coaching on targeted instructional practices in a specific skill area, such as reading.

Transforming Training for the Cooperating Teacher to Support Pre-service Teachers' Delivery of Effective Reading Instruction and to Improve Student Performance

To transform training for CTs to support PSTs' delivery of effective reading instruction and improve K-12 students' performance, the training must be designed to align with the critical features of professional development (Joyce & Showers, 1982; Desimone, 2009; Leko & Brownell, 2009), as well as include principles of online learning (Mayer, 2014) and features of in situ coaching (i.e., elbow/side-by-side and *e*Coaching). These three elements (i.e., effective professional development, principles of online learning, and in situ coaching) provide both the CTs and PSTs opportunities to develop their skills within the classroom, situated in activities in which they normally participate. Therefore, in this dissertation study, CT training included each of these components to support the CTs' ability to enhance PSTs' delivery of effective reading instruction and K-12 students' performance.

In this dissertation research, I designed the CT training using the four components of professional development discussed in Joyce and Showers (1982). First, following Mayer's (2014) principles of online learning, the content included in the CT and PST online modules addressed the provision of theory and skill, as well as provided models. For example, in the CT training module, the CTs learned about the components of the RISE and how to provide feedback to their PST using the RISE. Models of teachers providing RISE based instruction and providing coaching feedback were also presented. The final component, the opportunity to practice with feedback, was addressed using elbow coaching for the CT and CT online, in-ear eCoaching for the PST.

Summary

In this systematic review of the literature and examination of peer reviewed publications relevant to the purposes of this study, I have provided evidence that establishes a need for more research in CT training that supports PSTs' delivery of effective reading instruction, especially when CTs and PSTs are accountable for improving K-12 student performance. Researchers investigating PST tutoring, early clinical and student teaching experiences often excluded examining the CTs' role in the PSTs' development and delivery of effective reading instruction. Additionally, faculty members in many universities programs require little to no training for CTs (Asphors & Franson, 2015; Prater & Sileo, 2004; Valencia, et al., 2009). Researchers examining CT training programs have often reported inadequate training, unclear expectations for CTs, and limited results. However, what is known is that CTs spend more time with their PSTs than the university supervisor, especially during student teaching (Prater & Sileo, 2004), and with the provision of more effective CT training, that time can be better used to support PSTs and K-12 students in the classroom.

To address the gaps in in professional literature on clinical experiences and CT professional development, I used a single subject case design (SCRD; Gast, 2010; Kratochwill et al., 2013) to investigate (1) how CT training (elbow coaching) influenced the CT's provision of online, in-ear *e*Coaching to the CT's PST; (2) how PST's training (in-ear *e*Coaching and elbow coaching) influenced the PST's delivery of effective reading instruction; and (3) how the PST's training (in-ear *e*Coaching and elbow coaching) positively influenced student outcomes (i.e., student engagement, opportunities

to respond, correct responses). This study will also extend pervious research on elbow and in-ear coaching studies because there are no known studies examining preparing a coach through coaching.

In the next chapter, Chapter III, I will discuss the methodology and research design (SCRD), participants, setting, independent and dependent variables, procedures, data collection, and data analysis procedures.

CHAPTER III

METHODOLOGY

The purpose of this study was to examine the effects of elbow coaching on the CT's ability to provide online, in-ear *e*Coaching to the PST during literacy based clinical experiences. Specifically, I investigated how elbow coaching influenced the CT's provision of online, in-ear *e*Coaching to the PST; how coaching the PST's (i.e., in-ear *e*Coaching plus side-by-side elbow coaching) influenced the PST's delivery of effective reading instruction; and how coaching the PST positively influenced student outcomes (i.e., student engagement, opportunities to respond, correct responses). This chapter includes a description of the research design, participant recruitment, independent and dependent variables, data collection, and data analysis.

Single Case Research Design

Researchers use single case research designs (SCRD) methods with individuals or small populations to investigate and to document functional relationships between the independent and dependent variables (Gast & Ledford, 2014). A functional relationship means that the independent variables, or interventions, have reliably produced changes in the dependent variables (i.e., cause and effect; Gast & Ledford, 2014). When SCRD studies are conducted using the proposed standards and quality indicators (Horner et al., 2005; Kratochwill et al., 2013), the results contribute to developing an evidence based practice (O'Neil et al., 2011).

Research Design

In this dissertation study, I used SCRD, which is suitable for situations in which the same intervention (i.e., coaching,) can be implemented across conditions (O'Neil et al., 2011). Researchers using SSDR can evaluate the effect of the intervention through visual displays (Gast, 2010). Also, SCRD enables the participant or participants to act as their own experimental control (Vannest, et al., 2013). For this research, I conducted a multiple baseline design across participants SCRD, which included four conditions or phases (Gast, 2010)**.** See Table 3 for the Design Phase Chart.

I adhered to the quality standards for SCRD. The quality indicators for a multiple baseline include the following: (a) replicable description of participants and setting, dependent and independent variables (Horner et al., 2005); (b) a minimum of six phases with at least five data points per phase (Kratochwill et al., 2013); (c) external validity through replication across participants (Horner et al., 2005); (d) social validity regarding the practicality and cost-effectiveness of the intervention (Horner et al., 2005).

Phases of Data Collection

Baseline. Before CT began in-ear *e*Coaching, all CT and PST participants completed an online training module. Baseline sessions were conducted for all participants before the intervention (i.e., researcher elbow coaching) began (Gast, 2010).

Intervention. The intervention (i.e., researcher elbow coaching) was introduced to each CT participant after they completed their respective baseline phase. Participants entered the intervention phase at different times (e.g., stair-stepped). According to Gast (2010), the criterion for intervention can be a set number of days. Therefore, CT and

PST 1 entered the intervention phase after 5 consecutive sessions, CT and PST 2 entered after 10 days, and CT and PST 3 entered after 15 days. The intervention phase was compared to the baseline phase.

CT maintenance. The researcher's elbow coaching (i.e., the intervention) ended and the maintenance phase began for the CT after meeting the criteria (i.e., five side-by-side elbow coaching sessions; Kratochwill et al., 2013). In this phase, the CT continued to provide eCoaching to the PST without feedback from the researcher.

Table 3. Single Case Multiple Baseline across Participants Design Phase Chart

Phase	Procedures	Data Collection	Decision Rule
Prior to Baseline	• CT and PST complete online training module		
Baseline	• Observe CT providing *e*Coaching to PST • Video record instruction/coaching • Secure data	• Dependent variables • CT-feedback based on RISE checklist • PST-RISE checklist • K-12 Opportunities to Respond, correct response, engagement	• At least 5 points of data at stable rate (e.g., absence or trend or variability; Horner et al., 2005)
Intervention	• PI provides elbow coaching to CT • Video record instruction/coaching • Observe CT, PST, and K-12 during PST reading instruction • Secure data	• Dependent variables • CT-feedback based on RISE checklist • PST-RISE checklist • K-12 Opportunities to Respond, correct response, • Coaching fidelity	• At least 5 points of data (Gast, 2010; Kratochwill et al., 2013)
CT Maintenance	• PI removes elbow coaching • Observe CT, PST, and K-12 during PST reading struction • Video record lessons/coaching	• Dependent variables • CT-feedback based on RISE checklist • PST-RISE checklist • K-12 Opportunities to Respond, correct response, engagement correct response	• At least 5 points of data (Gast, 2010; Kratochwill et al., 2013)

Phase	Procedures	Data Collection	Decision Rule
	• Secure data	• Coaching fidelity	
PST Maintenance	• Observe PST & K-12 during reading instruction • Video record instruction • Secure data	• Dependent variables • PST-RISE checklist • K-12 Ops to Respond • Correct response, engagement	• At least 5 points of data (Gast, 2010; Kratochwill et al., 2013)

PST maintenance. This phase was used to examine the PSTs' ability to provide RISE based instruction without receiving *e*Coaching from the CT. The CT no longer provided the PST with *e*Coaching on the RISE, but PST continued to provide literacy instruction to the students.

Research Questions and Hypothesis

The purpose of this study is to examine the effects of elbow coaching on the CT's ability to provide online, in-ear *e*Coaching to the PST during literacy based clinical experiences. Specifically, I investigated three research questions:

1. What is the functional relationship between elbow coaching and the RISE based eCoaching the CT provides to the PST during reading instruction?
2. What is the functional relationship between in-ear *e*Coaching plus CT elbow coaching and the PST's delivery of effective reading instruction?
3. What is the functional relationship between in-ear *e*Coaching plus CT elbow coaching and the K-12 student outcomes (i.e., student engagement, opportunities to respond, correct responses)?

I hypothesized that when provided with on-site elbow coaching for *e*Coaching the PST using the RISE as a framework for effective reading instruction, the CT would provide online, in-ear *e*Coaching to the PST, allowing the PST to deliver more effective reading instruction, which would positively influence the K-12 students' opportunities to correctly respond to and engage in instruction.

Participants

I recruited participants for this study only after receiving approval from the Institutional Review Board (IRB) and site approval from the selected school district and school principal. Then, I recruited three in-service general education CT and PST dyads and their K-12 students with and without disabilities. The sections below describe how I selected participants.

In-service Teacher Participants (CTs)

I recruited three in-service general education teachers (i.e., CTs) who provided reading instruction during the time when his or her PST was in the classroom. Each CT had a PST who was also willing to participate in the study. See Table 4 for CT demographics.

Pre-service Teacher Participants (PSTs)

I recruited three general education PSTs who provided reading instruction to the students with and without disabilities in their CT's classroom. All three PSTs were in their final stages of student teaching and were in their final semester of their BA elementary teacher education program. See Table 4 for PST demographics.

Student Participants With and Without Disabilities

Kindergarten and first grade students with and without disabilities receiving Language Arts or reading instruction were eligible to participate in this study. Students who did not agree to participate in this study continued receiving classroom instruction but remained out of view from the video camera and were not recorded. All three classrooms were inclusive and served students with a range of abilities. See Table 4 for student demographics.

Selection Process

I followed several steps to select participants. First, the I contacted principals of schools which host pre-service teachers. After one principal provided site approval, I recruited from the CTs hosting PST in their classrooms from that site. Next, I recruited the PSTs of the interested CTs. Once a dyad (CT and PST pair) signed consent forms, I recruited the students receiving reading instruction or intervention from the CT and PST dyad.

I used both purposeful and convince sampling to select participants for this study. Since the units of analysis were CTs' use of eCoaching on the RISE and PSTs' reading instruction, I selected a purposeful sample (Gall et al., 2007) of CT and PST dyads who engaged in clinical experiences involving reading instruction. For example, the PST had to provide reading instruction (e.g., shared reading, guided reading) to his or her CT's students.

Additionally, I selected a participant sample of convenience in three ways. First, PSTs and CTs were recruited from a school that supports pre-service teacher

development. Second, only the K-1 students who provided permission and assent participated in the video taping of the study. Third, all participants participated in reading instruction to be included in the study.

Table 4. Participant Demographics

Group	Age	Experience/Background	Ethnicity
Group 1			
CT 1	36	BA K-6 Gen Ed; 14 years K-1	African American
PST 1	20	K-6 Gen Ed; student teaching	Caucasian
Kindergarten	5-7	20 students/15 participants; inclusive setting	
Group 2			
CT 2	47	BA K-6 Gen Ed; 16 years 1st-3rd	Caucasian
PST 2	22	K-6 Gen Ed; student teaching	Asian American
1st Grade	6-8	24 students/13 participants; inclusive setting	
Group 3			
CT 3	49	BA Early Childhood; 25 years PK-1, 2nd, and 5th	Caucasian
PST 3	21	K-6 Gen Ed; student teaching	Caucasian
Kindergarten	5-7	20 students/15 participants; inclusive setting	

Setting

This study took place in Title 1 public elementary school, located in in an urban school district in the Southeast that provides educational services to 325 Pre-Kindergarten - 5th grade students. The school includes 13 general education teachers, two special education teachers, one Speech and Language pathologist, two English as other or Second Language educators, as well as assistants, specialists (e.g., art, media), and volunteers.

Each literacy lesson occurred in the respective CT and PST dyad's classroom. The PST provided either whole group or small group instruction inside the classroom. To provide coaching, the CT and I sat at a student desk in the hallway out-side the classroom. From this location, the CT and I could look inside the room to continue the coaching sessions if we lost the skype video connection.

Apparatus

During the online, in-ear *e*Coaching sessions, the CT used a modified version of the web-based interactive video conferencing system and advanced online BIE system described in Rock et al. (2009). This system required the use of Internet technology, mobile communication devices with web camera (e.g., tablet, laptop, smartphone), and a web-based interactive video conferencing system. Specifically, *e*Coaching occurred through Skype and a Plantronics Wireless VoIP Headset. The CT use a laptop to place a Skype video call to PST. The PST connected the Bluetooth headset to an iPad or cell phone to receive the Skype call and *e*Coaching. The cell phone or iPad screen was covered to prevent the students from being distracted by seeing their regular classroom teacher's face on the video system.

Independent Variable: CT and PST Training

The independent variable included in the study was training, not only for the CT but also for the PST. More specifically, the independent variable was coaching while coaching. Both CT and PST training were comprised of two components –online modules and coaching. The latter was provided to CTs on-site at the elbow by the

researcher, and online, in-ear by the CT to the PST. Additional information, regarding the online modules and the coaching components, is offered below.

CT Online Module Training

Before the intervention, both the CTs and PSTs received training on the Reading Instruction in Special Education (RISE; Brownell et al., 2009) framework through an online module accessed via a private Dropbox link. The CT also receive training on how to provide *e*Coaching to support the PST's use of the RISE during reading instruction. The online module was designed to be completed in approximately one hour; however, the training and video clips remained available throughout the study for participants to review or use for practice. Additionally, the online training was intentionally designed to align with Mayer's (2014) principles of multimedia learning and the components of effective professional development (Joyce & Showers, 1982): the study of theory of best practice and opportunities to observe the new skill. To address the third component of effective professional development, opportunities to practice, the CT's module provided videos of fluency lessons for the CT to practice providing feedback. Finally, I delivered the fourth component of effective professional development by providing side-by-side elbow coaching.

The reading framework used in the training was adopted from the RISE observation tool (see Brownell et al., 2009) which allows observers to rate an individual's reading instruction by analysing four distinct domains: (a) instructional practices, (b) instructional environment, (c) reading instruction, and (d) classroom management. To begin the module, each domain of instruction was described (i.e., theory). Then,

examples were provided. Next, participants watched models of practice via video clips (i.e., observation of practice). Once all domains of the RISE were presented, participants viewed additional video clips to observe all four domains (e.g., overall effective reading instruction) in action at the same time.

Only the CTs received training on providing *e*Coaching using the RISE framework, which occurred after the presentation of the RISE content. The CT viewed a video clip explaining the benefits of *e*Coaching (i.e., theory) and another clip modeling how to conduct an *e*Coaching session (i.e., observation). Then, the CT learned about the characteristics of effective coaches and impactful feedback. Next, the CT learned how feedback is provided (i.e., before, during, or after instruction) and delivered (i.e., encouraging, questioning, or instructive/corrective; Rock et al., 2009). Video clips were embedded throughout the module to provide the CT with models of feedback that could be analyzed for type and timing of delivery. Finally, the module included a video clip for the CT to practice providing feedback during a fluency lesson. The module included exemplars of feedback that could be provided in each domain of the RISE (i.e., instructional practices, instructional environment, reading instruction, and classroom management) for the CT to use to assess their practice sessions.

PST Online Module Training

Prior to baseline, the PST participated in the same effective reading instruction training as the CT; however, the PST did not receive training on how to provide *e*Coaching. As noted above, PSTs accessed the online training module via a private Dropbox link. Also, the reading training was designed to align with Mayer's (2014)

principles of multimedia learning and two of the four components of effective professional development (i.e., the study of theory, observation of practice; Joyce & Showers, 1982). The reading framework used in the training was adopted from the RISE observation tool (see Brownell et al., 2009) and focused on four domains: (a) instructional practices, (b) instructional environment, (c) reading instruction, and (d) classroom management. The module began with descriptions of each domain (i.e., theory) followed by examples. Next, PSTs viewed video models of practice (i.e., observation of practice). Once all domains of reading instruction were presented, PSTs viewed additional video clips to observe overall reading instruction.

In-Ear Coaching

Two levels of coaching were used in this study. The CT provided in-ear eCoaching to the PST while I provided the CTs with on-site, side-by-side elbow coaching to support her provision of *e*Coaching on the RISE to the PST. During in-ear coaching teachers, both CT and PST received immediate feedback. In their study, Sheeler et al., (2004) stated that immediate feedback (i.e., less than 24 hours; Solomon, Klein, & Politylo, 2012) is more effective than delayed feedback. Additionally, CTs and PSTs received three types of feedback (i.e., encouraging, instructing/correcting, and questioning feedback; Rock et al., 2009). Encouraging feedback was defined as "praise contingent on demonstration of a specific teaching behavior is provided" (Scheeler, et al., 2004, p. 399) by the coach; instructing/corrective feedback was defined as “objective information related to predetermined specific teaching behaviors is offered" (Scheeler, et al., 2004, p. 399) by the coach; and questioning feedback was when the coach asked the

person being coached to clarify information (Merriam-Webster, 2015). For the purposes of this study, coaching focused on the PST's use of instructional practices, instructional environment, reading instruction, and classroom management as described by the RISE to support instruction for students with and without disabilities and student responses to the PST's instructional practices.

PST online, in-ear *e*Coaching. The CT provided her PST with encouraging, instructing/correcting, and questioning feedback regarding the PST's use of instructional practices, instructional environment, reading instruction, and classroom management (i.e., RISE) via *e*Coaching. The CT's *e*Coaching required several technological components and materials, which included: internet connection, mobile communication devices with web cameras (e.g., tablet, laptop, smartphone), web-based interactive video conferencing system (e.g., Skype), and advanced online bug-in-ear device such as a blue-tooth headset (see Rock et al., 2009). Sessions lasted 15 minutes on average.

CT on-site elbow coaching. To guide the CT's ability to deliver *e*Coaching feedback to the PST, I gave the CT encouraging, instructing/correcting, and questioning feedback (Rock et al., 2009). My elbow coaching focused on student responses to instruction, the PST's use of the RISE domains, and the CT's *e*Coaching. For example, I coached the CT to provide encouraging feedback to the PST when the PST provided the students with an opportunity to practice using a new vocabulary word (i.e., reading instruction). I also praised the CT when she provided the PST with instructional feedback to check for student understanding (i.e., instructional practice).

My qualification to serve as a side-by-side elbow coach included a course on supervision and coaching. This course was comprised of 3 credit hour seminar and approximately 10 hours of a clinical fieldwork coaching PSTs engaged in literacy instruction. At the university level, I provided clinical supervision, both on site and via *e*Coaching, to PSTs for three semesters. Also, at the state level, I help develop and present professional development sessions on coaching and *e*Coaching to the State Department of Public Instruction and the county liaisons chosen to participate in the state's coaching initiative.

