THE DEVELOPMENT AND USE OF A COACHING OBSERVATION TOOL TO EXAMINE COACHING BEHAVIORS

by

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ABSTRACT

ANN C. JOLLY. The Development and Use of a Coaching Observation Tool to Examine Coaching Behaviors. (Under the direction of KRISTEN D. BEACH)

The field of education relies heavily on instructional coaches to build teacher capacity in the implementation of evidence-based practices (EBPs) with fidelity. Although observation tools are used to measure the fidelity of implementation by teachers, less is reported about specific behaviors demonstrated by a coach. This two-part nonexperimental study involved the use of primary and secondary data. Through this study, I sought to develop a valid and reliable coaching observation tool to analyze 36 recorded real-time coaching sessions supporting the implementation of an EBP, Targeted Reading Intervention (TRI). The tool was developed using an iterative process of initial coach interview and systematic review of the literature, review of a sample of recorded coaching sessions with the initial draft of the tool, and focus group member checking interview with coaches. Next, the tool was used to analyze a sample of recorded TRI coaching sessions. The coaches in the present study provided coaching to teachers during year 2 of a TRI multi-site randomized controlled trial study. The tool was used to identify the frequency of coaching behaviors during real-time coaching sessions. Future research may examine the technical adequacy of the tool even more rigorously. This tool may be helpful to identify coaching practices to support the implementation of EBP. Researchers using coaching to support the implementation of EBP alone, or as a component within professional development, may find this tool useful in providing them a clearer understanding of the instructional coach in building teacher capacity with the implementation fidelity of the EBP.

DEDICATION

First, I dedicate this dissertation to my parents. My father, Gordon A. Cavanaugh because he stood by me always, even when I didn't deserve it. On November 3rd of my freshman year in college he wrote to me penning what he had taught me my whole life, "you are learning that the political side which stands for helping poor and otherwise underprivileged people is usually the less popular. The reward in doing the right thing in life is the peace it gives you in the long haul" (Gordon Cavanaugh, personal communication, November 3, 1981). And as he dedicated his live to advocating and working to house all people, I have worked to advocate and educate all people. My mother, Joan M. Cavanaugh, who taught me to be a life-long learner. She served as my model by earning her undergraduate degree while raising four children and continuing on with graduate school to earn her master's degree at the age of 70.

Second, I dedicate this dissertation to my children, Anna Jolly Grinshpun and William Oscar Jolly. Everything I do, I do for them. They give me strength and purpose- and have been beside me day in and day out through this journey.

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CHAPTER 1: INTRODUCTION

Statement of the Problem

The field of education, like other social science and human service fields, has the responsibility to conduct scientifically-rigorous research to identify and support the implementation of evidence-based practices (EBPs; Carnine, 1997) to achieve socially significant outcomes (Fixsen et al., 2019). EBPs are "practices that are supported by multiple, high-quality studies that utilize research designs from which causality can be inferred and that demonstrate meaningful effects on student outcomes" (Cook & Cook, 2013, p. 72) and have "demonstrated relation between specific practices and measured outcomes" (Schalock et al., 2017, p. 115). In fact, educational professionals should use EBPs, just as doctors use EBP to treat a medical condition (IRIS Center, 2014a) because of the base of supporting research. This work should inform the instruction provided by teachers and received by students in school (Cook & Cook, 2013). The use of EBPs is essential for students at risk for school failure (Cook & Cook, 2011). School failures have life-long implications and negative post-school impacts into adulthood; for example, students experiencing poor early schooling may also be at a higher risk for medical challenges in their adult years (Campbell et al., 2014).

Research to Practice Gap

In the educational, social science, and human service fields, there is concern about the gap that exists between research and practice, and it has been labeled the "research to practice gap" (Carnine, 1997; Fixsen et al., 2019; Gersten & Smith-Johnson, 2001). This challenge of bringing research findings into practice is not new and is faced by all disciplines, but especially those providing services to people (Greenwood & Abbot, 2001; Morel et al., 2019). The literature suggests several reasons for the limited movement from research into practice in

classrooms. Researchers in the 1990s noted these limitations include both teacher and researcher factors (Lovitt & Higgins, 1996). Teachers may not be reading the journals where the research is published, a limited collaboration with teachers creates a just "do it" atmosphere, and teachers may not be reinforced or have additional support when implementing the new practice (Lovitt & Higgins, 1996). Researcher factors may include difficulty with identifying critical features of the intervention that should be implemented by teachers (Lovitt & Higgins, 1996). Additional challenges included a separation of research and teaching communities, a limited relevance perceived by school staff, and the lack of teacher-friendly practices coming from the research (Greenwood & Abbot, 2001).

Despite challenges, teachers must have a common understanding of EBPs. It is important for teachers to know that “EBPs are practices that are supported by multiple, high-quality studies that use research designs from which causality can be inferred and that demonstrate meaningful effects on student outcomes” (Cook & Cook, 2013, p. 73). Researchers have identified these practices to be effective, allowing teachers to know what to teach to improve student outcomes and are socially relevant (Spooner et al., 2017). However, researchers have raised concerns about disseminating the information to ensure practitioners have access to EBPs so that EBPs ultimately are used in classrooms (Cook et al., 2013).

The notion of EBPs in education was derived from the field of medicine (e.g., evidence-based medicine) to decisions of practice based on scientific evidence (Odom et al., 2005). As such, EBPs are unique among efforts to determine effective practices because a trustworthy body of research meeting specific standards of rigor must support these practices (Cook & Cook, 2013), including clearly identifying for whom the practice is effective and in what context (Odom et al., 2005). Further, the use of EBP limits wasted instructional time and resources,

while promoting the likeliness of responsive to student needs translating to improved student outcomes (IRIS, 2014a). Therefore, EBPs should be considered first by teachers, administrators, teacher–educators, and policy makers interested in improving student outcomes (Cook et al., 2008) and educators should identify EBPs and implement them within their daily instruction (Torres et al., 2014).

Systematic Implementation of Evidence-based Practices

Coordinated systems must be in place to ensure the identification, implementation, and monitoring of practices identified as effective (Fixsen et al., 2019). In the inaugural edition of *Implementation Science,* implementation research was defined as, “the scientific study of methods to promote the systematic uptake of research findings and other EBP into routine practice, and, hence, to improve the quality and effectiveness of health services and care” (Eccles & Mittman 2006, p.1). Implementation science has further been defined as "the discipline that professionally researches the key factors of transferring knowledge, generated in laboratories, to the development and implementation of programs and activities that lead to intended effects in society" (Fixsen et al., 2016, p. 667). In education, the goal of implementation science is to translate the positive outcomes from the research to school and classroom settings (Cook & Odom, 2013). The National Implementation Research Network (NIRN) recommends the use of active implementation frameworks to inform improved practices when practitioners are attempting to use evidence-based innovations to ensure students are ultimately the recipient of them (Fixsen et al., 2013). In the mid-2000s, Fixsen and colleagues published *Implementation Research: A Synthesis of the Literature*. This seminal work reviewed several hundred studies involving experimental analysis of implementation factors (Fixsen et al., 2005) and laid the groundwork for the conversation in the field today. It has taken researchers 30 years to learn

what it means to implement and gain an understanding of what we know as implementation science (D. Fixsen, personal communication, February 7, 2019).

However, the chronic concern is that these identified practices are not making it into the classrooms. Another reoccurring concern is that funding supporting research to identify EBPs has provided the field with valuable information about what type of instructional practices improve outcomes for SWD; yet, the students are not gaining the benefit of this research because it is not making it into the classroom (Fixsen et al., 2013). NIRN identifies drivers to support implementation of EBPs and interventions as part of systematic change. The three implementation drivers are competency drivers, organization drivers, and leadership (Blase et al., 2012). The competency driver includes the selection, training, and coaching of practitioners (Blase at al., 2012). One of the goals of the competency driver is to improve the fidelity of implementation of EBPs, which is supported by coaching. Fixsen et al. (2019) include the implementation drivers in the Active Implementation Frameworks necessary for successful implementation of EBP. Considerations in the implementation of EBP typically includes components to support ongoing training (e.g., coaching) and needs assessments, data collection and analysis, adapting the EBP, reassessing, and the gathering and dissemination of gained knowledge (Kittelman et al., 2021). Wexler and colleagues (2021) suggest the use of the acronym, FIRST as a way to support the fidelity of implementation in literacy. The first step F, stands for fidelity and suggests the monitoring of fidelity of the implementation of adopted practices. An instructional coach is likely to monitor and support the initial implementation of the EBP.

Fidelity of Implementation

Implementation, a key component of the evidence-based movement in social sciences and human services (Fixsen et al., 2019), plays a role in bringing EBP into the classroom. When considering fidelity of implementation and teacher practice, researchers have explored several areas. Hudson et al. (2016) conducted a qualitative study exploring special educators' interpretation of EBP and found a teacher's personal characteristics impacted their curriculum and instruction decisions. Yet, Daniel and Lemons (2018) found a statistically significant correlation between teacher perceptions of their implementation fidelity and perceived improvement in student academic outcomes. Fortunately, training, or professional development (PD), can have a substantial impact on implementation (Brock & Carter, 2017). McKeown and colleagues (2018) conducted a qualitative study and found teachers reacted positively to the PD and felt the PD was a useful way to learn the implementation of a complex EBP. During the initial implementation of a program, fidelity should be captured early and often in order to provide specific feedback to teachers (Harn et al., 2013). Although training is necessary, it is insufficient and other factors must be considered during the planning phase (Blase, 2013).

Overall, it appears that multiple, interwoven variables are at play when getting EBPs into the classroom. Shayne Piasta, researcher and primary investigator of federal grants related to evaluating effectiveness of educational programs, suggests competing forces influence whether a practice is adopted, including teachers buy-in which is impacted by leadership, administrative, and systemic change (S. Piasta, personal communication, February 5, 2019). If these factors can be addressed and the EBP is implemented with fidelity in the school or district, how then do we ensure the access to all students? Just as drift (i.e., inadvertently modifying or omitting the recommended procedures that make up the EBP) can impact a teacher's fidelity of

implementation (IRIS, 2014b), it is likely that coaches may be impacted by this phenomenon and may not even be aware.

Scaling-up and Sustainability

In 1996, Elmore asked, "how can good educational practice move beyond pockets of excellence to reach a much greater proportion of students and educators?" (Elmore, 1996, p. 1). The author suggested replication to a larger scale has been challenging, highlighting that the "nested" nature of education (teacher, school, district, and state) adds to the challenge of scaling-up practices. This is something considered by researchers. When considering the scaling of practices, the question remains, “how can we do this for approximately three million teachers across 100,000 schools in 15,000 districts?” (D. Fixsen, personal communication, February 7, 2019). Unfortunately, implementing EBP on a large scale has proven to be difficult (Cook & Cook, 2011). It is unlikely we will ensure all students and teachers reap the benefits of the EBP unless plans outline initial steps, as well as funding, policy changes, and resources needed to scale up the practice (Horner et al., 2019). In the past, research funding agencies may have contributed to the problem of scale by not adequately accounting for the complexities of work in schools (Klingner et al., 2013). Bringing innovations to scale may have different conceptualizations (e.g., adoption, replication, adaptation, and reinvention) and may be more dynamic than initially realized (Morel et al., 2019). Although education researchers have historically focused on replication, it may be that adaptation will provide some flexibility in scaling of EBP while maintaining the effectiveness of the innovation (Morel et al., 2019). Schachter and colleagues (2018) suggest a better understanding of specific coaching behaviors may support the scaling-up of larger PD (e.g., statewide) to increase implementation of EBP with fidelity.

Putting a new practice into action is a process. This process often includes stages such as dissemination, adoption, implementation, and sustainability (Durlak & DuPre, 2008) or exploration, installation, initial implementation, and full implementation (NIRN, 2020). Ultimately, the benefit to society will only come when the field moves beyond identifying EBP and evidenced-based programs to systems to support the implementation (Fixsen et al., 2013).

Horner et al. (2019) used the term resource leveraging, “a process by which the outcomes from the initial investment in personnel, materials, and events to achieve a targeted goal result in additional investment being allocated toward the goal” (p. 69) and suggested it must be included in the long-term implementation plan. Technical assistance centers have played a role in the scaling-up process (Horner et al., 2019). Mustian et al. (2013) highlight the National Secondary Transition Technical Assistance Center (NSTTAC) as an example. The technical assistance center has methods for disseminating information regarding evidence-based secondary transition practices that improve postschool outcomes. Practical features for teachers include research-to-practice lesson plan starters, and demonstration videos of all EBP resources are located on the website allowing teachers to understand and sustain implementation of EBPs (Mustian et al., 2013). In another study, Burke et al. (2019) described efforts to scale up Self-Determined Learning Model of Instruction (SDLMI), an EPB focused on enabling teachers to create multiple opportunities for students to engage in goal-directed action. The authors found despite training, coaching, and technical leadership, "reaching the full implementation stage while continually addressing implementation drivers and essential components presents a significant challenge" (Burke et al., 2019, p. 27).

It is clear that the challenge of getting research into classrooms is complex. Using the accumulating knowledge related to the science of implementation will be critical (Blase et al., 2012; Fixsen et al., 2019). This challenge requires funding and support at a federal level.

Federal Legislation

The use of EBP is mandated in federal laws, such as No Child Left Behind and Individuals with Disabilities Education Act (Kretlow & Blatz, 2011). More recently, the Every Student Succeeds Act (ESSA; USDE, 2016) has provided funding to investigate and support the implementation of EBP into the classroom and supports the use of coaches. The United States Department of Education further issued guidance suggesting ways to improve outcomes for students, that include (a) identifying local needs, (b) selecting relevant, evidence-based interventions, (c) planning for implementation, (d) implementing, and (e) examining and reflect (USDE, 2016). The Department also provides a summary of recommended criteria for each level of evidence including *strong, moderate, promising and demonstrates a rationale* considered under ESSA and requirements for specific funding (e.g., Title 1; USDE, 2016).

Although other academic and social-emotional areas have been studied and document gaps with implementation, reading has been broadly studied and documented (Mason, 2019). Federal initiatives, such as No Child Left Behind (2001) and Reading First has impacted how PD is provided to teachers, including moving toward reading coaches to provide contextualized PD (Mundy, 2012). Federal funding for coaches from the 1999 Reading Excellent Act to 2000 No Child Left Behind legislation (Denton & Hasbrouck, 2009) and most recently the ESSA has bolstered this position as a way to increase teachers' implementation of EBPs and interventions. Another framework, or system, mentioned in ESSA to bring EBP into the classrooms and schools is multi-tiered systems of support (MTSS). Adapted from the field of medicine, schools

began to adopt a three-tiered model to provide additional assistance, as needed, in a timely manner (Spear-Swerling, 2015) to students facing learning challenges. The three-tiered model is commonly referred to as response-to-intervention (RTI) or multi-tiered systems of support (MTSS) and includes Tier 1: core general education curriculum, Tier 2: supplemental intervention, and Tier 3: intense intervention. The tiers also project the number of students likely to respond at each level. It is estimated that, when implemented in a context of highly rigorous, EBPs for core and supplemental instruction, 80-85% of students will be successful with the general education core (Tier 1). Students not successful in Tier 1 receive additional, supplemental instruction in Tier 2. This is likely to be required for 10-15% of a school's population and includes intervention and more frequent monitoring of progress. Finally, Tier 3, reserved for students requiring the most assistance is likely to be required for less than 5% of the population (Spear-Swerling, 2015). However, despite the promise of the tiered approach, researchers note that schools may have difficulty implementing such an approach with fidelity to improve student academic outcomes (Leonard et al., 2019; Mason et al., 2019). Arden et al. (2017) suggested prioritizing coaching as one way to increase the practices within RTI, thus allowing the implementers repeated opportunities to practice and receive feedback.

Ultimately, at the heart of the legislation and scaling implementation is equity. This promise of equity comes in the form of higher-order skills for all students, multiple measures to assess school performance and progress, resource equity, and equity strategies and evidence-based interventions (Cook-Harvey et al., 2016). Further, all students deserve well-qualified teachers who are supported in their professional growth.

Teacher Knowledge and Professional Development

Teacher knowledge, or an understanding of EBPs, may be one barrier in the implementation of EBPs. Despite efforts to bridge the research to practice gap through funding and legislation, gaps continue to exist in the classroom (Binks-Cantrell et al., 2020). In this dissertation, I used the term *knowledge* to include content base, as well as pedagogical strategies (Shulman, 1987). I included a focus on pedagogical strategies because a teacher's knowledge is most powerful when used in-the-moment of teaching to guide their instruction (Kennedy, 2016). Additionally, teachers must understand the diverse learning needs of the students in their classrooms. The National Center for Learning Disabilities' (NCLD) *Forward Together* report states one in three general education teachers have not participated in PD on teaching students with learning and attention issues. For teachers who have, most believed it was not effective (NCLD, 2019). Further, teachers expressed concern about their ability to instruct students with learning disabilities and a lack of belief that students can be successful (NCLD, 2019). In addition, some teachers may feel they play no role in bridging the identified achievement gaps and feel issues related to class size, student accountability, availability of tutoring/after school programs, and the need for an alternative state test are to blame (Ratcliff et al., 2016).

Studies have suggested teacher knowledge is important (Piasta et al., 2009, Pittman et al., 2019; Puliatte & Ehri, 2018). Unfortunately, survey research suggests many teachers lack the content knowledge and instructional skills to teach critical content, including reading (Al Otaiba et al., 2019; Lyon, 1998; Pittman et al., 2019). Poor scores on surveys in reading tests of knowledge suggest more needs to be done to equip teachers with the necessary knowledge to teach students who are struggling in becoming proficient readers (Al Otaiba et al., 2019; Pittman et al., 2019).

PD is frequently viewed as the major way to improve teacher knowledge, change the trajectory for struggling students, and increase student success (Chard, 2004; Kraft et al., 2018). PD may be characterized by a broad array of learning experiences for teachers (Desimone, 2009). Currently, PD is seen as a central part of many school improvement policies (Minor et al., 2016). Developing the required skills to teach all students may take time and districts rely on providing PD to inservice teachers in develop their skills (Hughes et al., 2001). Although PD is suggested as one of the primary ways to continue a teacher's professional learning, it is important to understand the challenges associated with PD.

Broadly speaking, PD begins for teachers in their teacher preparation programs. However, some research suggests many teachers leave college unprepared to teach academic skills (Binks-Cantrell et al., 2012; Greenberg et al., 2013). To address this area of need with inservice teachers, PD is a common practice and widely accepted in education (Kennedy, 2016a). In fact, it is frequently viewed as the primary way to improve teacher knowledge and ultimately increase the number of students reading on grade-level (Chard, 2004; Schachter et al., 2016).

Chapter 5 of the National Reading Panel (2000) addresses teacher education and reading instruction. The chapter's opening sentence highlights the importance of a teacher's role in their student's learning to read, stating "the analysis of reading and reading instruction involves four interacting factors: students, tasks, materials, and teachers" (p. 5-3), and, although understudied, correlational research suggests a relation between formal teacher preparation and quality of teaching to improve student outcomes (NICHD, 2000). Overall, the National Reading Panel (2000) concluded there were still significant gaps in knowledge of teacher education and development across the board. Further, revisiting Chapter 5 of the National Reading Panel two decades later, Binks-Cantrell and colleagues (2020) contend that although studies conducted

since the publication of the NRP has identified strong correlations between teacher knowledge, classroom instruction, and teacher practice, teachers continue to be ill-prepared to teach reading based on the scientific evidence.

Given the concerns related to limited knowledge of teachers leaving preparation programs (Binks-Cantrell et al., 2012; Greenberg et al., 2013), PD can play an important role. In schools, the purpose of PD is to positively influence the learning of students and improve student outcomes (Guskey, 2017), including improving inservice teachers' instruction for the full range of learners (Chard, 2004). PD is widely recognized in the field of education (Kennedy, 2016a), mentioned in legislation (ESSA, 2015), incorporated in state teacher evaluation programs (NCDPI, 2019), and school improvement policies (Minor et al., 2016).

Much emphasis has been focused on what is required for effective PD (Desimone, 2009; Kennedy, 2016a). Desimone (2009) suggested a conceptual framework for studying effects of PD which focused on critical features of the activity that make it effective in increasing teacher learning and changing practice. This conceptual framework consists of five core features of PD including content focus, active learning, coherence, duration, and collective participation. It is suggested the impact of these five core features lead to an increase in teacher knowledge, practice, and ultimately student outcomes (Desimone, 2009). Further, Kennedy (2016b) argues improved student outcomes will occur when teachers leverage their knowledge of content and pedagogy to guide instructional decisions during a lesson. She suggests there is a *parsing problem*, which involves deciding the curriculum should focus more on knowledge or deciding the curriculum should focus more on practice itself. She also suggests five persistent and universal challenges that teachers must address including portraying curriculum so it is understandable to their students, engaging students to learn, having students demonstrate what

they are thinking, monitoring behavior to support learning and reduce distraction, and addressing these issues while meeting personal needs. Kennedy suggests teacher preparation is disconnected. In other words, theories and knowledge may be taught but not tied to any specific teaching problems.

In addition to challenges delineated by Kennedy (2016b), fidelity of implementation following PD can be challenging. Implementing a newly learned practice requires figuring out whether, when, and how to incorporate that new idea into an ongoing system of practice which is already satisfactory, and may also be largely habitual (Kennedy, 2016a). Piasta et al. (2015) documented such challenges in a correlational analysis of implementation fidelity and child learning data as part of a larger randomized controlled trial. They found teachers tended to exhibit high fidelity to general lesson components; however, only four percent of teachers delivered all 60 lessons as expected. Additionally, teachers who demonstrated high levels of fidelity to one component of a curriculum did not necessarily demonstrate high levels of fidelity to another component. This is a problem because if practitioners do not implement EBPs with fidelity or as designed, the practices may not have the same positive effect demonstrated in research studies (Cook & Odom, 2013). Overall, existing studies demonstrated that a PD in isolation may improve knowledge but does not necessarily translate into improved practice (Joyce & Showers, 1980; Kennedy, 2016b).

Further, research findings are inconclusive but suggest that one-time PD may not be enough to change teacher practice, and ultimately improve student literacy outcomes (Joyce & Showers, 1981; Kennedy, 2016b; Kraft et al., 2018). According to Kraft et al. (2018), one-time PD is insufficient to ensure the implementation and sustainability of EBPs following the training. Researchers have suggested coaching as one way to address this challenge (Fisher et al., 2011).

The recommendation of coaching addresses a frequent concern that teachers often do not have the opportunity to practice and receive feedback in the classroom (Joyce & Showers, 1981) or in situ (situated in the natural setting; Horn et al., 2020; Rock et al., 2013) in traditional PD.

Coaching

Coaching, as a response to concerns related to workshop-type, traditional PD, has evolved over the years (Denton & Hasbrouck, 2009). Joyce and Showers (1980) studied and discussed coaching for application which included hands-on, in-classroom assistance with the transfer of skills and strategies into the classroom. They contended if the new information was presented, demonstrated, practiced in simulated conditions with feedback, and then applied to the classroom with coaching and further feedback, teachers largely would be able to implement the new practice. Coaching, or the ongoing observation and feedback cycle in instructional or clinical settings (Joyce & Showers, 1981), gained additional traction as federal initiatives to support the implementation of practices demonstrating evidence in the research and supported the funding of coaches (Denton & Hasbrouck, 2009).

Kraft et al. (2018) defined coaching as "all inservice PD programs where coaches or peers observe teachers' instruction and provide feedback to help them improve" (p. 548) and suggested coaching is individualized, time-intensive, sustained over a period of time, and focused on discrete skills. It has also been identified as a way to promote teachers' implementation of interventions following PD (Mason et al., 2019). Further, PD that includes a coaching component has been suggested as a way to support the implementation of EBPs following training (Rock, 2019).

The Every Student Succeeds Act (ESSA; 2015) mentions coaching 11 times throughout the bill and encourages state and local agencies to develop, train, and appropriately compensate

coaches to work with teachers in developing assessments, interpreting student data, designing, and differentiating instruction, providing feedback, or evaluating performance (Desimone & Pak, 2017). The importance of coaching has also been identified in a number of studies (Carlisle & Berebitsky, 2011; Kraft et al., 2018; Kretlow & Bartholomew, 2010; Rock, 2019). For example, coaching was found to have a moderate effect on teachers' instructional practice (*SD* = 0.49; Kraft et al., 2018). Carlisle and Berebitsky (2011) found that following a PD, teachers in the PD plus coach model were more likely to differentiate their instruction and a higher number of students considered at risk for reading failure in the fall moved into the low-risk category (46% vs. 11%, respectively) by the spring than the PD only group. Furthermore, coaching has been found to be most successful when combined with an initial PD (Ciullo et al., 2019; Kraft et al., 2018; Rock, 2019), suggesting teachers may benefit from building baseline skills (e.g., content knowledge) prior to engaging directly with a coach (Kraft et al., 2018). The level of support needed following PD may be specific to the individual teacher (Brownell et al., 2017; Goodnight et al., 2020).

Coaching has been broadly studied over the last several decades and continues to indicate promise to support the implementation of EBPs (Dudek, 2019). Schles and Robertson (2019) conducted a systematic review of the literature to determine the impact of performance feedback on preservice teachers' implementation of EBPs for students with disabilities. They found a functional relation between receiving feedback and increased implementation fidelity of EBPs for all, but one, preservice teacher. Although the overall outcome of instructional coaching has the common goal of improving teacher practice to increase student achievement outcomes, coaching is provided to teachers in a variety of ways. For example, the coach may be onsite or offsite and may provide the feedback during the session, in real-time, or outside of the coaching

session. Additionally, some approaches rely on tiered, or multi-level support (Goodnight et al., 2020; Wood et al., 2016) or multi-component multimedia support (Kennedy et al., 2017; Mashburn, 2010; Weiser; 2019).

In one approach, onsite coaching and feedback provided outside of the coaching session, the coach is onsite but provides feedback outside of coaching session. The coach is typically in the classroom observing the lesson. The coach does not interact with the teacher during or after the coaching session. Instead, the coach provides feedback to the teacher outside of the coaching session. This may be done in a variety of ways, including preconference, observation, postconference face-to-face format, or via email (Brownell et al., 2017; Carlisle & Berebitsky, 2010; Gettinger & Stoiber, 2016; Neuman & Cunningham, 2009; Neuman & Wright, 2010; Podhajski et al., 2009).

Coaches might also use the onsite coaching and real-time feedback approach. In this case, the coach is onsite, likely in the classroom observing the lesson, and the coach provides feedback to the teacher during the coaching session. This feedback may be provided via technology, such as a walkie-talkie device and earpiece (Bowles & Nelson, 1976; Giebelhaus, 1994; Ottley et al., 2019) or without technology by feedback provided during or immediately after the session based on teacher preference (Amendum, 2014; Amendum & Liebfreund, 2019).

Another option for coaches is the virtual coaching and feedback provided outside of the coaching session approach. In this scenario, the coach is not onsite but uses technology to observe the coaching session and provides feedback to the teacher outside of the coaching session. This may be done in a variety of ways, including video-recorded lessons with self-reflections (Dingle et al., 2011) or specific coach feedback (Pianta et al., 2008).

Finally, in the virtual coaching with real-time feedback approach, the coach is not onsite but uses technology to observe the coaching session. The coach provides feedback to the teacher during the coaching session. This is frequently done through a laptop with a webcam and/or Bluetooth device. Two common approaches of virtual coaching with real-time feedback include bug-in-ear (BiE) and webcam coaching. Bug-in-ear (BiE) when done virtually using technology and real-time performance feedback, involves a wireless communication device (e.g., laptop with Bluetooth) which allows the coach to provide immediate feedback while the teacher is in the classroom or the natural setting where the instruction is taking place (Cheek et al., 2019; Coogle et al., 2016; Coogle et al., 2018; Goodman et al., 2008; Horn et al., 2020; Ottley et al., 2017; Owens et al., 2019; Ploessl & Rock, 2014; Regan et al., 2017; Rock et al., 2009; Rock et al., 2012; Rock et al., 2013; Rock et al., 2014). Webcam technology is another viable option for the virtual coaching with real-time feedback approach. Similar to BiE, webcam coaching has been shown to strengthen preservice and inservice teacher practice (Glover, 2017; Koch et al., 2016; Scheeler et al., 2004) Additionally, webcam coaching has been used as one of the components in some multi-media coaching approaches (Mashburn et al., 2010; Weiser et al., 2019). In this format, coaches and participating teachers use their laptops to have a video conference. This allows the coach to observe the class from another location, while still providing real-time performance feedback to the teacher (Amendum et al., 2011; Fettig et al., 2016; Vernon-Feagans et al., 2012, Vernon-Feagans et al., 2013; Vernon-Feagans et al., 2018).

Overall, there are many different kinds of coaching and the role of the coach varies greatly (Heineke, 2013; Deussen, 2007). All approaches have unique benefits, possible drawbacks, and different amounts of research associated with them. However, throughout all reviewed studies, the instructional coach seems to play a key factor.

Role of the Instructional Coach

If indeed the role of the instructional coach is a key lever, or component of a driver (NIRN, 2020) in supporting teachers' implementation of EBPs (Mason et al., 2019), more must be learned about their important role. Currently, the roles of coaches vary and few studies have examined the training of and fidelity to coaching protocols (Neufeld & Roper, 2003), with little time allocated for understanding the process of becoming a coach (MacPhee & Jewett, 2017). Yet, available studies have found that the role of the instructional coach can vary widely (Bean et al., 2010; Heineke, 2013). Their supervisors (e.g., principals) may also interpret their role differently and use them in a variety of ways (Walpole & Blamey, 2008). Coaches have also reported that they take on a variety of roles even within the coaching session (Al Otaiba et al., 2008). For example, novice coaches may demonstrate a variety of roles, including: (a) interviewer who make observational statements or read questions from notes, (b) role-player who rely on scripts from class or training videos, (c) the curious learner who were excited by the opportunity to observe and learning from the teacher/colleague, (d) the cheerleader who frequently used affirming language as a way to build rapport, and (e) the natural novice who were aware of their coaching discourse and intentional about coaching moves (Ortmann et al., 2020). Further, Stephens et al. (2011) found instructional coaches may also have a variety of professional experiences including expert teachers, less-skilled teachers, some with administrative licenses, and some retired teachers. Most recently, Stoetzel and Shedrow (2020) report coaches expressed concern about limited training and a need to understand their role as an instructional coach.

Impact of Instructional Coaches

Given the degree of variance in the literature about instructional coaches, there is a limited understanding about their impact (Garet, 2008, Kraft et al., 2018; Powell et al., 2010). Despite legislation and research suggesting the promise of coaching to support the implementation of EBPs (Mason et al., 2019), the behaviors of the coach during the coaching session are often unreported.

Regardless of the inconsistencies in roles and limited understanding of the impact of instructional coaches, there does appear to be a comprehensive skillset for coaches. This includes the use of effective coaching practices (Howley et al., 2014), specialized content/EBP knowledge (Killion et al., 2012; L'Allier et al., 2010), and interpersonal coaching skills (Hunt & Handsfield, 2013; Ippolito, 2010). It is likely that these three areas contribute to the impact of the coach on the implementation of EBPs in the classroom.

Effective Coaching Practices. Researchers have identified effective characteristics, or practices, that appear to be consistent across instructional coaches. First, feedback was overwhelming found to be a characteristic (Elek & Page, 2018; Howley et al., 2014; L'Allier et al., 2010; Neuman & Cunningham, 2009; Neuman & Wright, 2010). Feedback may occur during or following a coaching session. It is suggested that the type of feedback may also be considered a factor. Rock et al. (2009) identifies four types of feedback (encouraging, instructing, questioning, or correcting) and suggested using a four-to-one praise to correction ratio (Rock et al., 2013). Second, observation of instruction during a lesson was found to be an effective practice (Elek & Page, 2018; Howley et al., 2014; L'Allier et al., 2010). This observation may occur in the moment, or the coach may review a video-recording of a session. Third, modeling is identified as an effective practice (Howley et al., 2014; Neuman & Cunningham, 2009; Neuman

& Wright, 2010). Some studies found that modeling may be more frequent initially, but that the coach is able to follow a gradual release model with less frequent modeling as the coaching sessions progress (Collet, 2012). Fourth, flexibility and adaptability of coaches was identified as effective. During coaching sessions, coaches must be able to respond to in-the-moment circumstances based on student or teacher actions (Howley et al., 2014; L'Allier et al., 2010). Fifth, goal-setting or identifying action steps has been noted as an important characteristic (Elek & Page, 2018; Neuman & Cunningham, 2009; Neuman & Wright, 2010). Effective coaches may also spend time working with teachers to identify priorities and develop action steps (Neuman & Cunningham, 2009; Neuman & Wright, 2010).

Specialized Content/Evidence-based Practice Knowledge. It would seem plausible that if a coach is supporting a teacher with the implementation of any EBPs, the coach would need specialized content knowledge of the EBPs in order to support fidelity of implementation (Killion et al., 2012; L'Allier et al., 2010). Reading is an example of an area where specialized content knowledge is required. *The Knowledge and Practice Standards for Teachers of Reading* extensively details the necessary content knowledge and pedagogical practices needed to be an effective reading teacher (IDA, 2018). Specifically, teachers must understand (knowledge) and be able to teach (pedagogy) the structure of language including phonology, orthography, syntax, morphology, and semantics (IDA, 2018; Moats, 2020) to their students. Teachers must have the content knowledge of reading in order to be able to instruct students, including those with chronic reading challenges. This requires studying the English language spoken and written systems and forms (Moats, 2020). Teachers benefit from a skilled coach who shares the knowledge related to the implementation of the program or innovation (NIRN, 2020).

Interpersonal Coaching Skills. The nature of coaching, and working with other professionals in their environment, may require a coach to have certain interpersonal coaching skills. These interpersonal coaching skills impact the quality of the relationship between the coach and the teacher (Ippolito, 2010). Challenges related to power, negotiating the balance of demonstrating knowledge, while also balancing the role of a collaborative partner, or co-learner with the teacher is another variable studied within interpersonal coaching skills (Hunt & Handsfield, 2013). In a review of literacy coaching studies (n = 28), Robertson, Padesky et al. (2020) identified three coaching approaches that were associated with changes in teacher practice related to joint problem identification, redirection and reinterpretation, and a flipped Initiation-Response-Evaluation framework, in which the teacher identifies the concern and a possible solution. Building meaningful teacher-coach relationships may be important and some suggest teacher autonomy is essential to the success of coaching (Knight, 2019b). Other elements influencing productive coach-teacher relationships include effective partnership agreements, building teacher leadership capacity, communicating about coaching services, allowing teachers autonomy, encouraging feedback, and managing resistance and conflict (Killion et al., 2012).

Limitations of Previous Studies

Despite the variety of PD approaches, the role of the instructional coach appears to be a consistent variable in changing teacher practice (Carlisle & Berebitsky, 2010). Studies have demonstrated the promise of instructional coaches to support the implementation of EBPs (Weiser et al., 2019). However, the specific behaviors demonstrated by the coach during the coaching session is an area of research that is underdeveloped (Gallucci et al., 2010). More is needed about the observable coaching behaviors, including characteristics of effective coaching,

specialized content/EBP knowledge, and interpersonal coaching skills, used during real-time feedback during a coaching session.

Although teacher observation or fidelity tools are used in many studies to identify and document teacher behaviors during instruction, few measures currently exist to document the behaviors of the coach during the coaching session. Despite the importance of the instructional coach, the role of the coach remains understudied, and one common limitation in studies is that the quality of the coach is not evaluated or not reported. If there is a reported measure related to coach quality, it is often self-reported evaluations (Neuman & Cunningham, 2009; Neuman & Wright, 2010), with tools that may be weak and not have established reliability and validity. In some studies, primarily single-case design studies, the coaching implementation scores are provided (Coogle et al., 2018; Coogle et al., 2016; Fettig et al., 2016; Goodman et al., 2008). Coaching observation tools may assist in determining discrepant results in studies where instructional coaches are part of the multi-component PD and provide a better understanding of what constitutes effective coaching and how it is best evaluated. Reinke et al. (2013) suggest future studies separate the type of coaching activities and which activities are associated with increased intervention implementation. One major gap in determining of PD program effects is the lack of implementation fidelity data related to the delivery of coaching (Powell & Diamond, 2013). Additionally, the lack of manualized individual elements in coaching studies may be considered a limitation (Brock et al., 2018). This further indicates the need to systematically identify coaching behaviors demonstrated during coaching sessions.

A limitation noted in studies of an evidence-based reading intervention, Targeted Reading Intervention, is related to teacher fidelity of implementation (Amendum et al., 2011; Vernon-Feagans et al., 2010; Vernon-Feagans, 2012; Vernon-Feagans et al., 2018). Given that

the TRI is identified as an evidence-based reading intervention, using coaches to support with the implementation of the EBPs, further exploration of coaching behaviors related to teacher fidelity of implementation would only strengthen the understanding of the impact of the coach.