Dependent Variables

Three sets of dependent variables were included in this dissertation study. Dependent variable measures were used to answer the three research questions:

1. What is the functional relationship between the elbow coaching received by the CT and the RISE based eCoaching the CT provides to the PST during reading instruction?
2. What is the functional relationship between the coaching received by the PST (i.e., in-ear *e*Coaching plus CT elbow coaching) and the PST's delivery of effective reading instruction?
3. What is the functional relationship between the coaching received by PST and K-12 student outcomes (i.e., student engagement, opportunities to respond, correct responses)?

In what follows, I identify and describe each dependent variable and how it was measured.

Cooperating Teacher (CT) Dependent Variables

The dependent variables for the CTs were the domain, type, and frequency of *e*Coaching feedback the CT provided to the PST. I modified the RISE observation tool to capture the feedback provided by the CT and collected data on the frequency (i.e., the number of occurrences) of each type of feedback (i.e., encouraging, questioning, or instructive/corrective; Rock et al., 2009) the CT provided to the PST in each domain of the RISE (i.e., instructional practices, instructional environment, reading instruction, and classroom management). The modified CT RISE observation tool was found to be effective for capturing the frequency of RISE based feedback in a previous pilot study conducted with a middle school English Language Arts Teacher and her PST. See Appendix C1 for the CT data collection form.

To assess the domain, frequency, and type of feedback provided by the CT during *e*Coaching, I counted each statement or question about instruction the CT provided to the PST. All feedback given by the CT was provided as a running commentary. Instructive/corrective feedback was only provided for practices that could be changed or encouraged at that moment. Similarly, the feedback I provided to the CT was also in a running commentary. Questions and statements about the *e*Coaching technology (e.g., I cannot see you, can you hear me?) were not coded because these statements dealt with technological issues rather than instruction.

Pre-service Teacher (PST) Dependent Variables

I adapted the RISE observation tool to enable the collection of frequency count data for the number of times the PST provides elements of effective reading instruction in accord with the RISE domains (i.e., instructional practices, instructional environment, reading instruction, and classroom management) to K-12 students. Unlike the RISE observation tool, this modification captures the quantity of instruction (see data sheet in Appendix C2). For example, the original RISE observation tool (Brownell, et al. 2009) allows observers to generate a numerical value for each domain of effective reading instruction to indicate the quality of teacher instruction, whereas the modified RISE form allows the observer to collect data on the frequency of use for each instructional domain. Like the CT observation tool, the modified PST RISE observation tool was found to be effective for capturing the frequency of RISE based instruction in a previous pilot study conducted with a middle school English Language Arts Teacher and her PST.

K-12 Student Participant Dependent Variables

Three measures were used to capture changes in K-12 student outcomes. First, time sampling will be used to measure K-12 students' behavioral engagement, during reading instruction. Specifically, behavioral engagement is defined as student(s) active involvement in learning, such as staying on task and participating (Fredricks, et al., 2004). In their review of the research, Fredricks and colleagues (2004) found behavioral engagement to be positively correlated with high academic achievement across samples and ages of participants. Also, after synthesizing 1200 meta-analysis of studies on student achievement Hattie (2012) found that engagement had an effect size of 0.45 on

student achievement, indicating that engagement does have a measurable effect on achievement. Therefore, using one-minute intervals, I recorded the number of students who were behaviorally engaged and the number of students who were disengaged (see data sheet in Appendix C3).

Second, since opportunities for frequent responses support engagement (Simonsen et al., 2008; MacSuga-Gage & Simonsen, 2015) and increases the number of correct student responses (MacSuga-Gage & Simonsen, 2015), frequency counts were used to record students' opportunities to respond (OTR) to instruction (see data sheet in Appendix C4). After reviewing research on OTR in class-wide settings, MacSuga-Gage & Simonsen (2015) determined class wide group responses (e.g., verbal and nonverbal choral responses) result in more positive outcomes for students with and without disabilities than individual responses but that mixed responses (i.e., using a variety of group and individual responses) may also positively impact student outcomes; therefore, I recorded both individual and group OTRs.

Finally, to capture correct responses to instruction, the third measure collected was the accuracy of group and individual responses to instruction (see data sheet in Appendix C4).

CT and PST Coaching Fidelity Measure

To assess coaching fidelity, I collected frequency data on the type of CT and PST coaching statements provided during on-site elbow and online, in-ear coaching via video recorded lessons. In a literature review examining the provision of performance feedback, Scheeler, Ruhl, and McAfee (2004) found that the most effective feedback was

specific, positive, and corrective. Additionally, Rock et al. (2011) recommended *e*Coaches provide four times (4x) as many instances of encouraging feedback compared to questioning, instructing, or correcting. Fidelity will be assessed for 20% of all sessions across each phase (Kratochwill et al., 2013).

Interobserver Agreement (IOA)

To conduct IOA, I trained a graduate student on collecting data with each measure. This graduate student had previous training in the original RISE observation tool as well as in video coding for opportunities to respond and behavioral engagement. The graduate student then independently evaluated 20% of data collected (Cooper, Heron, & Heward, 2007; Gast, 2010). IOA was calculated for each measure by dividing the number of agreements between the observers by the total number (agreements/agreements + disagreements) and multiplying by 100 (Cooper et al., 2007; Vannest et al., 2013). The goal was to achieve at least 80% agreement (Kazdin, 1982) across all measures.

Data Collection

Literacy lessons and coaching sessions were recorded using Call Recorder for Mac v.2.5.26 which is offered through Skype. Each video file was saved on a portable external hard drive and stored in a locked storage facility approved by the IRB. I collected and coded frequency data on CT, PST, and student dependent variables after the literacy lessons. See Appendix C for data collection sheets. Data was collected for all CTs and PSTs, but only for student participants who had signed consent forms.

Table 5. Research Model Matrix

Research Question	**Dependent Variable**	**Measurement (Quantitative)**	**Analysis**	**Interobserver Agreement (IOA)**
RQ 1. What is the functional relationship between elbow coaching and the RISE based eCoaching the CT provides to the PST during reading instruction?	CT's *e*Coaching feedback on RISE components, delivered during PST's reading instruction	Frequency, domain and type (i.e., encouraging, questioning, instructive/corrective) of feedback CT provides to PST	Visual Analysis (mean, level, trend, latency) ES- Tau-U	(A/A+D) x 100
RQ 2. What is the functional relationship between in-ear *e*Coaching plus CT elbow coaching and the PST's delivery of effective reading instruction?	PST's delivery of effective reading instruction	Frequency of RISE domain practices used during each lesson	Visual Analysis (mean, level, trend, latency) ES- Tau-U	(A/A+D) x 100
RQ 3. What is the functional relationship between in-ear *e*Coaching plus CT elbow coaching and the K-12 student outcomes (i.e., student engagement, opportunities to respond, correct responses)?	K-12 student participants' behavioral engagement K-12 student participants' opportunities to respond K-12 student participants' responses to instruction	Momentary time sampling for student participant engagement Number of correct independent responses Number of correct group responses	Visual Analysis (mean, level, trend, latency) ES- Tau-U	(A/A+D) x 100

Procedures

Before Data Collection

Before data collection, I created the module, which was tested in a pilot study. Pilot study participants found the module easy to navigate and they like the content presented. The special education CT participant was familiar with individual domains on the RISE framework but had not seen all the domains come together to create an overall description of effective reading instruction. The PST participant was not familiar with any of the RISE domains since she was in an early clinical experience had had not begun her methods coursework.

Prior to data collection, I also recruited CTs with PSTs entering student teaching. I met with PSTs and their CTs to explain the study, answer any questions, demonstrate the technology, and provide an opportunity to sign the informed consent form. Next, I provided the consenting CTs with parent and student consent forms (i.e., student assent, parent consent, video release forms) to be sent home with students and returned to school. I addressed parent and student concerns as needed. Once I collected all consent and assent forms, CT and PST participants participated in their respective online modules, which were described above.

During Data Collection

Baseline. The baseline phase began with all participants immediately after all CTs and PSTs completed their respective online training modules. During baseline observations, I observed and recorded the CT providing *e*Coaching to the PST during the PST's instruction of a typical reading lesson. I collected data on (1) the RISE domain,

type, and frequency of feedback the CT provided to the PST; (2) the PST's use of the RISE framework during instruction; and (3) student engagement and responses to reading instruction. Observations and coaching sessions lasted no longer than 22 minutes and averaged 15 minutes. Observations and coaching sessions were conducted via Skype and recorded using Call Recorder for Mac (i.e., a secure recording device). Data collected on CT, PST, and students (i.e., video recorded coaching sessions) were uploaded onto a portable hard drive for later analysis.

To *Meet Evidence Standards* without reservations multiple-baseline designs require a "minimum of 6 phases (i.e., at least three A and three B phases) with at least 5 data points per phase" (Kratochwill et al., 2013, p. 29). Also, since the participants acts as their own control group in multiple baseline SCRD (Vannest, et al., 2013), baseline stability was calculated using the stability envelope (i.e., 80% of the data points in baseline fall within a 20% range of the median level [mean] of all data-point values in the baseline condition; Gast, 2010). In this study, I demonstrated the treatment effect across four phases (i.e., baseline, intervention, CT maintenance, PST maintenance), across at three CT-PST participants and their students, and collected five data point for all but one phase for one participant. One PST left the program and after three sessions of PST maintenance. Baseline stability was defined as at least five data points, level trend, and little variability (Gast & Spriggs, 2014).

CT and PST training intervention. The intervention began for the first set of participants once the baseline criteria was met (i.e., five continuous data collection sessions). The remaining sets of participants were stair-stepped into the intervention

(Gast & Ledford, 2014) after the prior participant set had met the intervention criteria (i.e., at least five continuous data points). For example, once the first CT and PST dyad met the intervention criteria, then the second CT and PST dyad entered intervention. This sequence continued for the remaining set of participants. Note: I choose participant set one based on the CT's expressed concern of her PST's growth, participant set two was chosen because the CT expressed slightly less concern than CT 1, and CT 3 had no concerns regarding her PST's development.

The CT intervention consists of training comprised of on-site elbow coaching, and the PST intervention involves training comprised online, in-ear coaching provided by the CT plus the elbow coaching of the CT. More specifically, I provided on-site elbow coaching to the CT as the CT provided online, in-ear *e*Coaching to the PST while the PST delivered reading instruction. Lessons in this phase were also video recorded. As indicated in Table 5, data was collected on CT, PST, and student behaviors during instruction.

To *Meet Evidence Standards* without reservations (Kratochwill et al., 2013), I collected five continuous data points during the intervention phase for each participant, 15 sessions for dyad 1, 10 sessions for dyad 2, and 5 sessions for dyad 3. I collected data continuously on each participant during the intervention phase. Also, following the lessons, I coded the videos using the data collection sheets.

CT training maintenance. After the all CT and PST participant dyad met the intervention criteria (i.e., at least five continuous data points), CT maintenance (i.e., removal of researcher elbow coaching) began. During this phase, the CT continued to

provided online, in-ear *e*Coaching to the PST. Like other phases, I collected data continuously for each participant (i.e., CT, PST, and students) during the CT maintenance phase. All lessons were video recorded. Following the lessons, I coded the videos using the data collection sheets. As noted previously, I established the criteria of five continuous data points as the guide for phase changes based on the criteria for *Meet Evidence Standards* without reservations (Kratochwill et al., 2013).

PST training maintenance. Once all CT participants met the established criteria (i.e., 5 days of continuous data collection), all PSTs entered the PST maintenance phase. In this phase, the PSTs continued to deliver reading instruction, sans *e*Coaching from the CT. As with earlier phases, lessons were video recorded and data collected on CT, PST, and K-12 student participants' behavior. Also, following the lessons, I coded the videos using the data collection sheets. To *Meet Evidence Standards* without reservations, I collected a minimum of five data points during this phase (Kratochwill et al., 2013) for two of the three participant sets. The PST from participant set 2 was removed from her placement after the third day of the PST maintenance phase.

After Data Collection

One of the quality indicators for SCRD is the social validity of the intervention (Horner et al., 2005). Therefore, to assess the importance and practicality of the study, CT and PST participants completed a social validity questionnaire (see Appendix D) after all other data was collected. CT and PST participants indicated their level of satisfaction with the training, *e*Coaching, and elbow coaching. The social validity questionnaire was

sent to participants via a Google survey and included 10, five-point Likert-type questions that were adapted from Horner et al. (2005).

Single-Case Quantitative Data Analysis

I used single case research design (SCRD; Gast & Ledford, 2014) to analyze quantitative and visual data of the CT's use of *e*Coaching, the PST's use of the RISE during instruction, and student outcomes related to the PST's instruction.

Visual Analysis

Visual analysis, the highest standard in SCRD (Gast, 2010), and was used to measure the effects of elbow coaching on the CTs' provision of in-ear *e*Coaching. I conducted a visual analysis of graphed data to examine the strength of the functional relationship between the intervention (i.e., elbow coaching) and the dependent variables (i.e., CT eCoaching, PST instruction, student outcomes). I examined the graphed data of within-participant behavior through a visual analysis examining *mean* (average performance during intervention), *level* (immediacy and magnitude of change), *trend* (ascending or descending), and *latency* (quickness) of change (Tankersley et al., 2008) to determine the functional relationship between the elbow coaching and the CT's *e*Coaching, PST use of RISE instructional practices, and student outcomes.

Effect Size

Although there continues to be some controversy in the literature among SCRD researchers regarding the most accurate way to measure effect size (e.g., Kratchowill & Levin, 2014; Parker, Vannest, & Davis, 2011), Tau-U is an alternative to PND that controls for trends in baseline and maintenance phases (Vannest et al., 2011) and has

more statistical power than other non-overlap analysis used in SCRD (Parker, Vannest, Davis, & Sauber, 2011). Tau-U combines non-overlap between phases with trend from within the intervention phase and is a derivation from Kendall's Rank Correlation (KRC) and the Mann-Whitney U (Parker et al., 2011), which means that Tau-U correlates with known sampling distributions for inferential tests (Kratchowill & Levin, 2014). Therefore, I used Tau-U to calculate the effect size of the intervention.

Tau-U is calculated as follows: $Tau - U = \frac{S_{p-S_B}}{mn}$, with *m* representing baseline, *n* representing intervention, S_p representing Kendall's S statistic calculated for the comparison between phases, and S_B representing Kendall's S statistic calculated on the baseline trend. However, I used the Tau-U Calculator developed by Vannest, Parker, and Gonen (2011) to calculate the effect size of the intervention (see http://www.singlecaseresearch.org/calculators/tau-u). Tau-U percentages ranging from 93-100 were considered to have a large or strong effect, percentages ranging from 66-92 were a medium to high effect, and percentages of 0-65 had a weak or small effect (Parker &Vannest, 2009).

Summary

The purpose of this study was to examine the effects of elbow coaching on the CT's ability to provide online, in-ear *e*Coaching to the PST during literacy based clinical experiences. Specifically, I investigated how elbow coaching influenced the CT's provision of online, in-ear *e*Coaching to the PST; how coaching the PST's (i.e., in-ear *e*Coaching plus side-by-side elbow coaching) influenced the PST's delivery of effective

reading instruction; and how coaching the PST positively influenced student outcomes (i.e., student engagement, opportunities to respond, correct responses).

I used a single case multiple baseline design (SCRD) to investigate these questions. In doing so, I adhered to the SCRD quality indicators (i.e., Horner et al., 2005) and *Meet Evidence Standards* without reservations (Kratochwill et al., 2013) whenever possible. Following the intervention, I analyzed the data visually (Gast et al., 2014) and calculated effect size (Tau-U; Parker, Vannest, & Davis, 2011).

I hypothesized that the results of this research contribute to how researchers train CTs and PSTs as they work together to improve their delivery of effective reading instruction and the performance of the students they teach. Additionally, since the online module combined with elbow coaching was intentionally designed to align with effective professional development (e.g., Joyce & Showers, 1982) and *e*Coaching (e.g., Rock et al., 2009), I further hypothesized that this research contributed to the current literature on pre- and in-service teacher development. Finally, I postulated that the results of this study have the potential to provide more substantive options for the clinical support CTs provide to PSTs while also positively impacting K-12 student outcomes during reading instruction.

CHAPTER IV

RESULTS

The purpose of this study was to examine the effects of elbow coaching on the CT's ability to provide online, in-ear *e*Coaching to the PST during literacy based clinical experiences. Specifically, I investigated how elbow coaching influenced the CT's provision of online, in-ear *e*Coaching to the PST; how coaching the PST's (i.e., in-ear *e*Coaching plus side-by-side elbow coaching) influenced the PST's delivery of effective reading instruction; and how coaching the PST positively influenced student outcomes (i.e., student engagement, opportunities to respond, correct responses). This chapter includes the results of the study organized by research question, social validity, interobserver agreement, and treatment fidelity.

Participants and Setting

As described in chapter 3, three sets of cooperating teacher (CT)/ pre-service teacher (PST) participants and their classroom students participated in this study. Each classroom was in a public elementary school. Also, all teachers (CT and PST) taught literacy instruction in inclusive classroom settings to students with and without disabilities in a public elementary school. A total of 88 sessions were conducted and archived, which included 30 sessions for participant sets 1 and 3, and 28 sessions for participant set 2.

Within Participants Visual Analysis

I examined within participants behavior through visual analysis by examining *mean* (average performance during intervention), *level* (immediacy and magnitude of change), *trend* (ascending or descending), and *latency* (quickness) of change (Tankersley et al., 2008) to determine the functional relationship between the elbow coaching and the CT's *e*Coaching, PST use of RISE instructional practices, and student outcomes. I created graphic displays to reveal accelerating, decelerating, or variable trends in the mean rate of CT use of RISE based *eCoaching,* PST use of RISE based practices, student opportunities to respond to instruction, student correct responses to instruction, and student engagement during instruction (see Figures 1-5). The level and latency of the data are also displayed in Figures 1 through 5. Finally, I calculated the mean and effect during and across each phase which is depicted in Tables 6 and 7.

Table 6. Means, Standard Deviations, and Tau-U Across Phases for CT and PST Participants

	Total RISE Based Coaching Rate per Minute			Total RISE Based Instruction Rate per Minute	
	M	SD		M	SD
Participant/Phase			Participant/Phase		
CT Participant 1			**PST Participant 1**		
Baseline	0.67	0.38	Baseline	1.36	0.42
Intervention	0.65	0.45	Intervention	1.48	0.46
TAU-U	-1%		TAU-U	4%	
CT Maintenance	0.39	0.21	CT Maintenance	1.85	0.36
TAU-U	-28%		TAU-U	68%	
			PST Maintenance	2.27	0.53
			TAU-U	92%	
CT Participant 2			**PST Participant 2**		
Baseline	1.24	0.57	Baseline	2.00	0.63
Intervention	1.77	0.57	Intervention	1.92	0.57
TAU-U	50%		TAU-U	-14%	
CT Maintenance	1.64	0.60	CT Maintenance	2.84	1.35
TAU-U	32%		TAU-U	48%	
			PST Maintenance	2.42	0.63
			TAU-U	40%	
CT Participant 3			**PST Participant 3**		
Baseline	0.57	0.24	Baseline	1.82	0.55
Intervention	1.25	0.37	Intervention	3.43	0.44
TAU-U	94%		TAU-U	100%	
CT Maintenance	1.36	0.42	CT Maintenance	3.21	0.75
TAU-U	85%		TAU-U	81%	
			PST Maintenance	3.13	0.69
			TAU-U	87%	

Table 7. Means, Standard Deviations, and Tau-U Across Phases for Student Participants

	Opportunities to Respond Rate per Minute		Percent Student Correct Response		Percent Student Engagement	
	M	SD	M	SD	M	SD
Participant/Phase						
Participant Group 1						
Baseline	0.53	0.47	73.42	22.05	77.56	9.96
Intervention	0.87	0.39	77.81	23.29	91.45	4.16
TAU-U	45%		20%		84%	
CT Maintenance	0.82	0.55	92.06	7.31	94.86	0.76
TAU-U	28%		60%		100%	
PST Maintenance	0.97	0.06	82.39	12.38	95.4	2.27
TAU-U	52%		30%		100%	
Participant Group 2						
Baseline	0.33	0.24	96.48	6.04	90.00	6.35
Intervention	0.56	0.37	89.72	10.12	93.52	4.39
TAU-U	37%		-34%		30%	
CT Maintenance	1.21	0.78	96.61	5.00	95.02	5.58
TAU-U	84%		2%		55%	
PST Maintenance	0.89	0.29	93.59	5.63	96.21	3.53
TAU-U	93%		-30%		53%	
Participant Group 3						
Baseline	1.11	0.61	82.44	10.55	97.73	2.40
Intervention	1.16	0.40	86.82	14.89	98.54	1.68
TAU-U	-5%		33%		23%	
CT Maintenance	0.88	0.35	95.75	5.16	98.97	1.70
TAU-U	-23%		73%		45%	
PST Maintenance	1.24	0.27	91.41	7.03	100.00	0.00
TAU-U	13%		57%		92%	

Tau-U

To compare the effect of the training, side-by-side elbow coaching while *e*Coaching, across all phased, I calculated the overall effect of the intervention using Tau-U (Vannest et al., 2011). To determine effectiveness, I used the Tau-U calculator

developed by Vannest and colleagues (2011) to calculate the effect size of the intervention (see http://www.singlecaseresearch.org/calculators/tau-u). Tau-U percentages ranging from 93-100 were considered to have a large or strong effect, percentages ranging from 66-92 were a medium to high effect, and percentages of 0-65 were weak or having a small effect (Parker &Vannest, 2009). See Tables 6 and 7 for Tau-U of each dependent variable across phases.

Research Question 1

What is the functional relationship between elbow coaching and the RISE based eCoaching the CT provides to the PST during reading instruction?

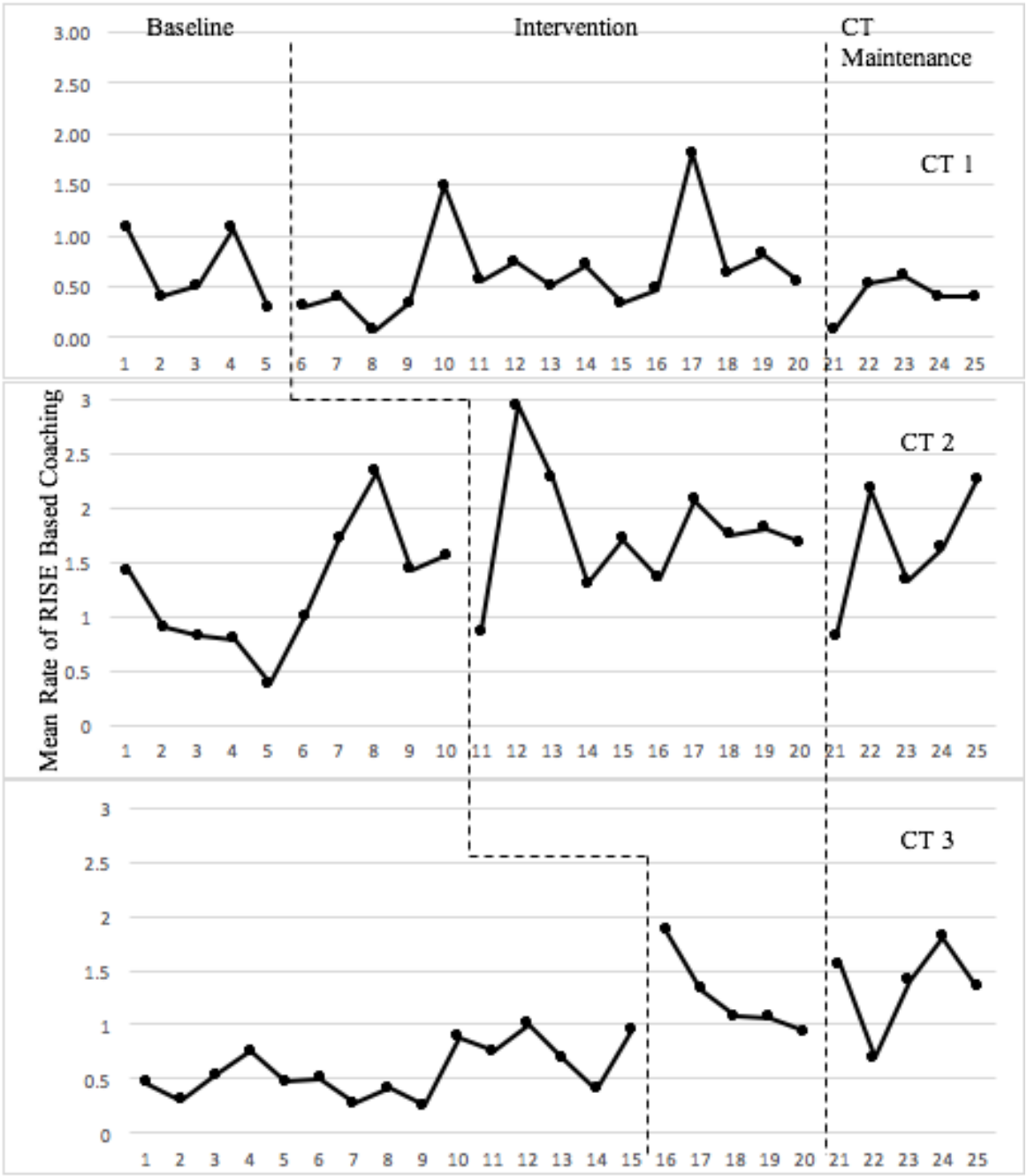
To investigate the functional relationship between the elbow coaching and CT's RISE based coaching for her PST, I calculated the mean rate of RISE based coaching per minute provided by the CT. Each statement of question that related to the PST's instruction during the literacy lesson was coded as RISE domain. Questions and statements about the technology, such as, "Can you hear me?" were not coded because they were not related to the PST instructional practices. Table 6 represents each CT's individual data (i.e., the average mean rate of total RISE coaching provided per minute of instruction) and Figure 1 provides a graphic display of each CT participant's data per session.

While CT 1's coaching remained relatively stable between baseline and intervention, CT 2 and CT 3 increased their rate of RISE based coaching during intervention. CT 2 experienced a slight decline before increasing coaching behaviors and CT 3 experienced an immediate increase in coaching with the introduction of the

intervention. CT 1 remained stable between phases with her mean coaching rate of 0.67 (range = 0.29-1.18) in baseline to 0.65 (range = 0.07-0.60) in the intervention; CT 2 increased her mean rate of coaching from 1.24 (range = 0.38-2.33) in baseline to 1.77 (range = 0.86-2.07) in intervention; and CT 3 increased her mean rate of coaching from 0.57 (range= 0.25-1.00) in baseline to 1.25 (range = 0.93-1.87) in intervention. Tau-U for CT 1 was -1% and Tau-U for CT 2 was 50%, with CT 1 showing no effect and CT showing a small or weak effect. Tau-U for CT3, however, was 94% which indicates a large effect.

CT participants 1 and 2 decreased their coaching rates from intervention to CT maintenance and CT 3 showed a slight increase in coaching. CT 1 decreased her average of 0.65 (range = 0.07-0.60) in intervention to 0.39 (range = 0.07-0.060) in CT maintenance. CT 2 decreased her average of 1.77 (range = 0.86-2.07) in intervention to 1.64 (range = 0.81-2.26) in CT maintenance. Finally, CT 3 increased her average of 1.25 (range = 0.93-1.87) in intervention to 1.36 (range = 0.69-1.81) in CT maintenance. Tau-U for CT 1 and CT 2 were small during CT maintenance, 28% and 20% respectively. Tau-U for CT 3 showed a medium to high effect at 85%.

Figure 1. Rate per Minute of CT Participant's Total RISE Based Instruction



Research Question 2

What is the functional relationship between in-ear *e*Coaching plus CT elbow coaching and the PST's delivery of effective reading instruction?

To investigate the functional relationship between the PST's training (elbow coaching and in-ear *e*Coaching) during her delivery of reading instruction, I calculated the mean rate of RISE based instructional practices employed by the PST. Frequency counts were made of each practice the PST engaged in that corresponded with a domain of the RISE. The frequency counts of each domain were added together to get a total RISE count. The total RISE count was then divided by the total time of the coaching session in minutes to calculate the RISE instructional rate per minute. Table 6 represents each PST's individual data (i.e., the average mean rate of total RISE coaching provided per minute of instruction) and Figure 2 provides a graphic display of each PST participant's data per session.

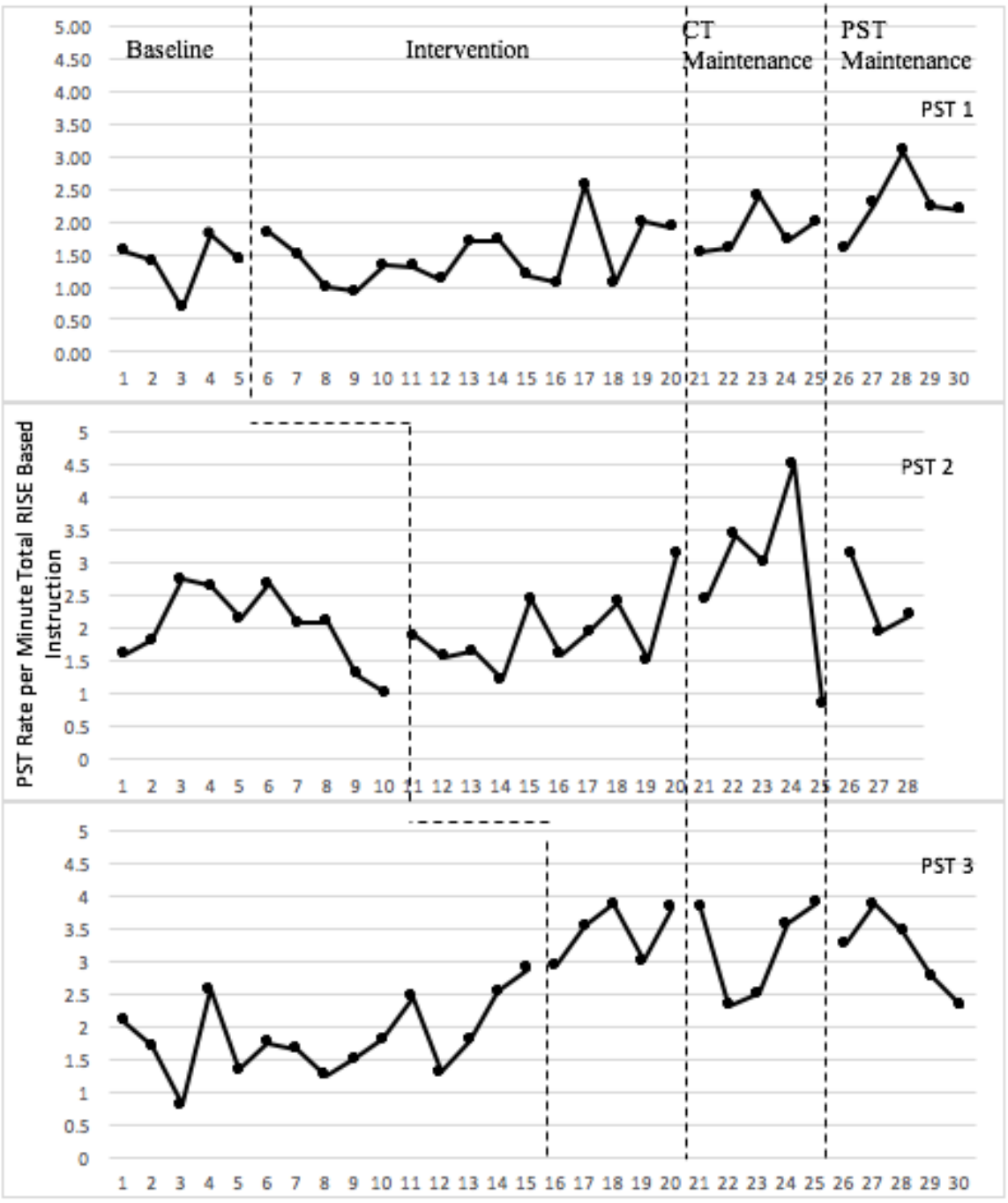
While PST 2's RISE based instruction decreased slightly between baseline and intervention, PST 1 and PST 2 increased their rate of RISE based instruction. PST 1 and 2 experienced an immediate increase in RISE based instruction with the introduction of the intervention and PST 3 remained stable with the introduction of the intervention but increased her instruction during the intervention phase. PST 1 increased her mean rate of Total RISE based instruction per minute from 1.36 (range = 0.67-1.80) in baseline to 1.48 (range = 0.92-2.56) in intervention; PST 2 decreased her mean rate of Total RISE based instruction from 2.00 (range = 1.00-2.73) in baseline to 1.92 (range = 1.20-3.11) in intervention; and PST 3 increased her mean rate of Total RISE based instruction from

1.82 (range = 0.80-2.88) in baseline to 3.43 (range = 2.93-3.87) in intervention. Tau-U for PST 1 was 4% and Tau-U for PST 2 was -14%, both showing a small or weak effect. Tau-U for PST3 was 100% which indicates a large or strong effect.

PST participants 1 and 2 increased their RISE instruction rates from intervention to CT maintenance and PST 3 showed a decrease in RISE instructional practice rates. PST 1 increased her average of 1.48 (range = 0.92-2.56) in intervention to 1.85 (range= 1.53-2.40) in CT maintenance. PST 2 increased her average of 1.92 (range = 1.20-3.11) in intervention to 2.84 (range = 0.84-4.50) in CT maintenance. Finally, PST 3 decreased her average of 3.43 (range = 2.93-3.87) in intervention to 3.21 (range = 2.31-3.86) in CT maintenance. Tau-U for PST 1 was 68% indicating a medium effect in CT maintenance. Tau-U for PST 2 was 48% indicating a small effect. Tau-U for PST 3 showed a medium to high effect at 81%.

PST 1 increased her RISE instruction rates from CT maintenance to PST maintenance and PST 2 and 3 showed a decrease in RISE instructional practices in this phase. PST 1 increased her average of 1.85 (range= 1.53-2.40) in CT maintenance to 2.27 (range = 1.60-1.08) in PST maintenance. PST 2 decreased her average of 2.84 (range = 0.84-4.50) in CT maintenance to 2.42 (range = 1.94-3.14) in PST maintenance. Finally, PST 3 decreased her average of 3.21 (range = 2.31-3.86) in CT maintenance to 3.13 (range = 2.31-3.86) in PST maintenance. Tau-U for PST 1 was 92% indicating high effect in PST maintenance. Tau-U for PST 2 was 40% indicating a small effect. Tau-U for PST 3 showed a medium to high effect at 87%.

Figure 2. Rate per Minute of PST Participant's Total Use of RISE Based Instruction



Research Question 3

What is the functional relationship between in-ear *e*Coaching plus CT elbow coaching and the K-12 student outcomes (i.e., student engagement, opportunities to respond, correct responses)?

To investigate the functional relationship between CT and PST training and student outcomes, I calculated the (a) the frequency of opportunities for students to respond to instruction (individual, group, and total), (b) percent of student correct responses to instruction (individual, group, and total), and (c) percent of student engagement in the instruction.

Opportunities to Respond

A student OTR was recorded each time the PST prompted a verbal or motor response from an individual or group of students. An example of individual OTRs included the teacher asking a student to tap out the sounds they hear in a word. Examples of group OTRs included think-pair-shares, choral responses, and other whole group share outs such asking the students to whisper the answer in their hand. To determine the rate of total OTRs for each session, I added the individual OTRs to the group OTRs and then divided the sum by the length of the session (in minutes). See Figure 3.

Each group of students received more opportunities to respond during intervention than in baseline. Student group 1 and 2 showed a decline from baseline when entering intervention but OTRs began to rise throughout the intervention sessions and student group 3 received an immediate increase in OTR from baseline to intervention. Student group 1 received an increase in mean rate per minute of OTR from

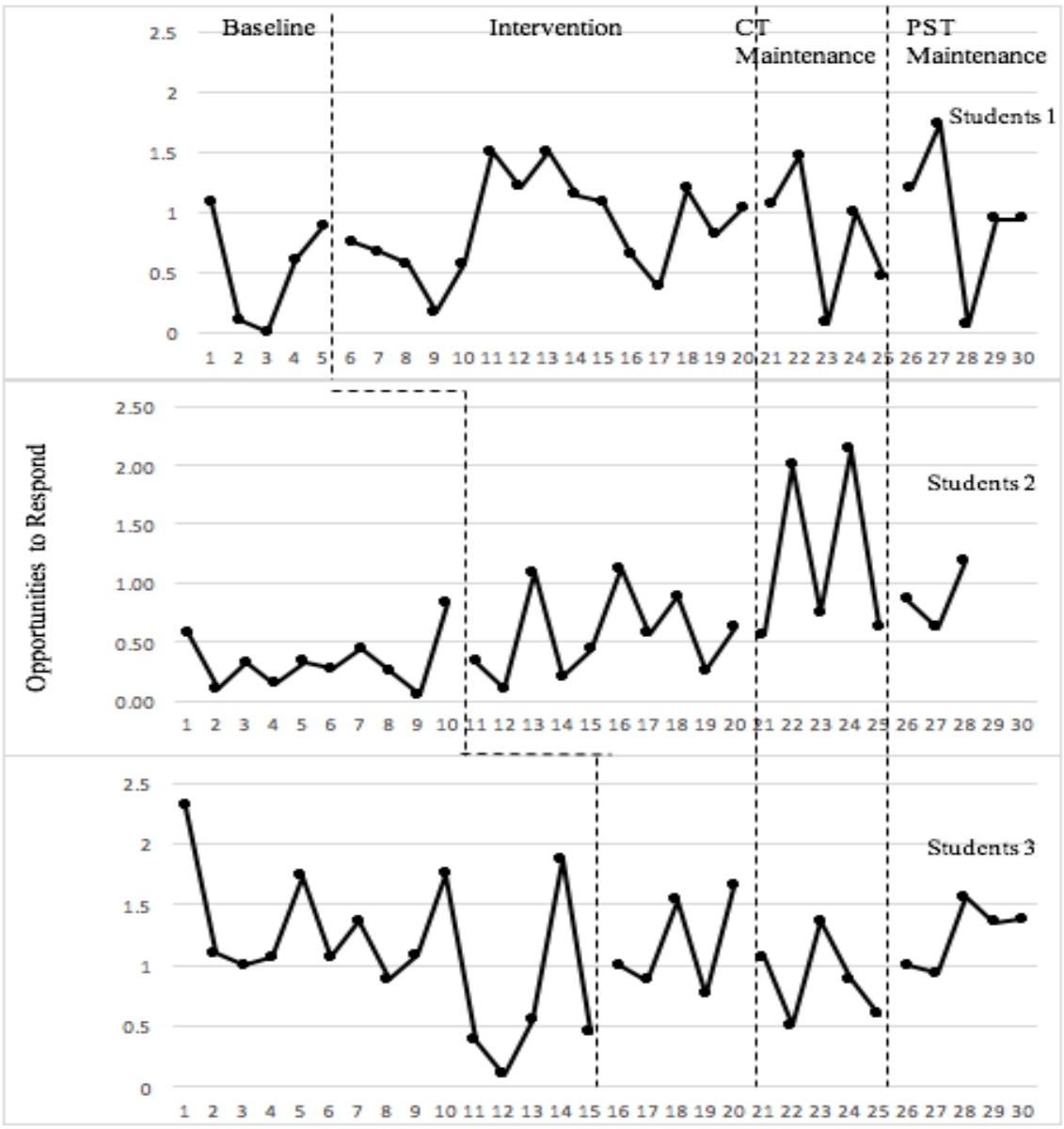
0.53 (range =0.00-1.08) in baseline to 0.87 (range = 0.17-1.50) in intervention. Student group 2 received an increase their mean rate per minute of OTR form 0.33 (range = 0.05-0.83) in baseline to 0.56 (range = 0.10-1.12) in intervention. Student group 3 received an increase in their mean rate per minute of OTR from 1.11 (range = 0.10-2.31) in baseline to 1.16 (range = 0.76-1.65) in intervention. All three student groups showed a weak to small effect in the intervention phase with Tau-U for student group 1 at 45%, Tau-U for student group 2 at 37% and Tau-U for student group 3 at -5%.