This dissertation study focused specifically on real-time coaching sessions where the coach supported the teacher during the coaching session. Therefore, the behaviors of the coach needed to be operationalized and observed within the 15-20 min coaching sessions. This contributed to an increased understanding of what it means to be an effective coach and whether effective coaching requires all of the behaviors that are supported by research.

Context of the Current Study

The current study uses secondary data (video recordings from TRI Coaching Sessions) from a multi-site randomized controlled trial study conducted to evaluate the efficacy of the TRI on young English learners' (ELs) reading achievement. This study sought to replicate how the TRI can improve teacher knowledge in the teaching of reading and to determine whether the TRI can improve student reading outcomes for young ELs. The study included kindergarten and first-grade classroom teachers (n = 144) and their students (n = 720), including English learners (n = 432) from schools in Delaware and North Carolina. I focused on including coaches from year two of the multi-year study because it was the year containing videos which were the most robust, as coaches were more skilled with recording and uploading videos containing clear video and audio for analysis. Additionally, there was a larger data source of teacher and coaches during year two providing a wider range of teachers and coaches to observe coaches across teachers and implementation periods.

In a previous investigation about the impact of TRI on ELs reading achievement, Amendum et al. (2017) used data from other TRI studies in which coaches provided immediate,

real-time, diagnostic feedback during weekly (transitioning to biweekly coaching sessions). Although the primary study is exploring the efficacy of the TRI with EL students, the intervention was not specifically developed for this group of students, and the focus of the study was on the coaches' behaviors to support the implementation for intervention. Although teacher fidelity measures were gathered, there were no reported measures related to coaches' behaviors during the webcam coaching sessions with teacher. In the study, TRI coaches received two specialized trainings. First, TRI coaches participated in a 5-day training conducted by a TRI Intervention Coach. This training includes workshop sessions (days) on TRI research, as well as modeling, and development of coaching practices. The training also incorporated 3 days of in-field work, including live practice. Second, during the practice sessions, the Intervention Director observed and provided feedback to the new coaches, followed by weekly feedback meetings focusing on TRI reading strategies and diagnostic processes (such as specific positive feedback, using diagnostic maps, and discussion checklists); TRI coaching processes (such as responding to the response, most pressing need, and supporting teachers through different types of resistance); and viewing and providing feedback of coach videos for fidelity and ongoing training purposes. This training spoke to the importance of the TRI coaching in the multi-component PD.

In one TRI study, Vernon-Feagans et al. (2010) reported that the reduced teacher fidelity of TRI implementation in first grade may have impacted findings and noted fidelity of implementation is critical to ensure students received the intervention as intended to improve student outcomes. Although the authors were specifically addressing teacher fidelity, the impact of the coach may also be related to coaching practices during sessions. Further, Vernon-Feagans et al. (2012) reported the mean total fidelity score was 2.82 (out of 5; moderate, with 19% of

participants demonstrating low fidelity) for teachers in their TRI study. With webcam coaching being a key component of the TRI intervention, investigating the coaches' behaviors during the lesson may shed light on the low teacher fidelity ratings. In another study, Vernon-Feagans et al. (2013) suggested use of digital recordings will help with fidelity and suggested webcam coaching may be the most impactful aspect of TRI. Finally, Vernon-Feagans et al. (2018) suggested future work exploring the complex role of fidelity is needed. Expanding the fidelity and observation to coaching behaviors may provide additional information regarding TRI implementation to improve teacher practice and student outcomes.

TRI has demonstrated the ability to impact teacher practice and student outcomes (Aiken et al., 2020; Amendum et al., 2011; Amendum et al., 2014; Ginsberg et al., 2010; Vernon-Feagans et al., 2010; Vernon-Feagans et al., 2011; Vernon-Feagans et al., 2012; Vernon-Feagans et al., 2013). Further, throughout the evolution of TRI and associated research, the importance of teacher implementation fidelity has been considered and monitored (Aiken et al., 2020; Amendum et al., 2011; Amendum et al., 2014; Vernon-Feagans et al., 2010; Vernon-Feagans et al., 2011; Vernon-Feagans et al., 2012; Vernon-Feagans et al., 2013). Most recently, TRI has also investigated ways to increase the sustainability of the implementation of the intervention (Aiken et al., 2020). Although, coaching is a hallmark of many multi-component interventions, such as TRI, less is known about coaching behaviors used to facilitate teacher implementation of TRI during the real-time coaching sessions.

The summarized literature outlines qualities of effective coaches; however, what constitutes effective coaching has not yet been investigated with the TRI. In the current study, I engaged in a multi-step process to develop a coaching observation tool. These steps included (a) interviewing with a TRI coach; (b) reviewing of the literature related to effective coaching

practices, specialized/EBP content knowledge, and interpersonal coaching skills; (c) drafting an initial tool and conducting a member checking interview; (c) conducting inter-rater reliability (IRR) with a draft of the tool on a small sample of recorded coaching sessions; and (d) finalizing the tool. Next, I used the final coaching observation tool to analyze 36 TRI video-recorded coaching sessions to determine frequently used coaching behaviors. Appendix A provides an overview of the study.

Study Purpose and Research Questions

The purpose of this dissertation study was to develop a valid and reliable coaching observation tool to identify frequently used coaching behaviors during real-time coaching sessions supporting the implementation of EBPs by teachers. Coaching plays a key role in many multi-component intervention packages, and the development of a coaching observation tool may improve our understanding the coaching component of the intervention. Further, the tool may be used to assist in determining the impact of the coaching practices and allow for adjustments, as needed, to improve coaching training and support. The expectation is that a coaching observation tool may inform the coaching practices to build teacher capacity in the implementation of EBPs to ultimately improve student academic and behavioral outcomes.

Specifically, I sought to answer the following research questions:

1. What behaviors might comprise a coaching observation tool representing reviewed effective coaching practices, specialized content/evidence-based practice knowledge, and inter-personal coaching skills?
2. What is the content validity and inter-rater reliability of the coaching observation tool focused on effective coaching practices, evidence-based practice content, and inter-personal coaching skills?

3. Based on an analysis of coaching sessions using a coaching observation tool, what coaching practices are most frequently used by instructional coaches?

Significance of the Study

This study fills a void in the research related to observing coaching behaviors during coaching sessions with teachers. In a systematic review of studies related to coaching, Gupta and Daniels (2012) found limited information how coaching is provided and no explicit detail about coaching behaviors. Further, Sheridan et al. (2009) provided a list of research questions needed to better understand PD, including coaching, specifically, "what strategies do effective coaches/trainers/facilitators use; what specific behaviors of the trainer, coach/consultant, and facilitator lead to observed change and positive growth in the early childhood practitioner?" (p. 388). Researchers suggest the need to operationalize activities to understand what occurs during a coaching session and the components contributing to outcomes (Gettinger & Stoiber, 2019; Nugent et al., 2018). Although fidelity checks and forms are common practice with teacher implementation, few are available for coaches. Specifically, the development of a coaching observation tool and secondary analysis of the video recorded TRI coaching sessions will contribute to the understanding of the coaches' role in teachers' fidelity implementation of EPBs, or interventions. This is especially important because when studying implementation and teacher practice, research involving observation provides a deeper understanding of classrooms (S. Piasta, personal communication, February 5, 2019). This is a unique tool in that the structure will allow observers of coaching sessions to adjust the EBP or specialized content based on the content being coached, supporting the adaptation of the tool (Morel et al., 2019). Further, the coaching observation tool will address the immediate need to unpack and define effective coaching and conduct an analysis of the fidelity with which coaching is implemented (Snyder et

al., 2015). This tool was developed in order to be used in any content area or grade band where the instructional coach is providing coaching during a session to improve the implementation of EBPs, because instructional coaching has demonstrated benefits in a vast range of educational contexts (Eastman, 2019).

This coaching observation tool will provide researchers and practitioners with a way to determine the coaching behaviors utilized most frequently coaching sessions, and ultimately provide a better understanding of the impact of the coaching on implementation. The data from the coaching sessions can be viewed holistically, as well as individual sections and to identify patterns of behavior over time for individual coaches or all coaches supporting with the implementation of an EBPs or intervention.

Delimitations

Although the study was developed to answer the research questions with a thoughtful design to minimize limitations, it is important to identify some possible delimitations. These include (a) the focus on the real-time coaching session, (b) the inter-rater reliability was conducted by a participating coach who currently serves as TRI Intervention Director, and (c) the limited number of coaches observed in the 36 TRI coaching sessions.

First, the present study was focused on coaching during real-time, virtual coaching sessions. Therefore, it is likely that there may be other aspects of the teacher-coach relationship that may impact the coach's behaviors during the video-analyzed sessions and teacher implementation. Additionally, other factors may impact the change in teacher practices which influence the success of the coaching (Jacobs et al., 2018) but are not included in this study. Studies indicated that some coaching relationship activities occur outside of the coaching session (Gettinger & Stoiber, 2016; Nichols et al., 2020; Ottenbreit-Leftwich et al., 2020) or include

variables, such as teacher confidence, to implement the strategies associated with implementation scores (Nichols et al., 2020).

Second, the inter-rater reliability was conducted by a participating coach who currently serves as TRI Intervention Director. Therefore, there is direct involvement, and likely feelings, associated with the TRI intervention and study. Therefore, it could be argued that they may have biases related to favorable reporting (e.g., an inflated score) of coaching behaviors.

Third, there are a limited number of coaches (n = 4) in the 36 TRI coaching sessions used to identify frequency of behaviors. This may limit my ability to make generalizable judgements due to limited variability across coaches. However, participating coaches will have a variety of experience, which may address one concern related to limited number of participants.

Definition of Terms

Bug-in-ear: During face-to-face bug-in-ear (BiE) coaching, the coach may use a walkie-talkie or Bluetooth device to provide audio prompts to the teacher while they teach

Coaching: "all inservice PD programs where coaches or peers observe teachers' instruction and provide feedback to help them improve" (p. 548), and it is individualized, time-intensive, sustained over a period of time, and focused on discrete skills (Kraft et al., 2018). Coaching is located within the competency drivers of the NIRN Implementation Drivers and defined as regular, embedded PD designed to help teachers and staff use the program or innovation as intended (NIRN, 2020)

Coaching Observation Tool: a tool designed to identify discrete coaching behaviors demonstrated during real-time coaching sessions

e-*Coaching*: formally called virtual coaching (Ploessl & Rock, 2014), is a type of BiE coaching, involves the use of a Bluetooth device connected to the teacher's laptop. The coach and teacher

connect via Zoom, Skype, or another platform to video conference, and the coach provides prompts or feedback to the teacher during the lesson and the coach provides prompts or feedback to the teacher during the lesson (Rock, 2019). According to Rock et al. (2014), e-Coaching is the relationship in which one or more persons' effective teaching skills are intentionally and potentially enhanced through online interactions with another person (Rock et al., 2014, p. 162).

Evidence-Based Practices: "practices that are supported by multiple, high-quality studies that utilize research designs from which causality can be inferred and that demonstrate meaningful effects on student outcomes (Cook & Cook, 2013, p. 72); practices for which there is a demonstrated relation between specific practices and measured outcomes" (Schalock et al., 2017, p. 115)

Implementation Drivers: key components of capacity and infrastructure that influence a program's success. They are the three core components (competency drivers, organization drivers, and leadership) that are needed to initiate and support classroom, building, and district level change (NIRN, 2020)

Implementation Science: "the study of factors that influence the full and effective use of innovations in practice. The goal of Implementation Science is not to answer factual questions about what is, but to determine what is required (mission driven)" (Blase et al., 2012)

Instructional Coach: a coach who teaches others how to learn very specific, evidence-based teaching practices while working alongside them (Knight & van Nieuwerburgh, 2012)

Professional Development: a broad array of learning experiences for teachers to increase knowledge and teaching practices (Desimone, 2009)

Real-Time Performance Feedback: feedback offered to interventionists during instruction and delivered using technology (Sinclair et al., 2020)

Targeted Reading Intervention: TRI is a PD program for educators with an embedded intervention for students. The intervention includes daily 15-min one-on-one reading instruction for kindergarten through second grade students not yet reading on grade level (Aiken et al., 2021)

CHAPTER 2: REVIEW OF LITERATURE

With the importance and urgency of ensuring evidence-based practices are being taught be teachers and received by students, researchers and legislators have turned to coaching (Denton & Hasbrouck, 2009). Coaching is one way to provide scaffolds for teachers as they learn to implement practices following PD (Collet, 2012; Rock, 2019). This has thrust the instructional coach into a key role and one that is not well understood (Mundy et al., 2012). In this chapter, I will propose a theory of change, provide a summary of the coaching literature, discuss coaching approaches, and summarize the role of the instruction coach, including specific behaviors. The chapter will conclude by making the case that the development of a coaching observation tool is needed to better understand the behaviors of a coach during real-time coaching sessions to support the implementation of EBPs.

Theory of Change

Coaching is a practice that aligns with the theory of Lave and Wegner. This theory proposes learning is more than gaining knowledge that is later applied into a context, but rather a person's development within their practice. Leaning on ethnographic studies of apprenticeship, they argue the importance of acquiring and building knowledge in relation to a situated world. In *Situated Learning: Legitimate Peripheral Participation* (1991), Lave and Wenger propose the importance of knowledge and practice. Further, Lave and Wenger report ethnographic studies of apprenticeship suggesting the "indivisibility character of learning and work practices" (p. 61). The approach addresses a frequent concern that teachers often do not have the opportunity to practice and receive feedback in the classroom (Joyce & Showers, 1981) or in situ (Horn et al., 2020; Rock et al., 2013).

Cochran-Smith and Lytle (1999) developed a framework that included three conceptions of teacher learning, or how knowledge develops in teachers: (a) knowledge-for-practice, (b) knowledge-in-practice, and (c) knowledge-of-practice. First, knowledge-for-practice proports knowing more (e.g., content or instructional strategies) translates more or less directly to more effective practice. A teacher's content knowledge and pedagogical skills provide students with learning opportunities. Standards and licensure requirements align with this conception. Second, knowledge-in-practice emphasizes practical knowledge and the application of knowledge. In this case, the emphasis is on knowledge in action, and a teacher's knowledge being acquired through experience and reflection. This theory builds on the idea of teaching being a craft and stems from the constructivist theory. Third, the knowledge-of-practice conception does not separate content and pedagogical knowledge and suggests that teachers theorize and construct their knowledge. Within this theory, knowledge is iterative and constructed collectively by a variety of stakeholders (e.g., teachers, administrators, and university faculty) and generated by making classrooms and schools sites for research fostering collaboration. This is important because the differing conceptions lead to differing approaches to coaching support. Whereas the knowledge-in-practice conception emphasizes the coaching of teachers' reflective practices, the knowledge-for-practice coaching would be provided by an expert following a PD. The present study and theory is aligned with the knowledge-for-practice conceptualization because the coach is focused on supporting the implementation of an identified EBP.

The implementation of researched practices in the classroom continues to be inconsistent (Fletcher et al., 2019). Killion et al. (2012) suggest that since the ultimate goal of coaching is to improve student outcomes, some core assumptions must be in place. These two key points are related to my study and theory of change. First, teachers are the most important factor in

improving student achievement. Second, providing teachers support to their interactions with students may leverage student achievement. The instructional coach appears to be a key variable in the change of teacher practice.

Although one-time workshops, or inservices, may improve teacher content knowledge, the change of practice needed to improve student outcomes continues to lag (Joyce & Showers, 1981; Rock, 2019). A number of studies have demonstrated instructional coaching supports the implementation of EBPs into the classroom (Carlisle & Berebitsky, 2010; Mashburn et al., 2010; Neuman & Cunningham, 2009). However, some studies with coaching demonstrate mixed or inconclusive, results (Garet, 2008, Kraft et al., 2018; Powell et al., 2010). Unlike fidelity checklists and observation tools used to support teachers with the implementation of practices, coaching fidelity checklists and observation tools are less common. Although much work has been completed in coding and creating observation and/or fidelity tools for teachers to support the implementation of EBPs, this is not the case for coaches (Knight & van Nieuwerburgh, 2012). Further, it is suggested that the observation of coaches during a coaching session is important to understanding the implementation of coaching practices and whether certain coaching practices have a relation to a teacher's fidelity of implementation (Neufeld & Roper, 2003). Dale Cusumano, a Senior Implementation Specialist of NIRN, has co-developed tools and supported districts and states with implementation initiatives to support the use of EBPs. She suggests, "it should not be surprising that if teachers may need support from a coach to continually build their practice, coaches may need support as well" (D. Cusumano, personal communication, November 1, 2020). Additionally, teachers who recently graduated from college are at the beginning of a professional career and may likely need ongoing PD to develop their practice (Webster-Wright, 2009).

Several studies have identified a lack of change in teacher practice following multi-component PD which included coaching (Garet, 2008, Kraft et al., 2018; Powell et al., 2010). Postulated reasons for this lack of change include insufficient coaching time and coaches' content knowledge (Garet, 2008), the scope of the intervention (Powell, 2010), and the size of the coaching program (Kraft et al., 2018). Although these factors are undoubtedly at play, an additional factor may be a lack of consistent measure of coach fidelity. Despite studies consistently referring to teacher fidelity tools to support the implementation of EBPs, there lacks similar research and tools related to the fidelity of coaching within programs and interventions. Multi-component interventions of which coaching is identified as a critical component to support implementation of EBPs and a change in teacher practice currently lacks investigation or is not reported. In a meta-analysis conducted by Kretlow and Bartholomew (2010) investing the impact of coaching on teachers' implementation of EBPs, only four of the 13 reviewed studies provided any data related to the coach following the specific protocol, and those that reported fidelity data had scores ranging from 13% to 100%. Although difficult, it is important to develop coaching evaluation strategies of assessment tools to measure the quality of a coach's work and their impact (Neufeld & Roper, 2003).

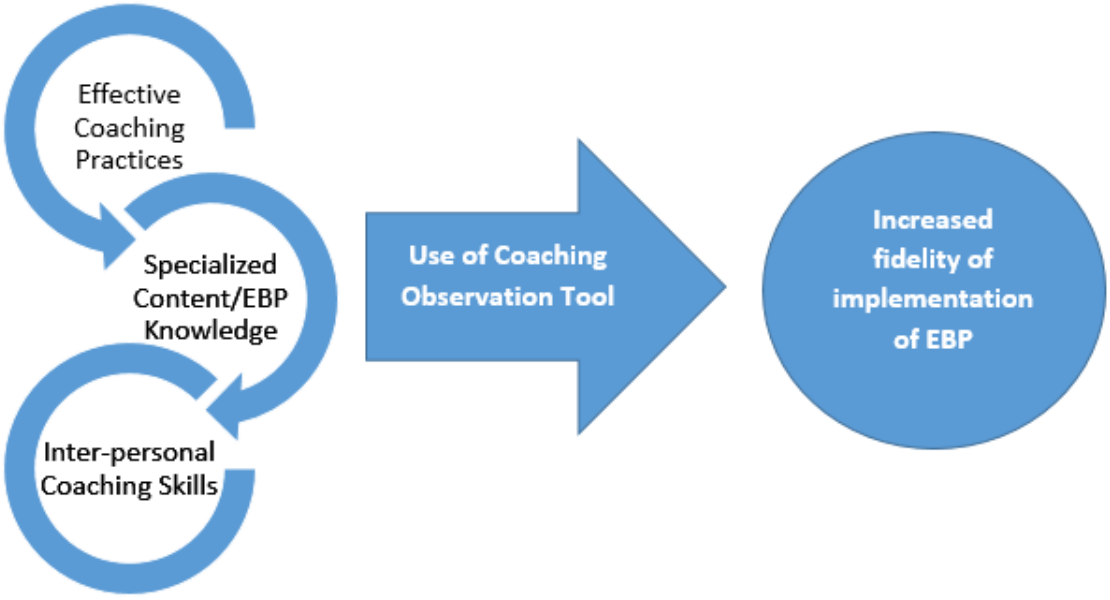
All PD, but especially multi-component PD programs, highlighting coaching as a critical component to improving teacher practice may benefit from a tool to identify coaching behaviors demonstrating during the session. A fidelity check or observation tool would help in understanding the coach's behavior during the coaching sessions in order to determine whether all, or some, coaching behaviors are frequently observed. A tool that could be used to identify behaviors demonstrated by the instructional coach (e.g., effective coaching behaviors, specialized content or EBP knowledge, and interpersonal coaching skills during real-time

coaching sessions) would allow us to better understand the impact of the coach within the PD package. It is possible that when a coach uses effective coaching practices, possesses specialized content or EBP knowledge in the area providing the coaching, and exhibits interpersonal coaching skills, the teacher's knowledge and practice will improve.

Given the key role coaches currently play in bridging the gap between research and implementation, it is important to understand coaching behaviors during coaching sessions. The complex role of the coach can and should be monitored during coaching sessions in order to determine which variables of the coaching are frequently used with teachers. In order to do so, a valid and reliable coaching observation tool must be developed and used to support the training, monitoring, and growth of instructional coaches. Fixsen et al. (2019) suggest the use of if-then prediction statements in the forming of theory-based predictions. Following this format, *if* coaches implement specific coaching practices during coaching sessions, *then* teachers will increase their level of implementation of EBPs. This hypothesis would seem intuitive and aligns with the work of identifying and measuring teacher implementation of EBPs using an observation tool or fidelity checklist. However, without the use of a tool to identify or measure coaching practices during the coaching session, we are unable to text this hypothesis. Therefore, by developing a coaching observation tool, which identifies coaching behaviors, including effective coaching practices, specialized content/EBP knowledge, and interpersonal coaching skills used during a coaching session, we can better understand the behaviors frequently used, and ultimately the impact of the behavior on change of teacher practice.

Figure 1

Theory of Change



General Summary of the Literature on Coaching

Despite the mixed results of PD plus coaching, it does appear overall that coaching can have positive effects (Carlisle & Berebitsky, 2010; Neuman & Cunningham; 2009; Neuman & Wright, 2010) on teacher practice and student outcomes, indicating further exploration is warranted. Coaching, or situated PD, employs coaches to connect learning to the teachers' daily responsibilities in the authentic context (Mundy et al., 2012).

In the early 1980s, Joyce and Showers conducted a series of studies and published widely on the topic of coaching. Key topics included effective training should be multi-component to include theory, demonstration, practice, feedback, and classroom application to transfer new knowledge into the classroom setting (Joyce & Showers, 1981). They further postulated that PD often does not provide adequate opportunities for practice which would ensure thorough initial learning. Specifically, in traditional PD, teachers often do not have the opportunity to practice

and receive feedback in the classroom (Joyce & Showers, 1981) or in situ (Lave & Wegner, 1991). In other fields, such as sports, coaches are viewed as commonplace. Seizing on this notion, Joyce and Showers (1982) use the analogy of a teacher as an athlete, "like athletes, teachers will put newly learned skills to use- if they are coached" (p. 5).

An increase in instructional coaching occurred in the 1990s, likely fueled by federal mandates focused on improving student academic outcomes (Denton & Hasbrouck, 2009). With the passing of the Reading Excellence Act of 1999, federal funds made their way into some schools in the form of reading coaches. By 2002, federal legislation, such as Read First Initiative under No Child Left Behind specifically suggested the use of coaches. These initiatives prompted the amplified need for instructional coaches, with little understanding of responsibilities (Mundy et al. 2012).

Years ago, Noell et al. (1997) investigated the treatment integrity for an intervention targeting student academic performance. Three general education elementary student-teacher dyads participated in this multiple baseline design across participants study. The phases of the study included consultation only, performance feedback, and maintenance. Treatment integrity was measured by the number of implemented steps, with the completion of each step leading to a permanent product. The performance feedback phase was the most effective in increasing treatment implementation. Specifically, all of the teachers demonstrated an initial high level of treatment integrity for first 1-4 days of intervention and an increased treatment fidelity when performance feedback was introduced. However, the integrity decreased to very low levels by the end of the consultation only phase (e.g., without performance feedback). These findings suggested performance feedback (e.g., coaching) can be effective in increasing treatment implementation by teachers. Yet more research is needed to understand conditions of

performance feedback consultation needed to improve the implementation of interventions with fidelity (Noell et al., 1997).

Studies suggest that when teachers receive coaching or mentoring following PD, the results of teacher content knowledge and practice are improved (Brownell et al., 2017). For example, Collet (2012) conducted a mixed-method study that investigated the gradual increase of responsibility model for coaching teachers/tutors. Three coaches (professors and doctoral students at a university's literacy program) and 46 pre- and inservice teachers participated in the study. The authors proposed and studied a model that initially begins with coaching (dependence) and fading toward interdependence (collaborating) the coaches' behaviors move from modeling to recommendations, questions, affirmations, praise with the intent of building teacher capacity. In the study, the coaches used a weekly checklist to document coaching moves (e.g., model, recommend, question, affirmation, praise). The findings indicated that by strategically progressing from modeling to praising, teachers were provided with the needed scaffolding to become increasingly dependent. Therefore, providing scaffolded support through coaching is effective in promoting teacher change.

In another study, Snyder et al. (2015) described how practice-based coaching was used to support the implementation of EBPs with early childhood providers. In practice-based coaching, coaches supported the teacher in implementing EBPs in a variety of areas including social-emotional, behavioral, and instructional. In addition to using the Classroom Assessment Scoring System to monitor teacher fidelity of implementation, researchers also monitored coaching implementation fidelity. This was done through researcher-developed coaching logs of the coaching component and indicators. These self-report logs were completed by coaches following their sessions with teachers.

Of the components included in multi-component PD, instructional coaching is the most widely used (Rock, 2019). Instructional coaching is widely used in schools across the nation and has found its way into policy (Denton & Hasbrouck, 2009). Policy and district practices favor coaching following PD as a promising way to address the literacy crisis, and it is important to deeply understand the challenges associated with coaching and the broad range of coaching practices (McCollum et al., 2011). Currently, a popular suggestion to improve traditional PD is providing teachers with coaches who observe and advise following the lesson (Ehri & Flugman, 2018). However, the act of working with a coach alone does not change practice (Robertson, Padesky et al., 2020).

Coaching Approaches

In addition to the different roles coaches play, they also practice their skills in a variety of settings, including onsite or virtual. Some coaching approaches use multi-level (Goodnight et al., 2020; Wood et al., 2016) or multi-component multimedia support (Kennedy et al., 2017; Mashburn, 2010; Weiser; 2019). This section contains a brief explanation of the types of coaching and highlights some studies from each approach.

Multi-Level Coaching

Multi-level coaching is similar to multi-tiered systems of support for students, in that the coaching provided is based on the individual need of the teacher with coaching. In this approach, coaching is provided using a tiered approach: level 1 (inservice training/workshops), level 2 (supervisory coaching), and level 3 (side-by-side coaching which is informed by feedback and data-based decision making; Wood et al., 2016).

Goodnight et al. (2020) provided multi-tiered coaching, as needed, to teachers following PD to increase the use of research-based practices in reading instruction to kindergarten general

education teachers. The coaching consisted of three components: individual preconference, side-by-side coaching session, and individual feedback meeting. Goodnight and colleagues found that three of the nine participating teachers needed side-by-side coaching to support the implementation of practices learned in the PD. The authors contend that coaching should be individualized and that not all teachers will require coaching support to successfully implement EBPs following PD. Recommendations for future research included using a variety of methods to support the implementation of EBPs, including performance feedback (Goodnight et al., 2020).

Multimedia Observation and Video-Based Coaching

Multimedia observation and video-based coaching both take advantage of technology in a virtual coaching format. For both options, the coaching feedback is provided after, not during, the instruction. Studies exist that examined the effects of multimedia observation and video-based coaching on teachers' implementation of reading practices.

In one multimedia study, Mashburn et al. (2010) compared the development of language and literacy skills for pre-kindergarten students whose teachers were randomly assigned to one of the following conditions: (a) language and literacy activities only; (b) language and literacy activities and access to the video library (MTP Video Library); or (c) the language and literacy activities, access to the video library, and participate in the consultancy (MTP Consultancy). Over the 2-year period, this large study included 134 teachers working with 1,165 students. The consultancy condition was provided via webcam and consisted of four steps including: (a) teacher video-recording a 30-min lesson; (b) teacher sending the recorded video to the consultant, who watched the video, selected clips for the teacher to review, and posted the clips on a secure website; (c) teacher reviewing the clips and answering reflective questions in an

online journal; and (d) the teacher and consultant participating in a bi-weekly meeting for 30 min via videoconference to discuss teaching practices and teaching goals. Results demonstrated an increase in consultation hours predicted positive changes in students' receptive vocabulary. Specifically, children with teachers in the consultancy condition scored .50 points higher on the spring receptive language assessment than children with teachers in the video library condition (d = 0.27). The average consultation hours were 19.6 hours per teacher; however, this varied greatly, ranging from 26 min to 46.7 hours.

Kennedy et al. (2017) used a single-case, multiple baseline across participants design to explore the effects of a multi-component PD package, including coaching, on instructional time spent explicitly teaching vocabulary. Participants included three general education, middle school science teachers. The intervention package consisted of multi-component PD, including (a) content-acquisition podcasts for teachers with video (CAP-TV), (b) Content Acquisition Podcasts–Teacher Slides (CAP-TS); sample instructional materials, including a podcast and transcript of five evidence-based vocabulary instruction practices, and (c) feedback and coaching. Coaching support was provided via email and included data collected (using the Classroom Teaching Scan observation tool), strengths of practices observed, and specific feedback related to areas of improvement. A visual and statistical (Tau) analysis demonstrated an increase in time spent explicitly teaching evidence-based vocabulary practices by the participating teachers.

In another study, Weiser et al. (2019) investigated whether technology-based Student Data-Focused Coaching was as effective as in-classroom support for increasing teachers' knowledge and implementation of research-based reading instructional routines and improving academic outcomes of students with reading disabilities. The participating 27 schools (17

elementary, nine middle, and one junior high) in this quasi-experimental study were randomly assigned into one of three coaching groups (i.e., face-to-face coaching, on-demand coaching, or technology-based coaching). All teachers participated in a one-day PD related to EBPs in reading instruction, yet the follow-up coaching was different for each group. The face-to-face coaching group (n = 15; 34%) received monthly observation and coaching meetings occurred in teachers' classrooms. The technology-based coaching group teachers (n = 13; 30%) met with their coach via the technology platform and had access to the platform's additional resources (e.g., lesson plans, webinars, and instructional videos). The on-demand coaching group teachers (n = 16; 36%) were observed monthly, but it was up to the teachers to request a meeting or seek help from the reading coach. The technology-based coaching group demonstrated increased knowledge between pre- and post-surveys and demonstrated increased instructional time on the quality of implementation of evidence-based reading practices. Additionally, 93% teachers involved with technology-based coaching reportedly preferred videotaping their own lessons rather than having a person come into their classroom.

Onsite Coaching and Feedback Provided Outside of Coaching Session

With the onsite coaching and feedback provided outside of the coaching session approach, the coach is onsite. The coach is typically in the classroom observing the lesson, and the coach provides feedback to the teacher outside of the coaching session. The coaching may occur in a cycle (preconference, observation, postconference) and feedback may be provided face-to-face or via email (Brownell et al., 2017; Carlisle & Berebitsky, 2010; Gettinger & Stoiber, 2016; Neuman & Cunningham, 2009; Neuman & Wright, 2010; Podhajski et al., 2009). The onsite coaching and feedback provided outside of the coaching session approach has demonstrated success in supporting teachers with the implementation of EBPs.

Coaching Evidence-based Practices. The onsite coaching and feedback provided outside of the coaching session approach has been used to support the implementation of EBPs. One study using this approach was conducted by Neuman and Cunningham (2009) to determine the impact of PD on teacher knowledge and practice. The study was part of a larger study, Project Great Start PD Initiative, that included 304 early childhood providers (*n* = 86 PD only, *n* = 85 PD plus ongoing coaching, and *n* = 133 control group) from 291 sites and 14 coaches. Teachers participating in the PD plus ongoing coaching received the 45-hour language and literacy PD course, as well as yearlong, weekly, onsite one-on-one coaching support. Specifically, treatment teachers received 1-1.5 hours of diagnostic or prescriptive coaching support, translating to 64 hours of individualized coaching support. Characteristics built into the coaching component included reflection and goal-setting. The coaches provided onsite and sustained support to facilitate teacher reflection and provide corrective feedback. Findings demonstrated teachers receiving PD plus coaching scored significantly higher on their posttest on the quality of their early language and literacy practices in all areas (e.g., writing area, physical environment. support for learning and teaching strategies). To ensure fidelity of implementation across study sites, the coaches completed a self-report coaching log and two unannounced observations were conducted. However, the data were not provided and no information specific to coaching behaviors recorded during observations were reported.

In another study, Podhajski et al. (2009) examined the effects of a scientifically-based reading instruction PD plus coaching on teachers' knowledge and students' reading outcomes, including students with disabilities and those with 504 plans. Two first grade, one second grade, and one first-second grade combination teacher were assigned to treatment and control groups. Teachers in the treatment group received a 5-day, 35-hour face-to-face Training in Instructional

Methods of Efficiency (TIME) PD. The training addressed research-based assessment tools and reading intervention strategies (e.g., phonemic awareness, phonics, and fluency) plus onsite, year-long coaching (30 min to1 hour once a month for 10 months). During the coaching sessions, the mentors were expected to model assessment and intervention practices, observe lessons, and provide feedback. The results showed that in addition to growth patterns in the treatment indicating success of the intervention, teacher satisfaction surveys indicated the coaching component appeared to give teachers confidence. No measures of specific coaching behaviors during the individual coaching sessions were reported.

In an additional study, Neuman and Wright (2010) conducted a randomized controlled trial to determine the impact of the coaching component on PD. The participants included 148 early childhood educators who were randomly assigned to one of three groups: PD/Coursework only, PD plus coaching, and control. The PD component was a 30-hour PD language and literacy course in content and pedagogical knowledge. Participants in the PD plus coaching treatment received weekly, one-to-one, face-to-face diagnostic/prescriptive coaching. The 3-hour weekly coaching sessions were provided for a 10-week period. Coaches completed self-report online coaching logs, and the program manager made unannounced visits and observed coaches. A review of 505 coaching logs focusing on two areas (environmental features and instructional strategies) found coaches spent more time on environmental features than instructional strategies, which might be attributed to the modest growth in implementation of instructional strategies. Specifically, the most frequently used coaching activities focused on setting goals, promoting reflection, observation classroom, and providing feedback. Coaching logs documented coaches spent limited time spent planning, co-teaching, or modeling instructional strategies. Treatment teacher practice measures demonstrated statistically significant improvements in the area of

structural characteristics of the environment (e.g., book and writing area). However, there were no differences shown between treatment and control teachers in the area of process characteristics of quality (e.g., interactional environment, support for learning, and teaching strategies). Therefore, coaching did not yield statistically significant gains in the quality of teacher instruction. Statistically statistical improvement in teacher's practice in structural environment were maintained 5 months after PD. Teacher satisfaction with coaches was rated positively with some teachers responding having a coach provide support following PD allowed them to try out strategies and receive feedback.

Carlisle and Berebitsky (2012) conducted a study to support the implementation of the Language Essentials for Teachers of Reading and Spelling **(**LETRS) program as part of the Reading First initiative. The first grade teachers (n = 69) in year two of a multi-year study were assigned to PD Coach (n = 39) and No Coach (n = 30) groups. All teachers attended LETRS seminars in year one. To determine change in teacher practice, the teachers' instructional practices tool was used to code target features of instruction during participating literacy blocks including purpose of instruction, modality, grouping arrangements, adults present in the classroom, and materials used for instruction. Researchers used a time sampling method to gather information about instruction by observing the classroom every 5 min for 15 s and recording the descriptive codes in fields that represent key features of instruction. For students in the PD Coach group classified as at risk in word decoding (n = 244; DIBELS Nonsense Word Fluency) in fall, 41% moved into the "some risk" category and 46% moved into the "low-risk" category by the spring. For students in the PD No Coach group classified as at risk (n = 92) in the fall, 49% moved into the "some risk" category, and only 11% moved into the "low risk" category. Based on this measure, students whose teachers received the PD Coach intervention

were significantly more likely to move to a lower risk category than those whose teachers were in the PD only treatment. Finally, results suggested PD Coach teachers provided more differentiated instruction to their students than their PD No Coach colleagues. The 21 coaches completed a self-report survey in the spring related to their daily coaching work and knowledge. Coaches indicated they spent the most time visiting teachers' classrooms, working individually with teachers, and explaining or modeling methods of instruction. However, there was no measure or data specifically related to coaching behavior during sessions reported.

Reinke et al. (2013) conducted a study to evaluate the relation between teacher implementation of classroom management practices and coaching supports. Fifty-two elementary school teachers from nine urban schools participated in this study, which was part of a larger study. The Incredible Years Teacher Classroom Management PD included six, 6-hour workshops spread out across the school year plus one-on-one sessions with coaches in classrooms. Between the workshops, the coach observed and met individually with each teacher. Typically, the coaching session included reviewing the teacher's goals and performance feedback data collected by the coach during the classroom observations conducted to measure teacher implementation of target practices. Findings revealed that teachers who received intervention plus coaching demonstrated an increase in the use of proactive classroom management strategies over time, and the use of performance feedback was found to be associated with higher implementation of proactive strategies.