While student groups 1 and 3 OTR declined from intervention to CT maintenance, student group 2 received an increase in OTR. Student group 1 received a decrease in mean rate per minute of OTR from 0.87 (range = 0.17-1.50) in intervention to 0.82 (range = 0.07-1.47) in CT maintenance. Student group 2 received an increase in their mean rate per minute of OTR from 0.56 (range = 0.10-1.12) in intervention to 1.21 (range = 0.56-2.13) in CT maintenance. Student group 3 received a decrease in their mean rate per minute of OTR from 1.16 (range = 0.76-1.65) in intervention to 0.88 (range = 0.50-1.36) in CT maintenance. Tau-U for student group 1 was -28% and Tau-U for student group 3 was -23%, both showing a small or weak effect. Tau-U for student group 2, however, was 84% which indicated a medium to high effect.

All participant groups received an increase in OTR in the final phase (i.e., PST maintenance). Student group 1 received an increase in mean rate per minute of OTR from 0.82 (range = 0.07-1.47) in CT maintenance to 0.97 (range = 0.06-1.73). Student group 2 received an increase in their mean rate per minute of OTR from 1.21 (range = 0.56-2.13) in CT maintenance to 0.89 (range = 0.62-1.19). Student group 3 received an

increase in their mean rate per minute of OTR from 0.88 (range = 0.50-1.36) in CT maintenance to 1.24 (range = 0.93-1.56). Tau-U for student group 1 was 52% which indicated a weak or small effect. Tau-U for student group 2 was 93% or high effect. Tau-U for student group 3 was 13% which indicated a weak or small effect.

Figure 3. Rate per Minute of Student Participants' Opportunities to Respond



Correct Responses

Each OTR was also coded as a correct or incorrect response. Examples of correct individual responses are a student providing a correct answer to the teacher's question or following the teacher's directions (e.g. tapping out the sounds they heard in a word). An example of a correct group response is when the students provide a choral response to a teacher's question or comment. Think-Pair-Shares were coded as correct group responses. Examples of incorrect individual response are students providing an incorrect answer or not following the teacher's directions. An example of an incorrect group response is when the class does not follow the prompt for a choral response. To determine the rate of total correct responses for each session, I added the individual correct responses to the group correct responses and then divided the sum by the length of the session (in minutes). See Figure 4.

Student groups 1 and 3 increased their mean percentage of total correct responses from baseline to intervention. Student group 2 showed a decrease in mean percent of total correct responses from baseline to intervention. Student group 1 showed an immediate decline in the percent of correct responses when entering intervention, but increased throughout the intervention phase. Student group 2 also showed a decrease in correct responses upon entering intervention and remained relatively stable throughout the phase. Student group 3 showed an immediate increase in total correct responses with a decline throughout the phase. Student group 1 showed an increase in total percent correct responses from 73.2% (range = 64.67-100) in baseline to 77.81% (range = 25-100) in intervention. Student group 2 showed a decrease in total percent correct

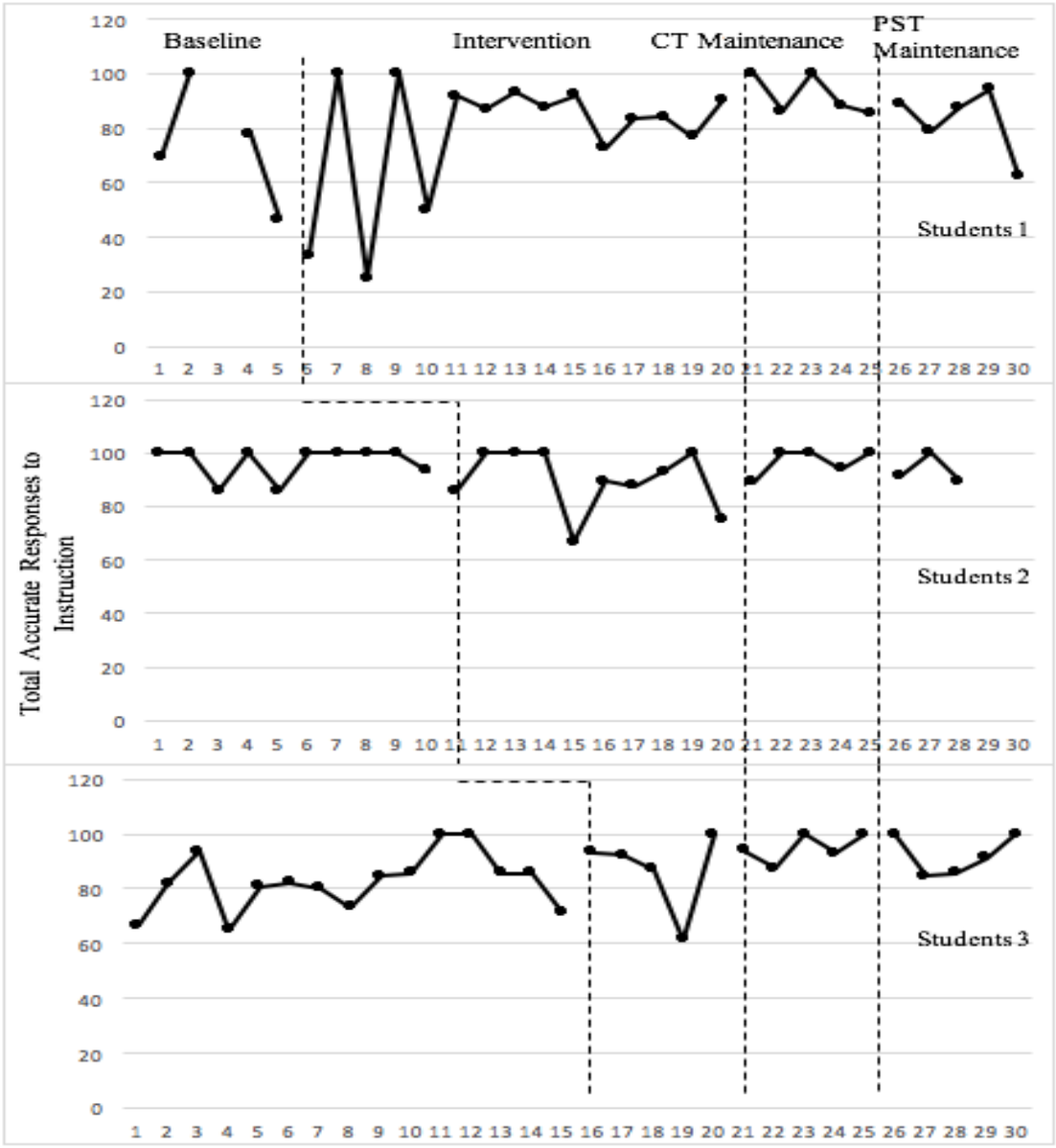
responses from 96.48% (range = 85.71-100) in baseline to 89.72% (range = 66.67-100) in intervention. Student group 3 showed an increase in total percent correct responses from 82.33% (range = 66.67-100) in baseline to 86.82% (range = 61.51-100) in intervention. All student groups showed small or weak effects with Tau-U for group 1 at 20%, group 2 at -34%, and group 3 at 33%.

All three student groups showed an increase in mean percent of total correct responses from intervention to CT maintenance. Student group 1 showed an increase in total percent correct responses from 77.81% (range = 25-100) in intervention to 92.06% (range = 85.71-100) in CT maintenance. Student group 2 showed an increase in total percent correct responses from 89.72% (range = 66.67-100) in intervention to 96.61% (range = 88.89-100) in CT maintenance. Student group 3 showed an increase in total percent correct responses from 86.82% (range = 61.51-100) in intervention to 95.75 in CT maintenance. Student groups 1 and 2 showed small or weak effects with Tau-U at 60% and 2% respectively. Student group 3 showed a medium effect with Tau-U at 73%.

All participant groups showed a decrease in mean percent of total correct responses from CT maintenance to PST maintenance. Student group 1 showed a decrease in total percent correct responses from 92.06% (range = 85.71-100) in CT maintenance to 82.39% (range =62.5-94.12) in PST maintenance. Student group 2 showed a decrease increase in total percent correct responses from 96.61% (range = 88.89-100) in CT maintenance to 93.59% (range = 88.89-100) in PST maintenance. Student group 3 showed a decrease in total percent correct responses from 95.75 in CT maintenance to 90.41 (range = 84.62-100) in PST maintenance. All student groups 1 and

3 showed small or weak effects with both having with Tau-U for student group 1 at 30%, student group 2 at -30%, and student group 3 at 57%.

Figure 4. Percent of Student Participants' Total Correct Responses to Instruction



Student Engagement

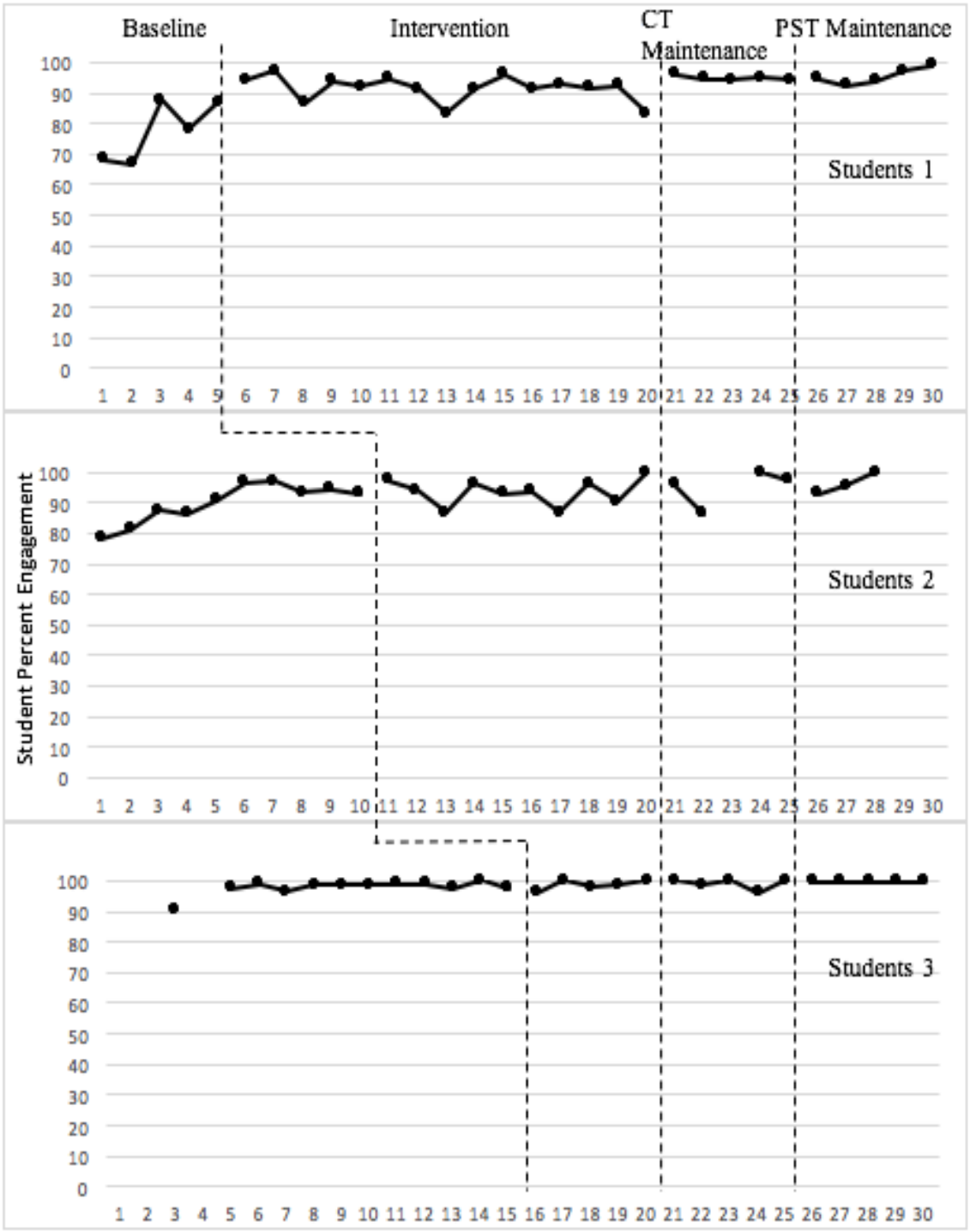
Student engagement was measured using time sampling via interval recording during 1-minute intervals (Cooper et al., 2007). Students were considered engaged in the lesson if they were "attending to (i.e., looking at) the teacher, (b) making appropriate motor responses (e.g., following directions, manipulating materials), (c) asking for assistance in an appropriate manner, and (d) interacting with peers or adults within the structure of the activity," (Courtade, Lingo, & Whitney, 2013, p. 9). I divided the total number of engaged students by the total number of students in the video to determine the percent of student engagement each session. See Figure 5.

All student groups increased their mean percent of student engagement from baseline to intervention. Student group 1 and 2 showed an immediate increase in mean percent engagement from baseline to intervention, while student group 3 showed a slight decline in percent engagement. All groups remained relatively stable throughout the intervention phase. Student group 1 showed an increase in engagement from 77.56% (range = 66.67-87.75) in baseline to 91.45% (range = 83.10-97.26) in intervention. Student group 2 showed an increase in engagement from 90% (range = 78.49-96.08) in baseline to 93.52% (range = 86.59-100) in intervention. Student group 3 showed an increase in engagement from 97.73% (range = 90.74-100) in baseline to 98.54% (range = 95.95-100) in intervention. Student group 1showed medium to high effects with Tau-U at 84%. Student groups 2 and 3 showed weak effects with Tau-U at 30% and 23% respectively.

All three student groups showed an in increase in mean percent engagement from intervention to CT maintenance. Groups 1 and 3 remained relatively stable throughout the CT maintenance phase, while student group 2 showed an improvement in engagement during this phase. Group 1 showed an increase in engagement from 91.45% (range = 83.10-97.26) in intervention 94.86% (range = 94.21-96.08) in CT maintenance. Student group 2 showed an increase in total percent correct responses from 93.52% (range = 86.59-100) in intervention to 95.02% (range = 86.67-100) in CT maintenance. Student group 3 showed an increase in total percent correct responses from to 98.54% (range = 95.95-100) in intervention to 98.97 in CT maintenance. Student groups 2 and 3 showed small or weak effects with Tau-U at 55% and 45% respectively. Student group 1 showed a strong effect with Tau-U at 100%.

All three student groups showed an increase in mean percent engagement from CT maintenance to PST maintenance. Student groups 1 and 2 showed improvement in the final phase while group 3 remained stable. Student group 1 showed an increase in engagement from 94.86% (range = 94.21-96.08) in CT maintenance to 95.40% (range = 94.21-96.08) in PST maintenance. Student group 2 showed an increase in total percent correct responses from 95.02% (range = 86.67-100) in CT maintenance to 96.21 (range = 93-100) in PST maintenance. Student group 3 showed an increase in total percent correct responses from 98.97 (range = 95.95-100) in CT maintenance to 100% in PST maintenance. Student group 1 showed a strong effect with Tau-U at 100%. Tau-U for group 2 was 53% indicating a weak or small effect, and Tau-U for student group 3 was 92%, indicating a medium to high effect.

Figure 5. Percent of Student Participants' Engagement



Social Validity

After completing the PST maintenance stage, all CT and PST participants completes a social validity via Google Survey. As described in Chapter III the CT and PST participants indicated their level of satisfaction with the training, *e*Coaching, and elbow coaching using a five point Likert-type scale (i.e., 1 = strongly agree, 2 = agree, 3 = neither agree or disagree, 4 = disagree, and 5 = strongly disagree). The social validity questionnaire included 10 questions that were adapted from Horner et al. (2005).

Overall, participants agreed or strongly agreed that the online training, online *e*Coaching, and the elbow coaching were accessible, practical, useful, and cost effective. All PST participants and one CT agreed or strongly agreed that the elbow coaching and *eC*oaching enhanced their skills as a teacher. The other CT participants neither agreed or disagreed that the elbow coaching and eCoaching enhanced their teaching skills. Additionally, all PST and one CT agreed or strongly agreed that the RISE framework was beneficial, while two CTs neither agreed or disagreed about the benefit of the RISE framework. All participants strongly disagreed, disagreed or neither agreed or disagreed that the elbow coaching and eCoaching was distracting. Two participants (i.e., 1PST and 1 CT) reported they noticed a change in their students reading abilities, two PSTs reported no noticeable changes in their students' reading abilities (i.e., neither agreed or disagreed), and two CTs reported no changes in student reading abilities.

Interobserver Agreement

I conducted 88 sessions, which were video recorded and archived. To check reliability, a trained observer and I watched and coded 20% (n=17) of the archived video

files across all phases (i.e., baseline, intervention, CT maintenance, PST maintenance). Reliability was calculated by dividing the total number of agreements by the total number of agreements plus disagreements and the multiplying that number by 100 (Cooper et al., 2007). Overall the reliability throughout the sessions was 96% (range = 80%-100%).

To assess the reliability of the data, the trained observer and I watched and coded the videos independently. Frequency counts for OTR, student correct responses, RISE based coaching, and RISE based instruction as well as percent of student engagement were recorded and totaled on paper coding sheets. Once all data was collected, I calculated the percent reliability via partial interval recording (House, House, & Campbell. 1980). The dependent variable for RQ1 was CT RISE based coaching. Overall, IOA on CT Rise based coaching across all phases was 96%. The dependent variable for RQ2 was PST RISE based instruction. Overall, IOA on PST RISE based instruction across all phases was 92%. The dependent variables for RQ3 were OTR, student correct responses, and student engagement. Overall, IOA across all phases for OTR, student correct responses, and student engagement were 95%, 95%, and 99% respectively. Final IOA was calculated for elbow coaching fidelity at 93%. See Table 8 for a detailed account of the percent of IOA across all phases.

Treatment Fidelity

I assessed treatment fidelity by using frequency counts of elbow coaching fidelity. The trained observed and I examined and coded the elbow coaches comments as encouraging, instructing/correcting, questioning, or other. Other was coded when the elbow coach was seen saying something to the *e*Coach but the statement or question was

unintelligible. Frequency counts for each type of coaching comment was recorded on a paper coding sheet. Percentage of agreement for the frequency of statement was calculated at 95%. I then calculated the ratio of encouraging statement to instructive/corrective statements to determine if the elbow coaching met the suggested ration of 4:1 (Rock et al., 2011). For CT 1, the coaching fidelity was 4:3 (or 1.3:1); for CT 2, the coaching fidelity was 2:1; and for CT 3, the coaching fidelity 1:1. Overall the elbow coach did not meet the suggested ratio.

I also investigated the ratio of praise statement to instructive/corrective statements produced by each CT to determine the CT fidelity of coaching. The praise to instructive/corrective statements Provided by CT 1 to PST 1 during baseline was 0.08:1. Based on the low provision of praise during bassline, the side-by-side elbow coach and CT set a goal to increase the provision of praise statements. The ratio increased during intervention (i.e., 1:1) and showed a medium effect for increase in praise statements (Tau-U= 75%) but the CT was unable to maintain this ratio, which declined to 0.3:1 in maintenance (Tau-U= 48%). CT 1 was unable to sustain her coaching goal.

The ratio of praise statement to instructive/corrective statements delivered from CT 2 to PST 2 during baseline was 0.2:1. Based on the overall high levels of feedback provided to the PST the elbow coach and CT developed a goal to reduce the number of instructive/corrective statements provided. The ratio increased slightly during intervention (i.e., 0.3:1) and again at maintenance (i.e., 0.65:1) showing medium effect for decrease in corrective/instructive by maintenance (Tau-U=74%), suggesting that the CT's decreased her instructive/corrective statements over time.

The ratio of praise statement to instructive/corrective statements delivered from CT 3 to PST 3 during baseline was 0.11:1. Based on the low provision of praise during bassline, the side-by-side elbow coach and CT set a goal to increase the provision of praise statements. The ratio increased slightly during intervention (i.e., 0.28:1) and again at maintenance (i.e., 0.35:1) showing medium and large effect for increase in praise across phases (i.e., Tau-U in intervention = 78% and Tau-U in maintenance = 95%) and a medium effect for increases in the provision of corrective/instructive feedback in maintenance (Tau-U= 82%).

Table 8. Percent Agreement (IOA) and Range for Reliability Across Phases

	CT RISE Coaching		PST RISE Instruction		OTR		Correct Student Responses		Student Engagement	
	IOA	Range	IOA	Range	IOA	Range	IOA	Range	IOA	Range
Baseline	95	91-100	95	87-100	95	89-100	95	89-100	99	96-100
Intervention	97	89-100	87	80-96	93	88-97	93	88-97	100	
CT	100		94	93-96	95	89-100	95	89-100	100	
Maintenance										
PST			94	92-96	98	94-100	98	94-100	100	
Maintenance										

Note: Percent of agreement calculated for 20% of all sessions across phases (Kratochowill et al., 2010)

Summary

After completing an online training and receiving side-by-side elbow coaching two of the CTs increased their mean rate per minute of total RISE based coaching while one CT showed decreases in coaching from baseline to intervention and again from

intervention to CT maintenance. The PSTs received an online training and *e*Coaching with elbow coaching for the CT. All three PSTs showed increases in their mean rate per minute of total RISE based instruction. For one PST, the intervention has high to medium effects on her instruction as determined by Tau-U. Most student groups also showed increases in mean rates in OTR, correct responses, and student engagement. Only student group 2 did not show an increase in mean rates of correct responses across phases. However, their rates remained stable and showed a medium to high effectiveness in both maintenance phases.

The purpose of this study was to examine the effects of elbow coaching on the CT's ability to provide online, in-ear *e*Coaching to the PST during literacy based clinical experiences. Specifically, I investigated how elbow coaching influenced the CT's provision of online, in-ear *e*Coaching to the PST; how coaching the PST's (i.e., in-ear *e*Coaching plus elbow coaching) influenced the PST's delivery of effective reading instruction; and how coaching the PST positively influenced student outcomes (i.e., student engagement, opportunities to respond, correct responses). Therefore, I implemented multiple measures to assess changes in CT, PST, and student behaviors. Although changes varied for all participants, most CTs showed increased *e*Coaching on the RISE, all PSTs showed increased RISE instructional practices, and most of the student groups, showed increased student outcome measures.

I collected social validity from all CT and PST participants at the completion of the final phase of the study (i.e., PST maintenance). Overall, participants agreed or strongly agreed that the online training, *e*Coaching, and the side-by-side elbow coaching

were accessible, practical, useful, and cost effective. Four of six participants agreed or strongly agreed that the elbow coaching and in-ear coaching enhanced their skills as a teacher, while the remaining two participants neither agreed or disagreed. All participants strongly disagreed, disagreed or neither agreed or disagreed that the elbow coaching and *e*Coaching was distracting. Additionally, there were mixed reports from the PST and CT participants regarding changes in their students reading abilities.

Finally, interobserver agreement and treatment fidelity were assessed for reliability and consistency with all measures (CT coaching, PST instruction, student OTR, student correct response, student engagement, and elbow coach fidelity). A trained second coder and I exceeded the minimal standard levels of agreement (i.e., 80%; Cooper et al., 2007) across all phases of the study. Treatment fidelity was assessed for types of coaching statements made by the elbow coach. Overall the elbow coach provided less encouraging praise than recommended by Rock et al. (2011).

The following chapter, Chapter V, I will discuss the results of the study, present the limitations, and provide future directions.

CHAPTER V

DISCUSSION

The purpose of this study was to examine the effects of elbow coaching on the CT's ability to provide online, in-ear *e*Coaching to the PST during literacy based clinical experiences. Specifically, I investigated how elbow coaching influenced the CT's provision of online, in-ear *e*Coaching to the PST; how coaching the PST (i.e., in-ear *e*Coaching plus elbow CT coaching) influenced the PST's delivery of effective reading instruction; and how coaching the PST positively influenced K-12 student outcomes (i.e., student engagement, opportunities to respond, correct responses). This chapter includes a summary of the study, a discussion of the main findings and limitations, and implications, not only for future research, but also for practice.

Summary

Researchers have shown that pre-service teachers' (PSTs) clinical placements are critical for transferring theory to practice (Brownell et al., 2005; Leko et al., 2012) and that these experiences require effective mentoring, coaching, and supervision from university supervisors and cooperating teachers (CAEP, 2016; Leko et al., 2012; NCATE, 2010). Yet, many special education teachers enter the field feeling under-prepared to teach effectively, especially in critical areas such as reading (e.g., Brownell et al., 2009). One possible solution is to maximize the support provided by cooperating teachers (CTs; in-service teachers who share their classrooms with PSTs). Although CTs

provide numerous supports (i.e., mentoring, coaching, supervision) to PSTs, CTs receive little or no training on how to do so (Gareis & Grant, 2014). Therefore, CTs must be better prepared to support their PST mentees who are charged with transferring theory to practice in an effort to improve K-12 student outcomes (Brownell et al., 2005; Leko et al., 2012).

Drawing on principles of situated learning theory, (Lave & Wenger, 1991), I sought to facilitate CT and PST learning in the context in which they could immediately apply their newly learned knowledge and skills. Rather than provide participants with manuals or a traditional one-time workshop, I provided them with an online training module supported by coaching. For the CTs, this coaching took place onsite at the elbow while the CT provided online in-ear coaching for the PST and PSTs' coaching occurred online in-ear while providing classroom-based reading instruction. Through the online module, I provided participating CTs and PSTs with knowledge of Reading Instruction for Special Education (RISE; Brownell et al., 2009), not only as a framework for effective reading instruction for students with and without disabilities, but also to provide a common language (Giebelhaus & Bowman, 2002; Deans for Impact, 2015) for the CT, PST, and elbow coach. Doing so was important in establishing a common language for effective reading instruction during in-ear and elbow coaching. In-ear coaching (i.e., elbow and *e*Coaching) was provided to overcome the drawbacks of traditional professional development, such as high cost, lack of effectiveness, and fragmentary sessions and content (Hargraves, 2007). Taken together, the module and coaching were

designed to include the critical components of effective professional development reviewed in Chapter II (i.e., Desimone, 2009; Joyce & Showers, 1982; Leko & Brownell, 2009).

With the coaching added to the module, the data confirmed the majority of the CTs and PSTs began to modify their practices to improve reading instruction for students with and without disabilities. Given the limited duration in which CTs and PSTs received in-ear coaching, the results of the study are promising. In what follows, I review the results as they relate to each group.

For participants in Group 1, overall CT 1 demonstrated a decrease in her mean rate of RISE based coaching over time while PST 1 showed an increased use of effective reading practices over time with medium to large effectiveness in the maintenance phases in CT maintenance and PST maintenance as evidenced by Tau-U. Students in Group 1 received more opportunities to respond (OTR) and increased correct responses over time, but these were not found to be effective as demonstrated by Tau-U. That said, this group had the largest increase in student engagement with medium to large effects evident across all phases (Tau-U range = 84%-100%).

In Group 2, CT 2 demonstrated an increase in her mean rate of RISE specific coaching over time, while PST 2's demonstrated mean rate of RISE based instruction was variable, increasing and decreasing across phases. Although PST 2's mean rate of effective reading instruction showed an overall increase, it was not found to be effective as demonstrated by Tau-U. PST 2 was asked to leave the school and her student teaching placement; therefore, she was unable to complete her student teaching requirements and

her participation in this dissertation study. Students in Group 2 exhibited the lowest mean OTR when compared to those in Groups 1 and 2; however, they achieved an increase in mean OTR over time with medium and large effects observed at CT maintenance (Tau-U = 84%) and PST maintenance (Tau-U = 93%). Their mean percent of correct responses increased with small effects across phases and their percent engagement, while evidencing an overall mean increase, reflected small to weak effects as measured by Tau-U.

Finally, in Group 3, CT 3 demonstrated an increase and improvement in her mean RISE specific coaching over time with large to medium effects evidenced across all phases (Tau-U range = 84%-94%). Also, PST 3 demonstrated an increase in RISE practices used, during classroom instruction, with large effects observed in intervention (Tau-U = 100%) and medium effects in maintenance phases (Tau-U = 81% and 83%). Overall, the K-12 students in Group 3 demonstrated the highest OTR, correct responses, and engagement at baseline. Their mean OTR demonstrated an increase, but with small to weak effects as measured by Tau-U. Also, their percent of correct responses increased over all phases with medium effects evidenced at CT maintenance (Tau-U = 73%). Percent of K-12 student engagement in Group 3 illustrated an overall increase with a large effect observed in PST maintenance (Tau-U = 92%).

Additionally, results from the CT and PST social validity questionnaires confirmed that the RISE framework was beneficial for novice educators and that elbow coaching and *e*Coaching enhanced PST teaching skills. All participants agreed that their

respective in-ear coaching was not distracting. In the following sections, I discuss convergent and divergent findings and offer implications for future research and practice.

Convergent Findings

As noted in Chapter II, a review of the literature confirmed that current approaches to CT training that address support for PSTs during clinical experiences are fraught with shortcomings. Over the last ten years, CT professional development researchers have taken multiple approaches to designing training formats and determining the duration and content of the professional development provided to CTs (e.g., Hennissen et al., 2011; Fairbanks et al., 2000; Giebelhaus & Bowman, 2002; Paulsen et al., 2015; Thompson et al., 2015). Unfortunately, these researchers have provided little information on how CT training impacted PSTs and their K-12 classroom students. Therefore, in this dissertation study, I set out to investigate just that using a single case research design (SCRD).

Cooperating Teacher Professional Development

Using the components of effective professional development, I designed a CT training that included an online module paired with elbow coaching. The results of this study support and extend previous research on CT professional development in various ways, which I describe in what follows.

Provision of feedback. Several researchers have examined the characteristics of effective CTs. For instance, Killian and Wilinks (2009) and Sayeski and Paulsen (2012) both found that CTs who were rated more highly by their PSTs gave corrective feedback. Also, researchers using untreated control group pre-posttest research on CT professional

development found that after receiving training, CTs improved in areas, such as giving task support (Hennissen et al., 2011), sharing concerns (Timplerly, 2001), and providing guided practice and feedback (Veeman & Denessen, 2001). Not only do PSTs perceive CTs who provide corrective feedback as more effective, but also when trained, CTs are better able to provide PSTs with the feedback and support they need.

The results of this study, which included CT training via an online module and elbow coaching, align with abovementioned findings (see Hennissen, et al., 2011; Timplerly, 2001; Veeman & Denessen, 2001). Although there were no baseline measures of CT feedback prior to the online training and the results of this dissertation study were variable, it was evident that all CTs immediately provided *e*Coaching feedback (i.e., encouraging, instructive/corrective, questioning) to their PSTs. Also, with the addition of elbow coaching, CTs adapted their feedback to support PST and K-12 student outcomes. For example, during intervention, the elbow coach provided feedback to the CT to help the CT adapt her level of directness (e.g., reducing questions as comments ["what do you want them to do?"], adding explicitness to feedback; Glickman et al., 2014). According to Glickman and colleagues' (2014) supervisory behavior continuum, the CT's level of directness is important because directive feedback impacts the decision-making behaviors of PST. For instance, a PSTs with few teaching experiences and limited content and pedagogical knowledge will require more support in decision making than a PST with more experience and knowledge. Thus, PSTs with lower expertise require more direct and explicit feedback because they have fewer experiences and less knowledge to support independent decision making. However,

since the ultimate goal of CT coaching is to support PSTs as they move toward independence coaches must be flexible in their use of directedness (Glickman et al., 2014).

Duration, type, and outcomes of CT training. The findings of this dissertation study further extend the quasi-experimental pre-posttest CT professional development studies described above (i.e., Hennissen et al., 2011, Timplerly 2001; Veeman & Denessen, 2001) in two ways. First, I provided CTs a hybrid form of professional development, an online module with the inclusion of elbow coaching, rather than a traditional once and done workshop. Second, through the hybrid professional development, I provided CTs with one specific supervisory skill, (i.e., providing the PST with *e*Coaching feedback) strategically aligned with effective reading instruction. For example, in previous studies, Hennissen and colleagues (2011) conducted nine face to face training sessions over three months; Timplerly (2001) provided CTs with five face to face sessions; and Veeman and Denessen (2001) conducted a 2-day workshop and provided CTs with a training manual. During training, Hennissen and colleagues (2011) and Timplerly (2001) presented information aligned with traditional PST supervision (e.g., asking questions, providing feedback, conferencing formats) and Veeman and Denessen (2001) provided content in traditional PST supervisory skills as well as in dimensions of professional teaching, such as subject matter and pedagogical expertise.

In this experimental SCRD, CTs received training, in part, via an online module, commensurate with past and current professional development principles (i.e., Desimone, 2009; Joyce & Showers, 1980, 1982; Leko & Brownell, 2009), which were reviewed in

Chapter II. Specifically, the online module included information about how to use the RISE framework (i.e., subject matter and pedagogical expertise) and how to provide *e*Coaching (i.e., supervisory skills) based on the domains specified in the RISE framework. Not only do the type and content of training provided to CTs in this study extend the previous research, but also the results obtained through this dissertation study help researchers expand the scope of previous findings by examining how the CT training impacted the PST *and* K-12 student outcomes – both of which have been largely overlooked. For example, as noted in Chapter II, few CT professional development researchers have examined the impact of CT training on PST outcomes. Three of the four studies that reported PST outcomes only reported PST perceptions and no studies reported K-12 student outcomes. However, in their quasi-experimental examination of CTs' training, Giebelhaus and Bowman (2002) determined that PSTs with trained CTs were more effective in planning, providing classroom instruction, and reflecting as measured by the Praxis III/Pathwise observation form than PSTs with untrained CTs. Although the results from this SCRD did not conclusively demonstrate a functional relationship across participants and phases, the PST mean RISE based instruction rate scores suggest increases in all PST use of effective reading instruction. Thus, including measurements of PSTs' instructional practices as well as their K-12 students' outcomes, namely opportunities to respond, correct responses, and engagement begins to shed light on how CT training can positively impact PST development and influence PSTs' impact on K-12 students. Overall, the results achieved by this dissertation researcher confirmed that CTs can acquire *e*Coaching skills with an online module and elbow coaching and

that CTs' use of *e*Coaching may be an effective way to support PST development in clinical settings and their K-12 student outcomes.

Coaching

As described previously, I employed two types of coaching (i.e., elbow and in-ear) to explore the effects of CT professional development. Following the online training module, the CT received elbow coaching while providing *e*Coaching to the PST. The feedback delivered to the CT and PST during elbow and in-ear coaching centered on the RISE. In the following section, I describe the results of this dissertation study in relation to the research, regarding onsite and online coaching, discussed previously in Chapter II.

Onsite coaching. Both Neuman and Cunningham (2009) and Neuman and Wright (2010) examined the professional development of early childhood educators' language and literacy practices. First, Neuman and Cunningham (2009) provided 45-hour training (i.e., a language and literacy course) to two groups of teachers with one group also receiving approximately 15 hours of onsite (i.e., elbow) coaching. A control group did not receive training or coaching. Although the two training groups gained similar amounts of new knowledge, Neuman and Cunningham (2009) determined that the teachers who received training and coaching carried out higher quality and more effective language and literacy practices. The following year, Neuman and Wright (2010), examined another three groups of teachers using the same training and coaching strategies. The groups were comprised of (a) a 45-hours training only group, (b) a coaching only (no training) group, and (c) a control group who received no training or coaching. Neuman and Wright found that the coaching group improved language and

literacy practices, which were maintained and even increased over time. Taken together, these studies confirmed the effectiveness of onsite coaching in supporting teachers' development and maintenance of effective literacy practices.

Like the study conducted by Neuman and Cunningham (2009), in this dissertation study, I investigated the effects of training coupled with coaching. However, participants in this study only received approximately one hour of training and an average of 2 hours and 10 minutes of elbow coaching (range = 3 hours and 45 minutes – 1 hour and 15 minutes). Also, rather than examine the differences between training, training with coaching, and coaching as training on the quality of early literacy practices, in this dissertation study, I investigated how training (i.e., an online module plus onsite elbow coaching) impacted CT *e*Coaching on reading instruction, PST implementation of RISE based reading instruction, and K-12 student outcomes. Despite the decreased time spent in training and coaching, the overall results from this study, although variable, demonstrated increases in RISE specific coaching for CTs 2 and 3, an increase in all PSTs' use of effective RISE based literacy practices, and an increase in all K -12 student groups' measured outcomes.