Later, Gettinger and Stoiber (2016) conducted a randomized group design study to determine the impact of coaching on supporting the transmission knowledge to improve the implementation of evidence-based early literacy practices. The study was conducted at 10 Head Start centers in large, urban city in the midwestern United States. The intervention included two

coordinated PD components that were provided over the course of one school year and bi-weekly, and onsite coaching with two conditions (coaching C-only and coaching plus demonstration C + D). The coaches had 2 years of experience coaching in Head Start classrooms and met biweekly with study authors. Overall, all teachers (C-only and C + D) demonstrated significant improvement in their book-reading practices, except in the area of embedding an explicit focus on phonological awareness. Further, C + D teachers scored significantly higher at post-intervention on total scores for literacy-enhancing behaviors and on three of the four categories of literacy practices compared to C-only teachers. The finding suggested demonstration may be an effective coaching practice. In this study, adherence to a coaching protocol was followed, and coaches self-reported (on a brief fidelity checklist) how time was spent during the coaching sessions. Although the researchers reported there were systematic observations of coaching sessions, they did not require detailed coaching logs.

Finally, Brownell et al. (2017) used an experimental randomized block design to compare teachers who participated in the full Literacy Learning Cohorts (LLC) intervention with teachers who received only the 2-day face-to-face PD institute. Study participants included 42 special education teachers, with 22 in the LLC group and 20 in the PD-only group who taught 170 students (n = 94 with LLC and n = 76 with PD-only teachers). LLC is a multi-component PD consisting of a content-focused PD institute, monthly cohort meetings, and individualized coaching support. Classroom observations were conducted by coaches following the four monthly cohort meetings. The observations were video-recorded. The teacher and coach watched the videos using a rubric to reflect on areas needing more practice and develop action steps. The LLC teachers spent more time instructing evidence-based word study practices (including structural analysis or multisyllabic decoding skill). Despite teachers in the LLC group making

significant gains in knowledge, quantity, and quality of fluency instruction, these shifts in instruction did not significantly influence students' oral reading fluency outcomes. The coaches followed a protocol during the observations; however, no measures were reported related to specific coaching behavior or direct impact.

Overall, the studies related to the onsite coaching and outside of session feedback approach demonstrated positive impacts in change of teacher practice and suggest potential for positive student outcomes. Although some studies relied on self-report coaching logs to identify frequently used coaching practices, none provided a report of specific behaviors demonstrated during coaching sessions. Authors acknowledged the need for future research to determine the specific role that coaches play in changing teacher practice (Carlisle & Berebitsky, 2010) and to determine the types of activities and qualities of coaching that brings about a change in teacher practice (Gettinger & Stoiber, 2016).

Onsite Coaching and Real-Time Feedback

Another approach is onsite coaching and real-time feedback. In this approach, the coach is onsite, likely in the classroom observing the lesson, and the coach provides feedback to the teacher during the coaching session. This feedback may be provided via technology, such as a walkie-talkie device and earpiece (Bowles & Nelson, 1976; Giebelhaus, 1994; Kroner & Brown, 1952; Ottley et al., 2019), or without technology by feedback provided during or immediately after the session based on teacher preference (Amendum, 2014; Amendum & Liebfreund, 2019; Vernon-Feagans et al., 2010). Additionally, some of the studies report on peer-coaching, where the peer is providing the real-time feedback to a colleague (Ottley et al., 2017; Sheeler et al., 2010).

In the early 1950s, Korner and Brown of the College of Medicine, Utah University began using the “mechanical third ear” (Korner & Brown, 1952, p. 82) to support their graduate students with training to conduct diagnostic testing. Unbeknownst to the patient, they rigged a wire to a hearing aid, worn by the student, allowing them to hear the supervisor, who provided direction directly into the student’s ear from a one-way observation room. The student trainee, acting as if they were deaf and that the hearing aid was to assist with amplification for them to hear, led the patient through the assessments with the supervisor providing prompts through the wire and into the hearing aid in the moment, providing real-time feedback. The students and supervisors agreed the technique was helpful in supporting the student through situations that may be challenging on their own and felt that it became easier and more natural over time, suggesting that practice increased the usefulness of the device.

Over two decades later, Bowles and Nelson (1976) continued this work by translating bug-in-the-ear (BiE) technique into the field of education by providing real-time feedback to teachers. In this scenario, the teacher wore an adjustable belt with a portable FM radio and a radio earpiece. The experimenter used a wireless FM microphone to talk to the teacher, as he observed the lesson from a three-sided portable, soundproof booth. The researchers conducted an experimental, randomized assignment study to evaluate the differential effects of inservice workshop training for teachers and the BiE technique on the knowledge of behavior modification principles and the increased the use of teacher of praises and prompts for appropriate child behaviors. Twelve general and special education teachers from four schools were randomly assigned to two experimental groups and one control group, with four teachers in each group. The treatment E1 group received a 16-hour inservice. The treatment E2 group received a 16-hour inservice plus BiE coaching (2-hour). The coach provided real-time cues to the teacher, stating

prompt, praise, or contingency based on the student and teacher interactions during the live instructional session. produced significant increase in praise and contingency responses without prompts. There was no coach fidelity or observation measures reported related to the behaviors employed by the coach during the coaching sessions.

Later, Giebelhaus (1994) continued the work with student teachers during the ongoing teaching/learning process. The 22 elementary education students and cooperating teachers were randomly assigned to treatment (BiE) or control groups. A one-way wireless communication device allowed the coach to provide onsite, unobtrusive, real-time audio-cuing or prompting around 14 discrete teacher clarity behaviors. For example, in response to student-teacher behavior of "allows student to ask questions," the coach would provide the audio-cue "wait time," or for the student-teacher behavior of "writes important things on the board or chart," the coach would provide the audio-cue "use board." Although the discrete teacher behaviors and audio-cues were clearly outlined, no coaching observation measures of coaching sessions were reported. Teachers receiving the coaching immediately responded to the coaches' cues at an 88% response rate, demonstrating immediate desired changes in teacher behaviors. The student teachers also reported the BiE coaching was nonthreatening and provided for meaningful conversation following instruction.

Coaching Evidence-based Practices. The onsite coaching and real-time feedback approach has demonstrated success in increasing teachers' implementation of EBPs. Goodman et al. (2008) investigated the effects of BiE coaching in naturalistic settings and with various teaching methodologies by measuring rate and accuracy of learn unit delivery for novice special education teachers. A learn unit is the smallest unit through which the act of teaching can be presented and is composed of a teacher antecedent, student behavior, and teacher consequence

where the teacher's reaction and subsequent antecedent is driven by the student's response. Three special education novice teachers from a midsize school district in southeast Florida participated in this single-case, multiple baseline design across teachers design study. The intervention consisted of BiE coaching, where the coach provided real-time auditory feedback, using earbud-microphone and provided prompts to the teacher from the back of the classroom during instruction. The researchers monitored the coach's prompt delivery at each phase of the intervention and various teaching methodologies by measuring rate and accuracy of learn unit delivery for novice special education teachers. The positive findings indicated that using BiE technology increased both the rate and accuracy of completed learn units delivered by the teachers. Notably, each teacher reached 100% accuracy of learn unit delivery during the intervention phase. Overall, the rate and accuracy of each teacher's delivery improved from baseline (and sustained for two teachers in the maintenance condition).

Amendum (2014) conducted a multi-level mixed method study to investigate the impact of the Early diagNostic Reading Intervention through CoacHing (ENRICH) PD and classroom-based early reading intervention students, adapted from TRI. Participants included 10 educators, (n = 6 classroom teachers, n = 3 reading specialists, n = 1 curriculum coordinator) and 45 students (n = 29 intervention; n =16 comparison) from a southeastern district in the United States. The 1-day summer institute introduced educators to the ENRICH intervention, which consists of one-on-one 15- to 20-min sessions on Familiar Rereading, Word Study, and Teacher-Guided Reading with a writing extension. In addition, weekly coaching with feedback was provided to the participants. The feedback was provided during, after, or during and after the coaching session based on teacher preference. The expert coach, trained by primary researcher, observed weekly instructional sessions and provided individualized, real-time feedback. Findings

indicated students in intervention demonstrated statistically significant growth over control students with moderate effect sizes (*ES* = 0.7-.11). Additionally, treatment teachers shared both positive perceptions (e.g., change in practice promoted student growth) and challenges (e.g., time to deliver the one-on-one intervention) related to their practice, and the response toward the PD was varied, with notably few teachers specifically mentioning the ongoing coaching component of the PD. The authors noted no fidelity data as a limitation and no information related to specific coaching practices during the coaching session was provided.

In a later study, Amendum and Liebfreund and (2019) used a multi-level mixed method design to investigate impact of ENRICH intervention. In this study, participants included 29 kindergarten, first, and second grade teachers in an urban/suburban elementary school located in a large, southeastern district in the United States. A two-part eligibility process for students identified and selected included students performing below grade level (treatment) and students performing above grade level (control) for a total of 125 students. The ENRICH, multi-component PD, included a one-and-a-half-day initial training session and weekly job-embedded literacy coaching designed to build teacher capacity in providing diagnostic reading instruction to increase student ability to make meaning from text and to decode words. Daily ENRICH sessions lasted approximately 15-20 min. The sessions included: re-reading of familiar text (2-5 min), word study (6-10 min), and teacher-supported reading and follow-up writing (7-10 min). The ENRICH intervention coach, with specialized experience in ENRICH and coaching, embedded support during weekly sessions. No information was reported related to specific coaching behaviors demonstrated during the coaching sessions. The fidelity of teacher intervention was measured as intensity (number of sessions provided by the teacher throughout the intervention period) was an average 3.13/4-5 lessons per week with a range of 30-124 lessons

provided by teachers, and adherence (degree to which components of the intervention were used as intended and prescribed) was an average 84.4%, with a range 55-95%. Students demonstrated gains in all four target areas. Teachers' reflections on situated PD included a self-reported increase in reading content knowledge, newly learned reading development knowledge, and differing responses to coaching with classroom teachers less frequently explicitly mentioning the embedded coaching when asked about the PD experience. The authors suggested coaching may be responsible for teachers' increase in self-efficacy for instructional practices.

In a study working with early childhood teachers, Ottley et al. (2017) examined the effects of a PD package with BiE peer coaching on early childhood teachers' use of evidence-based communication strategies. The study included four early childhood teacher dyads in a university-affiliated center in a large city in the midwestern United States. The authors used a single-case, multiple baseline design to investigate the effects of a multi-component intervention, which included a 90-min training, 5-7 weeks of BiE peer coaching, and weekly reflection sessions. Walkie-talkies and cellphones with headphones were used to provide the onsite, in situ feedback to the teachers. The researchers analyzed recorded sessions to determine the quality based on predetermined characteristics of desired immediate feedback (e.g., timely, specific). Findings demonstrated teachers increased their use of EBPs. Additionally, three of four dyads sustained their use of total coached strategies during the fading phase and one dyad maintained their use of the strategies post-intervention. The teachers also expressed BiE peer coaching increased the quality of their teaching and improved children's communication. In this study, implementation fidelity of the BiE coaching was reported.

More recently, Ottley et al. (2019) evaluated the feasibility and impact of a coaching approach delivered by community-based PD providers. Participants from a large city in the

midwestern United States included four community-based staff, educators who taught in separate classrooms across nine centers, and 62 children (*M* age= 20 months). In this field study, teachers were randomly assigned to groups (n = 11 for treatment and n = 10 for comparison). The treatment group of community-based coaches received a 2-hour didactic training on the foundational knowledge for the use of communication strategies, as well as follow-up BiE coaching (up to 6 hours across 6 weeks with the option of one 1-hour or two 30-min sessions per week) using walkie-talkies. The comparison group received parallel training, but the content focused on interactions and adaptations to support language and literacy development, and there was no coaching. The coaches used self-report coaching checklists to document coaching behaviors. The researchers coded the total number and average duration of BiE sessions provided to educators. Researchers also reviewed audio-transcripts and coaches' self-report notes from coaching sessions. Findings demonstrated that coaches perceived they provided feedback correctly on a communication strategy 84% of the time, and feedback was helpful in improving teachers' instructional practices in 88% of the coaching sessions. The results further demonstrated community-based providers could provide feedback to early childhood educators.

More recently, Owens et al. (2019) examined the effects of a tiered coaching package, similar to multi-level coaching (Goodnight; 2019; Wood et al., 2016) that included BiE, to improve on-task behaviors of students demonstrating persistent off-task behaviors in the general education classroom. A major focus of this study was to increase teachers' implementation of EBPs. Participants included four general education teachers and four students identified with persistent off-task behaviors from a diverse K-5 elementary school in a suburban city in southeastern United States. The authors used a single-case, multiple probe across participants design to investigate the effects of a tiered coaching cycle included: individual coaching, onsite

BiE coaching, and post in-classroom setting coaching sessions. At the Tier 3, in situ BIE coaching level, coaching was provided onsite by the researcher. The coach provided both corrective feedback and specific praise related to the implementation fidelity of conducting the self-monitoring strategy during lesson with a student. A functional relation was demonstrated between the coaching intervention and teachers' implementation fidelity. Although there was no functional relation between increased fidelity and students' on-task behavior, the overall increase in students' on-task behaviors was noticeable.

Overall, the onsite coaching and real-time feedback approach has shown to be effective and versatile in supporting teachers and service-providers with the implementation of evidence-based academic and behavioral practices. Additionally, teachers have reported this form of coaching is nonintrusive and provides support to implement the newly learned knowledge. The overall findings suggest BiE may be one way to reduce the gap between research and practice (Ottley et al., 2017). Despite several studies providing specific practices the coach should use during the coaching session, most consist of self-report coaching checklists. Studies currently provide limited, or no, information related to measures or data collected of coaches' behaviors during the coaching sessions.

Virtual Coaching and Feedback Provided Outside of Coaching Session

In the virtual coaching and feedback provided outside of the coaching session approach, the coach is at another location while observing the lesson. The coach then provides the feedback to the teacher at a later time. Typically, the feedback may be provided over phone, video conference, or email.

Although the impact of face-to-face coaching approach has demonstrated promise in increasing the implementation of EBPs, it is likely more costly and less versatile than a virtual

approach (Vernon-Feagans et al., 2015). Studies suggest there is no negative impact to the coaching in a virtual versus face-to-face delivery (Kraft et al., 2018; Vernon-Feagans et al., 2015). In a virtual coaching and feedback provided outside of the coaching session approach, the coach is not onsite but uses technology to observe the coaching session and provides feedback to the teacher outside of the coaching session. This may be done in a variety of ways, including analysis of video-recorded coaching sessions (Fettig, 2016; Walsh, M., 2020), video-recorded lessons with self-reflections (Dingle et al., 2011) or specific coach feedback (Pianta et al., 2008).

Coaching Evidence-based Practices. The virtual coaching and feedback provided outside of coaching session is an approach that has been used to improve the implementation of EBPs. Pianta et al. (2008) investigated the impact of MyTeachingPartner (MTP), a multi-component, web-based PD program that included video exemplars and web-mediated consultation on teacher practice. Teachers (n = 113) working in a state-funded pre-kindergarten program serving families considered at risk participated in the study. Participating teachers were randomly assigned to a condition by district staff. The MTP Consultation support group received support for the entire year from the same consultant and followed a four-step process: (a) teacher videotaped language/literacy development lesson, (b) teacher sent tape to consultant who then edited the tape into a series of brief (1-2 min segments) focusing on a specific interactions, (c) coach used edited segments of videos, written comments, and questions to provide teacher with feedback, and (d) teachers and consultants then met virtually, on a bi-weekly basis, to discuss feedback and problem-solve. Results indicated the MTP teachers receiving online consultation and feedback demonstrated significantly greater increases in independent ratings of the quality of interactions than non-consultation group. Additionally, the positive impact of MTP consultation was especially evident in classrooms with higher proportions of children who experienced

economic risks. Even though the implementation related to teacher practice (i.e., number of tapes submitted, percentage of instructional time, length of tape, and type of activity), no information was reported in reference to monitoring of consultants' practices or behaviors.

Using a case-study analogy, Dingle et al. (2011) studied three teachers, from the larger cohort of 10 teachers, following Literacy Learning Cohorts PD. Teachers received training through a comprehensive PD (2-1/2-day institute, monthly follow-up meetings, online resources with a discussion forum, and monthly classroom observations for a 6-month period). In this study, the teacher and coach reflected on the videos and followed up via email, phone, or in-person visits. Four classroom observations were conducted and video-recorded for each participating teacher, and field notes were used to determine the level of implementation of target practices. Although there was a varying degree, all teachers changed practices following the PD, which included coaching support. The authors suggested a teacher's content and pedagogical knowledge, as well as teacher motivation and interest in gaining new knowledge, may be factors impacting the successful implementation practices learned during PD. The teacher implementation of practices was measured and discussed; however, no information was reported related to specific coaching behaviors used during the coaching sessions.

Fettig et al. (2016) conducted a study to extend the literature on using an approach described as e-coaching with early intervention providers to support their use of functional assessment-based interventions to address challenging behaviors in a child with autism. One early intervention provider and one child participated in this multiple baseline design across the three functional assessment-based intervention strategies. The phases included baseline, training only, coaching, and maintenance. The strategies included prevention strategies, teaching new skills, and provider's new responses to child's challenging behaviors and new skills used. The

30-45 min e-coaching sessions, via FaceTime, typically occurred one to two business days following home visit, which were recorded. The coach reviewed videotapes and referred to a 10-step coaching protocol checklist to guide the coaching. Results indicated some target strategies were implemented following the initial training; however, the target strategies were implemented at higher levels following the e-coaching and were maintained. The authors report that procedural fidelity for coaching (using the 10-step coaching protocol checklist) was 100% for all assessed sessions. Specific coaching strategies on the checklist included reflection, feedback, and modeling.

As part of a larger 3-year study, Walsh, et al. (2020) investigated the effects of remote video-based coaching on dialogic text discussions on fourth and fifth grade teachers' reflective practice. Researchers recruited teachers from a district in the northeastern United States who had successfully completed three coaching cycles, as part of a project to develop a web-based version of a literacy-coaching program. The remote video-based coaching intervention included two phases, a 6-week online workshop to build content knowledge of instructional practice and personalized coaching. The video-based coaching involved facilitating the teachers' reflection and analysis of their videotaped interactions. Major findings included teacher practice changed by broadening their focus on how they viewed their instruction in relation to students' thinking. Additionally, the quality of teacher interpretations of that relation improved, including the depth and specificity of their inferences. Although the three-phase personalized coaching approach (pre-conference phone call, online written reflections, post lesson phone conference) was described, no coaching measures related to coaching behaviors during sessions were reported.

Overall, the virtual coaching and feedback provided outside of coaching session approach demonstrated mixed, but mostly positive results in improving teacher's and provider's practice to

implement EBPs. The approach provides a variety of ways to personalize coaching for teachers while providing the flexibility of offsite support. Although some information related to coaching practices were provided, data related to specific coaching behaviors during their coaching sessions were only reported in one study.

Virtual Coaching and Real-Time Feedback

Finally, with the virtual coaching with real-time feedback approach, the coach is not onsite but uses technology to observe the coaching session and provides feedback to the teacher during the coaching session. This is frequently done through a laptop with a webcam and/or Bluetooth device. This includes real-time performance feedback (RPF; Sinclair et al., 2020) and real-time feedback that is provided during or immediately following the coaching session (Amendum, 2011). Sinclair et al. (2020) defined RPF as feedback offered to interventionists during instruction and delivered using technology. Sinclair and colleagues conducted a meta-analysis to evaluate the quality of the evidence of RPF utilizing technology to improve the instructional practice of K-12 teachers. Using the Council for Exceptional Children quality indicators, they identified 32 experimental studies (*n* = SCD 81%; *n* = group design 19%) meeting criteria for the review. Results suggested the majority of reviewed studies had sufficient evidence to classify RPF as an EBP. Additionally, positive effects on interventionist behavior during intervention sessions were identified and authors recommend future research is needed to examine the essential components of RPF to change behavior.

Virtual bug-in-ear coaching, also referred to as e-Coaching, involves a wireless communication device (e.g., laptop with Bluetooth) which allows the coach to provide immediate feedback, from a different location, while the teacher is instructing in the classroom (Rock et al., 2009). The use of the Bluetooth device allows the coach to provide, what may be

considered, unintrusive prompts during instruction (Rock, 2019), as the coach and teacher connect via Zoom, Skype, or another platform to video conference, and the coach provides prompts or feedback to the teacher during the lesson (Rock, 2019).

Coaching of Evidence-based Practices. The BiE approach has also been used to support the implementation of EBPs. Scheeler et al. (2012) conducted a multiple baseline across participants design study to investigate the impact of BiE coaching on the use of three-term contingency (TTC) trials based on immediate (with 3-sec after target behavior occurred) and delayed feedback (5-10 min after instruction ended). Participants included four preservice teachers who were participating in a 14-week practicum. The BiE coaching was provided by the researcher during 15-min coaching sessions, who was offsite and used a laptop with a webcam and Bluetooth. The coach used short phrases to support the implementation of target behaviors by the preservice teacher. Data were collected during live sessions and results demonstrated positive results. Researchers determined immediate feedback produced improved technique more effectively than delayed and teachers report the feedback was nonintrusive. No coaching observation or fidelity measure was reported.

Rock et al. (2012) explored the feasibility and effects of virtual coaching delivered through advanced online BiE technology on preservice teachers' use of evidence-based instructional practices and positive behavior intervention/supports during a distance practicum. The 13 participating teachers were graduate students teaching in elementary grades in the southeastern United States who were seeking master's degree and certification in special education. Their supervisor used online BiE coaching to encourage the use of focus on high-access instructional strategies. Participants received at least four 30-min sessions provided by the researcher-coach. Advanced BiE Coaching Logs were developed to document technical

problems. The participants self-reported written reflections which were coded to document their experience with virtual coaching. Results from this study confirmed the feasibility and usability of virtual BiE technology. Additionally, statistically significant findings were noted in changes to opportunities to respond, including a statistically reliable increase in the use of praise statements during BiE condition, although a reduction in the area of reprimands was not noted.

In a similar study, Rock et al. (2013) described a virtual coaching model that was part of a larger ongoing study to investigate the effects of virtual coaching to maximize implementation of evidence-based classroom management practices by preservice and inservice teachers. This study included 28 teachers-in-training receiving BiE coaching. As with other BiE coaching studies reported previously, the teachers received immediate live feedback from the coach in situ (situated in the natural setting, e.g., classroom) but in virtual format. The virtual researcher-coach provided four types of feedback, including instructing, correcting, encouraging, and questioning in real-time while the teacher was instructing in the classroom with students. The 30-min individualized virtual coaching sessions focused on classroom management strategies. The authors suggest attributes of a virtual coach include energy, enthusiasm, critical thinking, flexibility, dependability, and integrity and expertise. Findings demonstrated the use of evidence-based classroom management practices increased significantly as a result of the BiE coaching. Additionally, the use of high-access instructional strategies and teacher praise increased. Teachers continued to use practices after coaching ended.

In a mixed-method explanatory strategy study investigating the long-term effects of e-coaching, Rock et al. (2014) specifically looked at whether initial improvements continue with ongoing BiE coaching, as well as teacher's perception. To explore this information, researchers conducted a review of archived video tapes from a longitudinal study of advanced online BiE

technology of teachers (n = 14) in a personnel preparation program. The archived video-files from three time periods (spring 1- baseline semester 1 with no e-coaching, spring 2- one year later with e-coaching feedback, and spring 3- 2 years later after exiting program with no e-coaching feedback) were analyzed. Results showed that bug-in-ear coaching can provide initial and ongoing improvements in teaching practices over time. In addition to teacher practice, the participants' response to BiE coaching became favorable over time.

Further investigating the potential for e-coaching, Ploessl and Rock (2014) investigated the effects of BiE coaching on coteaching partners' planned and implemented coteaching models, student-specific accommodations, and modifications, and Positive Behavioral Interventions and Supports (PBIS) behavior supports in elementary general education classrooms. The six participating teachers from three public elementary schools in the southeastern United States formed three co-teaching dyads. Using a single case withdrawal (ABAB) within participants design, the e-Coach provided targeted feedback to co-teaching partners during planning and while teaching in three areas of co-teaching models, accommodations, and modifications, and PBIS strategies. The e-Coaching was provided by the researcher, and the authors collected fidelity of the *e*Coaching. This included frequency counts of the type of feedback and ratios of types of feedback in relation to the recommended 4:1 encouraging to corrective ratio. The findings demonstrated mixed results for increasing use of co-teaching models. However, the fidelity of implemented models increased and changes in co-teachers' use of student-specific accommodations or modifications was highly effective for Dyads 1 and 3 and effective for Dyad 2. Authors also noted the coteaching dyads purposefully planned use of PBIS strategies, which led to increased praising and decreased redirection of behaviors to students.

Coogle et al. (2016) evaluated the effects of BiE coaching on early childhood teachers' use of modeling a naturalistic communication strategy during three different classroom routines. Two special education teachers and two students participated in this single-case, multiple probe across routines design study. Treatment included 6-min (1-min to acclimate and 5-min coach) BiE coaching sessions at the beginning of a teacher-led, child-led, or mealtime routine. The researcher provided coaching and fidelity of implementation was provided. The video sessions were recorded, and a fidelity checklist was used to determine feedback provided on the targeted communication strategy for the routine and whether the coaches followed up on prompts with either corrective or affirmative feedback, as applicable. The results met criteria for single-case design with three demonstrations of an effect for one student but only two for the second student. Regarding changes in teacher behavior, one teacher increased use of modeling strategies within three routines, whereas the second increased her use in two of the three routines. Additionally, the teacher satisfaction survey indicated that both teachers rated bug-in-ear coaching as effective in increasing their use of modeling strategies and improving outcomes for students.

In another study, Coogle et al. (2018) evaluated the effects of a brief training plus BiE on novice teachers' use of naturalistic communication strategies when interacting with a focus child exhibiting an identified delay or disability related to communication development. Participants in this single-case, multiple probe across design study included four novice early childhood special education teachers in an inclusive public preschool and a student in each teacher's classroom. The treatment consisted of 15-min eTraining sessions (i.e., presentation with voiceover describing naturalistic communication strategies emailed to participants), with up to ten 6-min BiE coaching sessions. The coach's fidelity of intervention was reported through the use of a fidelity checklist reporting on prompts delivered, including number and type and feedback on the

teacher's use of a strategy. Results demonstrated the teachers' use of target skills, communication strategies increased, and students demonstrated increased acquisition of desired responses. Additionally, the teachers receiving the BiE bug-in-ear coaching stated it enhanced their PD experiences and recommended it to other teachers.

In a BiE coaching study focused on improving reading for students with disabilities, Cheek et al. (2019) used a single-case, multiple baseline across participants design to investigate the effects of online module plus BiE coaching on special education teachers' use of two text comprehension strategies during literacy instruction. Participants included three students with severe intellectual disability and three special education teachers from a private, separate school in the southeastern United States. The researchers provided a technology-enabled, online, self-paced PD module plus one-on-one BiE coaching for the comprehension strategies (CROWD in the CAR) to the teachers. The real-time coaching, provided by the researcher-coach, was 15 min in duration per session. Findings indicated the special education teachers learned the teacher-directed, multi-component comprehension strategy and carried it out effectively during shared reading with students. Additionally, Cheek et al. collected frequency data on the type of coaching statements provided during the RPF coaching sessions.

Most recently, Horn et al. (2020) investigated the effects of constant time delay with e-Coaching training package on skill acquisition (e.g., independent completion of steps in targeted skill task analysis) for individuals with autism spectrum disorder (ASD) and intellectual disability (ID). Four 17- to 20-year-old males enrolled in a special education program for students with ASD and ID in the mild or moderate range, and their special education teacher participated. Researchers used a multiple probe research design, replicated across four student participants. The teacher interventionist received e-Coaching throughout all intervention phases.

The e-Coaching was provided by a researcher, who was located in a different part of the department store and observed each session via WebEx (due to connectivity issues). The researchers found that each student's number of correct independent responses to steps increased as a result of teacher-led instruction using constant time delay paired with e-Coaching in a community setting; therefore, experimental control was demonstrated. All students generalized and maintained target skills. Further, the special education teacher reported he was comfortable with BiE technology and found it to be beneficial to his in situ instruction. No coach information was reported related to specific coaching behaviors during the coaching sessions.

The literature reviewed suggests the potential for BiE coaching to support the implementation of EBPs. The coaches were largely researchers or members of a research team conducting the investigation. The special education literature is replete of references to the research-to-practice gap (Fixsen et al., 2013), which describes the concern that EBPs for SWD often are not implemented correctly, or at all, in classrooms. BiE coaching may be one way to address this gap (Ottley et al., 2017) and support the implementation of EBPs with inservice teachers (Cheek et al., 2019). Overall, the single-case design studies provided more data related to coaches' behavior during coaching sessions as fidelity of implementation.

Virtual Webcam. Although BiE coaching has received attention as a way to provide real-time feedback for preservice and inservice teachers, webcam technology is another viable option. Similar to BiE, webcam coaching has been shown to be versatile and used to strengthen preservice and inservice teacher practice (Glover, 2017; Koch et al., 2016; Scheeler et al., 2012) Additionally, webcam coaching has been used as a component of multimedia coaching (Mashburn, 2010; Weiser et al., 2019). In this format, coaches and participating teachers use

their laptops to have a video conference. This allows the coach to observe the class from another location, while still providing real-time feedback to the teacher.

Although falling within the virtual and real-time feedback category, webcam may provide different feedback than RPF. Unlike BiE real-time performance feedback, webcam real-time coaching may happen during, or immediately after the student was dismissed from the lesson (Amendum, 2011). As with BiE, the coach is present during the lesson and observes the teacher and student via technology, such as a laptop and video conference (e.g., FaceTime or Zoom). Additionally, unlike BiE feedback, which is provided solely to the teacher, feedback provided by the webcam coach can be heard by the students, or participants, allowing the coach to model during the session (Aiken, 2020; Amendum, 2011). This approach provides increased flexibility for the coach and reduces additional technological, or connectivity, which are challenges sometimes associated with the use of a Bluetooth BiE device (Koch et al., 2016). Vernon-Feagans et al. (2015) examined the relation of face-to-face versus webcam coaching on teacher implementation of TRI and struggling reader outcomes and found commensurate student achievement measures for webcam and face-to-face coaching. Further, the use of the webcam was significantly associated with classroom teachers' quality of implementation of the TRI for students not yet reading on grade level. Additionally, the webcam coaching was convenient for the teachers, who also reported higher ratings of efficacy with regard to instructional strategies and student engagement. Teachers also reported the use of the webcam allowed for focused coach-instruction. A couple of limitations included the fact that coaches were not required to become reliable for implementation quality. Additionally, no baseline measure for implementation measure (Vernon-Feagans, 2015).

Overall, the virtual coaching and real-time feedback approach demonstrated positive effects in supporting teacher with implementing EBPs. In this approach, the coaches are able to observe teachers using technology and provide in-the-moment feedback. Although some studies provided procedural fidelity of the coaches, overall the studies provided little or no information related to specific behaviors demonstrated by the coach during the sessions.

The broad research base of TRI constitutes much of the current evidence for the promising effects of webcam coaching to implement EBPs. The present study will use audio-video recordings of TRI coaching sessions for the development of the Observation Coaching Tool. Therefore, a detailed description of TRI is provided to support with the understanding of the context of the study.

Targeted Reading Intervention. This section describes Targeted Reading Intervention (TRI) and its components. Although TRI has built a robust webcam coaching model to support the implementation of the intervention, in the original TRI study the coaching was conducted face-to-face. Vernon-Feagans et al., (2010) initially described TRI a new classroom teacher PD reading program designed for low wealth rural schools. Although TRI has evolved over the years, its core components have remained the same. These core components include the multi-component PD (including the webcam coaching), TRI scope and sequence/lesson, and fidelity measures for teacher implementation.

TRI consists of a multi-component PD which has included a 3-day summer institute, biweekly collaborative consultation, weekly grade-level consultation, and bimonthly 2-hour PD sessions. One key feature of TRI is the use of webcam coaching to support the implementation of the intervention. Aiken et al. (2020) described TRI coaches as university-based coaches who are experienced teachers and/or PhD students supervised by an Intervention Director. TRI coaches

met weekly with Intervention Director to discuss issues related to implementation. The TRI coach played an important role in assisting teachers in learning TRI strategies, planning lessons, and conducting weekly TRI coaching. This coaching included observation and interacting with teacher and student, providing immediate feedback during and after lesson, and ongoing modeling. Finally, coaches also provided teachers with a follow-up email after the coaching session.

During TRI webcam coaching, the audio and video are activated on the classroom laptops, which allows the coach to observe the class from another location while still providing RPF to the teacher (Ginsberg et al., 2010). Commonly, in TRI studies, the treatment teachers receive weekly or biweekly, 15-20 min TRI literacy webcam coaching to support teachers with implementation of TRI through modeling and problem-solving, including the use of a diagnostic map to support an instructional match with teacher instruction and student need, as well as supporting an onsite school consultant (Vernon-Feagans et al., 2010; Vernon-Feagans et al., 2013). The TRI webcam coaching sessions allow the coach to observe the lesson and provide feedback during the TRI lesson and/or immediately following the lesson. The TRI coach demonstrates strategies, requests the teacher to use a different set of words or text, guides the teacher through implementation of a certain strategy, discusses an instructional practice, or observes and debriefs a lesson with the teacher during the coaching session (Amendum et al., 2011). TRI uses the general education teacher to provide students with one-on-one instruction for 15 min a day, 4 days a week; however, in some studies, the number of weeks for one-to-one sessions varied by student (Vernon-Feagans et al., 2012).

During a TRI lesson, the general education teacher works one-on-one with a student who has not yet met grade-level reading expectations. The typical three-part TRI lesson’s duration is

15-20 min, allowing for Re-Reading for Fluency (about 2 min), Word Work (about 6 min), and Guided Oral Reading (about 7 min). The intervention guides teacher instruction through four levels of instructional complexity: (a) pink level 1: 2- and 3-sound words, short vowels, and digraphs; (b) blue level 2: 4-, 5-, and 6-sound words, short vowels, digraphs, and blends; (c) green level 3: long vowel words, r-controlled, and diphthongs; and (d) purple level 4: multisyllabic words. The teacher uses a diagnostic map to assist in the monitoring of progress and planning for instruction.

Given the TRI intervention provided coaches to support the implementation of the intervention, throughout the evolution of TRI and associated research, the importance of teacher implementation fidelity has been considered and monitored (Aiken et al., 2020; Amendum et al., 2011; Amendum et al., 2014; Vernon-Feagans et al., 2010; Vernon-Feagans et al., 2011; Vernon-Feagans et al., 2012; Vernon-Feagans et al., 2013). TRI consultants (coaches) completed the TRI Fidelity measure in spring using observation and weekly reports on classroom teacher. TRI Fidelity of implementation is the composite of the duration of TRI practice and the quality of TRI practices. The reduced fidelity of implementation in first grade may have impacted findings, suggesting fidelity of implementation is critical to ensure students receive the intervention as intended to improve student outcomes (Vernon-Feagans, 2010). In the spring, the coach reviewed observation and weekly records on teacher implementation to complete the TRI Intervention Duration and Quality Measure to determine TRI implementation fidelity; teacher implementation scores were reported high (34.82%), moderate (50%), and low (9.82%), and very low (5.36%; Amendum et al., 2011). TRI included two measures: quantitative TRI implementation and quality TRI implementation scores combined for a total fidelity score (Vernon-Feagans et al., 2012). The TRI intervention director monitored implementation by

consultants during monthly school visits; however, no specific information related to specific coaching behaviors demonstrated during the real-time coaching session were reported. The teacher fidelity of implementation was score "moderate" (2.82/5) and 19% (approximately 1/5 of students) experienced low fidelity (Vernon-Feagans et al., 2012). Fidelity was also measured by Fidelity Exposure and Adherence to TRI. For Fidelity Exposure, teachers self-reported the number of weeks each child received the TRI and number of sessions/week (average 2.4 per week). The Adherence to TRI was the calculation of the number of reported weeks that each of the three parts of TRI were implemented for each child. Teachers self-reported the following adherence scores: 80% Re-Reading for Fluency, 96% Word Work, and 92% Guided Oral Reading (Vernon-Feagans, 2013). Although the authors are specifically addressing teacher fidelity, the impact of the coach may also be related to coaching practices during sessions. Further, Vernon-Feagans et al. (2012) reported the mean total fidelity score was 2.82 (out of 5; moderate, with 19% of participants demonstrating low fidelity) for teachers in their study. With webcam coaching being a key component of the TRI intervention, investigating the coaches' behaviors during the lesson may shed light on the low teacher fidelity ratings. In another study, Vernon-Feagans et al. (2013) suggested use of digital recordings will help with fidelity and suggested webcam coaching may be the most impactful aspect of TRI. I expanded the use of digital recordings to analyze the coaching fidelity and behaviors. Finally, Vernon-Feagans et al. (2018) suggested future work exploring the complex role of fidelity is needed. Expanding the fidelity and observation to coaching behaviors may provide additional information regarding TRI implementation to improve teacher practice and student outcomes.

This section provides information related to student outcomes in TRI studies. TRI studies have measured student knowledge of early foundational reading skills, including Word

Attack (WA), Letter Word Identification (LWI), Passage Comprehension (PC); Spelling of Sounds (SS), and vocabulary knowledge. Vernon-Feagans et al. (2010) demonstrated struggling kindergarten students receiving treatment gained significantly more from fall to spring (*ES* = 1.03) and a significant catch-up effect for word identification (*ES* = .77). Amendum et al. (2011) conducted a cluster randomized design study to investigate the impact of TRI webcam coaching to improve literacy outcomes and build teacher capacity by evaluating the efficacy of TRI for kindergarten and first grade teachers of struggling students in low-wealth rural communities. Key findings demonstrated that students in the primary grades benefitted from specific focused interventions and that classroom teachers could successfully implement the intervention with students not yet reading on grade level. Another study investigating the impact of TRI on reading outcomes was conducted by Vernon-Feagans et al. (2013). Using random assignment, researchers paired matched schools based on percentage of free and reduced lunch, school size, percentage of students of minority groups, and participation in Reading First. Vernon-Feagans and colleagues explored the impact of TRI in classroom teachers acquiring key reading diagnostic strategies to promote rapid reading gains in K-1 students not yet reading on grade level (Vernon-Feagans et al., 2013). Students in the TRI group scored better than control with an *ES* .36 to .63 on four individualized achievement tests. Additionally, TRI had a positive effect on students not yet reading on grade level early reading skills, as measured by the WA, LWI, PC, and SS. There was no evidence that TRI had a positive effect on receptive vocabulary (Vernon-Feagans, 2013).

In a study intended to replicate and extend the research on TRI, Vernon-Feagans et al. (2018) conducted a randomized controlled trial to determine whether students not yet reading on grade level in treatment classrooms would outperform students in control classroom on spring

assessments and to examine whether participation year (e.g., teachers in their first or second year of TRI participation) would have an impact on treatment effect. The quality of second year teachers improved from 56% in year one to 70% in year two.

Overall, TRI has demonstrated positive effects on students' early reading skills. However, there more needs to be learned about which aspects of the coaching are necessary or sufficient to impact teacher practice and student success. As with other virtual coaching and real-time feedback approaches, the TRI coach is a key variable in supporting the implementation of EBPs.

The Instructional Coach

Many of the reviewed studies demonstrate the use of coaching to improve teachers' implementation of EBPs. Additionally, legislation and policy favor instructional coaching as a way to increase implementation of EBPs (Desimone & Pak, 2017). However, given that research studies find mixed results (Garet, 2008; Kraft et al., 2018; Powell, 2010; Robertson, Padesky et al., 2020), it is important to better understand the specific behaviors of an instructional coach. It is likely that if you were asked to name a key feature of coaching, you would mention feedback; however, it unlikely that everyone would have the same understanding of feedback (Knight, 2019b) or other practices identified as effective coaching practices. Additionally, little is known about the effectiveness of specific design features or practices of different coaching models (Blazer & Kraft, 2015).

A meta-analysis conducted by Kraft et al. (2018) sheds some light on possible reasons why some coaching programs may be more successful than others. An analysis of 60 coaching studies found large positive effects between coaching and teacher practice (pooled *ES* across 43 studies 0.49) and student achievement. However, this differed broadly across programs and

coaching was effective across all grade levels. No significant differences existed between face-to-face and virtual coaching. One distinction was larger vs. smaller coaching programs. Larger coaching programs (100 or more teachers and a larger group of coaches to recruit and train) delivering a more standardized program had mixed results (e.g., Garet, 2008) as contrasted with smaller scale coaching programs (no more than 50 teachers and about five coaches) tailored specifically for teachers. For example, smaller coaching programs increased instruction (0.63 *SD*) and student achievement (0.28 *SD*), while larger coaching programs yielded 0.34 *SD* and 0.10 *SD*, respectively. It would appear that larger coaching programs incur similar challenges to scaling-up of implementation, including the training and supporting large cohorts of coaches.

In another randomized controlled trial, Powell et al. (2010) investigated the impact of the *Classroom Links to Early Literacy* PD to improve teachers' use of evidence-based literacy instruction and student literacy achievement. The study included PreK teachers (n = 88) and children (n = 759) from 88 Head Start classrooms and three early childhood specialists who served as literacy coaches. The focus strategies for foundational reading skills (developing oral language, phonological awareness, and letter knowledge) were taught in a 2-day, 16-hour multi-component PD followed by expert coaching. During the seven coaching sessions over a 15-week period, coaches provided individualized feedback to teachers to improve implementation of EBPs emphasized in the intervention (e.g., oral language and code-focused skills). Classroom observation measures, including ELLCO, ECERS-R and Teacher Instructional Practices were used as measures for teacher practice. Despite the smaller cohort of coaches, coaching produced no evidence of change in teacher practice. The researchers suggested the intervention may have been too broad to have the intended change in teacher practice.

When provided with one-time PD opportunities, such as workshops, teacher content knowledge may improve; however, this knowledge minimally transfers to teacher practice. Therefore, coaching is one way to provide ongoing support following the PD to improve teacher practice. Yet, the mixed-results from studies provide a strong case that more needs to be understood about the instructional coach and coaching behaviors exhibited during coaching sessions.

The value of an instructional coach to support the implementation of EBPs has demonstrated promise (Carlisle & Berebitsky, 2010; Mashburn et al., 2010; Neuman & Cunningham, 2009). Despite this, there still remains a great deal to learn about the instructional coach. For example, studies have identified that coaches may be responsible for administrative tasks, conducting and analyzing student data, and/or instructional coaching (Heineke, 2013) and that coaches serve in multiple roles and face challenges that prevent them from devoting sufficient time to coaching teachers (Van Ostrand et al., 2020).

Al Otaiba and colleagues (2008) found that coaches report taking on many roles during their coaching sessions, including leader, collaborator, consultant, resource, diagnostician, and student advocate. The researchers used a case study design to detail one reading coach's experience in school reform. The coach worked at a K-4 Title I school in urban southeastern United States. The coach's role included: identifying the current needs, planning and initiating first PD session and data collection, conducting second PD session. The project was terminated toward the end of the school year when a new curriculum was adopted. Researchers used a mixed-method approach to analyze the data collected throughout the project. Quantitative data (e.g., student achieving and teacher knowledge) and qualitative data (e.g., focus groups) revealed that it may be hard for a coach to change a teacher's views about instruction. A teacher's prior

knowledge about instruction may impede the learning of new knowledge, and teacher beliefs about how to teach the content. This study further highlights the complexity of the coaches' role and a need to provide additional support for the coach through clear tools and feedback.

Walpole and Blamey (2008) describe a set of coaching experiences from a 2-year multi-case study involving 31 participants, from 20 schools, involved in PD supported by Georgia's Reading Excellence Act. The researcher-developed PD included two 3-day summer institutes, 108 hours of book study groups, and 3-hour formative school visits. The authors used semi-structured interviews to gain insight about the coach experiences. One finding was that the principal viewed coaches in two distinct roles, mentor (n = 6) or as director (n = 8). Mentors were essentially the teacher's teacher, providing modeling and classroom-based support to increase effective practices into instruction, relationships important, confidential individual support to teachers. On the other hand, directors tended to define and build the schoolwide literacy program. Overall, all coaches played a key role in assessment, curriculum manager, formative observer, and modeler, and that a variety of people serve as coaches (learners, grant writers, school-level planners, curriculum experts or researchers).

Bean et al. (2010) conducted a retrospective time diary study design in which researchers conducted five structured interviews with coaches. The 30-60 min interview, conducted over the phone with 20 Reading First coaches from Pennsylvania, included open-ended questions about their coaching activities over the past 24 hours. Their findings again mirrored other studies which showed the various tasks instructional coaches are expected to complete, including working with individual teachers (23.6%), management tasks (21.1%), and school-related tasks (20.6%). Another finding was the significant relationships between teacher perceptions and coaching activities (e.g., more teachers had negative views of coaches and felt coaches did not

understand student needs or help solve instructional problems when the coach spent more time on management and school-related duties). The authors found significant differences in student achievement. Students of teachers who received more coaching had a significant greater percent of students scoring proficient and smaller percentage of students scoring at risk in first and second grades.

Stephens et al. (2011) used survey and case study design to determine the degree to which literacy coaches improved the reading process to support students in becoming better readers. This small scale-study, with the direct involvement of university faculty, was part of a multi-year, K-5 state literacy initiative in South Carolina. Although all of the coaches met the requirement of having a master's degree, there was a great deal of variation in coaching experience. Coaches were expert teachers, less-skilled teachers, some with administrative licenses, and some retired teachers.

Although less frequently reported in the literature, several studies of coaches do provide a glimpse into the coaches' practices. Many of these studies use teacher logs, interviews, and other artifacts collected by the coach; therefore, are self-reported (Mangin & Dunsmore, 2015; Powell & Diamond, 2013; Stoetzel & Shedrow, 2020).

Gibson (2006) provides a detailed case study describing the practice of a reading coach during lesson observation of, and feedback to, a kindergarten teacher. Gibson collected data in cycles of interviews and observations (n = 3) of four coach-teacher dyads throughout a school year. An analysis of lesson video tapes and transcripts from the cycles indicated that the role of the coach during lesson observation and feedback are complex and may require many areas of expertise. Coaches must conceptualize their roles, facilitate coaching sessions conversations, and

consider coaching interactions during the teacher's instruction. Gibson cautions instructional coaching is not a quick route to instructional reform.

In another study, Powell and Diamond (2013) conducted a study to investigate the fidelity of implementation following a PD for Head Start teachers (n = 52). Participating teachers were randomly assigned (intervention semester, fall or spring and a participation year, first or second within location, urban, not urban). Literacy coaches (n = 2) provided supported implementation through onsite visits to teachers' classrooms, remote coach feedback on teacher-submitted videotapes of targeted teaching practices, or access to hypermedia resources. The coaching followed observe-assess-recommend, and coach feedback was coded from coaches' self-report written records from on-site and remote coaching sessions. The authors noted that few prior studies have examined fidelity of coaching implementation. In this study, an analysis of a coaching fidelity, using a 37-item coding process/checklist, demonstrated the amount of coach feedback was strongly and positively correlated with independent assessments of pre-intervention classroom supports.

Finally, Stoetzel and Shedrow (2020) used an instrumental case study design to investigate coaches' professional learning needs and better understand coursework to support their professional growth. The coaches (n = 4) participated in an online learning experience within a professional learning community. An analysis of the participating coaches' coursework and professional learning community discussion posts, along with transcripts of semi-structured interviews, were used to identify themes related to the coaches' experiences. One emerging theme was the coaches reported a lack of training made them feel unprepared for the role of a coach. Another emerging theme was that the coaches expressed a need to understand their role. Although the study included a video-analysis as an assignment, it did not provide real-time

support for coaches within their coaching sessions. The authors suggest that initial training for coaches is not sufficient and ongoing training, situated within their work, would be beneficial.

Overview of Aspects Related to Coaching

The present study included a thorough investigation and reporting of aspects related to coaching, including effective coaching practices, specialized content/EBP knowledge, and interpersonal coaching skills. I will briefly provide a broad overview of these three areas.

Effective Coaching Practices. Effective practices of coaching have been globally and specifically identified (Ward & Cusumano, 2018). The purpose of this section is to discuss some coaching practices identified in the research to be effective.

Howley et al. (2014) have identified effective coaching practices from the literature. Based on this literature, effective coaches (a) provided feedback to help teachers improve instructional capabilities, (b) provided directive feedback, (c) provided non-directive feedback, (c) facilitated the learning of others, (d) developed collegial relationships, modeled new practices, helped others identify gaps in knowledge and skills, (e) structured meetings and other activities, (f) demonstrated adaptability and flexibility, even in the face of ambiguity, and (g) translated the concerns of teachers to administrators and vice versa.

In a study examining performance feedback, Noell et al. (1997) investigated the treatment integrity for an intervention targeting student academic performance. Three general education elementary student-teacher dyads participated in this multiple baseline design across participants study. The phases of the study included consultation only, performance feedback, and maintenance. Treatment integrity was measured by the number of implemented steps, with the completion of each step leading to a permanent product. The performance feedback phase was the most effective in increasing treatment implementation. Specifically, all of the teachers

demonstrated an initial high level of treatment integrity for first 1-4 days of intervention and an increased treatment fidelity when performance feedback was introduced. However, the integrity decreased to very low levels by the end of the consultation only phase (e.g., without performance feedback). These findings suggested performance feedback can be effective in increasing treatment implementation by teachers. Yet more research is needed to understand conditions of performance feedback consultation needed to improve the implementation of interventions with fidelity.

Another set of elements for effective coaching interventions is identified by Neuman and Cunningham (2009) and used to develop their coaching model. The six elements, derived from the literature, are on-site, balanced and sustained, facilitative of reflection, highly interactive, corrective feedback, and prioritizes. These practices are consistent with the coaching module used in Neuman and Wright (2010). Overall, coaching behaviors observed in their study included setting goals, professional reflection, explaining new concepts, changing physical environment, co-planning and co-teaching of lessons, modeling of instructional techniques, observing and providing feedback to teachers. Neuman and Wright (2010) found that the coaches spent the most time on goal-setting, promoting reflection, observation and feedback in their randomized controlled trial study. Their analysis suggested the coaching could be considered in terms of environmental features or instructional strategies to improve language and literacy practices. Findings suggested coaches spent more time focused addressing environmental features (e.g., centers in the classroom) than instructional practices. Further, the participating teachers mentioned accountability of a coach and not wanting to disappoint the coach as a factor contributing to their continued implementation of the practices.

L'Allier et al. (2010) synthesized findings from studies and identified seven guiding principles for elementary literacy coaches. These practices included specialized knowledge, use of time spent engaged with teachers, collaborative relationships, research-based activities include observation and feedback around student needs and data-based, flexibility and skill-set to be intentional and take advantage of opportunities, literacy leaders in school, and evolve over time. Of these guiding principles, several can be operationalized and observed during a real-time performance webcam coaching session while coach interacts with the teacher. These include (a) research-based activities including observation and feedback around student needs and data-based decisions, and (b) flexibility and skill-set to be intentional and to take advantage of opportunities.

Elek and Page (2018) conducted a systematic review of 53 coaching studies meeting their identified inclusionary criteria (early childhood education, experimental or quasi-experimental design, included coaching as a PD component, described coaching elements, and sound methodological quality) to identify features of coaching considered critical to the success of the intervention. Elek and Page found the majority (n = 17, 53%) of studies focused on language and literacy. Coaching was commonly part (n = 44) of a multi-component PD following an initial workshop. The dosage of coaching, when reported, varied greatly, ranging from one week to one year. Feedback was an overwhelmingly (n = 51 of 53 studies) used practice by coaches. Observation was a frequently used (n = 91% of reviewed studies) during coaching; with 23% reporting remote observations. Additionally, many coaches used a combination of observation and feedback (n = 48). Some studies (6%) provided feedback during the observation period (e.g., bug-in-ear).

In summary, research has identified a number of effective coaching practices. Of these identified effective practices, several specific practices, or behaviors, may be operationalized and observed during a coaching session. These are the types of behaviors appropriate for a coaching observation tool. These include, but are not limited to: providing directive and non-directive feedback, modeling new practices, and demonstrating adaptability and flexibility (an example of this would be adjusting response based on teacher or student response; Howley et al., 2014; Neuman & Wright, 2010) and observes, provides feedback, assists with goal-setting, and reflection (Elek and Page, 2018).

Specialized Content /Evidence-based Practice Knowledge. Successful coaches should have specialized knowledge in relation to the coaching they are providing (Killion et al., 2012; L'Allier et al., 2010). The coach must be knowledgeable in the content or EBPs to be implemented by the teacher, and content knowledge should be considered when selecting a coach (Cusumano & Preston, 2018). Additionally, coaches may require a range of specialized knowledge in the area they serve (Garet et al., 2008; Scott et al., 2012).

In the Garet et al. (2008) Early Reading PD Interventions Study, an experimental design was used to determine the impact of two interventions, PD alone and PD plus coaching, on content knowledge and practice of teachers to raise reading achievement of second grade students. Participants included 19 coaches supporting 90 schools of 270 teachers with approximately 5,500 students randomly assigned to Language Essentials for Teachers of Reading and Spelling (LETRS) PD only, PD plus coaching, or control group. Teachers in the PD plus coaching session received approximately 60 hours of coaching by current and former teachers trained to be coaches. The coaching was intended to support the teachers in the implementation of the practices learned at the PD. Teacher knowledge surveys and classroom observations were

used to identify change in teacher knowledge and practice. Both intervention groups demonstrated an increase in teacher knowledge over the control group, yet no statistically significant increase was noted in change in teacher practice or student academic outcomes. Garet postulated the nonstatistically significant finding may be a result of insufficient coaching time and coach's reading knowledge**.** Coach knowledge was measured on most of the coaches (*n* = 17 of 19). Twelve of the coaches had knowledge scores higher than the control group mean, while five of the coaches has lower scores. The coaches kept self-report logs which were used to document the nature and amount of coaching. No measures of coaching practices, or behaviors were conducted.

Snyder et al. (2015) describes the practice-based coaching as a framework to support early childhood providers implement EBPs with fidelity within the context of two studies. The onsite coaching sessions followed a cycle phase of observation, a debrief meeting (reflection and feedback), and follow-up (email or phone). Component two of the framework, focused observation, includes the gathering and recording of information through observation, and the use of strategies for improving and refining teacher practice. The strategies for changing teacher practice include modeling and prompts. Coaching Observation Protocols were developed with associated, operationalized indicators. The coaching implementation fidelity data were self-report coaching logs used to determine the implementation of coaching components and strategies used during coaching sessions. The majority of teachers received 16 coaching sessions. The findings suggest that the coaching protocol and strategies associated with practice-based coaching were for the most part implemented. Further, the descriptions of key components of the approach along with coaching protocols provided information related to coaching dosage and strategies which can inform the components of coaching practices which may impact change in

teacher practice. Coaches require specialized content knowledge in order to effectively model and guide teachers with implementation.

In sum, relative to the other two areas discussed for the coaching observation tool, the research on specialized content knowledge is less robust. This is likely because the specialized content knowledge may vary depending on the content, or EBP, being studied. However, Killion et al. (2012) identify content expertise as important for coaches and suggest coaches may have difficulty deepening a teachers' content knowledge if they do not have expertise in the content. Therefore, coaching behaviors that would be operationalized and observed during a coaching session in the specialized content knowledge session would be aligned with the critical components of the intervention, or EBP.

Interpersonal Coaching Skills. Another important aspect of coaching is interpersonal coaching skills. The interaction of the coach with the teacher has also gained the attention of researchers. The interpersonal skills and relationship of the coach and the teacher has been found to be a factor influenced by the coach (Hunt & Handsfield, 2013; Ippolito, 2010).

Ippolito (2010) conducted a qualitative study, including interviews, focus-groups, and observation data to investigate how coaches balanced responding to teachers' needs (responsive coaching) and improving instructional practices (directive coaching). Using a purposeful sample, Ippolito solicited the input of 24 literacy coaches in grades K-12 from an urban, east coast school district. Based on an analysis of responses, Ippolito identified three coaching behaviors supporting a balance to build strong relationship with teacher while building capacity, (a) using responsive and directive moves within a coaching session, (b) using protocols to support the balance of moves, and (c) sharing of leadership roles (e.g., distributed leadership) through providing pressure (accountability) and support (encouragement) as a coach.

In another study, Mundy et al. (2012) conducted a case study to examine the experiences of Reading First coaches in similar school contexts. This qualitative case study design focused on two coaches and included interviews (n = 4, 45-65 min per/interview) and observations (n = 3, 7 hours per observation) over a 6-month period. The analysis of transcripts, field notes, and artifacts were coded using semantic relationships ad revealed the coaches carried out similar tasks using different interpersonal skills. While one coach's approach was collaborative, the other coach's approach was expert driven. This suggests that coaches likely have different perspectives on how teachers acquire knowledge that may influence their coaching practice.

Hunt and Handsfield (2013) conducted a positioning comparison analysis to explore how literacy coaches positioned themselves within the district's literacy and PD model. Researchers used the interview data from three literacy coaches and a PD session in a large elementary district in the midwestern United States. The coaches were supporting the implementation of Partnerships in Comprehensive Literacy. Seven coaches participated in the observation of PD meetings and three also participated in individual interviews and observations. The practices were coded by two themes, demonstrating expert knowledge implementing best practices and building supportive, collaborative relationships with teachers identifying success and failure in relation to coaching in schools. An analysis of interviews, observations, and artifacts (e.g., meeting agendas and reflection logs) revealed that coaches felt building supportive and trusting relationships was important to their role. The coaches expressed challenges, co-learner and expert roles, with seeking collaborative relationships while still needing to demonstrate knowledge in the content area. The authors suggested a clearer delineation of the coaches' role will allow for easier navigation of identity and power within their coaching.

Heineke (2013) examined the coaching interactions of four elementary school reading coaches to explore what was happening during one-on-one coaching discourse and whether interactions supported learning, and if so, how they supported teacher learning. Each session of coaching was divided into episodes, which were further divided into sequences, exchanges, and verbal moves (both in terms of the potential to extend the conversation and function). The findings showed that coaches dominated the majority of the conversations (initiating 70% of the time and making suggestions for later actions 80% of the time, overall coaches dominated discourses averaging 65% of utterances). All coaches were responsive to teacher questions; yet teacher talk about reading instruction and student reading was limited. This suggested that coaches may be less aware of their own discourse and verbal moves. Finally, although the coaches referred to a coaching cycle adopted by the state, the use of this model was not observed during recorded sessions.

Johnson et al. (2016) conducted a study to examine the characteristics of coach-teacher alliance and determine whether teachers and coaches reliably rate their alliance. In order to better understand the coach-teacher alliance, the researchers used data from a set of trials testing Double Check in which coaches used the Classroom Check-up approach. Twenty-seven teachers in grades K-8 and four coaches participated and completed the Coach-Teacher Alliance measures to gain an understanding of teacher and coach perspectives related to working relationship, coaching process, investment, and benefits of coaching. The coaches also reported on barriers to coaching. Results demonstrated an existence and interrelatedness to the dimensions measured. For example, the indicators measuring working relationships reflected the quality of the collaborative relationship (e.g., trust, approachability, and understanding of the teacher). It was also determined that teachers and coaches provided reliable information about their alliance. The

authors suggested one way to improve the implementation of EBPs is to better understand the relationship, or alliance, of teacher-coach dyads.

Finally, Johnson et al. (2018) conducted a study to better understand how coaching improved the implementation fidelity of preventive EBPs targeting behaviors in school settings. In the study, they examined how specific collaborative coaching activities and teacher's report of coach-teacher working relationship impacted the implementation (dosage and quality) of an EBP. Data for this study included 12 intervention schools that were part of a randomized controlled trial of 27 elementary schools (n = 138 teachers) in a large, east coast public school district. The teachers received 1.5 days of training for the PAX Good Behavior Game, and teachers in the integrated condition received training in the PATHS curriculum (2 additional days). All teachers received year-long (31 weeks), weekly face-to-face coaching. Four of the common predefined coaching categories included needs assessment, modeling, technical assistance/performance feedback, and check-ins. The study found that the needs assessment and modeling were important to working relationship and implementation dosage. The needs assessments included activities such as the coach observing the teacher and collecting data from the teacher on the number of games played in the classroom. A positive teacher perception of working relationship was associated with higher dosage but not to implementation quality.

In sum, interpersonal coaching skills have shown to play a role in the teacher-coach relationship and may impact the level of the fidelity of implementation of EBPs. The nuance of coaching moves, power, and interactions of the coach may be subtle, but they do appear to have an impact of teacher practice. Other elements influencing productive coach-teacher relationships include effective partnership agreements, building teacher leadership capacity, communicating

about coaching services, allowing teachers autonomy, encouraging feedback, and managing resistance and conflict (Killion et al., 2012).

Collectively, teacher preferences and coaching behaviors vary widely across studies. Although coaching does seem to be a variable in supporting teachers with the implementation of EBPs, few studies address coaching fidelity in relation to the coaches' behavior during the coaching session (e.g., effective coaching practices, specialized content/EBP knowledge, interpersonal coaching skills). These findings support need for coaching observation tools.

Content and Structure of Existing Coaching Observation Tools

Overall, little is understood about the feedback provided by a coach during a coaching session (Mangin & Dunsmore, 2014). Given the promise of the role of the coach to scaffold the change in teacher practice to support the implementation of EBPs, it is critical to understand the frequently used coaching behaviors. It is likely that overall coaches' behaviors can be identified in three categories: effective coaching practices, specialized content/EBP knowledge, and interpersonal coaching skills. Within each of these categories, discrete behaviors can be identified. For example, feedback would be considered a practice in the effective coaching practices category. There are currently some tools that have been developed to support coaching by identifying the fidelity, or demonstrated behaviors, of the coach during the session (Pierce & Ferguson, 2018; Reddy et al., 2019; Ward & Cusumano, 2018).

Reddy et al. (2017) studied the impact of the Classroom Strategies Coaching model to increase teachers' use of EBPs (instructional, and behavioral management practices) in the classroom. The model includes three key components: integration of instruction and classroom behavioral management, formative assessment (coach observes classrooms and teacher self-evaluation), and problem-solving meetings. Initial results from the randomized controlled trial

were promising, with teachers receiving immediate coaching demonstrating significant improvement. Although this model focused on the monitoring of teacher implementation by the coach, the authors suggested future research is needed to determine the coaching components and interactions of components leading to sustained teacher implementation of EBPs and increased student outcomes.

One tool developed to support effective coaching is the *Effective Coaching of Teachers: Fidelity Tool Worksheet* (Pierce & Ferguson, 2018). The authors suggest coaching teachers with fidelity is necessary to achieve intended outcomes; therefore, the tool's purpose is to support the coaching of the teacher to enhance the implementation of active ingredients (e.g., core components) as well as quality (e.g., coach responsiveness to teacher needs). The coach's implementation of coaching practices, including observation, modeling, performance feedback, and alliance-building strategies are rated according to adherence, quality, dose, and responsiveness are documented on the form. The percentage of Fidelity of Coaching Practice score is calculated to determine the coaching fidelity score for the coaching session.

Another tool was developed by the National Implementation of Research Network (NIRN), which identifies coaching as a key driver for implementation. As such, NIRN has developed a *Practice Profile for Coaching* and *General* and *Targeted Coaching Look-Fors* (Ward & Cusumano, 2018) which identify best practices used during coaching sessions. The Targeted Coaching Look Fors are focused on specific skills (e.g., prompting, performance feedback, and scaffolding skill use). The active modeling and coaching tool is a checklist used to develop implementation capacity. The rater collects data on specific coaching behaviors, including prompting, scaffolding skill use, and performance feedback while rating the level of implementation. The four look-fors are: (a) prompts are delivered as planned to elicit targeted

skills, (b) prompt is delivered at an appropriate time to elicit desired behavior, (c) prompts are delivered discretely, and (d) data are collected and used to identify when prompts should be faded. The document is in response to the need for the coaching of coaches to support their continual growth. Although in the form of a checklist, the purpose was not to get a "score" but as a dynamic document to capture the behaviors of a coach, as part of the continuous improvement process focused on coaching (D. Cusumano, personal communication, November 1, 2020).

In a study using a coaching assessment tool, Reddy et al. (2019) investigated initial reliability and validity of the score inferences of the Instructional Coaching Assessment tool and the perceived usability of the Performance Monitoring Rubrics by coaches and teachers. Participants included 25 full-time instructional coaches and 225 general and special education teachers in 10 schools identified as high poverty. The researcher-created, online Instructional Coaching Assessment was completed by the coach, associated teachers, and the supervisor of the coach. The tool contains 30 items related to the three outcome areas of quality instruction, positive behavior management, and responsive learning communities. The tool was developed based on behavior consultation and coaching literature designed to measure core coaching skills, process, and development of coaching. The instructional coaches were trained on this data-driven coaching model (n = 55 hours of training and support) and provided teachers with modeling, practice, and performance feedback. Reliability and validity were found to have high internal consistency, and teachers indicated the tool can improve coaching process. The researchers suggested the need for continued investigation of sources of evidence that can be used by raters to evaluate coaching effectiveness.

Development of Coaching Fidelity Tools

The implementation of critical components of an intervention with consistency helps establish a relation between intervention and student outcomes. Implementation fidelity measures can determine the effectiveness of an intervention (NCII, n. d.), and teacher fidelity is frequently measured. However, it is less common, although perhaps just as important, to use coaching fidelity, or observation, tools to measure the impact of the coaching on the intervention. This is particularly important for interventions where coaching is one of the components of the PD seeking to increase the use of EBPs by the teacher, as it is in TRI. Five considerations for fidelity implementation impact the successful implementation of an intervention (NCII, n.d.). Two of the considerations are particularly relevant to consideration of a coaching observation or fidelity tool: the quality of delivery (e.g., quality teaching practices used consistently and with appropriate intensity) and adherence (e.g., how well is the intervention followed, is it delivered consistently across teachers).

The development and implementation of teacher fidelity tools to support the implementation of EBPs is a common practice (Amendum et al., 2011; Amendum et al., 2017; Vernon-Feagans et al., 2010; Vernon-Feagans et al., 2012; Vernon-Feagans et al., 2013). However, it is less common to use coaching fidelity tools to measure the impact of the coaches' fidelity of implementation. One reason for this may be the additional resources required to measure coaching behavior (Powell & Diamond, 2013). Cusumano also noted the lack of coaching the coach or fidelity measures may be related to funding, suggesting that we often lack the resources to provide teachers with adequate coaching, let alone the coaches (D. Cusumano, personal communication, November 1, 2020). To that end, when coaching fidelity is collected, it is likely self-reported, such as a coaching log (Neuman & Wright, 2010; Snyder et al., 2015).

The development of coaching fidelity or observation tools will provide additional information related to conditions of performance feedback necessary to the fidelity of implementation of EBPs (Noell et al., 1997; Denton & Hasbrouck, 2009) and provide information related to the practice of coaches as they provide lesson feedback (Gibson, 2006).

In order to develop a tool which incorporates effective coaching practices, a more comprehensive literature was conducted as part of this study. The method section outlines the steps for a detailed review of the literature in the areas of effective coaching practices, specialized content/EBP knowledge, and interpersonal coaching skills. This review will guide the development of the coaching observation tool.

CHAPTER 3: METHOD

This chapter provides an overview of the present study. The participants, procedures, and data analysis for the study are presented in detail. The intent is to offer the reader a clear description in order to better understand the context of the study.

Institutional Review Board and Data Usage Agreement

The development and use of the coaching observation tool was an iterative process relying on primary and secondary data sources. The IRB submitted to UNC Charlotte included a Data Usage Agreement (between UNC Chapel Hill and UNC Charlotte) for the secondary data. This included TRI audio-video recordings from year two of a study and the coaches' names and emails who participated in those recordings. I was added as an UNC Chapel Hill affiliate, sponsored by Dr. Mary Bratsch-Hines, who provided me access to the data. The UNC Chapel Hill research team provided me with a list of identification numbers for teacher and student dyads with consent for work outside of the primary TRI study. This allowed me to observe and analyze the video and audio recordings of the real-time coaching sessions. As an affiliate, I set up an account on UNC Chapel Hill's password protected, secure ONYEN site and observed videos within this platform.

The IRB at UNC Charlotte addressed the collection of primary data. This included one initial interview with one TRI coach and a member-checking interview with four TRI coaches, all of whom coaching during year 2 of the multi-year TRI study.

Participants

The participants in the current study were coach-teacher dyads participating in a multi-site randomized controlled trial study of TRI. The coaches (n = 4) and teachers (n = 20) worked collaboratively to support the implementation of TRI during the approximately 20-min coaching

sessions to improve literacy outcomes for students acquiring the English language. Although teachers were included in the videos, the focus was on coaches and no specific teacher information was provided. All participating coaches were in the real-time TRI webcam video recordings and provided expertise to the member check phase of coaching observation tool development.

Student and Teacher Participants

Students and teachers were only indirectly involved in the study. I had no direct interaction with students and teachers. However, students and teachers appeared in the video during the individualized coaching session. No student data was analyzed or reported in this study. Signed consent forms for the student and teacher were obtained and were on file at UNC Chapel Hill.

Inclusionary and Exclusionary Criteria

To be included in this secondary analysis of the TRI study, TRI coaches must have participated in Year 2 of the multi-year study and appear in videoed coaching sessions used for the secondary analysis. Coaches who did not participate in Year 2 of the TRI were not invited to participate in the study.

Coach Participants

The coach participants in the present study provided TRI coaching to teachers during year 2 of the multi-site randomized controlled trial TRI study. Participants were full- or part-time TRI coaches; part-time coaches included doctoral students. Varying levels of participation was required by coaches based on different phases of the study as outlined in the following section. Coach 1 currently serves as TRI Intervention Director and was previously a TRI coach for 3 years. Although she had 17.5 years of teaching classroom experience, she had no previous

coaching experience prior to joining TRI. Coach 2 worked in early education for 8 years, as a PreK and kindergarten teacher, as well as a Disability Coordinator and Education Manager at Head Start. Her responsibilities included coaching for the classroom assessment system for instructional/emotional supports/classroom management. Coach 3 had 16 years teaching experience in grades PreK, kindergarten and first, as well as being an instructional facilitator for K-5. She gained coaching experience in this role, prior to going to TRI. Coach 4 worked as a reading therapist at a dyslexia center for 1-2 years prior to joining TRI. In addition to being a TRI coach, she also served as the Intervention Director for two years. Participating coaches' education level, current occupation, years of teaching experience, and years as a TRI coaches are provided in Table 1.

Table 1

Demographics TRI Y2 Coaches

Coach	Education	Occupation	Teaching Experience (yrs.)	TRI Coach (yrs.)
1	PhD	Intervention Director	17.5	3
2	PhD Candidate	Research Assistant	8	3
3	MEd	Research Assistant	12	6
4	PhD	Assistant Professor	2	5

Settings

This study used primary and secondary data, and therefore was conducted in more than one setting. The existing (secondary) data included audio and video recordings of coaching sessions from a multi-site randomized controlled trial study of TRI conducted in North Carolina and Delaware. Primary data included a TRI coach interview, a member-checking focus group, and the analysis of a sample of the recorded coaching sessions, including an initial review during tool development (n = 8) and a larger sample for data collection using the tool (n = 36).

Audio-Video Recording Analysis

All audio-video recording analysis was conducted in a private, secure environment. Analysis for coaching interview analysis was conducted in my home office with analysis data kept on the UNC Charlotte-University secured, password protected Google Drive. Analysis of video recordings was conducted in my home office using the secure UNC Chapel Hill Server. Analysis notes were kept on the UNC Charlotte University-secured, password-protected Google Drive.

Initial Coach and Member Checking Interviews

The initial coach interview and member checking focus group were conducted via UNC Charlotte WebEx conferencing platform. Prior to recording, I requested permission to record in order to facilitate conversation and properly code the interviews for analysis. All participants agreed, and I began the recording. Participants were at individual locations of their choosing where they could access WebEx.

Research Design

I conducted a study with a nonexperimental design relying on primary and secondary data. This theory building, nonempirical study was designed to investigate effective coaching to support the implementation of an EBPs. In this initial study, a coaching observation tool was developed using an iterative process of (a) an initial coach interview and systematic review of the literature, (b) a review of a sample of recorded TRI coaching sessions with the initial draft of the tool, and (c) a focus group member checking interview with TRI coaches. Following the development of the coaching observation tool, I completed an analysis of a larger sample of recorded TRI coaching sessions to determine frequently used behaviors used by TRI coaches during real-time coaching sessions. Primary data collected included one initial interview with a

TRI coach and a member-checking focus group interview with four TRI coaches. The secondary data analysis will include the reviewing of audio-video recorded TRI coaching sessions from a primary study conducted at UNC Chapel Hill.

Procedures

The procedures in this study addressed in chronological order. This is to provide clarity of the steps used in this multi-step study. It is important to note the intentional embedding of reliability and validity of the tool throughout the development process. However, additional studies will be required in order to gain a more comprehensive understanding of the validity and reliability of the coaching observation tool (Howley et al., 2014; Yopp et al., 2010).

Reliability demonstrates the consistency of the score produced or the degree to which the tool consistently measures what it proports to measure (Mills & Gay, 2016). The reliability of the coaching observation tool is important to ensure a tool captures a consistent rating of identified coaching behaviors regardless of the observer. Reliability was addressed during the initial analysis of the sample of videos during tool development (n = 8) and with 22% of videos using the finalized coaching observation tool (COT_V3). Raters were the same for both IRR collections and independently rated the videos selected. I served as rater 1, and rater 2 was a research investigator knowledgeable about the coaching.