This study supports the findings of Neuman and Cunningham (2009) and Neuman and Wright (2010) because, with coaching, PST participants also demonstrated an increase in effectiveness of literacy practices over phases and time. For example, with coaching, PST 1 and PST 3 increased their use of overall RISE based literacy practices over time with large to medium effects observed in the PST maintenance phase as measured by Tau-U. Furthermore, the findings derived from this study extend Neuman

and colleagues work by examining how CT and PST training with coaching influenced their K-12 student outcomes. Over time, Student Groups 1 and 3 evidenced increases in percent student engagement by the PST maintenance phase with high to medium effects as demonstrated by Tau-U. Moreover, also over time, K-12 students in Group 2 demonstrated medium to large effects in increases of OTR as measured by Tau-U. In short, through this dissertation study, I extended Neuman and colleagues findings by providing preliminary evidence that training plus onsite CT and PST coaching improved classroom literacy practices as well as K-12 student outcomes.

***e*Coaching.** *High Social Validity for eCoaching.* One of the quality indicators for SCRD is the social validity of the intervention (Horner et al., 2005). Social validity assesses the overall importance and practicality of the research being conducted (Horner et al., 2005). The social validity results from this study support the finding from Rock et al. (2009, 2012, 2013, 2014) and Ottley et al. (2015). For instance, Ottley and colleagues found that the PST and early childhood educators perceived the in-ear coaching as an important and effective tool for teacher learning and student outcomes. Also, participants were satisfied with the intervention (i.e., training and in-ear coaching) and viewed it as an appropriate mode of professional development. Ottley and colleagues' results were similar to findings from Rock et al. (2009, 2012, 2014) who verified the social validity of *e*Coaching (i.e., in-ear coaching) through participant interviews and written reflections.

Similarly, in this dissertation study, participants reported positive experiences with providing and receiving *e*Coaching. The CT and PST participants believed the online module, elbow, and *e*Coaching were all accessible, practical, useful, and cost

effective. Moreover, as was the case with participants from previous research who reported positive impacts on teacher and student dependent measures (i.e., Coogle et al., 2015; Scheeler et al.,2012; Ploessl & Rock, 2014), participants in this study also agreed that the training enhanced their skills and that the RISE framework was beneficial to teaching and coaching. Most participants also agreed that the K-12 students benefited from *e*Coaching, but there were mixed reports regarding improvements in their reading outcomes. This result is not surprising since I did not collect any direct measures of K-12 students' reading performance (e.g., comprehension, fluency). Also, like participants from previous studies, the CT and PST participants in this study did not find the in-ear coaching distracting. Finally, like the social validity findings reported by Rock and colleagues, five of the six participants in this study provided written feedback confirming immediate changes in teaching behavior based on the *e*Coaching.

Improved K-12 student outcomes. Rock and colleagues (2009, 2012) validated the use of *e*Coaching provided by a university supervisor/professor to improve the instructional practices of in-service teachers earning their Masters in special education. In both studies, Rock and colleagues reported statically significant reductions in low access strategies (e.g., hand raising) and increases in high access strategies (e.g., choral response, partner strategies), classroom climate, and student engagement. Similar to the *e*Coaching studies conducted by Rock et al. (2009, 2012) I examined the impact of PST instruction on student OTR (i.e., both individual and group high access strategies which included choral responses and partner strategies) and percent of student engagement. However, since CTs spend more hours with PSTs and are in a position to give more

frequent feedback during clinical placements than university supervisors or professors, unlike the previous studies, I trained and coached CTs to provide *e*Coaching to PSTs. Results from this dissertation study allow me to preliminarily confirm that with *e*Coaching from the CT, the PST engaged in student teaching can also make changes to their use of high access strategies (i.e., OTR), increase K-12 students' ability to provide correct responses, and improve K-12 students' engagement.

Although variable, all the K-12 student outcomes measured in this study reflected improvements. That said, in some instances, the improvements were confirmed by Tau-U as small in effect size. Specifically, all groups' K-12 students demonstrated increased mean OTR rates with Group 2 K-12 students achieving an increase reflecting medium to large effects by maintenance as measured by Tau-U. Although Group 3 K-1 students demonstrated the smallest amount of improvement across phases for OTR, this group started at a much higher rate than those in the other two groups, receiving at least one OTR per minute, during baseline. All groups K-12 students increased their mean percent of correct responses; however, only those in Group 3 evidenced a medium effect (Tau-U = 73%), during maintenance. Despite the variability, by the final phase, K-12 students in Group 2 (M=93.59%) and Group 3 (M=90.41%) had exceeded CEC's recommendation for at least 85% correct responses (CEC, 1987), with K-12 students in Group 1 (M=82.39%) coming in not far below the recommendation.

With regard to student engagement, again, all groups' K-12 students demonstrated an overall increase across phases. And, in all groups, K-12 students concluded the study with an observed percent engagement above CEC's (1987) recommendation of at least

90% on task behavior. Group 1 showed an immediate increase in engagement with the introduction of the intervention with medium effects and maintained an ascending trend with large effects in the maintenance phases. This group was observed to be the least engaged of the groups during baseline but was observed to be as engaged as the other student groups by the completion of the study. Groups 2 and 3 began with high levels of K-12 student engagement (i.e., Group 2 M=90%, Group 3 M= 97.73%). Both groups increased their levels of engagement, but by maintenance Group 3 had achieved a ceiling effect (i.e., reached 100% engagement) over five consecutive sessions illustrating a large effect as confirmed by Tau-U.

The results, while positive, did not show the level of significance across all outcomes as was the case in Rock and colleagues' (2009, 2012) previous *e*Coaching studies. One explanation for this difference may be attributable to the experience level and abilities of the coach. Joyce and Showers (1980) describe coaching as "helping teachers analyze the content to be taught and the approach to be taken, and making a very specific plan to help the student adapt to the new teaching approach" (p. 385). Given that Rock held approximately ten years of experience, which included teaching, research, and supervision experiences that may have influenced her coaching expertise, in teacher preparation before the publication of her first *e*Coaching study, it seems logical that she was better prepared to support teachers' analysis of content and pedagogical approaches to instruction. Although I had experiences providing both elbow and *e*Coaching to PSTs on effective teaching practice, this dissertation study and a preceding pilot study were my first experiences providing coaching on how to coach. This inexperience may have

impacted the effectiveness of my ability to help CTs analyze both their PST and student behaviors and to create a specific plan to support the PSTs' and students' adaptation to the CTs' *e*Coaching.

Student Correct Responses

In their systematic review of empirical research on OTR, MacSuga-Gage and Simonsen (2015) noted that seven of the 15 examined studies included K-12 student responses as an outcome measure. Overall, the finding from these studies confirmed, in general, that increased OTRs increased correct responses, and specifically, that group OTR increased K-12 students' correct responses. It is important to note that five of the seven studies did not include sufficient information for MacSuga-Gage and Simonsen to determine whether a functional or correlational relationship existed between OTR and correct responses due to insufficient data or lack of documentation (MacSuga-Gage & Simonsen, 2015). However, when examining individual, group, and mixed modes of responding Haydon and colleagues (2010) found that half the participants provided more responses during mixed mode OTR (M = 90.7%) and the other half provided more responses during group OTR (M = 82.3%). Furthermore, individual OTR produced the lowest amount of responses (M = 59.1%).

In this dissertation study, the K-12 students' total correct responses, which included a mix of individual and group OTR, were slightly lower than the findings from Haydon and colleagues (2010). Specifically, the final mean percent of correct responses across all three groups in this study was 88.80% (range = 82.38%-93.59%). Also, there was variation in both mean rate of OTR and mean percent of correct response between K-

12 students in each group. For example, K-12 students in Group 2 demonstrated a medium to high effect for OTR during maintenance phases, but Groups 1 and 3 did not. Group 1 and 3 demonstrated increases in mean percent correct responses and overall ascending trends across phases, but Group 2's K-12 students' mean remained relatively stable across phases with a slight descending trend in intervention. Group 2's K-12 students' increases in OTR and stable correct responses may be due, in part, to PST 2's goals, which included generating more group OTRs, such as choral response of expected behavior, and increasing wait time rather than continuing the practice of rapid fire questioning. Also, although there were weak to small effects as measured by Tau-U, Group 1's K-12 students showed a gradual accelerating trend for both OTR and correct responses. Finally, Groups 2 and 3 K-12 students evidenced high levels of group correct responses (M= 98.60%; range 90.48%-100%) throughout each phase of the study (e.g., baseline, intervention). Although Group 1's K-12 students began below CEC's recommendation of at least 85% (CEC, 1987), as illustrated by a mean of 78.33% correct responses, during intervention they increased to a mean of 88.33% and stayed above that percentage for the remainder of the study.

Overall, despite the variability in data and limited effect size as measured by Tau-U, two groups in this study provided further evidence that increased OTR also increases correct responses. But, like the majority of the studies that examined OTR and correct responses reviewed by MacSuga & Simonsen (2015), the results of this study did not confirm a functional relationship between the two variables. Also, although slightly lower, student participants in this study provided similar responses rates during mixed

mode OTR as the participants examined by Haydon and colleagues (2010). However, unlike Haydon and colleagues, this research was not examining the difference between group, individual, and mixed mode responses, nor were there specific cueing protocols for engaging students in each mode of response. Despite these differences, this study provides further support for including mixed mode responses for increasing the rate of correct student responses.

Divergent Findings

Duration of Professional Development

As noted in Chapter II, Joyce and Showers (1980, 1982) stressed the importance of providing professional development that included 20 to 30 hours of theory presentation, 15 to 20 models or demonstrations of new skills, and 15 to 20 opportunities to practice new skills with feedback on performance. Similarly, Desmonie (2009) determined that effective professional development required 20 or more contact hours over time. However, in this study, the CT and PST participants received an online training module lasting approximately 1 hour and an average of 2 hours and 10 minutes of coaching (range 3 hours and 45 minutes – 1 hour and 15 minutes). Although these times are estimated based on the length of the coaching sessions, CT 1 received 3 hours 45 minutes of elbow coaching, CT 2 received 2 hours and 30 minutes of elbow coaching, and CT 3 received 1 hour and 15 minutes of elbow coaching. In addition to the one hour training module, each PST received approximately 6 hours and 15 minutes of *e*Coaching from their CT.

Whether elbow or eCoaching, CT and PST participants received less training than recommended by Joyce and Showers (1980, 1982) and Desimone, 2009). Despite the reduced time, CTs implemented RISE specific coaching and PSTs increased their use of RISE based reading instruction. CTs and PSTs evidenced variability in performance data. For instance, CT 1 reduced her provision of in-ear feedback, while CT 2's feedback remained relatively stable after the introduction of the intervention and CT 3 continued to increase the amount of coaching she provided to her PST. Only CT 3 met the criteria required to determine a functional relationship in SCRD (Tankersley et al., 2008). Specifically, CT 3 demonstrated improved mean coaching rates across phases, a level (or immediate) change with the introduction of the intervention, an ascending trend across phases, and a large effect in intervention followed by medium effects in maintenance. The differences in CT implementation of coaching suggest that CT 1 and 2 might have required more or different professional development than CT 3. Interestingly, CT 3 had approximately ten more years of classroom teaching experience than CTs 1 and 2. CT 3 was also the only CT with an early childhood literacy background. Together, the amount of experience and early childhood literacy training suggest that CT 3 had more background knowledge and experience in effective reading instruction for beginning readers, thus requiring less theory, models, and/or coaching than CT 1 and 2. In other words, CT 3 may not have required the recommended amount of theory and models for effective reading instruction due to her prior knowledge and preparation (Glickman et al., 2014), thus relying more on the elbow coaches feedback for effective *e*Coaching rather than effective reading instruction.

Overall, these findings suggest that the 20 hours recommended by Desimone (2009) may not be necessary to learn and apply a new skill, especially when elbow and *e*Coaching are provided. However, based on the variability of participants' data, it is unclear how much time is needed to learn and master a new skill with effectiveness. That said, based on the preliminary nature of this dissertation study, the amount of time required for CT professional development should not be underestimated.

Low Levels of Praise Statements

Although PSTs have noted the need for receiving corrective feedback from their CT, researchers examining coaching and mentoring feedback have noted the importance of creating a balance between positive and instructive/corrective feedback (e.g., Paulsen et al., 2015). In their *e*Coaching studies, Rock et al. (2009, 2012) reported providing more encouraging and instructive feedback than questioning feedback. Rock and colleagues exceeded the recommended ratio, but did not specify the actual ratio of encouragement to instructive/corrective feedback; they found significant increases in teachers' use of high access strategies, provision of student praise, and percent of student engagement. By comparison, in this dissertation study, all coaches (elbow and *e*Coaches) used more instructive/corrective and praise comments than questions when providing feedback. However, they did not achieve the recommended 4:1 ratio. This may explain the differences in our results, which while positive did not show the same level of significance as Rock and colleagues previous *e*Coaching studies.

Specifically, in 2011, Rock and colleagues recommended coaches use a ratio of 4 positive comments to every one instructive or corrective comment. None of the coaches

in this current study, myself included, could reach fidelity level of 4:1 for praise to instructive/corrective statements when providing coaching. In this dissertation study, the elbow coach, who had the most training, provided equal or more praise comments to instructive/corrective comments (range 2:1-1:1). Elbow coaching also influenced observed increases in encouraging statements for CTs 1 and 3 with medium to high effectiveness (Tau-U = 75% and 78% respectively), while decreasing the instructional/corrective comments of CT 2 (Tau-U = -74%) and increasing instructional/corrective comments of CT 3 (Tau-U = 82%), both with medium effects over time. In addition, the CTs in this study did not meet the suggested 4:1 ratio for encouraging statements when *e*Coaching. However, with elbow coaching, each CT increased their use of encouragement.

Rock et al. (2011) recommended the use of the 4:1 ratio to build positive behavioral momentum. Likewise, Neubert & Bratton (1987) determined that CT praise for approximations was important for PSTs' acquisition of new skills. Therefore, it is possible that the elbow coach's inability to model and provide feedback to the CTs on their use of the 4:1 ratio, in part, prevented CTs from reaching the suggested ratio during their *e*Coaching, which in turn played a role in PSTs' ability to effectively carry out effective literacy practices from the RISE. For example, without sufficient praise, CTs 1 and 2 were unable to develop the positive momentum needed to provide RISE based feedback effectively (e.g., 4:1 ratio; an appropriate amount of directness and explicitness), which in turn impacted their PSTs' ability to carry out effective RISE based instruction and positively impact K-12 student outcomes.

Interestingly however, for Group 3, the intervention did illustrate increases in mean coaching and instruction rates, as well as immediate ascending changes following the introduction of the intervention, with moderate to high effects for both participants (i.e., CT 3 Tau-U = 80% at intervention and 85% at maintenance; PST Tau-U = 100% at intervention, 81% at CT maintenance, and 87% at PST maintenance). The findings from Group 3 suggest that there may be variables in the training (i.e., module, elbow coaching, and eCoaching) beyond the provision of praise influencing CT 3's provision of RISE specific feedback and PST 3's use of RISE based instruction. One plausible explanation for the effectiveness of the intervention despite the provision of the recommended praise ratio may be the relationship between the CT and PST. Although more praise than corrective statements can create positive behavioral momentum, it can also create a positive classroom environment. For example, Rock and colleagues described their success with the 4:1 ratio proposed by Sugai and Horner (2002). Sugai and Horner recommend maintaining a higher ratio of positive to negative statements for teachers "to promote a positive social classroom climate," (p. 34). Examining the differing results of the participating groups in dissertation study within the context of situated learning (Lave & Wenger, 1991) suggests that the environmental context may play an important role in learning. Specifically, Lave and Wenger (1991) theorize that learning takes place through the relationships between people and connecting prior knowledge with authentic contextual learning. Therefore, it seems logical that given the existence of a strong positive relationship between a coach and a coachee, adhering to the recommended praise

to instructive feedback ratio might not be needed for improved outcomes. In other words, a positive climate might already be established.

Differences in PST Competencies

In their qualitative ethnography examining CT use of in-ear feedback compared to traditional supervision with observation and follow-up consultation (i.e., traditional supervisory feedback), Farrell and Chandler (2008) found that all PSTs, despite the coaching/feedback delivery mode, were rated similarly in final field experience competencies. All three PSTs in this dissertation study received *e*Coaching from their CT. However, unlike the finding from Farrell and Chandler, the PSTs in this study showed some variability in their competencies in carrying out RISE based instruction. Specifically, PSTs 1 and 2 had similar final RISE scores (i.e., PST 1 M= 2.27, PST 2 M= 2.42), but PST 3's was higher (PST 3 M= 3.13). Despite their similarities in final RISE rate, it was clear from PST 1's initial mean score and accelerating trend across phases that she began to increase her use of RISE based instruction over time; whereas, PST 2's means and trends remained relatively stable across phases. Upon further inspection, PSTs 1 and 3 have similar percent change in competency means (i.e., PST 1 = 67%, PST 3= 71%) with PST 2 having a much lower percent change in competency use (i.e., PST 2 = 21%). Overall, this finding suggests that PSTs 1 and 2 had similar RISE usage, while PSTs 1 and 3 had similar gains in RISE based instruction over time.

The variability of use and gains in RISE based instruction across PSTs may be attributable, in part, to unique, contextual influences, such as the university, the practicum, and the individual, which Leko and Brownell (2011) theorized as the core

components inhibiting or supporting PSTs' adoption of effective reading pedagogy. Leko and Brownell described university influences as coursework, instructors, and supervisors. In this study, the researcher and the online modules represent potential university influences on PSTs' use of RISE based reading instruction. Earlier I noted how the lack of fidelity to the recommended ratio of 4:1 encouraging to instructing/correcting feedback statements may have contributed to the variability in CT, PST, and K-12 student data. I also previously described how the duration of training, specifically the presentation of theory and models in the online module, may have contributed to the variability in data. Taken together, PST 1 and 2 may not have received sufficient content support at the university level to improve their use of RISE based literacy instruction at a high level of effectiveness. However, since the professional development was situated within PSTs' clinical field experiences, there were also influences from other university factors that were not measured, such as the feedback the PSTs received after observations from their university supervisor or prior reading coursework in their pre-service program of study.