The validity of a measure, in this case an observation tool, refers to the degree with which the tool measures what it reports to measure allowing the appropriate interpretation of the scores (Mills & Gay, 2016). For the coaching observation tool, I focused on content validity, in that I am interested in determining the degree to which the tool measures the intended content area (e.g., coaching behaviors). The process of the literature review, the initial interview, and member checking interview with coaches assisted with developing a valid observation tool.

Development of the Coaching Observation Tool

The goal of developing a coaching observation tool was to provide researchers and practitioners with a valid and reliable tool to identify coaching behaviors during real-time coaching sessions. The use of fidelity, or observation tools, to support teachers with the implementation of EBPs is a commonly used practice (Amendum et al., 2017; Vernon-Feagans et al., 2010; Vernon-Feagans et al., 2012). The tool development of this tool is modeled after features of the Observation Tool for Instructional Supports and Systems (OTISS; Fixsen et al., 2015). Several characteristics of the OTISS were considered in the development of the coaching observation tool. The OTISS, while designed to support teachers, identifies categories of adult behaviors and corresponding operational definition of instruction behaviors. A behavior must be operationalized, or described in a way that is observable, measurable, and repeatable, in order to identify and assess its occurrence (Cooper et al., 2007). The operationalizing of behaviors includes a label, definition, examples and nonexamples by including these four elements; the behavior is considered valid because the observer is able to identify what the behavior is and is not (Cooper et al., 2007). Using this process, I operationalized behaviors identified in the literature review for use on the tool. Other features of the OTISS lending themselves to the coaching observation tool are that behaviors are observable during short segments of lessons, behaviors observed are not time/content specific, and behaviors are discrete. Additionally, the tool was developed based on research identifying teacher behaviors shown to positively impact student outcomes (Hattie, 2009), and the coaching observation tool was developed based on practices identified as effective by research. However, unlike OTISS, which has a rating score, the coaching observation tool has a frequency count for the effective practices section. Similar to OTISS, there is section to record anecdotal notes to provide additional context to the observation.

In addition to the development of the tool, I developed training slides similar to those developed by National Implementation Research Network.

The coaching observation tool was developed using an iterative process. First, I reviewed of the literature on effective coaching practices, specialized content and EBPs knowledge, and interpersonal coaching skills. I also simultaneously conducted an initial interview with an experienced coach of an evidence-based intervention, Targeted Reading Intervention (TRI; WWC, 2017). Second, I developed a draft coaching observation tool and shared it with four TRI coaches for their input on the tool in a member checking process. Third, I conducted IRR on a sample of 8 videos using the initial draft of coaching observation tool. Fourth, I refined the tool based on video analysis and discussion related to IRR coding.

Literature Review. In addition to the initial interview with the TRI coach, I conducted a two-part narrative review of the literature (Duke University, 2021; Grant & Booth, 2009; UAB, 2020; Xiao & Watson, 2019) focused on (a) determining possible categories of coaching behaviors and (b) identifying coaching behaviors which demonstrated high impact and could be operationalized and observed in a 20-min real-time coaching session. Each review followed a similar search and review process, adapted from Xiao and Watson (2019) which was narrative in nature (a) identification of literature through database searching, (b) screening of articles for inclusion, (c) full text review of article to assess for eligibility, and (d) identification of final studies to be included in the analysis of coaching behaviors for the coaching observation tool. Xiao and Watson also discussed sampling strategies and the stopping rule in the literature identification step. They suggested that literature searches are guided by sampling strategies which provide an exhaustive or selective review of the literature. For the purposes of this review, I was selective in my review and focused on peer-reviewed articles because I wanted to identify

the most impactful behaviors to include on the coaching observation tool. The authors also discussed a stopping rule, stating that the search can stop when repeated searches result in the same references with no new results. Due to the large volume of results, I sorted by relevance and screened abstracts for the top 50 articles for any results larger than 50 during the initial screening. Additionally, on some reviews, I narrowed the focus by year in order to identify the most current articles.

I created a spreadsheet with multiple tabs, including (a) search documentation with headings: date, search terms, search engine, outcome, inclusionary/exclusionary criteria, citations/DOIs, and notes, and (b) tabs for each of the areas (effective coaching practices, specialized content/EBP knowledge, and interpersonal coaching skills_ with headings: citation, specific behavior indicator (e.g., modeling, observation), specific behaviors, results, themes, citations from reference list, and notes. Following the literature review, I filtered each column behavior and counted the frequency with which the behavior was identified across coaching studies. For example, in the area of effective coaching practices, column headers included terms such as modeling, observation, feedback. I filtered the modeling column and counted the number of studies mentioning modeling as effective, next I did the same for observation, and feedback and continued across all column headers. After calculating each column header, I rank ordered from highest to lowest (e.g., behaviors most frequently mentioned in the literature to least frequently mentioned) and the top four behaviors were included on the coaching observation tool. I selected the top four because I wanted a tool that would include a variety of behaviors identified as impactful in the literature, under each category. Selecting four behaviors across three areas would require the observer to monitor and record up to 12 behaviors. I also wanted to develop a tool that was no more than one page (front and back) and provided an anecdotal notes

section. This was a decision made during the initial tool development, and the number of behaviors could be adjusted based on the initial video analysis during the development of the tool. Additionally, the articles were used to identify specific indicators which reflect each of the four coaching behaviors.

Initial Interview with TRI Coach. The interview with an experienced TRI coach followed a standardized open-ended interview protocol (Patton, 2002) with questions related to effective coaching behaviors, evidence-based program (in this case TRI) critical components and coaching behaviors, and interpersonal coaching skills. See Appendix B for Initial Interview Consent form. During the interview, questions were asked related to the necessary or core components of the EBP (TRI), strategies used to support instructional match, and decisions about how and when to give feedback were asked. See Appendix C for sample questions used during the initial coach interview. The interview was conducted with the coach via the UNC Charlotte WebEx platform at a time convenient for the TRI coach. The interview lasted 27 min, during which time a series of questions were asked with some follow-up discussion. The session was video and audio-recorded. I transcribed the interview and uploaded to a secure UNC Charlotte Google folder for analysis.

Draft Initial Coaching Observation Tool. Once the three literature reviews and initial interview were complete, the coaching behaviors identified most frequently (by rank ordering) in each of the three areas were operationalized to include specific behaviors and indicators that could be observed during the 20-min audio-video recorded real-time coaching sessions. These operationalized behaviors comprised the initial draft of the coaching observation tool.
The paper-pencil coaching observation tool included a table with the list of the identified, operationalized coaching behaviors with an adjacent area to record data on behaviors exhibited

by the coach during the coaching session. The tool was divided into three areas, effective coaching practices, specialized content/EBP knowledge, and interpersonal coaching skills. The effective coaching practices section allowed the observer to record a frequency count of observed practices (e.g., coach provides feedback to the teacher). The specialized content/EBP knowledge section allowed the observer to check a box if the coaching behavior or critical component of the EBP lesson is observed during the coaching session (e.g., coach monitors adherence of the EBP). The interpersonal coaching skills section allowed the observer to check a box if coaching behavior or skill is observed during the coaching session (e.g., coach demonstrates active listening). Additionally, at the bottom of the tool, there is a space to record anecdotal notes (e.g., quality of session and open-ended notes) which may contribute to the context or a richer description of the observed coaching session, similar to video coding procedures used by Collet (2012) and Kretlow and Bartholomew (2010).

Member Checking. After the development of the initial coaching observation tool (version 1), I shared it with TRI coaches for feedback to ensure the tool represents their coaching experiences. Member checking is an agreed upon way to support validity in a qualitative study (Candela, 2019; Creswell & Miller, 2000; Koelsch, 2014). Creswell and Miller (2000) used member checking to accurately engage participants to ensure the tool represents their coaching experiences and establish credibility as someone new to the study seeking to support the work. This phase of the research process focused on the participants, in this case TRI coaches, and an analysis of the participants' narrative responses. Based on member checking processes described by Candela (2019) and Koelsch (2013), I used this process to support the validation of the researcher-created coaching observation tool, including possibly adding or admitting features, or behaviors, based on expert coach input. This member checking focus group interview was video

and audio-recorded. I uploaded the audio-files into UNC Charlotte secure Google Drive for transcription and analysis. If I had encountered conflicting opinions from the coaches, I planned to speak with Coach 1, who served as TRI Intervention Director during this study to clarify. However, this did not occur. Member checking was conducted with the four TRI coaches who had experience providing TRI coaching to individual teachers. These coaches had experience of the coaching process, as well as knowledge of an EBP intervention (e.g., TRI) and provided expert information to support the refinement of the coaching observation tool.

I conducted the member checking interview using the UNC Charlotte WebEx platform, and with the consent of the coaches, recorded the interview in order to facilitate conversation and properly code the video for analysis. See Appendix D for Focus Group Consent form. This component of the study used a standardized open-ended interview focused on three types of questions common to qualitative interviews (Patton, 2002): (a) background/demographic questions, (b) knowledge: questions focus on what the coach knows, and (c) behavior/experiences: questions focus on behaviors, experiences, actions of the coach. Additionally, I asked the coaches whether they saw themselves represented in the tool, whether they felt any of the items seemed irrelevant or inappropriate, and whether they noticed if any behaviors or items were missing. For a complete list of sample questions, see Appendix E. Coaches were sent a copy of the initial draft of the coaching observation tool via email 24 hours prior to the interview along with the secure WebEx link. This allowed the coaches an opportunity to review and reflect on the tool prior to the 30-min interview. This initial process of conducting a literature review, an initial interview with the TRI Intervention Director (and former coach), and member checks were intentional efforts to strengthen the content validity of the coaching observation tool.

Coaches' names and email information were shared with me by the PI at UNC Chapel Hill per the Data Usage Agreement. I sent the recruitment email and attached consent per IRB. All coaches invited to participate responded within 5 days and all signed consent to participate. I used a secure doodle poll to identify a common time that participates could conveniently participate in the 30-min focus group. Prior to the focus group, coaches (n = 4) were assigned a number to maintain confidentiality and assist with coding of the interview. The numbers were assigned based on alpha-order of the coach's last name.

Following the interview, the recording was uploaded into UNC Charlotte YouTube password protected channel as a private video to transcribe and analyze. I also used a thematic analysis to generate themes during the member-checking focus group (Braun & Clarke, 2006; Braun et al., 2019; Clarke & Braun, 2017). Using the a priori themes aligned with the literature related to the observation tool development (Brooks et al., 2015) allowed me to ask questions to the experts as part of the tool creation. I analyzed the open-ended interview questions by converting the recording to a transcript. Because the interview was relatively short and with only four interviewees, I was able to use a thematic deductive analysis (Clarke & Braun, 2017). After transcribing the interview, I re-read through the transcript several times and marked up the transcript and coded the coaches' responses related to the a priori themes aligned with the tool. I made decisions about adjusting tool based on input from the expert coaches related to the indicators and the training protocol. This allowed me to develop a tool aligned with the experience of expert coaches. Based on the member checking interview, I updated the coaching observation tool (version 2).

Training. A training was developed for raters interested in using the second version of the coaching observation tool (COT_V2). The companion training documents created included a

PowerPoint presentation and mock coaching scenarios. The mock sessions were developed by selecting an EBP lesson plan from National Technical Assistance Center on Transition (NTACT), What Works Clearinghouse, and the IRIS Center. I then created a scenario in which a teacher was instructing the student on the EBP while a coach observed and provided real-time feedback during the coaching session. I selected four lesson examples to create the scenarios. This allowed me to create one mock coaching scenario for each area of the coaching observation tool (effective coaching practices, specialized content/EBP knowledge, and interpersonal coaching skills) and one more comprehensive scenario for the all indicators on the tool. The four EPBs selected were (a) The RAP Strategy (NTACT, n.d.a), Using Repeated Reading to Teach Fluency (NTACT, n.d.b), (c) CRS: A Reading Comprehension Strategy (IRIS, 2008), and (d) Word Problems: Tech Word Problem Type (Fuchs et al., 2021).

***COT_V2 Training*.** Prior to each IRR observation, rater 2 was trained on the coaching observation tool. This 30-min training consisted of an overview of the tool,
the training components, including PowerPoint slides developed for the coaching observation tool adapted from a training I had attended on OTISS (Cusumano & Ward, 2017). Specific examples and nonexamples of discrete coaching behaviors were also discussed. The time-stamping process was also demonstrated and practiced with the independent observer.

Conduct Video Analysis on a Sample of Coaching Sessions. The first step was to identify coach-teacher dyads available by implementation cycle to allow for a representative sample from which to select videos. Per the universities' Data Usage Agreement, the PI shared the teacher-student pairs (ID numbers) that had consent. I set up a spreadsheet with column labels, coach number, teacher ID, student ID (only for permission purposes), beginning of year (BOY; Oct-Dec), middle of year (MOY; Dec/Jan-Mar), and end of year (EOY; Mar/Apr-May). I

used the identification numbers (IDs) of the teacher and student columns across each row and searched by Teacher ID and Student ID to see the videos available for the pair. I reviewed each date for every video and selected videos of the teacher-coach dyad from each implementation period (BOY, MOY, EOY) available. Some of the dyads had multiple videos within one period, so I selected videos in the middle or late middle of the cycle to add to the chart. It was not uncommon to have dyads with only two cycles from which to select. Additionally, videos were not available for every implementation period (BOY, MOY, EOY) for every coach. This required me to conduct a more purposive sampling in order to see as much variety across coach, across teacher, and across implementation period. I selected videos from the beginning, middle, and end of year (or implementation period) of the coaching sessions, thus allowing me to reduce the variance of my sampling. In total, this yielded a sample of 90 videos. These 90 videos were used for the initial IRR analysis (n = 8) during tool development and for the analysis of 36 videos using the final version of the coaching observation tool. A fuller description of the coach with number of sessions per implementation period is provided in Table 2. The description of the sampling and IRR training are described in the Determining Validity and Reliability section of procedures.

Table 2

Number of Coaching Session per Coach by Implementation Period

Coach	Number of BOY	Number of MOY	Number of EOY	Total Number
Coach 1	3	6	3	12
Coach 2	3	10	5	18
Coach 3	8	22	13	43
Coach 4	3	10	4	17
Total	17	48	25	90

Initial IRR for Tool Development. For the sample of videos (n = 8) for the IRR analysis of the initial draft of the coaching observation tool, I conducted a purposive sample by selecting two videos per coach with two different teachers across two different implementation periods for a total of eight coaching sessions. After ordering the spreadsheet by coach, beginning with coach one, I selected the first two coaching sessions for each coach. The coach-teacher-implementation cycle is provided in Table 3.

Table 3

Coach-Teacher-Implementation Cycle Initial Sample

Coach	Teacher	BOY	MOY	EOY
1	A	X		
1	B			X
2	C		X	
2	D	X		
3	E		X	
3	F			X
4	G		X	
4	H			X

Data collection. Data collection for both IRR sessions were similar. I developed a spreadsheet with columns matching the coaching observation tool and headers labeled: video, coach, behavior, manual timestamp, indicator, anecdotal notes for raters to use during observation of videos. The video column indicated video being analyzed. Raters indicated the number of the coach being observed in the coach column. The behavior column included options related to each indicator on the coaching observation tool (ECP 1, ECP 2, ECP 3, ECP 4, SCK 1, SCK 2, SCK 3, SCK 4, ICS 1, ICS 2, ISC 3, ISC 4). For every behavior recorded in the behavior column, raters provided a timestamp of the behavior in the timestamp column. In the behavior observed and notes column, coaches had the option to enter any additional notes or context that assisted in their rating.

Once all codes were entered, I filtered by video and within each video, filtered by coaching behavior (e.g., ECP 1, then ECP2). For the initial sample, raters independently rated the sample videos (n = 8) using the COT_V2. The item-by-item IRR was calculated by entering three columns into an excel spreadsheet (one page per video), with the headings indicator, rater 1, rater 2. During analysis, I looked at the behaviors ratings, not timestamps, to determine IRR. This decision was made because of the challenges related to recording behaviors during natural observation is occurring and challenges related to classroom observations (Malviya et al. 2021). Additionally, I was working with a secured platform which did not allow me to download videos, which may have allowed me to timestamp and annotate directly on the videos. However, the raters did look at timestamps to get additional context, but this was not figured into the IRR score. The rating for each rater was entered next to each indicator and in the fourth column, a one was entered if ratings matched (e.g., both raters entered 3 on a particular indicator), and a zero was entered for ratings that did not match and calculated the match by item and then percentage of total matches, or IRR. I calculated matches by using the formula =sum(4th column) and enter. For the percentage I calculated =count(1st column) and enter. For the percentage =match cell/total cell, I clicked on the percentage tab to change the decimal to a percentage. The raters met to discuss the scores and determine ratings for each indicator of each video. I then used the scores and discussion to update the tool to version three and the accompanying training protocol. The discussion following the IRR was used to adjust the coaching observation tool and training protocol.

Finalize TRI Coaching Observation Tool and Protocol. I updated the coaching observation tool based on feedback from the member checking and initial review of the videos using the draft tool. I made decisions about adjusting the tool based on comments from coaches,

IRR ratings, and discussions with rater 2. This included adding indicators and adjusting language to more clearly operationalize behaviors (Cooper et al., 2007) to support clarity in the tool. After the coaching observation tool was updated to the third version, and a new training was developed to incorporate the changes to the tool and clarification to the original training slide deck to provide improve clarity and usability for users.

Identification of Frequently Used TRI Coaching Practices

During this phase of the study, I used the researcher-created coaching observation tool document and analyze 36 video-recorded TRI real-time coaching sessions. First, I identified the 36 videos for analysis. I conducted a two-tier sampling of process of the remaining videos not used in the initial sample (n = 82), (a) a purposive sampling to identify videos of each coach working with two different teachers across two different implementation periods (BOY, MOY, EOY), and (b) random selection by numbering the available videos and using a number generator to select the sample of 36 videos. This was selected due to the varying number of coaching sessions available per coach. These numbers ranged from 12 to 43 video coaching sessions. Additionally, there were more MOY implementation period (n = 48) available than BOY (n = 17) or EOY (n = 25).

I watched each video two times and collected data on the following areas (e.g., effective coaching characteristics, TRI content, and interpersonal coaching skills) using a spreadsheet with the headings: video, coach, behavior, manual timestamp, indicator, and anecdotal notes. The first time I watched the video, I paused the recording for every coaching behavior observed and completed each field on the spreadsheet. The second time I watched the video, I briefly pause for every coaching behavior to confirm behavior was on the spreadsheet and coded correctly. I also added any behaviors I may not have recorded during the first viewing.

IRR Using COT_V3. A two-step sampling process was used to select the 22%, or two per coach, for the IRR on the sample of 36 videos using the final coaching observation tool. This method was selected because of the number of videos available per coach, as well as the number of implementation periods. The total available videos per coach were, (a) coach 1: 12, (b) coach 2: 18, (c) coach 3: 43, and coach 4: 17. Whereas coaches 1, 2, 4 had a similar number of videos from which to select, coach 3 had two to three time more recordings. In order to get a representative sample of coaches across intervention cycles, I selected nine videos per coach with different teachers (allowing all coaches to be equally represented). This would focus less on one teacher across two implementation periods, but more on seeing the coach with a variety of teachers at different implementation periods. Based on the number of available videos, I selected a percentage of videos per cycle: BOY 25%, MOY 50%, and EOY 25%. I assigned the available videos number one through nine, going down, and randomly selected two numbers per coach: coach 1 (7, 8), coach 2 (4, 6), coach 3, and coach 4 (9, 4)**.**

***COT_V3 Training*.** This 28-min training was recorded (Jolly, 2021) and uploaded to password protected UNC Charlotte YouTube video (Jolly, 2021). In addition to the recording, the slide deck of the training and an excel spreadsheet was shared for recording observations of the eight coaching sessions. The training was recorded because the rater participated in the COT_V2 training and had experience with rating from the initial analysis. This allowed the rater some flexibility with when she watched the training and allowed her to reference the training if she had any questions during the IRR procedure.

Prior to the IRR of 22% of the 36 analyzed videos, I sent rater 2 a copy of the updated COT_V3, an updated training session (slide deck and recording), and a spreadsheet for data collection. The rater was asked to complete the analysis in 2 weeks.

The same procedure was used for the IRR of the final sample of 36 videos. The raters independently rated the sample of 22% of the 36 videos (n = 8), which was two per coach. The strict percent overlap procedure (requiring us to both have the same number of answers; percentage of 1s – exact match over total number of opportunities; percentage agreement) was used again because this is the development of the tool to allow for minimal interpretation within the indicators of the tool and training protocol. For example, disagreement within the analysis showed where behavior indicators may need to be more operationalized in order to limit various interpretations.

Although the IRR calculations were used, an additional analysis of the sample was also conducted. This analysis allowed for adjacent match (e.g., plus or minus one). For example, if rater 1 scored 2 and rater 1 scored a 3 or 1, that would count as a match (scoring a 1) and would be calculated over total opportunities. This allowed a comparison between complete overlap and plus/minus one. I was interested in determining whether more flexibility in scoring would improve the IRR because of the challenges related to the identification and documenting of discrete behaviors during classroom observations (Malviya et al. 2021).

Data Analysis

Research Question 1 (i.e., what behaviors might comprise a coaching observation tool representing reviewed effective coaching practices, specialized content/EBP knowledge, and interpersonal coaching skills) was assessed using the development of the tool process, including the literature review, initial interview, and member check process to identify common themes or behaviors essential to coaching of teachers to support fidelity of implementation of an EBP.

Research Question 2 (i.e., what is the content validity and inter-rater reliability of the coaching observation tool focused on effective coaching practices, specialized content/EBP

knowledge, and interpersonal coaching skills) was assessed in several ways. The development of the tool which included a review of the literature, an initial interview with a coach, and member-checking processes supported in the development of a valid observation tool. Additionally, the reliability was measured through the two IRRs conducted, during and after tool development.

Content validity, or the degree to which the tool measures the intended area, is determined by expert knowledge (Mills & Gay, 2016). The content validity of the tool was addressed through the process of the literature review, the initial interview, and member checking interview. One way to ensure content validity is during the construction of the instrument (Fimian, 1984). The development COT_V3 incorporated feedback from expect coaches during its development, including an initial interview and the member checking interview with expert coaches.

The reliability of COT_V3 was assessed by the IRR on 22% of the 36 coaching sessions. On the sample (n = 8) video analysis during tool refinement all eight videos were reviewed and scored by both raters. The IRR used a strict item-by-item analysis with exact overlap in order to receive credit for the item. Once the tool, COT_V3, was reviewed, I watched the 36 videos selected videos two times each and coded them with on a spreadsheet with the headers: (a) video, (b) coach, (c) behavior, (d) manual timestamp, (indicator) and anecdotal notes.

Research Question 3 (i.e., based on an analysis of coaching sessions using a coaching observation tool, what coaching practices are most frequently used by instructional coaches?) was assessed using frequency count of behaviors across coaching observations collected on the coaching observation tool. The results of frequency counts were analyzed and reported by total count, percentage, counts by lesson length, and counts by implementation period (e.g., BOY, MOY, EOY).

CHAPTER 4: RESULTS

In this chapter, the results of the study are reported. The results are organized by research question.

Results for Research Question 1: What behaviors might comprise a coaching observation tool representing reviewed effective coaching practices, specialized content/evidence-based practice knowledge, and interpersonal coaching skills?

Research question one was assessed using the development of the tool process. This iterative process included a review of the literature, interviews with expert coaches, drafting an initial coaching observation tool, analyzing a sample of eight recorded coaching sessions, and the updating of the tool to create the coaching observation tool. The results are reported by each step of the process.

Literature Review

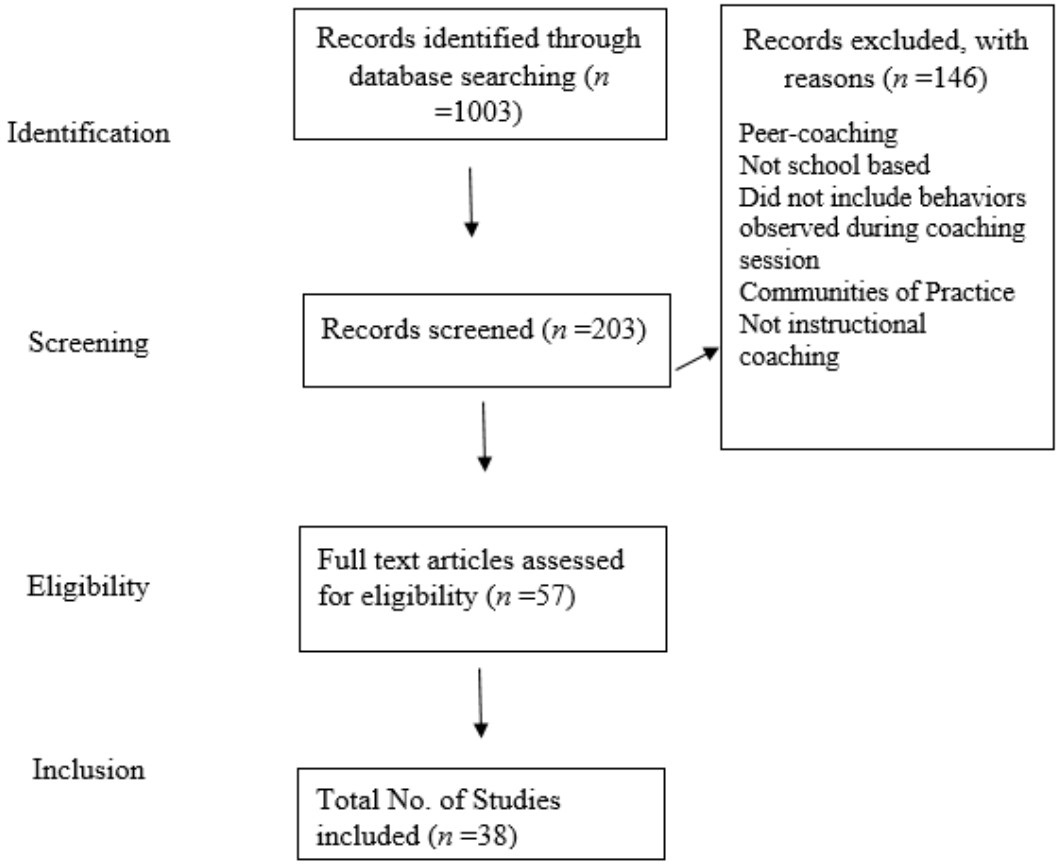
Identifying Categories of Coaching Behaviors. I conducted searches in Google Scholar using search terms *instructional coach*, *coaching*, *coaching practices*, *meta-analysis plus coaching*, and *coaching behaviors* to identify articles related to instructional coaching. During this preliminary narrative review of the literature (Duke University, 2021; Grant & Booth, 2009; UAB, 2020; Xiao & Watson, 2019), I identified three categories consisting of behaviors that reoccurred in the articles to create three sections of the coaching observation tool. These categories included: effective coaching practices (Collet, 2012; Elek & Page, 2018; Howley et al., 2014; L'Allier et al., 2010; Neuman & Cunningham, 2009; Neuman & Wright, 2010; Noell et al., 1997; Rock , 2009; Rock et al., 2013; Ward & Cusumano, 2018), specialized content/EBP knowledge (Garet et al., 2008; IDA, 2018; Moats, 2020; NIRN, 2020; Killion et al., 2012; L'Allier et al., 2010; Scott et al., 2012; Snyder et al., 2015), and interpersonal coaching skills

(Hunt and Handsfield, 2013; Heineke, 2013; Ippolito, 2010; Johnson et al., 2016; Johnson et al., 2018; Killion et al., 2012; Knight, 2019b; Mundy et al., 2012; Robertson, Padesky et al., 2020). Once I identified the three overarching areas for the coaching observation tool, I conducted three narrative reviews of the literature (Duke University, 2021; Grant & Booth, 2009; UAB, 2020; Xiao & Watson, 2019, one in each of the identified areas.

Effective Coaching Practices Literature Review. The review of effective coaching practices literature yielded 38 articles and texts meeting the identified requirements for inclusion in the effective coaching practices section. I conducted a series of searches in the ERIC EBSCOhost database using the different subject terms to identify the most relevant articles for this specific search (Xiao & Watson, 2019). The search subject terms included: *Effective Coaching Practices (or strategies or approaches), Coaching (Performance), instructional coach, coach skills, effective+coaching+practices*, and *meta-analysis+instructional coaching*. Due to the large volume of results, I sorted by relevance and screened abstracts for the top 50 articles for any results larger than 50. For example, *Coaching(Performance)* yielded 360 results, I sorted by relevance and reviewed the top 50 results. Reviewing the most relevant articles was an efficient way to determine whether the article was appropriate and was determined because as the focus narrowed on studies, the same studies began to reappear/repeat (stopping rule; Xiao & Watson, 2019). Figure 2 provides the results from the literature review on effective coaching practices.

Figure 2

Literature Review Results: Effective Coaching Practices



After the selection process, I read through the 38 articles and texts to identify effective coaching practices in each article. I followed the procedures to identify the most frequent to less frequent coaching behaviors across the studies. Table 4 summarizes the ranking of behaviors (most common at top) by area with possible indicators for the top four most frequently mentioned behaviors.

Table 4

Effective Coaching Practices Literature Review

Coaching Behavior (*n*)	Support in Literature	Exemplar Statement/Behavior
Feedback (*24*)	Becker et al., 2013; Bickel et al., 2015; Brock et al., 2018; Dudek et al., 2019; Elek & Page, 2019; Garbacz et al., 2015; Gettinger & Stoiber, 2016; Howley et al., 2014; Hudson & Pletcher, 2020; Knight, 2011; Kretlow & Bartholomew, 2010; Mraz et al., 2016; Neuman & Cunningham, 2009; Noell et al., 1997; Nugent et al., 2018; Ottenbreit-Leftwich et al., 2020; Pierce & Ferguson, 2018; Rock et al., 2013; Rock, Gregg, Howard et al., 2009; Rock, Gregg, Thead et al., 2009; Schachter et al., 2018; Schles & Robertson, 2019; Snyder et al., 2015; Ward & Cusumano, 2018	• Specific based on teacher's use of intervention or practice (Pierce & Ferguson, or target goal Ward & Cusumano, 2018) • Prioritized for most impact (Becker et al., 2013) • Positive or corrective (Pierce & Ferguson) • Corrective feedback (Neuman & Cunningham, 2009)
Modeling (*20*)	Becker et al., 2013; Bickel et al., 2015; Collet, 2012; Dudek et al., 2019; Elek & Page, 2019; Gettinger & Stoiber, 2016; Gibbons & Cobb, 2016; Howley et al., 2014; Johnson et al., 2018; Knight, 2007; Knight, 2019a; Kretlow & Bartholomew, 2010; L'Allier et al., 2010; Mraz et al., 2016; Neuman & Cunningham, 2009; Ottenbreit-Leftwich et al., 2020; Pierce & Ferguson, 2018; Schachter et al., 2018; Walsh et al., N.K., 2020; Ward & Cusumano, 2018	• Showing teacher how to use a specific intervention or practice that is new or used incorrectly (Pierce & Ferguson, 2018) • demonstrate an instructional task with students while teacher watches; occurs at teacher request, to support implementation of new strategy, upon incorrect implementation (Collet, 2012) • Demonstrating specific practice by coach (Elek & Page, 2019), including instructional or classroom behavior management (Dudek et al., 2019)
Data-driven (*13*)	Brock et al., 2018; Dudek et al., 2019; Hunt & Handsfield, 2013; Killion et al., 2012; Knight, 2011; Knight, 2007; L'Allier et al., 2010; Mraz et al., 2016; Schachter et al., 2018; Skiffington et al., 2011; Walkowiak,	• Coaching decisions are based on data (Ward & Cusumano, 2018) • Review student performance data and

	2016; Ward & Cusumano, 2018; Wilder, 2014	provide specific next step for instruction (Brock et al., 2018)
Self-reflection (*10*)	Becker et al., 2013; Elek & Page, 2019; Hudson & Pletcher, 2020; Killion et al., 2012; Knight, 2011; Mraz et al., 2016; Neuman & Cunningham, 2009; Nugent et al., 2018; Schachter et al., 2018; Snyder et al., 2015	• Poses reflective questions e.g., What did you like…, what would you do differently…, how do you think students responded (Becker et al., 2013) • Uses discussion or questions to foster teacher reflection of instruction (Elek & Page, 2019) • Analyzes actions, practices, strategies, or ideas based on new or intended outcomes (Nugent et al. 2018)

Note. *N* = frequency the practice was identified in the literature review

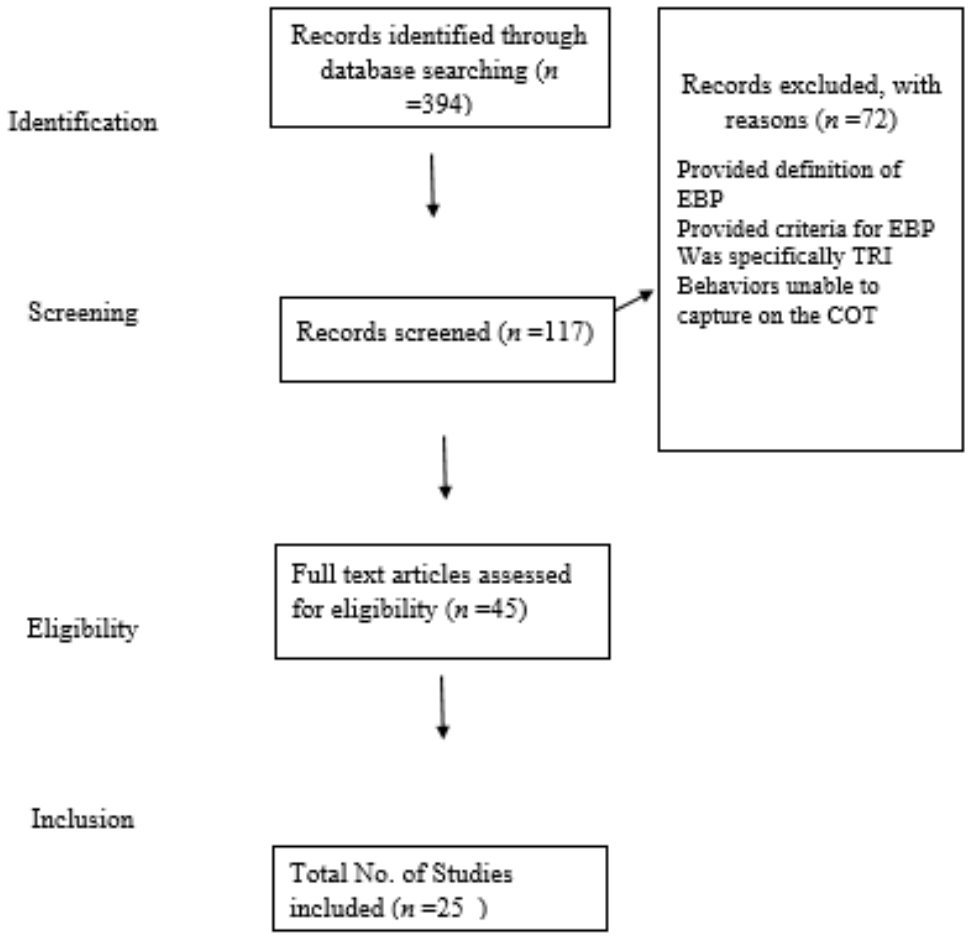
Specialized Content/Evidence-based Practice Knowledge Literature Review. The review of literature of specialized content/EBPs knowledge (including TRI) and those practices related to coaching to support the implementation practice literature yielded 25 articles meeting the identified requirements for inclusion in the section.

Specialized knowledge is important to coaches, including a clear understanding of content and pedagogical knowledge (Killion et al., 2012; Mraz et al., 2016; Pletcher, 2015) as well as expertise working with adult learners (Bickel et al., 2015). However, for the purpose of the coaching observation tool, the focus is on the specialized content knowledge of the intervention or EBPs. This section addressed overall knowledge (e.g., critical components of EBP, knowledge in the area being coached, the critical content knowledge). This includes a coach's knowledge of EBP, and specifically the intervention, or EBP being coached. This may include critical components, pacing, sequence, particular practices.

I conducted searches in the ERIC EBSCOhost database using the subject terms: *coaching(performance)+evidence-based practices implementation,* yielded 67 articles and coach+*instruction+evidence-based* programs, which yielded 17 articles. In ERIC EBSCOhost, I also searched *evidence+based+practices AB (+implementation)* sorted by peer review and narrowed year to 2015-2020 which yielded 310 results which I sorted by relevance and reviewed the abstracts and reference lists for the top 50 results. Articles related to TRI were reviewed for understanding of the EBPs used within the program, but not included in the results. Figure 3 provides the results from the literature review of specialized content/EBP knowledge.

Figure 3

Literature Review Results: Specialized Content/EBP Knowledge



After the selection process, I read through the 25 articles and texts to identify specialized content/EBP knowledge practices in each article. I followed the procedures to identify the most frequent to less frequent coaching behaviors across the studies. Table 5 summarizes the ranking of behaviors (most common at top) by area with possible indicators for the top four most frequently mentioned behaviors.

Table 5

Specialized Content/Evidence-Based Practice Knowledge Literature Review

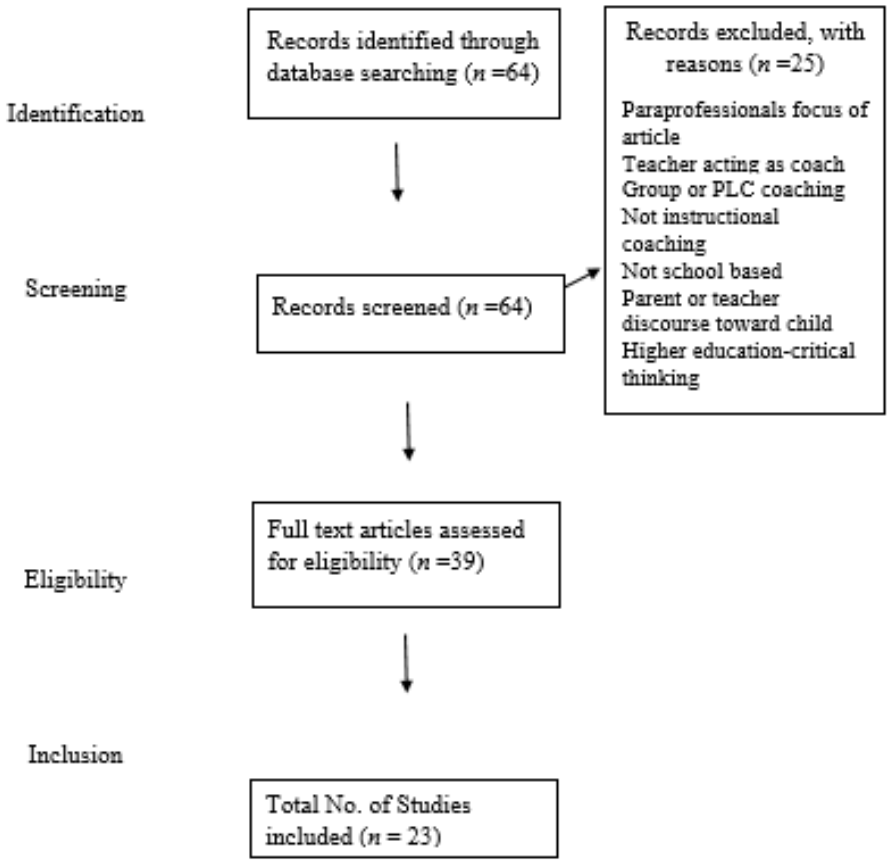
Characteristic (*n*)	Support in Literature	Exemplar (EBP)
Adherence (*5*)	Cook et al., 2018; IRIS Center, 2014b; Pierce & Ferguson, 2018; Torres et al., 2012; Wexler et al., 2021	• Monitors adherence to implementing all components of the EBP in the correct order (IRIS Center, 2014b) • Critical (Wexler et al., 2021), or core (Cook et al., 2008), essential (Torres et al., 2012) components • Adherence to essential ingredients (Pierce & Ferguson, 2018)
Quality of delivery (*3*)	Cook et al., 2008; Pierce & Ferguson, 2018; Rock, 2013;	• Monitors the instructional delivery the EBP (Cook et al., 2008) • How strategy is used (Rock, 2013) • Quality of instruction of EBP
Exposure (*3*)	IRIS Center, 2014b, b; Kittelman et al., 2021; Pierce & Ferguson, 2018	• Length of session, including pacing (IRIS Center, 2014b) • Duration of EBP (IRIS Center, 2014b) • Dose- frequency and duration (Pierce & Ferguson, 2018) • Extent procedural elements of the EPB were completed
Data-driven (*2*)	Kittelman et al., 2021; Pierce & Ferguson, 2018	• Responsiveness to instruction (Pierce & Ferguson, 2018) • Use of Data (Kittelman et al., 2021)

Note. *N* = frequency the characteristic was identified in the literature review

Interpersonal Coaching Skills Literature Review. The review literature on interpersonal coaching skills yielded 23 articles and texts meeting the identified requirements for inclusion in the section. I conducted searches in the ERIC EBSCOhost database (requiring peer-reviewed) using the subject terms *coaching discourse, coaching stance, teacher-coach relationship*, and *coaching+positioning*. Figure 4 provides the results from the literature review on interpersonal coaching skills.

Figure 4

Literature Review Results: Interpersonal Coaching Skills Results



After the selection process, I read through the 23 articles and texts to identify interpersonal coaching skill behaviors in each article. I followed the procedures to identify the most frequent to less frequent coaching behaviors across the studies. Table 6 summarizes the ranking of behaviors (most common at top) by area with possible indicators for the top four most frequently mentioned behaviors.

Table 6

Interpersonal Coaching Skills Literature Review

Coaching Behavior (*n*)	Support in Literature	Exemplar Statement/Behavior
Collaborative (*14*)	Becker et al., 2013; Hudson & Pletcher, 2020; Garbacz et al., 2015; Hunt & Handsfield, 2013; Ippolito, 2010; Knight, 2011; MacPhee & Jewett, 2017; Neuman & Cunningham, 2009; Ortmann et al., 2020; Pletcher, 2015; Pierce & Ferguson, 2018; Robertson, Ford-Connors, Frahm et al., 2020; Walkowiak, 2016; Wilder, 2014	• Joint-problem solving e.g., successive turns moving from one idea to the next (Robertson, Ford-Connors, Frahm et al., 2020) • Use of what do *we* or how do *we* question stems (Hudson & Pletcher, 2020) • Affirming difficulty of change; referring to past accomplishments (Pierce & Ferguson, 2018)
Active listening (*8*)	Garbacz et al., 2015; Heineke, 2013; Hunt, 2016; Knight, 2011; Neuman & Cunningham, 2009; Pletcher, 2015	• Evidence of teacher talk (Heineke, 2013) • Eye contact, open body posture, and nodding; brief paraphrasing (Pletcher, 2015)
Establish trust (*8*)	Heineke, 2013; Howley et al., 2014; Hunt & Handsfield, 2013; Johnson et al., 2016; Killion et al., 2012; Mraz et al., 2016; Neuman & Cunningham, 2009; Pletcher, 2015	• Teacher allowing in room or lesson (Hunt and Handsfield, 2013) • Use of non-evaluative phrases, positive communication (Mraz et al., 2016)
Build rapport/alliance (*6*)	Becker et al., 2013; Howley et al., 2014; Hunt & Handsfield, 2013; Neuman & Cunningham, 2009; Pierce & Ferguson, 2018; Pletcher, 2015	• Referring to previous accomplishments; affirming difficulty of change (Pierce & Ferguson, 2018)

	• Getting to know teachers as individuals (Becker et al., 2013; Pletcher, 2015)

Note. *N* = frequency the practice was identified in the literature review

Initial Interview with TRI Coach

The interview lasted 27 min and 35 s. I transcribed the interview with timestamps to assist in the analysis. The transcript of the initial coach interview is in Appendix F.

Qualitative Analysis. I used a thematic analysis to generate themes during the initial interview (Braun & Clarke, 2006; Braun et al., 2019; Clarke & Braun, 2017). The specific type of thematic analysis used was template analysis because I began with some a priori themes based on the literature related to the observation tool development (Brooks et al., 2015). This allowed me to begin with an initial template, based on the questions I need to ask experts as part of the tool creation. This supported the content validity of the tool development. I analyzed the open-ended interview questions by converting the recording to a transcript. Because the interview was relatively short and with only one interviewee, I was able to use a thematic deductive analysis (Clarke & Braun, 2017). After transcribing the interview, I re-read through the transcript several times marking up the responses and coding the coach's responses. Table 7 summarizes the practices and quotes outlined per a priori themes effective coaching practices, specialized content/EBP knowledge, interpersonal coaching skills, and general comments specific to TRI.

Table 7

Key Quotes from Initial Interview with Coach 1

Theme	Practices	Quotes
Effective Coaching Practices	• Provide new strategies • Reinforce practices / strategies being implemented • Reflective practice • Coach decision-making (e.g., deciding when you intervene and when you don't during a lesson) • Performance feedback • Modeling • Scaffolding	• I really see my job as building that reflective voice within teachers. There isn't one of those that is a specific TRI strategy as far as coaching • [determine when you make decisions about providing some real-time performance feedback] is related to coach decision-making, like how do you decide when you intervene and when you don't… you need to prioritize kind of what's- what's the really big thing that I need them to get out of this…there is a bit of streamlining to try to pick out what would have the greatest impact. • [specific coaching behaviors (e.g., prompting, scaffolding skill use, and performance feedback) used by TRI coaches] use the performance feedback. I love how you did this," one of the TRI tenants is kind of that specific praise… a lot of times coaches will model… scaffolding tends to be like jogging a memory, "Hey remember you have this?" and sometimes it is very much okay now you need to draw two rectangles on your board…
Specialized Content/ Evidence-based Practices Knowledge	• Diagnostic instruction (student data-based) • Lesson structure which is that reading sandwich (reread for fluency, word work, read connected text • Connection to real words and text	• I think the base level [intended results of TRI coaching] is getting teachers to implement the intervention piece of TRI with some level of fidelity… really that diagnostic instruction • [The effect I hope my coaching has on teachers is] enhancing that teacher's knowledge of reading instruction giving her some great new practices to try out, or reinforcing practices, she was already engaging in…kind of diagnostic approach…accelerating that child's progress • [components of TRI are most important to implementation fidelity] is the set lesson structure which is that reading sandwich so it's that reread for fluency, some kind of word work and then they're reading connected text… everything is connected to

		real words and texts… looking for the teacher to have used what the child is doing to determine what comes next… blend as you go instead of sounding out (e.g., incremental blending)
Interpersonal Skills	• Engage in relationship-building (e.g., conversation snippets related to information outside of lesson) • Tailoring the support to meet the teacher's needs	• [Regarding characteristics of effective coaching behaviors] I think you can tell there's a relationship by the side conversations -that even if you only get a little snippet of it. There's evidence that the teacher and - the coach knows something about each other outside of even the school capacity. • [TRI Observation Coaching Tool should include] how is the coach tailoring the support to meet the teacher's needs
General Comments Specific to TRI	• I think that [focus of TRI coaching] has changed somewhat over the years…originally it really was part of how are we going to get fidelity to this [TRI]… I think as TRI has morphed from more of an intervention focus to more of a PD focus…it's become more of the how do we support teachers how do we help them grow…	

The interview revealed that many of the behaviors and indicators on the tool were consistent with the coach's experiences. For example, in the effective coaching practices theme, the coach mentioned reflective practice and stated, "I really see my job as building that reflective voice within teachers. There isn't one of those that is a specific TRI strategy as far as coaching." In the area of specialized content/EBP knowledge, the coach mentioned diagnostic instruction (use of the EBP tools/measures) and stated, "I think the base level [intended results of TRI coaching] is getting teachers to implement the intervention piece of TRI with some level of fidelity… really that diagnostic instruction," which is related to the use of student-data. Finally, in the interpersonal coaching skills theme, the coach mentioned engaging in relationship-building and stated, "I think you can tell there's a relationship by the side conversations -that even if you only get a little snippet of it. There's evidence that the teacher and the coach know something about each other outside of even the school capacity." In terms of general comments related to

TRI, the coach stated, “I think that [focus of TRI coaching] has changed somewhat over the years…originally it really was part of how are we going to get fidelity to this [TRI]… I think as TRI has morphed from more of an intervention focus to more of a PD focus…it's become more of the how do we support teachers; how do we help them grow.”

Further, the interview resulted in the following additions to the observation tool during its development. In the area of effective coaching practices (ECP), the interview revealed the importance of including the following indicators (a) ECP1: coach provides feedback to the teacher indicator *prioritized and timely*, (b) ECP2: coach models for teacher indicator *occurs (a) at teacher request, (b) to support implementation of new* strategy, *(c) upon incorrect implementation*. In the area of specialized content/EBP knowledge (SCK), the interview prompted the inclusion of the following indicators: (a) SCK1: *monitors adherence of EBP indicator monitors adherence to implementing all components of the EBP in the correct order*; (b) SCK3: coach monitors student response to EBP with aligned tools indicator *refers to use of specific data tools aligned with EBP*; (c) SCK4: coach monitors quality of delivery of EBP indicator *monitors instructional delivery of practices supporting key features EBP (e.g., feedback, blending)*. Finally, in the interpersonal coaching skills section (ICS), the interview supported the addition of the following indicators: (a) ICS2: coach demonstrates active listening indicator *evidence of teacher talk (e.g., teacher completes thought without interruption)*, and (b) ICS4: coach builds rapport and alliance with the teacher indicator *evidence of knowing teachers as individuals (e.g., snippet of conversation related to setting outside of lesson)*.

Draft Initial Coaching Observation Tool

The culmination of the literature review and analysis of the initial coach interview provided the components of the initial coaching observation tool. The three areas, effective

coaching practices (ECP), specialized content/EBP knowledge (SCK), and interpersonal coaching skills (ICS) each had four behaviors with indicators to support the coding of demonstrated behaviors that the tool was intended to measure. The initial draft of the coaching observation tool (COT_V1) is in Appendix G.

Member Checking

I transcribed the recorded interview with timestamps to assist in the analysis. See Appendix H for the transcript from the focus group.

Qualitative Analysis. Table 8 summarizes the practices and quotes outlined per a priori themes effective coaching practices, specialized content/EBP knowledge, interpersonal coaching skills, and response to initial draft of the coaching observation tool (V_1).

Table 8

Key Quotes from Focus Group Interview

Theme	Practices	Quotes
Effective Coaching Practices	• Demonstrating and modeling activities • Reflective practices • Proving Feedback	• Coach 3: I think getting to know your teacher- so having a relationship with the teacher so that you can then give them feedback • Coach 4: …a lot of higher lift coaching strategies that are also helpful like demonstrating and modeling activities – I think are really impactful; really important for teachers to be able to see, and I think that the role that coaches play in helping teachers reflect on their own practices • Coach 2: …the coaching supervision that we got as part of the TRI helped us be reflective about our practices and model that for teachers; modeling that – while also sort of respecting the flow of their lessons – so if they are amenable – if it's a lesson that's really sort of struggling and they're amenable to having a short interruption…[to] show them how the activity works; balancing knowing their skills and knowing how much support to give them- and how much scaffolding

		• Coach 1: they all did a really good job [answering the question]
Specialized Content/ Evidence-based Practices Knowledge	• [Adherence] scope and sequence • Implement EBP components • Monitoring student's progress within EBP • monitoring duration of EBP (length of lesson)	• Coach 3: some of the critical components would be our layout of the lesson…we have a really well created scope and sequence…and actual lesson guide • Coach 4: TRI coaching is that it really does emphasize fidelity to the intervention; a big part of what coaching is- is making sure that the teachers are implementing the TRI components and strategies…; developing diagnostic thinking – is reflecting on student's progress – is understanding how lessons match the student's abilities; parts are also layered on in addition to intervention fidelity – so I think those are the two components that I really see of coaching within the context of TRI • Coach 2: we did a pretty good job of collecting intervention and implementation data – at kind of a granular level…that helped us give feedback to teachers; …realizing that for some children the difference between a 15 minute and an 18-minute lesson can be enormous. And helping them [the teachers] kind of see the parts of the lesson that they may be spending more or less time on that the child could benefit from ...more or less… • Coach 1: I always come back to Coach 4's comment about how we are coaching on kind of two levels: fidelity of the implementation- the basic procedures of TRI in the intervention itself, and then we layer on top of that- that diagnostic piece... • Coach 3: …not as an administrator level person, but more on their level; I think having that relationship is really important; also building a teacher up in order to get them to continue doing the TRI – to continue meeting with their student…buy-into it
Interpersonal Skills	• Fosters trust • Builds rapport and alliance	• Coach 4: I think for in terms of interpersonal skills or qualities, I guess being a coach assumes that you are the more like (air quotes) knowing other…but I think it's often best not to act like you are the more knowing other in the context of that relationship in order to not come across as condescending or demeaning; we worked with teachers who had all sorts of varying backgrounds, levels of experience, education levels, and I think what I realized the most about interpersonal skills is the importance of sort of matching – finding ways to match your sort of

	communication style with the preferences of the teacher you're working with; adapt my own communication and interpersonal style to be a little more responsive to that teacher • Coach 2: …how easy it is for teachers who really are senior – and have decades of experience to become reluctant if they perceive that they're getting – unwarranted expertise – especially since I was the younger coach; I had to kind of modulate – how I dispensed guidance to – especially some of the more expert teachers… want to cross that line in feeling like you sort of sage on the stage- because that could quickly induce a lot of reluctance • Coach 1: was really helpful in the whole coaching process was being part of the original face-to-face coach training days; and were able to keep that kind of relationship going all the way through; and were able to keep that kind of relationship going all the way through
Response to Initial Draft of Coaching Observation Tool (V_1)	• Coach 1: some of the points felt kind of vague… maybe there is a document that goes along with this that specifies the criteria are based on what you're looking at- and maybe you had already planned that; I might view this one way, but somebody else scoring it might view it another • Coach 3: some coaches might do a 40-minute session because they had time and the teacher had time – and other coaches that have lots of teachers that they have to get to within an hour, let's say, they have to do 3 teachers because that's their only reading block- so they would do a 20 min session • Coach 1: and I think there is the space for anecdotal notes- and maybe that's the kind of thing that goes into anecdotal notes • Coach 3: Overall I thought that it was really good. • Coach 4: Yea, I agree- I think overall it is very comprehensive • Coach 4: I think the one thing I might think about is where you have the exposure to the EBP – the indicators of length and pacing – I almost think about that as something about adherence- and quality and less so of exposure • Coach 1: I would break apart – in effective coaching practices- coach provides feedback to the teacher… where you have positive or corrective statements…I

	think that needs to be two separate items to better inform coaching • Coach 4: And maybe instead of just like positive statements… I think there's value in specific positive statements; it's not just like good job…good job doing this___

Many of the comments from the coaches aligned with the behaviors and indicators on the draft observation tool. For example, in the effective coaching practices section, coaches mentioned the practice of modeling, and one coach commented, "a lot of higher lift coaching strategies that are also helpful like demonstrating and modeling activities – I think are really impactful; really important for teachers to be able to see." In the area of specialized content/EBP knowledge, coaches mentioned the practice of adherence (or implementing all components of the EBP) and one coach said, "does emphasize fidelity to the intervention; a big part of what coaching is- is making sure that the teachers are implementing the TRI components and strategies…" Finally, in the area of interpersonal coaching skills, coaches mentioned the practice of fostering trust, and one coach described this as, "being a coach assumes that you are the more like (air quotes) knowing other…but I think it's often best not to act like you are the more knowing other in the context of that relationship in order to not come across as condescending or demeaning."

However, coaches also commented that portions of the draft tool were not clear enough, with one coach commenting "some of the points felt kind of vague… maybe there is a document that goes along with this that specifies the criteria are based on what you're looking at- I might view this one way, but somebody else scoring it might view it another."

In addition to the development of a training protocol to address the concerns mentioned by the coaches, the member checking interview also informed the revision of the initial tool in

several ways: (a) change all indicator verbs to coaches behavior, (b) ECP1: coach provide feedback to the teacher indicators *break apart positive and corrective statements* (and move up specific), (c) SCK2: change behavior from coach monitors exposure to the EBP to coach monitors duration to the EBP, remove ensure all components included from indicator and change indicator from reinforces pacing of lesson to *reinforces the appropriate lesson length*, and (d) SCK3: coach fosters trust with interactions change indicator follows up with promises/commitment from previous sessions to *references following-up on promises/commitment from previous sessions*.

Conduct Video Analysis on a Sample of Coaching Sessions

The collection of IRR during tool development was used to inform the final coaching observation tool. All recordings were clear with good video and audio among participants. The length of coaching session recordings ranged from 12:48 min to 41:50 min, with the median time of the sample being 22:23 min. Table 9 has the complete length of each session.

Table 9

Length of Coaching Session Initial Sample Videos

Number	Video	Coach	Length of Session (min:sec)
1	A	1	21:24
2	B	1	22:28
3	C	2	41:40
4	D	2	25:15
5	E	3	14:59
6	F	3	12:48
7	G	4	22:18
8	H	4	22:46

All coaches demonstrated similar general actions throughout the sessions. Coaches could be seen closely observing the teacher's instruction, interacting periodically with student

(including celebrating successes), collecting data, and smiling and nodding. Behaviors not directed toward the teacher were not recorded on the coaching observation tool. For example, the coach may have been observing the teacher's instruction but did not interact with the teacher. Table 10 includes the raters' frequency counts.

Table 10

Rater Frequency Counts

Coaching Behavior Code												
VIDEO 1												
Rater	ECP 1	ECP 2	ECP 3	ECP 4	SCK 1	SCK 2	SCK 3	SCK 4	ICS 1	ICS 2	ICS 3	ICS 4
1	5	1	3	3	5	1	1	6	1	2	10	6
2	2	1	1	4	1	1	1	2	3	10	9	7
VIDEO 2												
1	2	1	4	4	9	3	2	7	2	3	7	11
2	1	0	2	2	2	3	1	4	5	2	7	8
VIDEO 3												
1	15	22	3	2	9	1	5	22	5	14	14	6
2	8	6	2	0	5	5	2	9	2	5	6	5
VIDEO 4												
1	3	7	1	0	4	1	3	11	2	1	0	2
2	5	2	2	0	1	1	1	1	0	6	0	0
VIDEO 5												
1	1	7	0	0	1	1	1	7	2	2	2	4
2	1	2	0	0	0	0	1	3	0	1	3	2
VIDEO 6												
1	1	2	0	1	4	1	2	3	1	3	1	5
2	0	0	3	2	3	0	0	0	1	1	0	0
VIDEO 7												
1	3	0	1	3	2	1	1	6	1	8	3	9
2	3	0	1	2	0	1	0	3	1	0	2	4
VIDEO 8												
1	4	2	1	0	1	0	0	2	1	16	3	15
2	3	0	0	0	0	0	1	0	1	1	3	7

In sum, several observations were noted for behaviors within the three sections, effective coaching practices (ECP), specialized content/EBP knowledge, and interpersonal coaching skills (ICS). Overall, it appeared that rater 1 recorded far more coaching behaviors than rater 2, 386 and 187 respectively. This required me to clarify points related to the discrepancy in the overall coding of behaviors. In order to better understand discrepancies in coding for each indicator, I did comparison by sorting by coaching behaviors (e.g., ECP 1-4) the master spreadsheet. This allowed me to examine side by side the rater's behavior, timestamp, indicator, and any anecdotal notes to provide additional context.

The IRR for video one was 25%. Raters had agreed on ECP2, SCK2, and SCK3. The IRR for video two was 17%. Raters agreed on SCK2 and ICS3. The IRR for video three was 0%. The video was twice as long as the other videos, which may have impacted the coding. The IRR for video four was 25%. Raters agreed on ECP4, SCK2, and ICS 3. The IRR for video five was 33%. Raters agreed on ECP1, ECP3, ECP4, and ICS 3. The IRR for video six was 8%. Raters agreed on ICS 1. The IRR for video seven was 42%. Raters agreed on ECP2, ECP3, SCK2, and ICS1. The IRR for video eight was 25%. Raters agreed on ECP4, SCK2, and ICS1.

In the area of effective coaching practices (ECP), the raters had similar ratings in the area of ECP3: coach encourages use of student data; however, they identified different indicators of the behavior. On ECP1: coach provides feedback to the teacher, both raters noted specific positive and negative statements. Examples of specific positive feedback included, "that was great scaffolding him" or "it was great that you put that into his pocket phrase." Specific corrective feedback provided by coaches included, "he doesn't have to actually…" and "try blend as you go." Rater 1 also identified prioritized feedback, which was interpreted as providing the teacher with one or two specific areas to focus. Statements included "reread section for

fluency…" and "that will give you something to work on." For ECP2: coach models for teacher, both raters identified specific examples of the coach demonstrating tasks for the teacher. Rater 1 coded behaviors that included the coach interacting with the student, such as holding up 1 finger to represent a sound or providing two options for teacher to scaffold and statements, such as, "Let's stop there and ask him why he is getting…" Both raters identified similar behaviors for ECP3: coach encourages use of student data. Statements such as 'let's try the e-e... next time same thing, makes sure he's got it" and encouraging use of data-MAP scores, "what have you seen?" For ECP4: coach provides teacher with opportunities for reflection, the most frequent behavior noted was posing reflective prompts or questions. However, rater 1 identified more reflective comments than rater 2. Coaching behaviors in this area included comments such as, "other than the writing, what do you think" and "may be an argument for…but …what do you think…"

In the specialized content/EBP knowledge (SCK) section, SCK1: coach monitors adherence of EBP, rater 2 primarily recorded practices related to adherence of all components, while rater 1 included adherence to components and included more references to scope and sequence. Specific statements related to order of components included, "idea is they read…they…reading sandwich," components in order, "always start lessons with reread for fluency," and mentions scope and sequence "move to Blue 2 for next lesson." SCK2: coach monitors duration of the EBP, was another area where the raters reached close agreement. Evidence of behaviors in this area included monitors length of lesson, "I want to be mindful of our time- session has gone long," monitors length of components, "let's do 1-2 pages, lot of work, digraph…," and conversation around pacing (e.g., number of lessons). SCK3, coach monitors use of the EBP data tools/measures, was an area the raters did not reach agreement.

This is most likely due to the lack of clarification around the data being tied to the EBP, in this case with TRI, listening for cues such as instructional match or diagnostic map. Both raters identified statements such as “so I definitely think he's ready for purple” and “really matched up to what he needs.” Lastly, SCK4: coach monitors quality of delivery of EBP, was another area in which the raters did not agree on the number of demonstrated practices. Rater 1 identified many examples of the coaches’ deep understanding of EBP, such as, “this is where it gets tricky…segmenting individual sounds,” monitors instructional delivery, “did he miss a sound…” or “so he kind of missed it, so I would response to student.” Yet, rater 2 identified coach describes (not model) how to implement a practice as deep understanding of EBP.

In the final area, interpersonal coaching skills (ICS), the following was noted. For ICS1: coach demonstrates collaboration, the raters closely agreed. Both raters identified the use of “we” statement, “we didn't get him into green did we" or “we will get her to green” and successive turns in moving ideas (e.g., coach explains the testing vs. the scope and sequence of TRI and teacher explains her observations of reading behaviors as they determine next activity). On ICS2: coach demonstrates active listening, raters had discrepant scores. This is likely due to Rater 1 recording multiple listen-respond behaviors within one interaction, frequently noting evidence of the coach nodding, briefly paraphrasing, or acknowledging the teacher’s comment. For ICS3: coach fosters trust with interactions, both raters agreed on the use of non-evaluative comments. Examples of these behaviors included the coach giggling in response to teacher error and stating, “it happens,” or coach shared an anecdote about when she was missing materials. Rater 1 also recorded evidence of follow-up such as, “let me know if you have any questions I'll just type up feedback.” Finally, for ICS4: coach builds rapport and alliance with the teacher, both raters identified many examples of friendly or casual conversations, “I love seeing your faces

though," "friendly conversation "oh no! You're trapped," or "I like your shirt- super cute and thanks." Raters also found evidence of affirming difficulty of change, "feel like I've been doing green… I still make mistakes."

The purpose of this portion of the study was to determine the areas of the coaching observation tool and/or training protocol which needed additional adjustments. Therefore, the raters did not discuss final score agreement.

The analysis of the sample video analysis informed the tool development the following ways: (a) in the area of effective coaching practices (ECP) changes were made to ECP 2: added models teaching behavior (e.g., diagnostic thinking), ECP 4: added prompts related to teacher making instructional decisions, (b) in the area of specialized content/EBP knowledge (SCK), changes were made to SCK 1: addition of indicator *demonstrates knowledge of materials/scope of EBP*, SCK 3: refers student current skills in *relation to scope/sequence of EBP*, and SCK 4: addition of phrase move/action, and (c) in the area of interpersonal coaching skills (ICS), changes were made ICS3: removed phrase and added comments or support. Changes were also made to update the training protocol included: (a) adding a slide defining observable coaching behavior, (b) adjusting specific indicators that have been changed on the COT_V3, (c) providing additional examples and non-example to further clarify/operationalize the coaching behavior, (d) including the addition of practice scenarios and including a broader range of EBP, (e) providing clarification related to active listening -if same conversation only counts one time (e.g., don't count separate nods, comments), (f) adding clarification- nods and comments must be prompted by a teacher behavior/action. See Appendix I for the second version of the coaching observation tool (COT_V2).

Finalized TRI Coaching Observation Tool and Protocol

The coaching observation tool version 3 (COT_V3) and training protocol were updated to reflect the IRR analysis and discussion. See Appendix J for the third, and final version of the coaching observation tool (COT_V3). The revised training protocol was recorded and uploaded to a UNC at Charlotte private YouTube for Rater 2 to review at her convenience and prior to the IRR for the final analysis of the 36 videos.

Results for Research Question 2: What is the content validity and inter-rater reliability of the coaching observation tool focused on effective coaching practices, specialized content/ evidence-based practice knowledge, and interpersonal coaching skills?

The design of the study, which included a review of the literature and input from experts supported the development of a valid observation tool. Specifically, content validity was assessed through the process of the literature review, the initial interview, and member checking interview, ensuring that expert knowledge was incorporated into the development of the tool (Mills & Gay, 2016). The reliability of COT_V3 was assessed by the interraters on 22% of the 36 coaching sessions.

Determining Validity and Reliability

This initial, multi-phase study showed promise in the area of demonstrating validity and reliability. Several measures were used to determine the validity and reliability of the COT_V3, and each are discussed in this section.

Validity. The content validity of the coaching observation tool was embedded in the design of the study during the construction of the instrument (Fimian, 1984). The iterative process of the development of the tool: (a) review of the literature, (b) initial coach interview, (c) member checking interview, and (d) analysis of a sample of videos with an expert coach allowed

for expert input throughout. Additionally, during the initial and member checking interviews, the coaches described practices that were consistent with the review of the literature and included on the coaching observation tool. For example, there were a number of terms which were frequently mentioned during the member checking interview that aligned directly with the tool: (a) relationship six times**,** (b) feedback five times, (c) reflection five times, (d) fidelity four times, and (e) diagnostic two times. This further suggests behaviors identified by coaches experienced in supporting teachers with implementing EBPs are consistent with behaviors and indicators outlined on the tool. Additionally, during the member checking interview, Coach 3 stated, "overall I thought that it was really good" with Coach 4 responding, "yea, I agree- I think overall it is very comprehensive."

Reliability. As with the initial IRR sample, all coaching session recordings were clear with good video and audio among participants. The length of coaching session recordings ranged from 16:53 min to 32:12 min. Table 11 contains the length of all coaching sessions in this sample of 36.

Table 11

Length of Coaching Session Final Sample Videos

BOY	MOY	EOY
25:01	24:57	23:14
22:07	24:18	25:38
32:12	22:00	18:28
28:29	21:31	25:40
22:38	22:27	18:55
18:05	20:39	22:57
23:12	30:05	34:14
21:52	30:13	28:23
	23:26	
	22:47	
	16:53	
	26:07	
	21:31	

	18:14
	19:58
	25:27
	19:19
	19:59
	21:32
	24:13

Note. Time reported as min:sec

Teacher-coach discussions occurring during the recordings that were logistical (e.g., related to the study) were not coded on the coaching observation tool and in some cases extended the length of the recording. All coaches continued to demonstrate behaviors noted in the initial IRR, which included close observation of teacher instruction, interacting in a friendly manner directly with the student, collecting data, and a positive demeanor. These behaviors were not recorded because they were not always directed toward the teacher or the teacher may be unaware of the coach's behavior (e.g., nodding or taking notes related to teacher instruction). Table 12 contains information related to the IRR by the raters for each indicator.

Table 12

IRR Final Sample Coding

Coaching Behavior Code												
Video 1												
Rater	ECP 1	ECP 2	ECP 3	ECP 4	SCK 1	SCK 2	SCK 3	SCK 4	ICS 1	ICS 2	ICS 3	ICS 4
1	1	0	0	3	0	2	2	3	0	3	1	4
2	5	3	1	0	1	2	0	3	1	2	2	2
Video 2												
1	6	2	0	2	0	1	1	3	0	1	2	4
2	7	3	1	3	0	1	1	1	0	1	2	4
Video 3												
1	1	2	0	1	1	2	1	4	1	11	0	4
2	2	1	0	0	1	2	0	9	0	1	1	5
Video 4												
1	3	5	0	0	2	1	0	16	0	0	5	4
2	6	7	0	0	2	1	0	9	0	0	4	4

Video 5												
1	0	3	0	0	1	1	1	3	0	1	1	1
2	1	3	3	0	1	1	0	4	1	0	0	1
Video 6												
1	3	1	0	0	2	1	0	4	0	2	2	1
2	5	2	1	0	1	2	0	2	1	1	2	2
Video 7												
1	0	2	0	0	1	0	0	3	2	13	3	2
2	2	1	0	0	0	0	0	1	2	0	5	3
Video 8												
1	2	0	0	1	0	0	1	2	1	4	0	2
2	4	0	0	1	0	0	1	1	1	2	2	2

I watched each video (n = 36) two times, the first time transcribing the coaching behaviors observed and time stamped, and the second time reviewing recordings and making any adjustments noted in the second viewing. I coded the behaviors and met with Rater 2 in order to determine agreement on 22% of the videos. Although IRR was not met (85% agreement or higher), the IRR increased from the initial sample to the final sample analysis. In the initial sample (n = 8), the IRR range 0% to 42% with a median of 25% on the item-by-item analysis. However, on in the IRR for the final sample, eight out of 36 videos (two per coach, or 22%), the agreement ranged from 25% to 67% with a median of 42%.

Because this is the initial development of an observation tool, exact percentage agreement (Shweta et al., 2015) was required to meet IRR. If the IRR allowed one-point difference, adjacent match (e.g., +/-1; Shweta et al., 2015), the IRR would be even higher in the final sample. These IRR scores ranged from 58% to 92% with a median of 79%. Table 13 contains a comparison of IRR across COT_V2 and COT_V3.

Table 13

Comparison of IRR across COT_V2 and COT_V3

Video	Sample for Initial Tool	IRR for Final Sample	IRR Final Sample (+/- 1)
1	25		
2	17		
3	0		
4	25		
5	33		
6	8		
7	42		
8	25		
1		16	58
2		58	92
3		25	83
4		67	75
5		42	92
6		25	83
7		42	67
8		67	75

Because of the previous experience with the tool from the initial video analysis during the development process, the updated coaching observation tool training protocol, and increased agreement during the IRR, the raters quickly agreed on identified discrepancies. This also meant that the conversation around the tool was less robust. However, there was some noteworthy discussion related to nuances within the tool that could be considered in future refinements. Rater 1 coded active listening (ICS2) more frequently than rater 2. Rater 2 more frequently

double coded behaviors (e.g., coded behaviors in two different sections). And finally, the coders noticed in their timestamps and corresponding notes spreadsheet that they may each focus on a different part of the teacher-coach exchange. This impacted the coding of the behavior which led to discrepancies in agreement. The final frequency counts were agreed upon by both raters and included in the analysis for research question three.

Results for Research Question 3: Based on an analysis of coaching sessions using a coaching observation tool, what coaching practices are most frequently used by instructional coaches?

This section reports on the frequency of behaviors observed during the real-time coaching session. The first section of the observation tool, effective coaching practices (ECP), represents four highly impactful behaviors used by instructional coaches based on a review of the literature. Within this area, the four behaviors are on the observation tool are (a) coach provides feedback to the teacher: ECP1, (b) coach models for teacher: ECP2, (c) coach encourages use of student data: ECP3, and (d) coach promotes teacher reflection: ECP4. Second, the specialized content/EBP knowledge (SCK) section represents the coaches' level of the expert knowledge, as well as skills needed to support fidelity of implementation. This area of the tool contains (a) coach monitors adherence of EBP: SCK1, (b) coach monitors duration of EBP: SCK2, (c) coach monitors use of the EBP data tools/measures: SCK3, and (d) coach monitors quality of delivery of the EBP: SCK4. The third section, interpersonal coaching skills (ICS) contains the subtle coaching skills within the teacher-coach dyad. This section of the tool contains (a) coach demonstrates collaboration, (b) coach demonstrates active listening, (c) coach fosters trust with interactions, and (d) coach builds rapport and alliance with teacher.

Frequency of Observed Behaviors of COT_V3

This section provides the results of frequently observed behaviors during the real-time coaching sessions. The results should be viewed with caution because IRR was not established during this initial tool development.