Second, Leko and Brownell (2011) determined that the most important clinical factor for developing effective reading instruction was the CT. In Leko and Brownell's study, PSTs who had higher RISE scores also had CTs who provided specific feedback about explicit reading instruction and behavior management rather than feedback on general reading instruction and behavior management. The importance of providing specific feedback for adopting reading pedagogy parallels the finding in the feedback literature (e.g., specific feedback is more effective than general feedback; Scheeler et al.,

2004). Although the specificity of feedback was not measured directly in this study, the CT's did vary in their level of explicitness as well as in the rate of feedback they provided. CT 1 for example, was the only CT who reduced the amount of feedback she provided across each phase. Similarly, Farrell and Chandler's (2008) found that the CTs using in-ear feedback during an early clinical placement stopped or reduced their provision of in-ear feedback as the semester progressed and/or as PSTs met the expected teaching competencies. In this study, CT 1 also reduced her provision of in-ear feedback; however, CT 2 and 3 did not. In fact, CT 3 began to provide more feedback over time. One explanation for the differences in feedback may be the way the CTs viewed their role as a CT and in-ear coach. For instance, as described previously in Chapter II, Clarke and colleagues (2014) described three roles typically assumed by CTs. The placeholder is unattached; the supervisor observes and reports; and, the coach provides feedback that encourages development. These roles are further clarified by the level of participation involved with the placeholder reflecting the least amount of involvement and the coach illustrating the greatest level of involvement in guiding the PSTs development. The relationship between how CTs' view their role and their provision of feedback warrants further examination, especially since their role may impact the explicitness of the feedback CTs provide. Again, this is speculative as data on how the CTs viewed their roles and responsibilities were not included as measures in this dissertation study, but should be considered in future studies.

Finally, the PSTs in Leko and Brownell's (2011) study had to assimilate the reading pedagogy they were learning. Those PSTs who could quickly learn new skills,

instructional methods and content, and apply what they learned earned higher RISE scores. The individual PST's personal attributes, such as motivation, also played a larger role in their ability to adopt effective RISE based reading instruction. For instance, PSTs who focused on K-12 student learning, rather than on themselves were better able to adopt effective reading practices (Leko & Brownell, 2011). Again, although I did not include direct measures of PSTs' personal attributes or motivation, in this dissertation study, there were observable and anecdotal differences between the PST's ability to assimilate the feedback each received. Based on PST mean rates of instruction and percent change scores, PSTs 1 and 3 were better able to adopt the feedback they received and increase their provision of RISE based reading instruction while PST 2 was not. Additionally, as noted previously, PST 2 was asked to leave her student teaching placement based on her inability to meet the required level of overall teaching competency, which may have been due, in part, to her level of motivation and/or her ability to assimilate and adapt classroom teaching practices. Overall, when examining the variability between participants' use and gains of RISE based reading instruction, it seems reasonable to conclude that unique, individual factors played some role in influencing PSTs' performance.

Opportunities to Respond During Instruction

Although researchers have determined that choral responses are more effective than individual responses in maintaining K-12 student engagement (MacSuga-Gage & Simonsen, 2015), more recently, they have also recommended using a mixed mode approach when facilitating OTR (e.g., Haydon et al., 2010; MacSuga-Gage & Simonsen,

2015). For instance, following Stevens and Rosenshine's (1981) recommendation of 30% individual OTR to 70% choral OTR, Haydon et al., (2010) found that mixed responding was more effective at lowering disruptive behavior than choral or individual responses alone. Additionally, they reported K-12 students to be 81.2% on task during the mixed OTR condition, which was below the criterion of 90% student on task behavior set by CEC in 1987, but above 75% that Frederick (1977) concluded was the engagement rate associated with higher achieving students.

In this study, K-12 students received mixed modes of OTR by responding to both individual and group OTRs. However, the OTR rates were almost the inverse of those recommended by researchers (i.e., 30% individual to 70% group; Haydon et al., 2010; MacSuga-Gage & Simonsen, 2015; Stevens & Rosenshine, 1981). Specifically, K-12 students in Group 1 received 62% individual to 36% group OTRs, Group 2 received 71% individual to 22% group OTRs, and Group 3 received 65% individual to 35% group OTRs. K-12 students in each group demonstrated at least marginal increases in total OTR over time, but only Group 2 K-12 students demonstrated a medium to large effect in total OTR, during maintenance phases. Despite the lower rates of group OTR responses, K-12 students in all groups demonstrated increases in their percentage of engagement that exceeded CEC recommendations during the intervention phase, and their engagement increased over time. Commensurate with findings reported by previous researchers, these findings support the use of mixed modes of OTRs. That said, also on the basis of these preliminary findings, the most effective ratio of individual to group responses for optimum K-12 student engagement remains in question.

Limitations

As is the case with any experimental research, there are limitations associated with this dissertation study that must be identified and considered. First and foremost, there are potential issues associated with the SCRD methods used in this dissertation study. To meet the WWC "Meet Evidence Standards" (Kratochowill et al., 2010), a SCRD must include six phases with at least 5 points of data in each phase. Since PST 2 was unable to complete her student teaching, she was also unable to complete the PST maintenance phase of the study. Thus, I failed to meet evidence standards during this final phase. However, with three observations in the final phase, I did meet standards with reservations (Kratochowill et al., 2010).

Baseline issues were also evident. Although the baseline was stable for CT1, due to time restrictions, CT 2 and CT 3 each demonstrated accelerating trends during baseline which limited the ability to determine a functional relationship since the baseline serves as the point from which treatment effects are evaluated (Gast & Ledford, 2014). In other words, a stable baseline is optimal because it serves as a maintenance check and helps determine if the experimental effect is durable over time (Gast & Ledford, 2014). Tau-U was chosen specifically to calculate effectiveness because it is designed to correct for trends in baseline (Vannest et al., 2011). However, this study also lacked a baseline measure of CT and PST behavior prior to receiving the online module. Thus, this study did not include a component analysis, which is problematic because several variables (i.e., online module, elbow coaching, and *e*Coaching) may have impacted the intervention effects (Cooper et al., 2007; Ward-Horner, Sturmey, & Zarcone, 2010).

Moreover, there are several potential contextual and instruction confounds that warrant consideration. First, an online module was provided to the participants before baseline to determine the usefulness of elbow coaching for training CTs as *e*Coaches, but there was a lack of clear level changes in both Groups 1 and 2 data, suggesting that the elbow coaching was not immediately effective. The lack of change may be due, in part, to the inexperience of the elbow coach. As noted earlier, I had experience coaching PSTs, but this dissertation study was the first time I coached the CT coach to provide *e*Coaching to PSTs. Consequently, I may have missed opportunities to provide feedback that would support the *e*Coaching effectiveness of the CT. For example, I provided feedback to the CTs such as, "Ask your PST to provide a model for how to do that." After receiving my feedback, CT 3 would provide feedback to her PST explaining each step required for modeling the skill or strategy. Alternatively, CT 1 would respond to the same feedback by providing by telling her PST to, "Model how to do that." I did not provide feedback for CT 1 explaining how to break down and explain each step her PST needed to understand for modeling the skill or strategy. Instances such as this were likely missed opportunities to support CTs improve the quality of feedback they provided to PSTs, during *e*Coaching.

Second, the roles of the CT and the relationship between the CT and the PST serve as potential contextual confound for this study, which may have played a role in how feedback was delivered by the CT and received by the PST. As noted previously, as described in Chapter II, the way CTs view their role in PST development (i.e., placeholder, supervisor, coach; Clarke et al., 2014) may impact the amount, relevance,

accuracy, and/or type of feedback they provide. Additionally, interpersonal relationships may influence the delivery and/or the reception of feedback. Specifically, the tensions experienced during clinical experiences described by Cohen (Sayag) et al. (2013) may have adversely impacted the results. In this study, observed tensions included, power struggles, differing perceptions based on roles and responsibilities, CT's confidence as a mentor teacher, PSTs' attitude toward CTs, and dual mentorship of CT and university supervisor - in this case, the elbow coach.

Finally, the variability in demonstrated CT and PST RISE usage rates may have also been attributable, in part, to curriculum choices and instructional abilities. For example, "Dr. Seuss week" was celebrated schoolwide, during this study. Dr. Seuss books, such as *Red Fish Blue Fish* or *Ten Apples on Top* are characterized by rhyme, rhythm, inventive words, and imaginative characters and can be particularly challenging when used as the basis for reading instruction, in general, and for focusing on RISE based practices, such as comprehension, vocabulary, and fluency, specifically. Also in this dissertation study, I did not assess CT or PST abilities before participating in the online module and receiving coaching (i.e., elbow or *e*Coaching). Consider, for example, the difference between PST 1 and 3's RISE based reading instruction. Both were kindergarten interns who engaged in team planning by developing lesson plans collaboratively with one another and their respective CTs. Although they had the same lesson plans, they carried out their plans in such a way that their class wide reading instruction looked very different, which is evidenced by the difference between their mean RISE use rate. PST 1 was focused on what to do in the lesson (e.g., when to read,

when to ask a question, when to transition), while PST 3 was focused on the learning objective (e.g., finding details in the story, modifying predictions). PST 3's RISE rates were higher, in part, because she provided more instruction in the domain specific to reading instruction. Likewise, the CT's instructional abilities coupled with their ability to express their reading content knowledge may have impacted their provision of *e*Coaching feedback.

Implications for Research

There are several implications for research on preparing CTs to coach PSTs in real time, during literacy instruction. First, researchers should continue to include K-12 student outcomes, including academic achievement, in their investigations of CT and PST development. Second, researchers should examine the impact of the 4:1 ratio of praise to corrective feedback, in part, as a method for improving elbow and *e*Coaching fidelity. Finally, researchers should investigate the right proportion of theory, modeling, and live coaching required for professional development to have maximum impact on CTs, PSTs, and K-12 students with lasting results.

First, researchers, accrediting bodies, accountability reformists, and education policymakers stress the importance of preparing effective teachers who can improve K-12 student learning student outcomes (Balnton & Pugash, 2017; Deans for Impact, 2016; NCATE, 2010; Rock et al., 2016). However, research examining CT professional development does not include results regarding student outcomes (see Chapter II). Through this SCRD dissertation study, I was unable to establish a functional relationship between CT training, PST training, and K-12 student outcomes for all groups. However,

the results indicated overall improvements in K-12 student outcomes and improvements with medium to large effects for Group 2's OTR, Group 3's correct responses, and Group 1 and 3's engagement as measured by Tau-U. CT and PST training research that includes measures of K-12 student outcomes is essential for examining how teacher preparation is impacting student growth. Specifically, to better understand the impact teachers (i.e., CTs and PSTs) have on student outcomes, researchers should also investigate student academic achievement which may require mixed methods research approaches rather than relying solely on observational approaches as was done in this SCRD.

Second, researchers should also continue to investigate coaching fidelity and the use of the praise to instructive/corrective feedback with adult learners. Several researchers have stressed the importance of praise and encouragement for shaping performance. For instance, Neubert and Bratton (1987) determined that praise for approximation was important for the acquisition of new skills and Rock et al. (2011) recommended a 4:1 ratio of praise to encourage positive behavioral momentum. With elbow coaching, the CTs' in this study increased the number of encouraging statements they provided to their PSTs; however, they did not achieve the recommended 4:1 ratio. The low levels encouragement may have contributed to the overall low use of reading instructional practices delivered by PST 1 and PST 2. Yet, PST 3 increased her use of effective reading instruction with a large effect despite receiving low levels of encouragement, suggesting that she did not require a 4:1 ratio for skill acquisition. Given the variability of these results, more research is needed on the use of the encouragement versus instructive/corrective feedback with adult learners. Specifically, qualitative

research may be able to provide in-depth descriptions of how the provision of encouraging to corrective feedback impacts adult learners.

Third, in this study, CTs and PSTs received professional development via an online module and coaching. Although the professional development was designed to align with the components of effective professional development in teacher education (Desimone, 2009; Joyce & Showers, 1980, 1982; Leko & Brownell, 2009), as noted previously, the time participants spent in training during this study was substantially less than what has been recommended. The large effects achieved by Group 3 indicate, albeit preliminarily, there may be variables beyond the amount of time spent learning theory (i.e., 20-30 hours; Joyce & Showers, 1980, 1982) or in overall training (i.e., 20 contact hours; Desimone, 2009) that influenced effectiveness. Also, Neuman and Wright (2010) found that teachers who received professional development that included only coaching carried out higher quality and more effective language and literacy practices than those who only received face-to-face training, but those who received face-to-face training plus coaching were more effective than teachers receiving coaching alone. Although the conclusions from Neuman and Wright (2010) supported findings from Joyce and Showers (2002) regarding the large impact of coaching for the transfer of learning (ES = 1.42) the number of coaching sessions or amount of time spent with a coach required for skill acquisition and transfer remains unknown. As such, researchers should continue to examine the proportion of coaching needed in relation to the amount of content received. For example, is more coaching required when there is less theory? What about the amount of coaching in relation to the number of models observed? Researchers should

consider examining these variables further using SCRD or quasi experimental designs since doing so would add to the evidence base by further defining the relationship between theory, the provision of models, and coaching.

Implications for Practice

Recognizing the focus on a practice based approach to teacher preparation (Benedict et al., 2016; NCATE, 2010) and the importance of quality clinical placements (CAEP, 2016; Grossman, 2010), I have included several recommendations for teacher education program developers, university supervisors, and cooperating teachers. Given the value placed on clinical experiences, the role of a CT cannot be overlooked, especially since the way CTs view their role in teacher development may influence their receptiveness to feedback as well as their ability to deliver feedback through coaching. That said, if practice based programs are to be effective, CTs must become clinical teacher educators who can demonstrate a positive impact on candidates' development and K-12 student learning (CAEP, 2016). Thus, teacher preparation programs must become more strategic in the way CTs are chosen. With increased focus on practice based teacher preparation (Benedict et al., 2016; NCATE, 2010) preparation programs can no longer afford to stick to the status quo of choosing CTs based on years of experience or recommendations. Instead, for CTs to be successful as clinical teacher educators or coaches, they must receive training and support (Clarke et al., 2014). Therefore, it is important for pre-service preparation program developers, not only to seek out CTs who view themselves as coaches to PSTs but also to train and support CTs to act as coaches.

CTs are prepared to educate K-12 students rather than adults. Consequently, CTs many not have the skill set required to provide PSTs with a clear rationale for their instructional choices (Hamman et al., 2007; Leko & Brownell, 2011). Based on the results of this study, it seems logical that providing CTs with elbow coaching strategically focused on supporting CTs ability to explicitly tell their PST "why to do that practice or skill" and "how to do that practice or skill" may improve CTs ability to provide specific feedback needed for PSTs to assimilate effective classroom instructional practices (Hamman et al., 2007; Leko & Brownell, 2011). Providing professional development coupled with elbow coaching may provide CTs with the training needed for discussing their pedagogical and curriculum choices with their PSTs.

Finally, the high social validity for elbow and *e*Coaching reported by the participants in this dissertation study coupled with the movement for practice based teacher education development contributes to findings reported in the existing literature that pre- and in-service teachers are, in fact, receptive to trying new ways of improving their classroom practices to achieve greater effectiveness with K-12 students. *e*Coaching, coupled with an online module and CT elbow coaching, provided a way for these teachers to work together during PST instruction and shows promise as a way to scaffold teaching experiences in the field. Therefore, teacher preparation program developers should consider how technological advances, such as online modules and CT *e*Coaching, can strengthen practice based teacher preparation programs and support the intentional scaffolding provided to PSTs through programs such as the *Developmental Curriculum for Clinical Experiences* described by Henning et al. (2016).

Future Directions

Although proven reliable for rating effective reading instruction (Brownell et al., 2009) the results of this study suggest that the RISE can also be used as a coaching framework for improving PST's reading instruction and K-12 student outcomes. Specifically, elbow coaching the CT to use the RISE as the basis for providing feedback to PSTs on effective reading instruction during *e*Coaching may be effective for improving PSTs' reading pedagogy and their K-12 students' OTR, correct responses, and engagement. However, the abovementioned limitations of this study confirm further investigations are warranted. For instance, this study lacked a clean baseline phases with-out trends which made it difficult to determine a functional relationship between the independent and dependent variables. To reduce the variability of the results, future studies should include baseline stability across all participants. Also, while this study examined the impact of elbow coaching on eCoaching, PST instruction, and K-12 student outcomes, CT and PST participants received a training module prior to the baseline phase. Thus, this study did not include a component analysis. Future directions for this research should include more sophisticated multiple baseline designs. For instance, an ABC design with a baseline that includes observations of CT and PST behavior sans any form of training, the first intervention as an online module, and the second intervention as elbow coaching. Finally, future researchers should consider selecting participants more strategically as well as including more precise and specific measures to determine whether different types of CT roles impact CTs' receptiveness to coaching.

Conclusion

Researchers have shown that pre-service teachers' (PSTs) clinical placements are critical for transferring theory to practice (Brownell et al., 2005; Leko et al., 2012) and that these experiences require effective mentoring, coaching, and supervision from university supervisors and cooperating teachers (CAEP, 2016; Leko et al., 2012; NCATE, 2010). Yet, many special education teachers enter the field feeling under-prepared to teach effectively, especially in critical areas, such as reading (e.g., Brownell et al., 2009). One possible solution is to maximize the support provided by CTs. Although CTs provide numerous supports (i.e., mentoring, coaching, supervising) to PSTs, they receive little or no training on how to do so (Gareis & Grant, 2014). The results of this study, although by no means conclusive, offer some support for the efficacy of elbow coaching as a way to prepare CTs to provide *e*Coaching to PSTs during literacy instruction to improve K-12 student outcomes.

Moreover, teacher effectiveness is a crucial factor for K-12 student growth (Smith & Ingersoll, 2004; Vannest & Hagan-Burke, 2009). Therefore, researchers and practitioners alike must find ways to better prepare in- and pre-service teachers to use evidence- based practices that improve K-12 student outcomes. This dissertation study has provided some preliminary support for preparing CTs as PST *e*Coaches who facilitate PSTs' use of effective reading instruction, which in turn positivly impacts their K-12 student outcomes.

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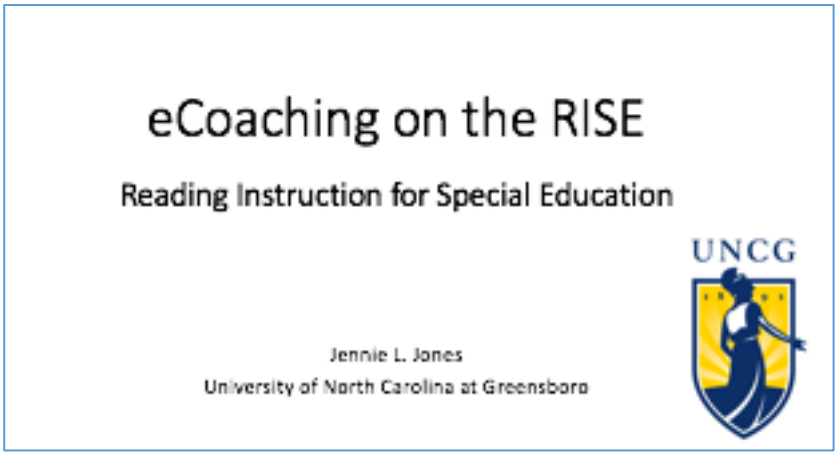
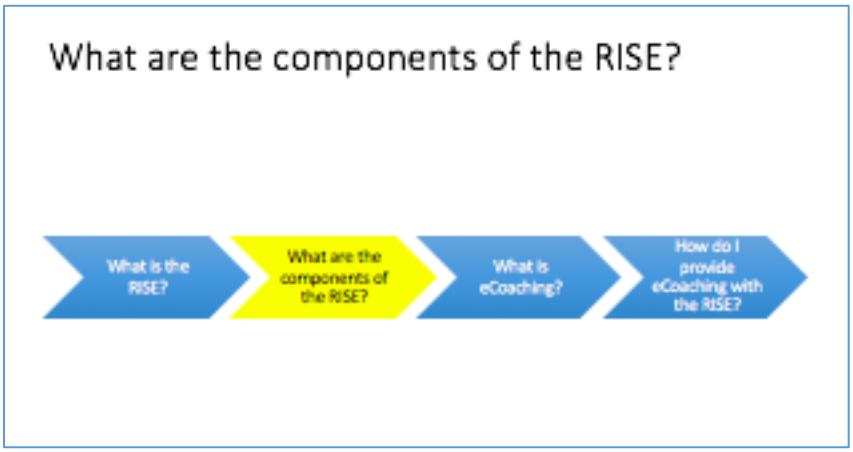
APPENDIX A

ONLINE MODULE





APPENDIX B

UNCG IRB APPROVAL LETTER

To: Jennifer Jones
Specialized Education Services

From: UNCG IRB

_____
Authorized signature on behalf of IRB

Approval Date: 3/22/2016
Expiration Date of Approval: 3/21/2017

RE: Notice of IRB Approval by Expedited Review (under 45 CFR 46.110)
Submission Type: Initial
Expedited Category: 5.Existing or non-research data,6.Voice/image research recordings,7.Surveys/interviews/focus groups
Study #: 16-0064
Study Title: Effects of Cooperating Teacher's Coaching During Pre-Service Clinical Experiences

This submission has been approved by the IRB for the period indicated. It has been determined that the risk involved in this research is no more than minimal.