A total of 855 coaching behaviors were demonstrated across the 36 analyzed videos, for an average of 24 coaching behaviors per session. However, coaching sessions ranged in time from 16:53 min to 32:12 min. The complete frequency counts of behaviors are provided in Table 14.

Table 14

Frequency of Behaviors

Count by Behaviors											
ECP1	ECP2	ECP3	ECP4	SCK1	SCK2	SCK3	SCK4	ICS1	ICS2	ICS3	ICS4
89	61	6	35	25	25	40	174	19	227	76	78
Percentage of Total by Behavior											
10%	7%	0.7%	4%	3%	3%	5%	20%	2%	27%	9%	9%
Count by Area											
191				264				400			
Percentage of Total by Area											
22%				31%				47%			

In the effective coaching practices section, a total of 191 behaviors were observed: ECP1 89, ECP2 61, ECP3 6, and ECP4 35. In the specialized content/EBP knowledge section, a total of 264 behaviors were observed: SCK1 25, SCK2 25, SCK3 40, and SCK4 174. Finally, in the area of interpersonal coaching skills section a total of 40 behaviors were observed: ICS1 19, ICS2 227, ICS3 79, and ICS4 78. The behavior frequencies ranged from five to 228. The frequency of behaviors observed in order from most frequent to least frequent were: ICS2, SCK4, ECP1, ICS4, ICS3, ECP2, SCK3, ECP4, SCK1, SCK2, ICS1, and ECP3.

The top four most frequently demonstrated behaviors were (a) interpersonal coaching skills 2 (ICS2): coach demonstrates active listening (*n* = 227), (b) specialized content/EBP knowledge 4 (SCK4): coach monitors quality of delivery of EBP (*n* = 174), (c) effective coaching practices 1 (ECP1): coach provides feedback to the teacher (*n* = 89), and (d) interpersonal coaching skills 4 (ICS4): coach builds rapport and alliance with the teacher (*n* = 78).

The bottom four least frequently demonstrated behaviors were (a) specialized content/EBP knowledge 1 (SCK1): coach monitors adherence of the EBP (*n* = 25), (b) specialized content/EBP knowledge 2 (SCK2): coach monitors duration of the EBP (*n* = 25), (c) interpersonal coaching skills 1 (ICS1): coach demonstrates collaboration (*n* = 19), and (d) effective coaching practices 3 (ECP3): coach monitors use of the EBP data tools and measures (*n* = 6).

Frequency Counts by Percentage. When considering the percentage of demonstrated behaviors, I calculated the percentage by area (ECP, SCK, ICS), as well as behavior (e.g., ECP1, SCK1, ICS1). Effective coaching practices (*n* = 191) accounted for 22% percent of overall behaviors demonstrated. The breakdown by behavior was ECP1 10%, ECP2 7%, ECP3 .7%, and ECP4 4%. Specialized content/EBP knowledge (*n* = 264) accounted for 31% of demonstrated behaviors during the real-time coaching sessions. The itemization by behavior was SCK1 3%, SCK2, 3%, SCK3 5%, and SCK4 20%. Interpersonal coaching skills represented the largest percentage of observed coaching behaviors (*n* = 400), or 47% of overall behaviors demonstrated. this consisted of ICS1 2%, ICS2 27%, ICS3 9%, and ICS4 9%.

Frequency Counts by Length of Lesson. To understand the frequency of each behavior within the context of a coaching session, I calculated the scores due to the variability of the

length of the coaching sessions (from 16:53 min to 32:12 min). I determined the frequency of behaviors demonstrated per video, per 1 min and per 5-min. For example, if 27 behaviors were demonstrated during a 25 min video, approximately 1.08 behaviors were demonstrated per minute and 5.5 behaviors per 5 min. It is important to consider these are approximate estimates because some of the sessions included logistical discussions which were not part of the coaching session. Table 15 provides a complete list of frequency counts by length of lesson within implementation periods for each video.

Table 15

Behaviors Demonstrated per minute by Implementation Cycle

BOY	MOY	EOY
1.08 /5.4	1.08 / 5.4	1.09 / 5.45
0.81 / 4.05	0.88 / 4.4	1.4 / 6
1.28 / 6.4	1 / 5	1 / 5
1.24 / 6.2	2.09 / 10.45	0.35 / 1.75
1.43 / 7.15	1 / 5	0.47 / 2.35
1.17 / 5.85	0.90 / 4.5	0.52 / 2.6
0.83 / 4.15	0.8 / 4	0.74 / 3.7
1.27 / 6.35	0.93 / 4.65	0.86 / 4.3
	1 / 5	
	0.96 / 4.8	
	1.35 / 6.75	
	1.67 / 8.35	
	0.73 / 3.65	
	0.89 / 4.45	
	0.90 / 4.5	
	0.68 / 3.4	
	0.74 /3.7	
	1.1 / 5.5	
	0.86 / 4.3	
	0.75 / 3.75	

N= (1 min/5 min)

Overall, the coaching observation tool was able to identify behaviors frequently used by instructional coaches during real-time coaching sessions, documenting an average of 24 coaching

behaviors per session. The most frequently demonstrated behaviors were (a) coach demonstrates active listening, (b) coach monitors quality of delivery of EBP, (c) coach provides feedback to the teacher, and (d) coach builds rapport and alliance with the teacher. The least frequently demonstrated behaviors were (a) coach monitors adherence of the EBP, (b) coach monitors duration of the EBP, (c) coach demonstrates collaboration, and (d) coach monitors use of the EBP tools/measures.

A comparison of the frequency of demonstrated behaviors between the BOY and the EOY implementation periods shows a decline in coaching behaviors. Overall, coaches demonstrated 1.14 behaviors per min at the BOY and 0.08 behaviors per min at the EOY implementation cycle. Further analysis by research teams may inform allocation of time and resources.

CHAPTER 5: DISCUSSION

In this chapter, I (a) summarized the findings by briefly answering each research question making references to my results, (b) discussed major themes from my findings in relation to previous literature (c) provided contributions of this study to the field, (d) identified limitations of the study, (e) suggested considerations for future research, and (d) shared implications for practice. The purpose of the study was to develop a valid and reliable coaching observation tool to identify frequently used coaching behaviors during a real-time coaching session. Many multi-component interventions include coaching support, and the development of a coaching observation tool will improve our understanding the coaching component of the intervention. Further, the tool will assist in determining the impact of the coaching practices and allow for adjustments, as needed, to improve coaching practices.

Behaviors Comprising the Coaching Observation Tool

In the response to the need for researchers to clearly operationalize the role of the coach (e.g., describe concrete discrete elements or behaviors; Gupta, & Daniels, 2012), I was able to develop the coaching observation tool. In this study, I was able to operationalize discrete coaching behaviors identified as being impactful in the literature, as well as by coaches with experience building teacher capacity to implement EBPs with fidelity. Although each area presented its own set of challenges; I developed a tool that included three areas of instructional coaching: effective coaching practices, specialized content/EBP knowledge, and interpersonal coaching skills. The effective coaching practices section presented a challenge because of the volume of research reporting on effective coaching practices. However, a systematic analysis identified four behaviors which were reported much more frequently than others. The specialized content/EBP knowledge section was difficult because much of the literature either provides

definition/description of what constitutes an EBP or specific studies related to the use of an EBP with a select population of students. Initially, I predicted the interpersonal coaching skills section would be the most challenging, because these skills may seem more elusive and more difficult to operationalize. Some behavior indicators on initial versions of the coaching observation proved difficult to operationalize as indicated by IRR scores and follow-up discussions related to coding. One example is in the area of collaboration, ICS1. The indicator successive building of ideas was considered a way to show that the teacher and coach were sharing ideas to come to a common outcome. This indicator was changed to interaction becomes conversation with successive ideas (teacher and coach) toward the next step or common outcome. However, the other indicator for ICS1, use of "we" statement is much easier to observe during a coaching session. These challenges related to creating a coaching observation tool may shed light on why coaching observation tools are less common than teacher observation tools. More common are self-reported coaching evaluations (Neuman & Cunningham, 2009; Neuman & Wright, 2010) or coaching implementation scores in SCD studies (Coogle et al., 2018; Coogle et al., 2016; Fettig et al., 2016; Goodman et al., 2008).

Coaching of practitioners is one of the competency drivers supporting the implementation of EBPs (Blase at al., 2012). The creation of a coaching observation tool which includes operationalized behaviors that can be observed during a real-time coaching session may be one way to build competency in coaches and thus support teachers in implementing EBPs with fidelity. More recently, researchers such as Kittelman et al. (2021) stressed the importance of coaching to build teacher capacity to implement EBPs with fidelity. The focus on coaching is important but currently lacks the research, and studies reporting coaching behaviors are often self-evaluations (Snyder et al., 2015). The coaching observation tool extends the work of NIRN's

Practice Profile for Coaching and *General* and *Targeted Coaching Look-Fors* (Ward & Cusumano, 2018) to include more coaching practices. The coaching observation tool allows observers to identify 12 coaching behaviors during real-time coaching sessions. This concise coaching observation tool is modeled after NIRN's OTISS walkthrough tool, which collects data on teacher practice.

Wexler et al. (2021) suggest a checklist for monitoring fidelity of implementation of EBPs that includes components of structural fidelity, or what to teach, as well as process fidelity, or how to teach. These components have been captured in the coaching observation tool as key areas on which the coach can focus and provide real-time support for teachers. Teachers may need additional support during the initial implementation period or as teacher moves to new components of the EBP (e.g., changes level within the EBP). The coaching observation tool incorporates key components of EBP, such as adherence to essential ingredients, dose, quality, and responsiveness (Pierce & Ferguson, 2018).

Content Validity and Inter-Rater Reliability of the Coaching Observation Tool

The content validity and inter-rater reliability are important in an observation, and researchers suggest the need for sources of evidence that can be used by raters to evaluate coaching effectiveness (Reddy et al., 2019). This study sought to develop a valid and reliable coaching observation tool. Overall, content validity was supported and when using the adjacent match (+/-1), the IRR was closer to adequate. IRR was not strong when the perfect match was required, but this is a strict criterion (Shweta et al., 2015). It is likely that additional work with the refinement of the behavior indicators on the tool and clarification within the training protocol will improve the IRR.

Content Validity

The input of experts throughout the development of the tool supports the content validity. The use of the literature reviews supported the identification of a priori themes used during the expert interviews (e.g., initial and member checking). Further, the input from the coaches informed refinements of the tool and comments by the coaches of the initial tool, "overall I thought that it was really good" and "yea, I agree- I think overall it is very comprehensive" suggest the expert coaches felt the tool measured coaching behaviors they commonly used.

Reliability

Overall, the IRR results suggest that I was unable to demonstrate reliability when using an exact match percentage agreement. Yet, when the IRR was calculated with adjacent agreement (or +/- 1), the scores were closer to adequate (Shweta et al., 2015). In fact, there were several behaviors in which raters consistently agreed and are considered noteworthy. In the area of effective coaching practices common ratings occurred in (a) ECP2: *coach models for teacher* was an exact match on two videos (b) ECP3: *coach encourages use of student data* was an exact match on four videos, and (c) ECP4: *coach promotes teacher's reflection* was exact matches on five of the videos. In the area of specialized content/EBP knowledge, common ratings were also recorded in (a) SCK1: *coach monitors adherence of EBP* had exact ratings on five videos, (b) SCK2: *coach monitors duration of the EBP* had seven videos with exact ratings, and SCK3: *coach monitors use of the EBP data tools/measures* had five videos with exact matches. Finally, in the area of interpersonal coaching skills, (a) ICS1*: coach demonstrates collaboration* had four videos with exact matches, (b) ICS3*: coach fosters trust with interactions* had two videos with exact matches, and (c) ICS4: *coach builds rapport and alliance with the teacher* had four videos with exact matches. This may indicate that these behaviors and associated indicators are operationalized clearly, allowing the observer to more easily identify and document the behavior.

The two behaviors with the most discrepant scores, SCK4 (coach monitors quality of delivery of EBP) and ICS2 (coach demonstrates active listening), likely need to be further operationalized to improve indicators and/or improve clarification in the COT_V3 training. However, it is also possible that these areas are discrepant because rater 1 coded ICS2 when the teacher asked a question and the coach responded, and then elaborated on the response and demonstrated deep knowledge of the EBP (SCK4).

The results suggest that IRR of 85% or higher was not established. However, an analysis of the ratings demonstrated disagreement of items narrowed between the initial sample and the final sample of videos analyzed. I was unable to determine IRR (85% or higher) on 22% of the coaching videos COT_V3 using the strict, exact percentage agreement (Shweta et al., 2015). Several, points from the IRR discussion are noteworthy, (a) rater 1 coded active listening (ICS2) more frequently than rater 2, (b) rater 2 more frequently double-coded behaviors (e.g., coded behaviors in two different sections), and (c) both raters noticed in their timestamps and notes/coding that they may each focus on a different part of the teacher-coach exchange. These three points suggest users of the tool should discuss and practice rating and agreement prior to using the tool for observations. This may also include more rigorous training is necessary prior to using the tool in the field.

During IRR discussion and analysis, the raters noticed they had similar timestamps and even captured similar phrases, but they may have coded the behaviors differently. This is one area that would support raters participating in several walkthroughs or coaching observations together to find agreement within their coaching context and discuss nuances within the tool. It is also an area where double-coding may be appropriate (if behaviors are in two different areas). For example, in one video, rater 1 recorded a timestamp of 18:35 and coded the behavior ECP4,

indicator poses reflection question, and rater 2 recorded timestamp 18:37 and coded SCK3, indicator use of EBP data tool. Yet, both raters recorded “what do you think for segmenting?” in the anecdotal note section. In this case, the behavior could reflect both a reflection question and a use of EBP. The coach asked a reflection question about the teacher’s use of an EBP. Therefore, either or both codes could apply. Another example is in video, rater 1 codes SCK4 indicator monitors instructional delivery at 16:39, and rater 2 codes ECP2 indicator demonstrates practice at 16:52. Both raters record coach comment, “so at this point…, just put in context” and “at this point, use word in context.” Therefore, one rater interpreted this behavior as monitoring instructional practice of delivery while the other rater coded it as modeling. This discrepancy occurred within other ratings, as well and would be an area for further discussion with raters. It is also another area where double-coding would be appropriate.

Finally, additional clarification may be needed within users as they determine what counts as logistics and what is part of the coaching session. For example, in a video, rater 2 coded ICS3 indicator offers support and follow up for the coach statement, “if there's ever anything I can do for you from a distance” which rater 1 interpreted as part of a friendly conversation (ICS4) unrelated to the specific coaching session.

As mentioned previously, the coaching observation tool and training protocol were modeled after the Observation Tool for Instructional Supports and Systems (OTISS; Fixsen et al., 2015) and training (Cusumano, & Ward, 2017). The OTISS training is comprehensive and includes requiring users of OTISS to practice and to meet a determined inter-observer agreement prior to conducting observations. This may be a consideration to improve the IRR of the coaching observation tool.

Coaching Practices Most Frequently Used by Instructional Coaches

The coaching observation tool allowed me to identify discrete coaching behaviors within real-time coaching sessions and their frequency. It is important to note that because IRR was not established, these results must be viewed with caution.

Recall, in the present study, the most frequently used behaviors by the instructional coaches were (a) coach demonstrates active listening, (b) coach monitors quality of delivery of EBP, (c) coach provides feedback to the teacher, and (d) coach builds rapport and alliance with the teacher. It is important to understand discrete coaching behaviors, as well as how behaviors may interact. Garbacz et al. (2015) suggest that performance feedback (ECP1 on the tool) may be more effective when combined with additional coaching practices. The coding of discrete behaviors with timestamps using the coaching observation tool have shown ECP1 was used with other coaching behaviors within the observed coaching sessions. Examples of ECP1 combined with other coaching behaviors include: (a) in a video, the coach provides specific feedback, "so cover everything except the cl" and then continues to elaborate on a strategy within the EBP (SCK4), "now put those 3 sounds together" to use blend as you go in order to immediately support with fidelity of implementation and build teacher capacity and understanding; (b) in another video, the coach provides specific feedback, "let her read that fluently one time" and then provides modeling with the student, "without sounding out each sound…remember what it said sweetie…The good… can you read again?"; and (c) in a third video, the coach provides specific feedback, "no [guided oral reading] GOR in the lesson," and then continued to quickly state the importance of including on all components within EBP lesson (SCK1).

Walkowiak (2016) suggests building trust is a consideration within instructional coaching. Although it is likely that coach interactions outside of the real-time coaching session

may foster trust, I was able to identify specific indicators on the coaching observation tool: ICS3: coach fosters trust with interaction indicators: (a) uses non-evaluative comments, (b) offers support and follow-up, (c) refers to follow-up with promises/commitment, (c) aligns communication to teacher style, and (d) acknowledges teacher expertise. Examples of ICS3 include teacher stating “and you'll help me” and coach responding with a smile “I will help you…”; teacher stating “good thing you are here” as she began a new level and coach quickly responding, “you got this!”; the coach stating, “I'll send a recap” at the end of the lesson; and coach encouraged, “perfect, great catch- good catch, Ms. T” when the teacher made an error but quickly fixed it.

Outcome Themes

Several themes emerged from the study. First, coaching is a complex role and a coaching observation tool must be flexible enough to document the specific coaching behaviors while allowing the coach to adjust to the individual teacher and situation. Second, coaching behaviors documented using the coaching observation tool during real-time coaching sessions suggest that the coaching provided to teachers during the sessions supports the implementation of EBPs. Third, as with most observation tools, the user should participate in training but also practice collecting IRR together to norm on their use of the tool. Fourth, the use of the tool may assist coaches with anticipating when teachers may need additional assistance, such as at the beginning of the implementation period or changing levels within a scope and sequence. Fifth, teacher-coach relationships are important and may support the implementation of EBPs.

Theme One

Coaching is a complex role, and a coaching observation tool must be flexible enough to document the specific coaching behaviors while allowing the coach to adjust to the individual

teacher and situation. Instructional coaches have a complex role and identifying, or focusing on, observable skills may help in developing coaches (MacPhee & Jewett, 2017; Ortmann et al., 2020; Robertson, Padesky et al., 2020). Further, a better understanding of a coach's demonstrated behaviors may support research and practitioners in identifying the most impactful behaviors to build teachers' capacity to implement EBPs with fidelity. Knight (2007) suggests the consideration of four issues of focus to increase the impact of the coaching: (a) behavior, (b) content knowledge, (c) direct instruction, and (d) formative assessment. These foci lend themselves to approaches used during the coaching session, including modeling, observing, exploring data, and having dialogue. These components are included in the coaching observation tool.

The findings show coaches implemented many of these identified behaviors consistently throughout the lessons and customized their responses based on the teacher and observed lesson. For example, in one video, the coach only demonstrated 11 behaviors during the 19:19 min session. However, the coach ended the session with the comment, "excellent lesson, love the word choices…such a great job…" This suggests the teacher implemented the lesson at a high level of fidelity and required minimal coaching support. In another session, with the same coach, the teacher was very talkative and often posed questions or made comments throughout the lesson. During this session, the coach demonstrated 25 coaching behaviors many of which were in response to the teacher talking and coach responding (Active Listening: ICS2). In another example video, other than the initial response to the teacher's statement (1:42 min; ICS2) "we're going to do some words for words division," the coach did not demonstrate a coaching behavior until 13:43 min, "that's good scaffolding" (ECP1). She demonstrated nine coaching behaviors during the 25:40 min session and ended with "that was a great lesson, how do you think things

went?" (reflective practice, ECP4). In this EOY video, the teacher was experienced in the use of the EBP, the student responded well to the instruction, and the instruction was at the highest level of the EBP. These examples illustrate the complex role of coaches. Coaches must be fluent in all three of the areas and match their skills to the individual teacher's personality and skill level.

Theme Two

The coaching behaviors documented using the tool suggested the coaches provided teachers with immediate support fostering the implementation of EBPs with fidelity. Studies have investigated real-time performance feedback (RPF) as one way to provide follow-up support after PD fostering the transfer of practice (Vernon-Reagans et al., 2012: Goodman et al., 2008; Cheek et al., 2019) and the sustainability of the implementation (Vernon-Feagans et al., 2012). Cheek et al. (2019) suggest RPF allows for teacher support during the transfer of knowledge to practice and may improve the rate and accuracy of desired teacher behavior (Goodman et al., 2008). My findings suggest that coaches use a variety of behaviors during real-time coaching webcam sessions, and the coaching observation tool allowed for a frequency count of demonstrated behaviors. In the present study, the coaches demonstrated high levels of behaviors in the specialized content/EBP knowledge area. These behaviors included support with the implementation of the EBP but went beyond to help teachers understand (a) the foundational skills of reading (SCK4), (b) the levels of the EBP (SCK1), (c) analysis of student work to match instructional tasks (SCK3), and (d) how to adjust practices (SCK2, SCK4) to meet the needs of the individual student in front of them. The coaches' deep knowledge of the EBP allowed them to support implementation, as well as provide the teacher a brief, immediate mini-lesson in order to build a deeper understanding of the skill being taught. In one example, the coach provides the

teacher with a detailed review of several strategies the teacher will implement next with the student (e.g., Sort-Write-say, Blend as You Go, Try Another, and Word Division) and the reasoning behind it, “want her to use these strategies to read words.” The teacher nods and says, “I remember that now.”

Additionally, coaches built the teacher’s diagnostic thinking toward an instructional match in the real-time coaching sessions using prompts, such as “Ms. T, can you do me a favor, I want to see if he can change bell to bet,” encouraging the teacher to consider student’s understanding of ending sounds. The coach further prompted the teacher, “can we do one more? If I changed bet to best…I just want to see how far I can push him” moving from three to four sound words. Later, the coach prompted, can we do one word for me…I want to see if he can do c-h-i-p.” After the student finished, the coach encouraged reflective practice of the teacher (ECP4; poses reflective question) “tell me what you are thinking.”

Other times during the real-time coaching session, the coach would respond to the teacher’s question (ICS2, listen-respond) and then model (ECP2) with the student to provide immediate support for implementation of the EBP. Another example of real-time coaching support, the teacher posed a question related to procedures for level Green, “so, we don’t even use tiles anymore, correct?” and the coach responded, “for segmenting words we actually do,” and then provided additional information (SCK4: deep understanding of EBP), “but you only need a few …just for those five words …we’re going to show her” and briefly talked the teacher through the process. The teacher seemed unsure and the coach proceeded to provide a model (ECP2; 0:55 min) for the teacher “student… you have been working on short sounds for the vowels…now you’re going to do the long o sound…can you say o… for me.” During the session, the coach demonstrated 42 coaching behaviors, primarily ICS2, ECP2, ICS3, and SCK4

as she supported teacher through an initial lesson in Level Green in a non-evaluative manner. The use of the coaching observation tool allows the identification of coaching behaviors during real-time coaching sessions which support the implementation of EBPs.

Theme Three

As with most observation tools, the users should participate in training but also practice collecting IRR together to norm on their use of the tool. Three distinct elements contribute to a coaches' repertoire and are captured in the coaching observation tool: (a) effective coaching practices, (b) specialized content/EBP knowledge, and (c) interpersonal coaching skills. I was able to operationalize four behaviors under each element, or category which assisted in the coding of demonstrated behaviors during a real-time coaching session. Yet, even though each element is unique, there does appear to be overlap between them within one coaching behavior. This can make coding a challenge for the observer. Although raters watched the COT_V3 training (Jolly, 2021) to support the accurate coding of behavior, it is likely that users of the tool should watch coaching videos or observe real-time coaching sessions together and discuss their ratings to compare similarities and differences in scoring. Some discrepancies in coding during IRR had to do with determining whether behaviors occurred during one coaching interaction or to record every comment the coach made during an exchange. If raters discussed this during practice and agreed to only record the behavior one time within an interaction that may assist with coding. For example, if the coach is demonstrating a deep knowledge of EBP and shares several ideas for the teacher to consider, that is noted one time, as SCK4 because they are discussing the same topic in that interaction. Another example of a coding challenge is when conversation becomes a successive sharing of ideas immediately after active listening (ISC2) or teacher reflection (ECP4). When the conversation changes to the teacher and the coach sharing

ideas back and forth toward an outcome, the behavior would be coded as collaboration (ICS1). The important consideration for the rater is to consider the context and the intention of the coach when accurately coding behaviors. Additionally, raters should identify the primary behavior within a category (e.g., feedback in ECP) but may rate one behavior across different categories. For example, a coach may be monitoring for adherence of all components implemented (SCK1), as well as provide specific, corrective feedback (ECP1) when coach points out that the teacher did not implement a component of the EBP. Or it would count as one interaction if the coach stopped the teacher to provide response to teacher quality of implementation and talked teacher through the procedure (SCK4) providing corrective feedback (ECP1). This would count as one interaction although the coach may provide several prompts during this interaction. Another example of this is when the coach is debriefing with the teacher after the lesson regarding an observation of a student having difficulty. The coach may offer several suggestions, "I'm wondering if…clip the consonant…blend the first two sounds, model if she struggles" are all related to the same interaction and would be counted once as the coach demonstrated a deep knowledge of the EBP (SCK4). Also, a coach may provide the teachers with more than indicator of praise (e.g., pacing was great…switch to 2 words for read-write-say) but would be counted as one interaction of specific, corrective feedback (ECP 1) if it all occurred within the same interaction. These are all nuances within the observation tool that can be addressed by individual users at their specific sites and within their context. This will not be a concern if the tool is being used within a school or district where all staff understands how and why the tool is being used. However, if the tool is being used to conduct research, it will be important that as observers to keep the critical components of the tool and clearly articulate any coding that may be unique to

their study. Finally, since this is the first study using the tool, it is likely that further studies and refinement may be required.

Theme Four

The use of the coaching observation tool may assist coaches with anticipating when teachers may need additional assistance, allowing coaches to adjust their time or have certain resources available for the teacher. For example, a comparison of the frequency of demonstrated behaviors from the BOY implementation period to the EOY implementation in the current study period showed a decline in coaching behaviors. Overall, coaches demonstrated 1.14 behaviors per min at the BOY and 0.08 behaviors per min at the EOY implementation cycle. For example, in one video, the teacher stopped frequently to ask the coach a question or check to see if she is doing the strategy correctly. These interactions led to a higher frequency of active listening behaviors (ICS2) being documented. Another example is, where eight ICS2 behaviors were observed, as the teacher stopped frequently to pose a question to the coach (e.g., T: I forget, do I have her go back and correct? C: for some words- fruit). During these times, the coach responded but also provided the teacher with additional information related to the EBP to build understanding and capacity. For example, in the same video, the teacher asked "when they are doing writing…they're not allowed to look back in the story…?" and the coach shook her head and responded "no". She then went on to explain (SCK4) "they wouldn't look back in the story because it's …about spelling and seeing how it's transferring and that writing piece also."

In another video example, the teacher began the session by stating, "I watched the videos yesterday, I still need a lot of help - this is the first day for green" (ICS2). Further, the teacher said, "and you'll help me," to which the coach promptly responded, "I will help you." This is an example of the immediate support that coaches provided to the teachers as they transitioned to

new levels and gained full understanding of the multi-component, multi-level EBP. Other coaching behaviors observed during this session were coach fostering trust with interactions (ICS3) and coach monitoring quality of delivery of EBP, coach demonstrating active listening (ICS2) as the teacher stopped to request assistance, and (SCK4) as the coach monitored instructional delivery and reinforced teacher delivery to build teacher capacity to implement the EBP with fidelity. However, it is likely that a variety of factors may inform the level of support provided by the coach, including by time of year, e.g., implementation cycle (BOY, EOY, MOY), individual teacher's comfort with the implementation of the EBP, the student's skill and response to intervention, or moving to a new level in the EBP.

Theme Five

The importance of teacher-coach relationships was discussed by the coaches during the focus group and observed (based on frequency count of ICS) during the real-time coaching sessions. For example, in the focus group, Coach 3 remarked, "…know your teacher- so having a relationship with the teacher so that you can then give them feedback and not be scary or not sound like you are coming from a place that is not a warm place of genuinely trying to help them", and Coach 4 added, "I agree…I think building relationships and rapport is a positive foundational skill that coaches need to have with teachers- particularly if they are reluctant or struggling. Another important consideration with coaches relates to modeling. It was suggested that some coaches may consider the timing (e.g., if it interrupts teacher lesson) and understanding the teacher to know when and how to provide appropriate support. The coaching observation tool provides a section to document interpersonal skills (ICS) and analyze the frequency with which these behaviors occurs.

Contributions of the Study

This study contributed to the field by providing a manageable tool (one page, front and back) which allows researchers and practitioners to identify and record coaching behaviors demonstrated during real-time coaching sessions. The study specifically fills a void in the literature related to identifying demonstrated coaching behaviors during coaching sessions (Gallucci et al., 2010). Currently, coaching behaviors often are not provided in the studies, and when they are, it is often self-reported evaluations by the coaches (Neuman & Wright, 2010; Neuman & Cunningham, 2009). Although this tool has not yet demonstrated reliability and validity, the initial results are promising and additional studies and refinement will strengthen the reliability of the tool. The field relies heavily on teacher observations using fidelity observation tools to support the implementation of EBPs. Oftentimes the training or a component of the EBP includes instructional coaching; however, there are currently limited tools in the literature that provide a way to identify coaching behaviors during real-time coaching sessions. The use of the coaching observation tool has the potential to identify coaching practices used and determine coaching activities which have a greater impact on intervention implementation (Reinke et al., 2013). Further, identifying impactful coaching behaviors may reduce coaching time (by implementing specific behaviors) which would allow the coach to support more teachers and more quickly build teacher capacity. Research has suggested that a gradual release model may be one way to promote teacher change (Collet, 2012); by identifying and using impactful coaching behaviors, teachers may become independent more quickly.

Limitations of Study

Despite the promising results, this study did have limitations. First, the review of the literature was not as systematic and comprehensive as it could have been. Conducting three

separate reviews of literature, one for each of the areas on the observation tool (e.g., effective coaching practices, specialized content/EBP knowledge, and interpersonal coaching skills) was very time intensive. It was also time sensitive because it was required in order to proceed with the development of the tool. Given the lack of resources (e.g., time and additional personnel), parts of the search for literature were abbreviated and one or two search engines were used. This likely limited findings of relevant articles which could impact the development of the observation tool. For example, if articles were missed during the review that indicated a behavior should have been included, but was not included, the tool may not represent the most impactful coaching practices. Additionally, I was the only one reviewing the literature and making decisions about which articles to include as part of the tool development. This is a limitation because a systematic review should include multiple screeners to assist with the inclusionary and exclusionary process of the literature review (UNC Chapel Hill, 2021; Xiao & Watson, 2019).

Second, IRR was not demonstrated for the coaching tool. One possible reason for this was use of percentage agreement to calculate the IRR. Percentage agreement is a straight forward calculation of the number of times the raters agree on a rating divided by the total number of ratings during the observation (Shweta et al., 2015). In this study, the percentage exact agreement, as opposed to the adjacent agreement (plus or minus one; Shweta et al., 2015), was used to determine the IRR. I determined a stricter criterion during tool development of foster discussion between the independent raters in order to clarify any necessary indicators on the observation tool or in the accompanying training. An addition limitation related to IRR was the failure to test raters understanding of the COT_V3 prior to conducting IRR on the final sample of videos. Unlike with COT_V2, the rater watched the recording of COT_V3 training, and I did not check understanding. This may have impacted the ratings during the final sample of videos

identifying frequently used coaching behaviors. Because IRR was not demonstrated, it is important to view the frequency results, addressing research question three, with caution.

Third, the lack of a second coder to validate my coding during the analysis of the initial and member checking interviews may be considered a weakness. The use of the a priori themes in the template analysis (Brooks et al., 2015) had validity from the review of the literature; however, without a second coder there is a threat that I may have incorrectly coded or omitted information from the interviews that should have been included and would impact the development a valid and reliable coaching observation tool.

Fourth, there is likely limited generalizability based on the small number of coaches involved in the study. The study incorporated features to increase the representation of coaching behaviors, such as selecting at least two teachers across two implementation periods for each coach. However, it is likely that observing a larger number of coaches would provide a better representation of coaching behaviors. The study also had a certain pool of videos from which to sample which included some coaches being more represented in the overall selection than others.

Fifth, the use of study participants who were also involved in the research of the EBP may be viewed as a limitation. In the present study, all of the participants, as well as rater 2 for the IRR, were members of the EBP research team. This may be a concern because the participants likely have had a vested, or biased, feelings about what the documenting of their coaching behaviors and those of their colleagues.

Sixth, the focus on the coaching behaviors occurring only during the coaching session may present a limitation. Other factors likely contribute to the coaching process and teachers' response or relationships impacted by interactions outside of the coaching session. Teachers may have particular feelings about being coaches including not respecting the coach as an expert or

feeling that they are being evaluated (MacPhee & Jewett, 2017). These external factors may play a factor in the frequency of coaching behaviors demonstrated during a real-time coaching session.

Considerations for Future Research

This section provides several considerations for future research to address limitations of the present study. Future research related to the refinement of, and future implications for, the tool are also discussed.

First, one consideration for future research is to address the literature review limitation. Future studies could include three separate systematic reviews of the literature, one for effective coaching practices, another for specialized content/EBP knowledge, and the last for interpersonal coaching skills. Xiao and Watson (2019) describe the systematic steps in conducting such a review, and the steps would be followed to conduct an exhaustive, rather than of abbreviated search, in each of the three areas. Researchers may also consider using electronic tools to conduct systematic reviews. For example, Page et al. (2021) provide specific guidance through the use of Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISM). Either of these considerations will provide a more comprehensive review than was conducted in the current study. Future literature reviews should also include at least three reviewers, two to independently review the studies and one to assist in resolving any conflicts (UNC Chapel Hill, 2021; Xiao & Watson, 2019).

Second, future research is needed to address the limitation related to reliability of the observation tool. There are currently varying perspectives regarding the best way to calculate IRR. Some have suggested percentage agreement may not be the best approach (Hallgren, 2012; Malviya et al., 2021; Shweta, 2015). For example, Hallgren (2012) suggests that the use of

percentages of agreement is not an adequate measure for IRR and recommends the use of intra-class correlations; while Malviya et al. (2021) propose the use of visual representation analysis methods to calculate IRR once the appropriate algorithm is generated. Indeed, new approaches to conduct IRR are emerging as researchers seek to identify agreement of observed behaviors in the natural setting (e.g., classroom) to address challenges related to determining whether the behavior occurred and when (Malviya et al., 2021). Therefore, future studies may consider using an IRR calculation that allows for some flexibility within the observation of human behaviors. However, given the challenges of developing an observation tool, it is likely that a series of studies will need to be conducted in order to refine the instrument (Howley et al., 2014). Additionally, future studies should ensure that the raters demonstrate an understanding of the tool prior to conducting IRR.

Third, another consideration future research should address is the limitation of insufficient raters to validate coding during the analysis of the initial and member checking interviews. Future studies could include additional raters and a clearer description of the coding process would allow for replication of the study. Perhaps an analysis of the same interview transcripts using a thematic analysis (Braun & Clark, 2006; Braun, Clarke, and Hayfield, 2019; Clarke & Braun, 2017) without the use of the a priori themes on the template analysis may provide additional context to the tool and build stronger content validity.

Fourth, another consideration for future research should address the concern of limited generalization of the present study. Future studies would benefit from a larger pool of coaches who are equally represented across implementation periods. This larger sample of coaches, beyond TRI coaches, could include any coach supporting teachers with the implementation of

EBPs with fidelity. The larger sample will allow for more generalization and provide the researchers with the ability conduct a randomized, instead of purposive, sampling.

Fifth, future research might address the limitation related to study participants. Researchers conducting studies using the coaching observation tool should consider identifying independent raters to code the coaching behaviors using the coaching observation tool. An extension of this would be to compare the independent researcher coding of behaviors on the coaching observation tool to the present study to determine if there are any discrepancies between the ratings. This may provide some information related to the reliability and validity of the tool.

Sixth, another consideration for future research would be to investigate whether there was a relation between frequently used coaching behaviors and teachers' fidelity of implementation of the EBP. It is also possible that there is a correlation between the amount of coaching behaviors demonstrated and the quality of teacher implementation. Some videos suggested strong implementation by teachers may yield less demonstrated coaching behaviors. For example, in an EOY video, the teacher executed the lesson with high implementation, and the coach closely observed- but did not need to interject. The first coach behavior was at 14:00 when the coach mentioned the student "should struggle a little…sweet spot." Studies seeking to learn more about the frequency of the coaching behaviors and teacher fidelity would contribute to the coaching literature.