Study Description:

The researcher will investigate the effects of coaching on cooperating teacher's use of mentoring, supervision, and coaching strategies and the impact on pre-service teachers instruction.

Regulatory and other findings:

This research, which involves children, meets criteria at 45 CFR 46.404 (research involving no greater than minimal risk). Permission of one parent or guardian is sufficient.

If your study is contingent upon approval from another site (school district), you will need to submit a modification at the time you receive that approval.

Investigator's Responsibilities

Federal regulations require that all research be reviewed at least annually. It is the Principal Investigator's responsibility to submit for renewal and obtain approval before the expiration date. You may not continue any research activity beyond the expiration date without IRB approval. Failure to receive approval for continuation before the expiration date will result in automatic termination of the approval for this study on the expiration date.

Signed letters, along with stamped copies of consent forms and other recruitment materials will be scanned to you in a separate email. **Stamped consent forms must be used unless the IRB has given you approval to waive this requirement.** Please notify the ORI office immediately if you have an issue with the stamped consents forms.

You are required to obtain IRB approval for any changes to any aspect of this study before they can be implemented (use the modification application available at http://integrity.uncg.edu/institutional-review-board/). Should any adverse event or unanticipated problem involving risks to subjects or others occur it must be reported immediately to the IRB using the "Unanticipated Problem-Adverse Event Form" at the same website.

Please be aware that valid human subjects training and signed statements of confidentiality for all members of research team need to be kept on file with the lead investigator. Please note that you will also need to remain in compliance with the university "Access To and Retention of Research Data" Policy which can be found at http://policy.uncg.edu/university-policies/research_data/.

CC:
Marcia Rock, Specialized Education Service

APPENDIX C

DATA COLLECTION INSTRUMENTS

CT DATA COLLECTION FORM

RQ1. What is the functional relationship between the CT's training (i.e., elbow coaching) and the domain, frequency and type of *e*Coaching the CT provides to the PST, during reading instruction?				
CT Data Collection Form (Adapted from Brownell et al., 2009) **RISE Components/Domain**	Encouraging	Questioning	Instructive	Corrective
Instructional Practices				
Makes connections to other lessons				
Makes connections to learners				
Provides multiple opportunities for responses				
Provides support when needed				
Provides specific feedback				
Opportunities for practice				
General Instructional Environment				
Students highly engaged				
Fosters motivation and interest				
Provides continuous and intensive instruction				
Reading Instruction				
Phonemic Awareness: systematic, explicit, and appropriate				
Word Study: explicit and connected to text				
Fluency: explicit, modeled, and opportunity to practice				
Vocabulary: appropriate for lesson/student (key words, repeated instruction, visual organizers), and opportunities to apply/practice vocab				
Comprehension: explicit instruction prompts student to use skill/strategy				
Classroom Management				
Routines and management plans are evident				
Redirects behavior or addresses behavior proactively				
Reinforces appropriate behavior				
Warm supportive environment				
	Total	**Total**	**Total**	**Total**

PST DATA COLLECTION FORM

RQ2. What is the functional relationship between the PST's training (i.e., elbow and *e*Coaching) and the PST's delivery of effective reading instruction?				
PST Data Collection Form (Adapted from Brownell et al., 2009) **RISE Components**	Encouraging	Questioning	Instructive	Corrective
Instructional Practices				
Makes connections to other lessons				
Makes connections to learners				
Provides multiple opportunities for responses				
Provides support when needed				
Provides specific feedback				
Opportunities for practice				
General Instructional Environment				
Students highly engaged				
Fosters motivation and interest				
Provides continuous and intensive instruction				
Reading Instruction				
Phonemic Awareness: systematic, explicit, and appropriate				
Word Study: explicit and connected to text				
Fluency: explicit, modeled, and opportunity to practice				
Vocabulary: appropriate for lesson/student (key words, repeated instruction, visual organizers), and opportunities to apply/practice vocab				
Comprehension: explicit instruction prompts student to use skill/strategy				
Classroom Management				
Routines and management plans are evident				
Redirects behavior or addresses behavior proactively				
Reinforces appropriate behavior				
Warm supportive environment				
Total	**Total**	**Total**	**Total**	

K-12 STUDENT ENGAGEMENT DATA COLLECTION FORM

RQ3. What is the functional relationship between CT and PST training and K-12 student outcomes (i.e., student engagement, opportunities to respond, correct responses)?

	1 minute Interval Recording										
STUDENT ENGAGEMENT	**1 min**	**2 min**	**3 min**	**4 min**	**5 min**	**6 min**	**7 min**	**8 min**	**9 min**	**10 min**	**Totals**
# engaged											
# disengaged											
STUDENT ENGAGEMENT											
# engaged											
# disengaged											
STUDENT ENGAGEMENT											
# engaged											
# disengaged											
Notes:											

K-12 OPPORTUNITIES TO RESPOND AND CORRECT RESPONSE DATA COLLECTION FORM

RQ3. What is the functional relationship between CT and PST training and K-12 student outcomes (i.e., student engagement, opportunities to respond, correct responses)?									
Opportunities to Respond: Frequency Counts									
Type of Response	Date	Date	Date	Date	Date	Date	Date	Date	Date
Correct Response Individual									
Correct Response Group									
Incorrect Response Individual									
Incorrect Response Group									
Notes									

APPENDIX D

SOCIAL VALIDITY QUESTIONNAIRE

Social Validity Survey

Directions: Read the following statements and choose the answer that indicates your level of agreement of disagreement with the statement.

Q1 The online coaching was accessible.

- ❍ Strongly Agree
- ❍ Agree
- ❍ Neither Agree nor Disagree
- ❍ Disagree
- ❍ Strongly Disagree

Q2 The online coaching was practical.

- ❍ Strongly Agree
- ❍ Agree
- ❍ Neither Agree nor Disagree
- ❍ Disagree
- ❍ Strongly Disagree

Q3 The online coaching was useful.

- ❍ Strongly Agree
- ❍ Agree
- ❍ Neither Agree nor Disagree
- ❍ Disagree
- ❍ Strongly Disagree

Q4 The online coaching strengthened my skills as a teacher.

- ❍ Strongly Agree
- ❍ Agree
- ❍ Neither Agree nor Disagree
- ❍ Disagree
- ❍ Strongly Disagree

Q5 Using the RISE framework was feasible.

- ❍ Strongly Agree
- ❍ Agree
- ❍ Neither Agree nor Disagree
- ❍ Disagree
- ❍ Strongly Disagree

Q6 The RISE framework I learned about in the online training was beneficial.

- ❍ Strongly Agree
- ❍ Agree
- ❍ Neither Agree nor Disagree
- ❍ Disagree
- ❍ Strongly Disagree

Q7 The real-time, in-ear, coaching was distracting.

- ❍ Strongly Agree
- ❍ Agree
- ❍ Neither Agree nor Disagree
- ❍ Disagree
- ❍ Strongly Disagree

Q8 The real-time, in-ear, coaching enhanced my skills as a teacher.

- ❍ Strongly Agree
- ❍ Agree
- ❍ Neither Agree nor Disagree
- ❍ Disagree
- ❍ Strongly Disagree

Q9 The coaching was cost effective.

- ❍ Strongly Agree
- ❍ Agree
- ❍ Neither Agree nor Disagree
- ❍ Disagree
- ❍ Strongly Disagree

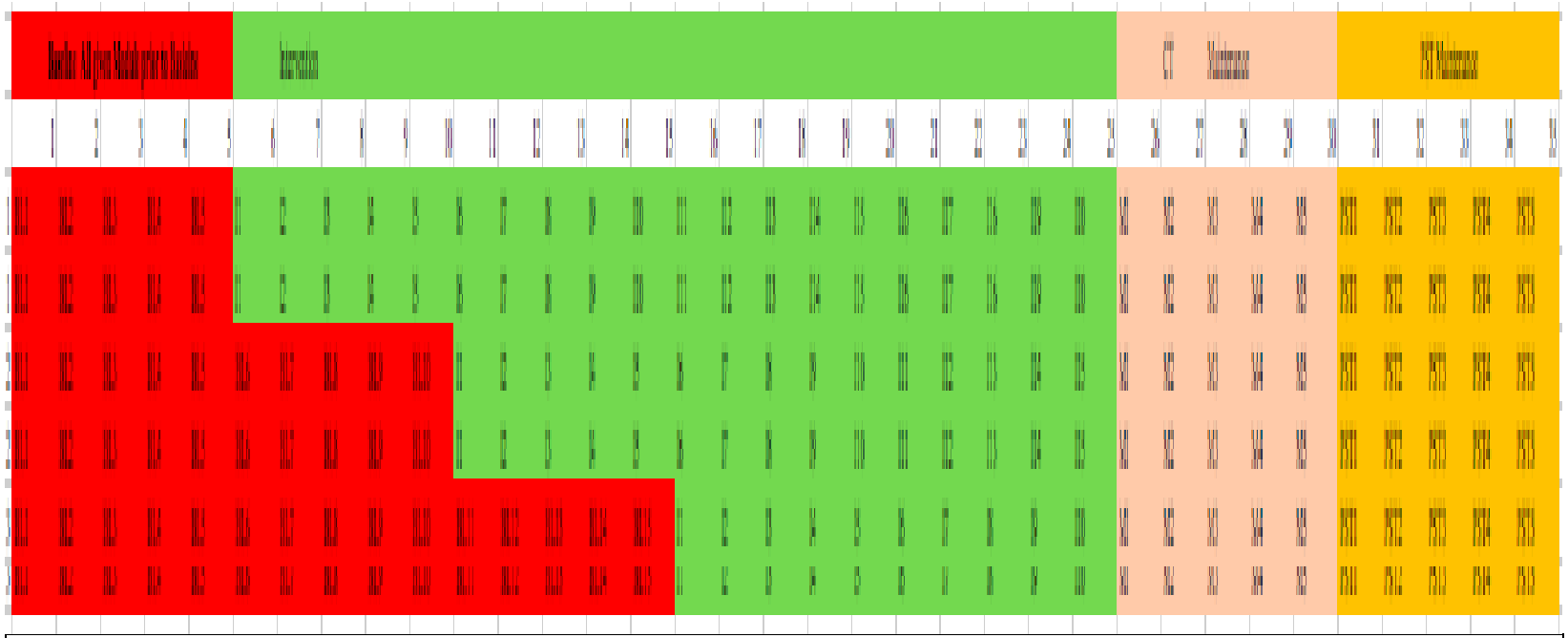
Q10 I saw an increase in my students reading outcomes (e.g., improvements in phonemic awareness, word study, vocabulary, fluency, and/or comprehension) because I participated in this research.

- ❍ Strongly Agree
- ❍ Agree
- ❍ Neither Agree nor Disagree
- ❍ Disagree
- ❍ Strongly Disagree

Thank you for your participation in this survey. If you have any questions, contact Jennie Jones at jljones4@uncg.edu or 336-209-5157.

APPENDIX E

TIME LINE



3 dyads = 30 days data collection	
RED = Baseline- CT *e*Coaching the PST	Pink= CT Maintenance- CT *e*Coaching the PST
Green= Intervention – Researcher elbow coaching the CT	Orange = PST Maintenance- PST teaching sans coaching

APPENDIX F

CODE BOOK

Feedback on the RISE Example Matrix				
	Instructional Practices	**General Instructional Environment**	**Reading Instruction**	**Classroom Management**
Encouraging	"Great, connection to yesterday's lesson."	"Yes! Everyone is with you."	"Awesome modeling of fluent reading"	"Nice clear expectations."
Questioning	"How can you connect this to yesterday's lesson?"	"How can you get everyone participating?"	"When are you doing fluency practice?"	"What are your expectations for movement in the classroom?"
Instructive	"Connect this to yesterday's lesson by _____."	"Say, Thumbs up if your ready?"	"Provide a model of fluent reading"	"Tell them they are using a whisper voice."
Corrective	"Oops, I think you meant to connect that to yesterday's lesson.	Oh no, they are not with you. Get their attention."	"Slow down, you are reading too fast."	"Stop, get their attention, and practice expectations."

APPENDIX G

CODES

Feedback		
Instructing/Correcting	**Full Definition**	"Objective information related to predetermined specific teaching behaviors" (Rock et al., 2012, 2009; Scheeler et al., 2004, p. 399)
	Brief Definition	Coach makes teacher aware of error when using RISE based instruction and provides a specific way to correct the error
	Example	"Try asking the comprehension question again and provide a prompt."
	Non-example	"You forgot something."
Encouraging	**Full Definition**	"Praise contingent on demonstration of a specific teaching behavior" (Rock et al., 2012, 2009; Scheeler et al., 2004, p. 399)
	Brief Definition	Coach praises teacher for using RISE practices
	Example	"Excellent use of the sequencing strategy to help students to recall information."
	Non-example	"You forgot something."
Questioning	**Full Definition**	"A sentence posted in interrogative form to get information or to clarify specific teaching behaviors" (See Rock et al., 2009)
	Brief Definition	Coach asks a clarifying question
	Example	"What was your student's answer to the question?"
	Non-example	"You forgot something."
Student Dependent Variables		
Student Engagement	**Definition**	(a) Students "attending to (i.e., looking at) the teacher, (b) making appropriate motor responses (e.g., following directions, manipulating materials), (c) asking for assistance in an appropriate manner, and (d) interacting with peers or adults within the structure of the activity." (Courtade, Lingo, & Whitney, 2013, p. 9)
	Example	Listening to the teacher, pointing appropriately to objects, showing a peer his/her project, and responding to teacher questions (Courtade, Lingo, & Whitney, 2013, p. 9)

	Non-example	Student running around the room, showing defiance to teacher requests, engaging in inappropriate use of materials, and not looking at or attending to the teacher/speaker (Courtade, Lingo, & Whitney, 2013, p. 9).
Student Disengagement	**Definition**	Student looking away from teacher, manipulating materials appropriately, interacting with peers or adults outside of the activity structure for 30 seconds or more.
	Example	Student looking away from teacher, making inappropriate noise, and/or participating in stimulatory behavior for 30 seconds or more.
	Non-example	Student participating in stimulatory behavior while answering questions about the book.
Opportunities to Respond (OTR)	**Definition**	An *opportunity to respond* (OTR) is a teacher behavior that prompts or solicits a student response (e.g., asking a question, presenting a demand) Simpson et al. (2008).
	Example	Cloze reading strategy, asking a question, using an attention getter.
Independent OTR	**Example**	Hand raising question, calling on one student at a time
Group OTR	**Example**	Choral verbal or motor response, partner strategies
Correct Response (CR)	**Definition**	Responding to the OTR appropriately or correctly, partner strategies are considered correct
	Example	Teacher says "point to the first word" all students point to the first word in the text
	Non-example	Teacher says "point to the first word" all students stand up
Independent CR	**Example**	Teacher provides one child with an OTR and that child responds correctly: David, what sound do you hear? "DDD"
Group CR	**Example**	Teacher provides whole group with OTR and whole group responds- "whisper the answers to your hand"

RISE Based Instruction		
Instructional Practices	**Definition**	Specific teaching methods that guide interaction in the classroom
	Example	Makes connections to other lessons; Makes connections to learners; Provides multiple opportunities for responses; Provides support when needed; Provides specific feedback; Opportunities for practice
	Non-example	Assuming adequate prior knowledge and skills and providing no connections or relevance to post learning; Assuming adequate prior knowledge and skills and providing no connections or relevance to student's personal experiences; Engaging one student at a time – Hand raising, blurting out, round robin reading; Skills are not differentiated (one size fits all); High level of discomfort for diverse learners; General feedback (great, awesome, I like that, nope, try it again); Majority of lesson is teacher lecture (Sage on the stage)
General Instructional Environment	**Definition**	Physical environment and time management (Stewart, Evans, & Kaczynski, 1997)
	Example	Students highly engaged; Fosters motivation and interest; Provides continuous and intensive instruction: Checking for understanding, knows students
	Non-example	Students are off task; No choices of materials, activities, or text; material is too difficult; inability to determine why content/skill is important; Lack of academic feedback provided to students
Classroom Management	**Definition**	Process by which teachers and schools create and maintain appropriate behavior of student in classroom settings (Kratchowill, DeRoos, & Blair, 2017; APA, 2017)
	Example	Routines and management plans are evident; Redirects behavior or addresses behavior proactively; Redirects behavior or addresses behavior; Reinforces appropriate behavior; Warm supportive environment
	Non-example	Lack of or unclear routines and management plans; Difficulties managing student behavior in the classroom; Disruption of instructional time by student behavior is frequent; Focuses on disruptive or inappropriate behavior; Management plan is mostly reactive; Students are afraid to take risks

Reading Instruction	**Definition**	Reading instruction includes teaching phonemic awareness (in kindergarten and 1st grade, and for older students who need it) and phonics or word study explicitly and directly with opportunities to apply skills in reading and writing connected text (e.g., Ehri, 2003; Rayner, Foorman, Perfetti, Pesetshy, & Seidenberg, 2001; Snow et al., 1998), with integrated instruction in fluency, vocabulary, and comprehension (e.g., Chard, Vaughn, & Tyler, 2002; Gersten, Fuchs, Williams, & Baker, 2001; Jitendra, Edwards, Sacks, & Jacobson, 2004). Rtl network, nd
	Examples	• Phonemic Awareness: systematic, explicit, and appropriate • Word study: explicit and connected to text • Fluency: explicit, modeled, and opportunity to practice • Vocabulary: appropriate for lesson/student (key words, repeated instruction, visual organizers), and opportunities to apply/practice vocab • Comprehension: explicit instruction prompts student to use skill/strategy
	Non-example	Phonemic awareness instruction is lacking or disconnected to text; Word study instruction is lacking or disconnected to text; Fluency instruction is lacking or disconnected to text; Vocabulary instruction is lacking or disconnected to text; Comprehension instruction is lacking or disconnected to text