Seventh, although not the focus of this study, coaching has also demonstrated an impact in the retention of novice teachers (De Jong & Campoli, 2018). Future research can be done specifically to determine coaching behaviors beneficial to novice teachers and the use of the tool to strategically coach and support novice teachers to improve retention. Walsh et al. (2020)

identified a significant relation in years of service, coaching, and teacher efficacy, with novice teachers perceiving a significantly higher impact coaching on their efficacy in the classroom, than their veteran colleagues. They further suggested that veteran teachers may need something different than novice teachers. Future research should investigate which behavior practices, or combination of practices, positively impact veteran teacher's implementation of EBPs. Alternately, De Jong and Campoli (2018) found that curricular coaches who support the teachers with implementation of EBPs in their classroom, reduced the novice teacher turnover of elementary teachers in an urban district. They recommend additional studies focused on the specific quality of curricular coach, further lending support for considering the impact of specific coaching behaviors, or practices, related to the tenure, or experience, of a teacher. Studies may also investigate whether characteristics of the teacher, such as the experience or age, impacted the coaches' behaviors. Johnson et al. (2016) reported that coaches perceived the older teachers had more barriers to coaching.

Eighth, further investigation of coaches styles and decision-making may provide additional information related to frequency of demonstrated coaching behaviors during real-time coaching sessions. It appeared that some coaches were more likely to demonstrate a coaching behavior during the lesson where others may save for discussion immediately after the lesson. For example, if a teacher started the lesson without the reread for fluency component, coach 2 stopped the teacher at the beginning of the lesson stating, "before you start, you will need to do your rereading for fluency first (SCK 1), while coach 2 addressed this with teacher, "should have been a reread for fluency" (ECP 1- corrective, and SCK 1) at the conclusion of the lesson. This also led to variations in the lengths of coaching videos, as well as the length of the lesson for the student. An interesting question would be to determine

which coaching style had the greatest impact on teacher fidelity of implementation of the EBPs. Additionally, a follow-up interview with the coaches to discuss their ratings on the coaching observation tool in relation to the observed lessons may add additional information to the understanding of coaching behaviors and decisions coaches make during real-time coaching sessions.

Implications for Practice

This study offers several implications for practice. First, researchers can use the coaching observation tool to identify behaviors used by the coaches during real-time coaching sessions. This would allow researchers to better understanding the coaching component of their EBP or PD. The tool was developed to identify coaching behaviors in which the coach is working to build the teacher's capacity to implement a EBP with fidelity, and therefore, could be used in a broad range of EBPs beyond TRI.

Second, with federal mandates, such as ESSA, encouraging the use of coaching (Desimone & Pak, 2017), the coaching observation tool could be used by school districts using coaching to support the implementation of EBPs. The tool would allow all stakeholders to gain an understanding of coaching behaviors used during real-time coaching sessions and may be used to determine which coaching behaviors may have the most impact in increasing teacher fidelity of implementation with the EBP. The tool was designed to be used in any content area and any grade band during real-time coaching sessions. The adaptability of the tool, which allows observers to identify behaviors related to their specialized content/EBP knowledge (e.g., use of diagnostic map in SCK3, or "use blend as you go" in SCK4) while keeping the core, or critical components promote the usability. This is an important consideration in observation tools (Morel et al., 2019).

Third, the coaching observation tool can also serve as a training and observation tool to support coaches in their growth. Studies have found that coaches vary in professional experience (Stephens et al., 2011) and that coaches have expressed concern about limited training and a need to understand their role (Stoetzel and Shedrow, 2020). The tool provides behaviors, with associated indicators, demonstrated to be impactful. Using the coaching observation tool will build common language and understanding around coaching practices currently used to support the implementation of EBPs.

Summary

This two-part nonexperimental design study was designed to (a) develop a valid and reliable coaching observation tool that could be used to identify discrete coaching behaviors during real-time coaching sessions and (b) identify with frequency with which these behaviors were used during a sample (n = 36) of coaches supporting the implementation of an EBP, in this case, Targeted Reading Intervention. The interactive process of the tool development included intentional steps within the tool development to support validity and reliability. IRR was not met with exact percentage agreement, but further analysis using adjacent (plus/minus one point) agreement demonstrated a higher IRR. This closer analysis of discrepancies within rater scores suggests promise of the tool with training sessions including IRR within teams using the coaching observation tool or in future iterations of the tool. Further, I was able to identify the frequency with which discrete coaching behaviors were used during 36 real-time coaching sessions. However, it should be noted that without demonstrating reliability of the tool, the frequency data should be viewed with caution. The results of this study address the need to identifying demonstrated coaching behaviors during coaching sessions (Gallucci et al., 2010) by developing a tool that can be used to identify discrete coaching behaviors during real-time

coaching sessions. The findings of this study suggest this tool could be helpful to identify coaching practices to support the implementation of EBP, such as TRI. Researchers using coaching to support the implementation of EBP alone, or as a component within PD, will find this tool useful to provide them with a clearer understanding of the instructional coach in building teacher capacity with the fidelity of implementation of the EBP.

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APPENDIX A: STUDY OVERVIEW

Research Question 1 and 2
Conducted Literature Review Interviewed one TRI Coach
Developed draft of Coaching Observation Tool (COT_V1)
Conducted Member Checking Interview with TRI Coaches (*n* = 4) Updated COT_1 to create Coaching Observation Tool version 2 (COT_2) Developed training protocol
Collected IRR on 8 TRI Coaching Video Sessions using COT_2
Made adjustments to COT_2 creating Coaching Observation Tool version 3 (COT_V3) and updated training protocol
Research Question 3
Used the Coaching Observation Tool (COT_V3) to identify frequently used coaching behaviors during TRI Coaching sessions

APPENDIX B: INITIAL INTERVIEW COACH CONSENT FORM

Special Education and Child Development
9201 University City Boulevard, Charlotte, NC 28223-0001

Consent to Participate in a Research Study

Title of the Project: The Development and Use of a Coaching Observation Tool to Examine Coaching Behaviors
Principal Investigator: Ann C. Jolly, PhD Candidate, University of North Carolina at Charlotte
Faculty Advisor: Dr. Kristen Beach, Associate Professor, University of North Carolina at Charlotte

You are invited to participate in a research dissertation study.

I have been working with the TRI research team, added to the UNC at Chapel Hill TRI study as an affiliate (multi-site randomized controlled trial study conducted to evaluate the efficacy of the TRI on young English learners' reading achievement), and completed a Data Usage Agreement between the UNC at Chapel Hill and UNC at Charlotte. As a coach involved in year two of the multiyear study, I am inviting you to participate in an interview for this study.

Participation in this research study is voluntary. The information provided is to help you decide whether or not to participate. If you have any questions, please ask.

Important Information You Need to Know

- The purpose of the study is to develop a valid and reliable Coaching Observation Tool to identify frequently used coaching behaviors, both quantitative and qualitative, during a coaching session. This nonexperimental design study relies on primary and secondary data. A Coaching Observation Tool will be developed using an iterative process of initial coach interview and systematic review of the literature, review of a sample of recorded Targeted Reading Intervention (TRI) coaching sessions with the initial draft of the tool, and focus group member checking interview with TRI coaches. Next, the tool will be used to analyze a larger sample of recorded TRI coaching sessions. Primary data collected will include one initial interview with a TRI coach and a member-checking focus group interview with four TRI coaches. The secondary data analysis will include the reviewing of audio-video recorded TRI coaching sessions from a primary study conducted at UNC Chapel Hill.

- I am looking for a current or former Targeted Reading Intervention (TRI) coach to participate in an interview. Your expertise as a TRI coach will provide me with expert knowledge related to the important practices and a better understanding of the role of a TRI coach.

- The interview will follow a standardized open-ended interview protocol with questions related to effective coaching behaviors, TRI critical components / coaching behaviors, and interpersonal coaching skills. The interview would be conducted via University of North Carolina at Charlotte WebEx at a time of your convenience. The estimated time of the interview is 30 min.

- Please read this form and ask any questions you may have before you decide whether to participate in this research study.

Why are we doing this study?

The purpose of the study is to develop a valid and reliable Coaching Observation Tool to identify frequently used coaching behaviors, both quantitative and qualitative, during a coaching session. Coaching is a hallmark of many multi-component intervention packages and the development of a coaching observation tool will more comprehensively allow the determination of the impact of the coaching practices and allow for adjustments, as needed, to improve coaching practices.

Why are you being asked to be in this research study.

You are being asked to participate in the study because of your expertise and experience as a TRI coach. Your responses, in conjunction with a systematic review of the literature, will be used do draft the initial Coaching Observation Tool.

What will happen if I take part in this study?

If you choose to take part in the study, you will be asked to participate in a one 30 min interview following a standardized open-ended interview protocol with questions related to effective coaching behaviors, TRI critical components and coaching behaviors, and interpersonal coaching skills. The interview would be conducted via University WebEx at a time of your convenience. I will ask you approximately 8-10 questions (with follow-up discussion) during the interview. This session will be video and audio-recorded to assist with the analysis and coding. No one outside of the approved research team will have access to this recording. You may decline to answer any questions you do not wish to answer.

What benefits might I experience?

You will not benefit directly from being in this study. However, the information gained from your participation will be used to develop a Coaching Observation Tool. This tool may benefit the work of the TRI research team by supporting coaches and gaining a better understanding of specific coaching behaviors that support teacher implementation of evidenced-based practices during TRI coaching sessions.

What risks might I experience?

The questions I'll ask you are related to your experiences as a TRI coach and beliefs related to coaching practices. For example, questions related to necessary or core components of TRI,

strategies used to support instructional match, and decisions about how and when to give feedback will be asked. I do not expect any emotional risk, and you may choose to skip questions you do not want to answer.

How will my information be protected?
Your email will not be shared and our correspondence will be on password-protected university accounts You will participate in an interview that will be audio-video recorded. This recording will be stored in a password-protected UNC at Charlotte Google Drive and analyzed in on password-protected coding software. While the study is active, all data will be stored in a password-protected data base that can be can be accessed by the primary researcher. Upon the completion of the study an analysis, the recordings will be destroyed.

How will my information be used after the study is over?
After this study is complete, study data may be shared with other researchers for use in other studies without asking for your consent again or as may be needed as part of publishing our results. The data I share will NOT include information that could identify you.

Will I receive an incentive for taking part in this study?
There is no incentive for taking part in this study.

What other choices do I have if I don't take part in this study?
If you choose not to participate in this interview, there may be other opportunities in the future to share your knowledge and expertise as a TRI coach.

What are my rights if I take part in this study?
It is up to you to decide to be in this research study. Participating in this study is voluntary. Even if you decide to be part of the study now, you may change your mind and stop at any time. You do not have to answer any questions you do not want to answer.

Who can answer my questions about this study and my rights as a participant?
For questions about this research, you may contact primary investigator, Ann Jolly at ajolly1@uncc.edu or faculty advisor, Kristen Beach at kristen.beach@uncc.edu.

If you have questions about your rights as a research participant, or wish to obtain information, ask questions, or discuss any concerns about this study with someone other than the researcher(s), please contact the Office of Research Protections and Integrity at 704-687-1871 or uncc-irb@uncc.edu.

Consent to Participate

By signing this document, you are agreeing to be in this study. Make sure you understand what the study is about before you sign. You will receive a copy of this document, with signatures, for your records. If you have any questions about the study after you sign this document, you can contact the study team using the information provided above.

Consent to be audio recorded

To assist with accurate recording of participant responses, interviews may be audio-video recorded. Participants have the right to refuse to allow such recording without penalty. Please select one of the following options:

_____I consent to the use of audio-video recording.
_____I do not consent to the use of audio-video recording.

I understand what the study is about and my questions so far have been answered. I agree to take part in this study.

_____
Name (PRINT)

_____
Signature Date

_____
Name & Signature of person obtaining consent Date

APPENDIX C: SAMPLE QUESTIONS INITIAL INTERVIEW

Question 1: Killion et al. (2012; p. 113) suggest identifying goals and objectives for the coaching program make it easier to evaluate the effectiveness, and they offer some possible coaching program evaluation questions. Based on this, please answer the following questions,

- What is the coaching portion TRI program intended to accomplish?
- What are the intended results of TRI coaching?
- Whom will the coaching impact/affect?
    - What effect do you hope your support provides to teachers and the impact on student learning?
    - What coaching behaviors contribute to improved teaching and student learning?
    - What components of the TRI program are most important to implementation fidelity?

Question 2: The National Center for Systemic Improvement's Effective Coaching of Teachers: Fidelity Tool Worksheet (Pierce & Ferguson, 2018) identify adherence to essential ingredients and responsiveness as two elements supporting implementation of desired intervention. What are the essential ingredients of TRI that you coach teacher to implement, and how would you describe your responsiveness to teachers during coaching sessions?

Question 3: The National Implementation Research Network's Targeted Coaching Look Fors focus on specific coaching behaviors including, prompting, scaffolding skill use, and performance feedback. Do you routinely use any of these coaching behaviors during your TRI coaching sessions? If so, which one/s and please describe what it might look like.

Question 4: If you were developing a TRI Coaching Observation Tool, what would you focus on the most?

Question 5: Is there anything else you think I should consider while developing a TRI Coaching Observation Tool that I didn't ask you?

APPENDIX D: FOCUS GROUP COACH CONSENT FORM

Special Education and Child Development
9201 University City Boulevard, Charlotte, NC 28223-0001

Consent to Participate in a Research Study

Title of the Project: The Development and Use of a Coaching Observation Tool to Examine Coaching Behaviors
Principal Investigator: Ann C. Jolly, PhD Candidate, University of North Carolina at Charlotte
Faculty Advisor: Dr. Kristen Beach, Associate Professor, University of North Carolina at Charlotte

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Participation in this research study is voluntary. The information provided is to help you decide whether or not to participate. If you have any questions, please ask.

Important Information You Need to Know

- The purpose of the study is to develop a valid and reliable Coaching Observation Tool to identify frequently used coaching behaviors, both quantitative and qualitative, during a coaching session. This nonexperimental design study relies on primary and secondary data. A Coaching Observation Tool will be developed using an iterative process of initial coach interview and systematic review of the literature, review of a sample of recorded Targeted Reading Intervention (TRI) coaching sessions with the initial draft of the tool, and focus group member checking interview with TRI coaches. Next, the tool will be used to analyze a larger sample of recorded TRI coaching sessions. Primary data collected will include one initial interview with a TRI coach and a member-checking focus group interview with four TRI coaches. The secondary data analysis will include the reviewing of audio-video recorded TRI coaching sessions from a primary study conducted at UNC Chapel Hill.

- I am looking for current or former Targeted Reading Intervention (TRI) coaches to participate in a focus group. Your expertise as a TRI coach will provide me with expert knowledge related to the important practices and a better understanding of the role of a TRI coach. Your input will be used to refine a draft Coaching Observation Tool.

- The focus group will follow a standardized open-ended interview protocol with questions focused on: (a) background/demographic, (b) knowledge: what the coach knows, and (c) behavior/experiences: behaviors, experiences, actions of the coach. The interview would be conducted via University of North Carolina at Charlotte WebEx at a time of your convenience. The estimated time of the focus is 30 min.

- Please read this form and ask any questions you may have before you decide whether to participate in this research study.

Why are we doing this study?

The purpose of the study is to develop a valid and reliable Coaching Observation Tool to identify frequently used coaching behaviors, both quantitative and qualitative, during a coaching session. Coaching is a hallmark of many multi-component intervention packages, and the development of a coaching observation tool will more comprehensively allow the determination of the impact of the coaching practices and allow for adjustments, as needed, to improve coaching practices.

Why are you being asked to be in this research study.

You are being asked to participate in the study because of your expertise and experience as a TRI coach. Your expertise will be a form of member checking to accurately to ensure the Coaching Observation Tool represents your TRI coaching experiences. Based on your feedback, I may add or omit admit features, or behaviors, to the Coaching Observation Tool. I will share the draft Coaching Observation Tool with you prior to the focus group for your review.

What will happen if I take part in this study?

If you choose to take part in the study, I will invite you to review an initial draft of a Coaching Observation Tool and provide feedback related to the extent to which the tool represents your TRI coaching experiences. I will email you the initial draft of the Coaching Observation Tool for your review. I expect this review to take up to 30 minutes. You will participate in a 30-min focus group interview using UNC Charlotte WebEx. This standardized open-ended interview will include (a) background/demographic questions; (b) coaching knowledge questions; and (c) behaviors, experiences, or actions of the coach questions. The interview will be conducted via UNC at Charlotte WebEx at a time most convenient to participating TRI coaches. This session will be video and audio-recorded to assist with the analysis and coding. No one outside of the approved research team will have access to this recording. You may decline to answer any questions you do not wish to answer. Your total time commitment is approximately one hour.

What benefits might I experience?

You will not benefit directly from being in this study. However, the information gained from your participation will be used to develop a Coaching Observation Tool. This tool may benefit the work of the TRI research team by supporting coaches and gaining a better understanding of

specific coaching behaviors that may support teacher implementation of evidenced-based practices during TRI coaching sessions.

What risks might I experience?
The questions I will ask you are related to your experiences as a TRI coach and beliefs related to coaching practices. For example, I will ask you whether you see yourself represented in the tool, whether you feel any of the items seemed irrelevant or inappropriate, and whether you notice if any behaviors or items are missing. I do not expect any emotional risk, and you may choose to skip questions you do not want to answer.

How will my information be protected?
Your email will not be shared and our correspondence will be on password-protected university accounts. Following correspondence related to the study, the email address will be deleted. You will participate in an interview that will be audio-video recorded. This recording will be stored in a password-protected UNC at Charlotte Google Drive and analyzed with password-protected coding software. While the study is active, all data will be stored in a password-protected data base that can be can be accessed by the primary researcher. Upon the completion of the study an analysis, the record will be destroyed.

How will my information be used after the study is over?
After this study is complete, study data may be shared with other researchers for use in other studies without asking for your consent again or as may be needed as part of publishing our results. The data I share will NOT include information that could identify you.

Will I receive an incentive for taking part in this study?
There is no incentive for taking part in this study.

What other choices do I have if I don't take part in this study?
If you choose not to participate in this interview, there may be other opportunities in the future to share your knowledge and expertise as a TRI coach.

What are my rights if I take part in this study?
It is up to you to decide to be in this research study. Participating in this study is voluntary. Even if you decide to be part of the study now, you may change your mind and stop at any time. You do not have to answer any questions you do not want to answer.

Who can answer my questions about this study and my rights as a participant?
For questions about this research, you may contact primary investigator, Ann Jolly at ajolly1@uncc.edu or faculty advisor, Kristen Beach at kristen.beach@uncc.edu.
If you have questions about your rights as a research participant, or wish to obtain information, ask questions, or discuss any concerns about this study with someone other than the researcher(s), please contact the Office of Research Protections and Integrity at 704-687-1871 or uncc-irb@uncc.edu.

Consent to Participate

By signing this document, you are agreeing to be in this study. Make sure you understand what the study is about before you sign. You will receive a copy of this document, with signatures, for your records. If you have any questions about the study after you sign this document, you can contact the study team using the information provided above.

Consent to be audio recorded

To assist with accurate recording of participant responses, interviews may be audio-video recorded. Participants have the right to refuse to allow such recording without penalty. Please select one of the following options:

_____I consent to the use of audio-video recording.

_____I do not consent to the use of audio-video recording.

I understand what the study is about and my questions so far have been answered. I agree to take part in this study.

_____

Name (PRINT)

_____

Signature Date

_____

Name & Signature of person obtaining consent Date

APPENDIX E: SAMPLE QUESTIONS MEBER CHECKING INTERVIEW

	Effective Coaching Practices (How)	TRI Critical Components and Coaching (What)	Interpersonal Coaching Skills
Background/ Demographic Questions	Please describe your education, occupation and experience with coaching.	Please describe your education and experience with teaching early literacy skills to students not yet reading on grade level? Please describe your experience with TRI.	Please describe your coaching relationship with the teachers you coach. Please explain if I would observe different coaching styles or approaches depending on the teacher you were coaching during the session.
Knowledge: questions focus on what the teacher knows	Can you tell me about some effective coaching practices? Which of these do you try to incorporate in your coaching sessions? How do you handle a teacher with a pattern of not implementing with fidelity?	What are the critical components of TRI? How do you use the Diagnostic Map to support the instructional match during your coaching sessions?	What are interpersonal or relational skills that might be used to build teacher-coach relationships?
Behavior/experiences: questions focus on behaviors, experiences, actions of teacher	If I observed a session, what practices might I observe?	If a teacher omitted one of the components of TRI (e.g., reread, word work, or guided oral reading), what response would I observe from you?	Are there certain interpersonal or relationship-building skills that I would observe during a coaching session? Please describe what I might observe if you were coaching a teacher who is a non-implementer (?)

APPENDIX F: TRANSCRIPT OF INTIAL INTERVIEW WITH COACH

Requested and received consent to record session.

Ann: All right so thanks again. So for question number one, Killian et al. suggests identifying goals and objectives for a coaching program to make it easy for evaluate the effectiveness and offer some possible coaching program evaluation questions so based on that, I was wondering is the what is the coaching portion of the TRI program intended to accomplish?

TRI Coach 1: I think that has changed somewhat over the years. I think originally it really was part of how are we going to get fidelity to this and so the coaching was that fidelity piece- let's ensure fidelity, and I think that's still there, But I think as TRI has morphed from more of an intervention focus to more of a PD focus. Then it's become more of the how do we support teachers how do we help them grow how do we take them from where they are and get them as far as we can and just build up that kind of basic reading knowledge that they may or may not have perfect.

Ann: I feel like that's real consistent with the literature, and I appreciate your recent timing of your article. That was very helpful to me.

TRI Coach 1: I really appreciate that.

Ann: So it's really helped me to kind of see, kind of like you said, the evolution of the whole thing. So it's awesome

TRI Coach 1: My piece of advice related to that article is not to submit any number of articles three months prior to when you think you're defending your dissertation because they all come back and they want revisions at the same time you're finishing up. Yeah, that was my big mistake. I got two articles, and I was like yeah now I'm gonna focus on my dissertation and then it was like.

Ann: Oh my gosh well it's a wonderful article. I really enjoyed reading it. Thank you. What are the intended results of TRI Coaching?

TRI Coach 1: The intended results of coaching… um, I think the results are that teachers are able to um…I mean…I think the base level is getting teachers to implement the intervention piece of TRI with some level of fidelity. And I think once you get that then the intended result is really getting teachers to focus in on kind of the finer the bigger pieces but finer pieces' still, which is kind of an interesting contrast. Umm... really that diagnostic instruction like really intentionally making those instructional decisions that they don't always have the freedom to make in classrooms anymore.

Ann: So, I'm going to ask a follow-up around that…um so teacher- sounds like you're saying that teachers may have be limited in some of the decisions. Do you feel that the teachers that you're coaching are knowledgeable enough to use that information and make those decisions? Does that make sense? Like…

TRI Coach 1: Yes- it does make sense, and I think it varies from teacher to teacher. And I think some teachers are ready to run with this. And the coaching paper I'm currently working on…um…and we're still really in the very beginnings of analysis. But, I was watching a Charlotte Meck teacher who I worked with and she was able to take this… and like she brought TRI to this higher level. Like, she had her kindergartners metacognitively thinking about which page was the most
difficult for them to read- so that would become their fluency piece. Like she could take this and run with this. Yes, I've worked with other teachers who even after two years were really struggling with the basics of how do I do this activity.

Ann: Yeah, yeah.

TRI Coach 1: So just like we differentiate for our kids, we need to differentiate for our teachers.

Ann: Absolutely, awesome! And then, whom will the coaching impact or affect? I mean obviously it impacts the teachers…

TRI Coach 1: I think it also does impact the student. And I mean it depends on how the coach interacts. I, obviously, in my coaching sessions… I'm going through withdrawal from being around kids. So, I'm always like me see if you can't let me have a conversation, you know? with you.

Ann: I know! When I do my observations I'm like right at the table

TRI Coach 1: And the teachers-and they're like please just let me and I'm like no I miss this.

Ann: That's awesome- nice, thank you

TRI Coach 1: But, yeah because really I mean- yes we want to help teachers. But we want to help teachers because by helping teachers, we're helping kids- right…in a nutshell.

Ann: Awesome. What effect do you hope your support provides to teachers and the impact on student learning?

TRI Coach 1: Um- so yeah, um well, I mean as much as I love interacting with the student. I do see my focus as being on that teacher. And it may be that the role I'm playing- you know- ideally.

Ann: Yes

TRI Coach 1: I am enhancing that teacher's knowledge of reading instruction giving her some great new practices to try out, or reinforcing practices, she was already engaging in. And we are through this kind of diagnostic approach and really close attention to one child- accelerating that child's progress but it may be that what that teacher needs more than anything is somebody else

there to just kind of talk to you once a week and be able to get out like that whole relationship piece. I think because we're not based in the buildings there is… um… a little more freedom sometimes to provide support that a site-based literacy coach can't provide. I think that's very true... um... so and I mean sometimes we struggle with how to do that and sometimes, you know, there are all kinds of issues with that. But, I do think that that is a piece that we need to own. And you know, I know whenever you- whenever I got the chance in the classroom to talk to an adult for 10 minutes- it was like yay! Yeah- let me have a conversation with somebody over the age of six.

Ann: Yeah absolutely, I love it. That's awesome… um… which coaching behaviors do you think contribute to improve teaching and student learning? So are there certain… what you would think of as effective coaching behaviors… you talked a little bit about relationships- and when talking about relationships…are you able to um…almost operationalize any in other words? Trust -but like what might that look like? If that makes sense? How would i know that you were doing…demonstrating… some of these behaviors?

TRI Coach 1: Um…yeah…operationalizing that is hard, and that's where I don't envy the task you've set for yourself. Yeah, how do you, yeah and I think they can look differently and different. I think you can tell there's a relationship by the side conversations -that even if you only get a little snippet of it. There's evidence that the teacher and - the coach knows something about each other outside of even the school capacity. It might just be outside of the lesson capacity, but more than that typically it's outside of the school capacity. That there is just that personal relationship, there's also the broader relationship of sometimes you would see evidence of knowledge about the school as a whole. Um…once again, because i was just watching those videos- we were at a school that went through a very challenging time administrative turnover things. Like, that and the teacher was like do you know what's going on- I was like yeah. I'd heard and so there was this whole conversation about that. That was just kind of broader pieces- so that would be the relationship piece. I think you know one of the things. I really try to do that. Probably is not as true of all coaches, is, I really see my job as building that reflective voice within teachers- so that once I'm gone, my still stuck in their head. Um and so I know that some of the other coaches have a very different approach to that and they think it puts teachers on the spot and you shouldn't ask them all these questions to think about and -but I see it as- I'm building their capacity to do that so. Um… there isn't one of those that is a specific TRI strategy as far as coaching. Um… so I don't know if it helps you but…just…yeah… as I'm thinking through what coaching is and then what I've seen other coaches do.

Ann: Yeah- no it's super helpful, and you're very knowledgeable, and very helpful. Um… one of the things that the committee asked me to do is they loved the work- but they wanted me to expand it to all so it could be past this to evidence-based practices as a whole, because they feel like if I can develop some type of tool that we can consider- I mean obviously, it's gonna it's gonna be an iterative process, but… um… they don't think there's anything like that out there right now and that is something that could contribute. So, I am trying to think more broadly not, I mean TRI is what I'm going to apply it to- so just some of those things that you said… um… even if it's not specific to TRI. Um… are really good and I love what you said about... um… you know I hadn't thought about that about the relationship piece. Just listening for somebody to say something outside of the immediate context is a great idea. So that's very helpful. Thank you.

TRI Coach 1: Yeah no and i mean it's as simple as you know how's your, how's your dad because you know that they were out the week before – because they were dealing with a parent or oh so those weddings coming up or you know just like all of those little things that are there that are a piece of being a broader.

Ann: Yeah no I love that role, I love that. That's awesome.
What components of TRI are most important to implementation fidelity? So you said that it's that's maybe not the sole focus, but what do you really need to see to feel that they're, you know, it's… not doing any apple from Letterland or something. You know what I'm saying- like what do you?

TRI Coach 1: Well we might be doing Annie Apple from Letterland within the context of TRI which is one of the things I like about TRI. Okay, we don't make teachers necessarily replace whatever program they're doing so we can fit those pieces in what we have in TRI. That's kind of key-is we have a set lesson structure which is that reading sandwich so it's that reread for fluency, some kind of word work and then they're reading connected text. So that would be a huge piece um…and, I think -_ think you'd go into kind of like the broader things like the fact that everything is connected to real words and texts. Um…I think that's a huge piece of implementation fidelity. I mean I think we are looking for the specific activities but that varies based on the child's needs and the teacher's interpretations. And, I mean there's a lot that goes into that so it's not necessarily it's going to be exactly this lesson but it's going to have those three parts we're looking for the teacher to have used what the child is doing to determine what comes next. Ideally, we're looking for teachers who can adjust on the fly based on what they see happening and then they but that's you can't always tell that they're adjusting necessarily um and sometimes that's harder to do. Than we give credit for sure - just because if you have to switch out materials that's almost impossible in a 15-minute lesson. Sure, um trying to think if there's anything else so the diagnostic piece and some of the strategies um and some of those kind of core tenants like, the let the child do the work that's going to be a big thing we're going to look for. We're going to look for blend as you go instead of sounding out we want you to do that incremental blending those pieces would be the other bit.

Ann: I know that's awesome. That's terrific- um all right that was all question number one so clearly I'm gonna have to speed up a little. I'm sorry but that was great conversation that was super helpful. I love. Um, so you can see the base of the question so I'll just ask the question. So what are the… when we talked about this a little bit already… what are the essential ingredients of TRI that you coach teachers to implement and how do you describe so I have that piece a little bit the second part maybe is how would you describe your responsiveness to teachers during a coaching session and…what I mean by that is how do you determine when you make decisions about providing some real-time performance feedback you know- what I'm saying you- know where I'm going.

TRI Coach 1: Okay, I know exactly what you're saying and… um, that was a paper I was starting to write last year and then we got messed up by a whole bunch of other stuff going on. It was coach decision-making, like how do you decide when you intervene and when you don't. Because there isn't anything out there about that really. Um, there's and so much there's so you

already know this i mean there's so many gaps in the coaching literature it's kind of crazy- it's like
here's all this money- everybody go coach but… nobody understands how it works.

Ann: Right, so I love that. Okay, I'm sorry go ahead.

TRI Coach 1: So coach decision-making right- so some of that's gonna vary by coaching style, and I know you're watching. You'll be watching some of my very early coaching. I think because you're doing year one and year two?

Ann: I think you recommend I stick with year two.

TRI Coach 1: Okay, so that would be my second year of coaching but still…um there are some coaches that intervene all the time throughout the lesson. Like just like anytime there's anything that's remotely going off or even if the coach just has an idea and wants to see what the child can do they're gonna jump on in. Um…I have really tried to become better about intervening in a timely manner, and I'm still not great at it. Um… I don't like to interrupt the flow of a lesson, and, um yeah, it just never feels natural to me. So um, what I am more likely to do is at the end, I talk for a lot longer than some of the coaches do. Um, which makes the session last longer- which I guess in and of itself could be problematic. Um, but I like having that conversation. I also don't necessarily like calling a teacher out in front of the student which it sometimes feels a little bit like. Um, but I think there are times when it's easier to do some of that. If you know that the teacher's moving into a new activity or like a new level that they're not as comfortable and not as familiar with, I think it's much more important if an activity is about to go way off the rails just completely become something different then you're more likely to want to jump in and interrupt. But I still think even with all of that, you need to prioritize kind of what's- what's the really big thing that I need them to get out of this. Because I can't tell them 25 different things to work on. Yeah and so there is a bit of streamlining to try to pick out what would have the greatest impact.

Ann: Yeah. I love that- I'm going to ask one follow-up question based on that. So
do you set some pre, I mean -not that you're doing a formal pre-observation- post but do you say, "Hey Ann, this is what we should work on this session, this is what I'm going to look for is there…"? Any of that or not necessarily?

TRI Coach 1: There is not really any of that. There's always kind of you do it- there's not something specifically, like that but at the end of every session we send that written feedback email and that will say here you know here this was great, I loved how you did this for next time remember x, and usually it would be one key thing we'd ask them to work on. And sometimes if there really wasn't anything specific we wanted them to work on that would just be about where they were going next kind of in the TRI scope.

Ann: That's great, perfect. All right, so you can read about the context of the question [The National Implementation Research Network's Targeted Coaching Look Fors focus on specific coaching behaviors including, prompting, scaffolding skill use, and performance feedback.] But the question is do you routinely use any coaching behaviors... do you, so let's see we talked about

this already really you routinely use any of these coaching behavior okay so let's talk about. So some of the behaviors are prompting, scaffolding skill use, and performance feedback. Would you say that you use any of those, and if so- what it might look like?

TRI Coach 1: So, we're obviously going to use the performance feedback that's going to come in, and that, "I love how you did this," one of the TRI tenants is kind of that specific, specific praise that you give to students. We try to model that for our teachers. Um…I think in terms of thinking about the different interruptions and the different ways we try to address things within lessons- I think a lot of times coaches will model, and they might jump in and start doing something with a student instead of telling the teacher what to do. They may choose to model it because then it doesn't feel like you're calling the teacher out the same way. Um, so I think a lot of that happens- I think a lot of times there is scout- I mean the scaffolding tends to be…um… I mean you could do kind of a more formal scaffolded support. And it's not jumping out at me right now. Sometimes it's just like jogging a memory, "Hey remember you have this?" and they're like "oh yeah, I remember how to do this," and they roll with it. Um, sometimes it is very much okay now you need to draw two rectangles on your board put these tiles up here put those piles up there now you're gonna do this, and I think that happens especially when it's a newer activity that teachers have forgotten how to do that. Does that cover all of them?

Ann: Yeah, um… yes i think so. Great- um- if you were developing a TRI Coaching observation tool, what would you focus on the most?

TRI Coach 1: This one's hard! Um- this is why you're doing it, and I'm not.

[brief discussion outside context of study]

TRI Coach 1: Yeah, um, sorry I digress. So I think really what I want to look for in that coaching - what I want to know is how, how the [coat] I mean if we're really thinking about TRI as a professional development program, how is the coach tailoring the support to meet the teacher's needs. Maybe more than even meeting TRI's needs, and that may not be a popular view with other folks. I'm going to give you full disclosure there.

Ann: So that's okay, because one of the things I had to address in my proposal was… if I have coaches- so I go if we go to the focus group and…and coaches disagree on something- uh my final landing place is what… um… you say so you. I'm gonna well because I mean, I think what I'll do is the question you know from the committee is so you get a variety of answers- how do you tease it out? So, um, obviously- I will talk about each of those, but I…but you are the… the intervention director right now. You have coach… you have your experience…right so that's… oh God, are you leaving me too?

TRI Coach 1: I don't think so. I have my moments.

Ann: Oh yes we all do.

TRI Coach 1: But I'm waiting… we have to have grant funding come in- and then they still have to work out but- it's just all that kind of craziness. Yeah money, if you can good more

Ann: More good advice

TRI Coach 1: Unsolicited sorry

Ann: No you're fine- we'll make this great tool that nobody has and we'll just go on the road

TRI Coach 1: All right so, and I mean… I know that what people who were trained earlier, and who potentially have been involved with it longer are more likely to be about that fidelity to TRI, and there is the p and I will- full disclosure that has always been the hardest piece of this coaching to me, because of my background as a classroom teacher and really struggling with that fidelity. Like that was the way to address me implementing any of my own personal decision making. Yeah in a classroom.

[brief discussion outside context of study]

Ann: Um… the last one- you'll be happy to know. Is there anything else you think I should consider while developing a TRI Coach 1ing observation tool- that I didn't ask you?

TRI Coach 1: The only thing I can think of is that I think what I'd like to see this observation tool do is maybe tease out kind of like we talked about the essential elements of the intervention itself.
Um… kind of the essential elements of coaching, but not something that could be used in future grants… to be like all coaching is exactly the same. Like, I don't think that's going to work. Um…and I think, yeah, yeah, I really think that there's room for different approaches… within reason.

Ann: Yeah, and I think the literature very much supports…I think that the literature very much supports that so I'm not you know wanting to have this you know checklist going down the line. Yeah, but I love what you just said like part of what if the work could contribute to is if… you if… if we… can tease out some of the nuances- and you're doing training of coaches and you can say, "Hey focus on this," you're going to get your power you know more power. So uh... yay, I love it. I mean…

TRI Coach 1: I think one structure that may help you- that I'm thinking about for the paper- I'm working on right now is kind of you have these clear pieces of the coaching session, so you have some kind of a pre-session and what happens in that piece and… um and… then you have the actual lesson itself, and then you have the debrief… and… looking at kind of what happens within those. But, I think those can be fluid too.

Ann: Um yeah… and probably because I'm limited to just the videos. One of the limitations that I already you know… you already have the whole thing drafted and you just go in and fill what you're learning as you go so I know…that one of the limitations
that I'm going to have is that I'm that the coaching, like you said, experience is beyond this 15 or 20-minute bucket. So that's what I've captured, but that's why I love one of the things that you said was I can still listen for snippets of "how's your dog" or whatever.
End 27:35

APPENDIX G: COACHING OBSERVATION TOOL VERSION 1

COT_V1

Recording: **Tally** mark every time coaching behavior occurs and **Circle** observed practice			
Effective Coaching Practices			
1: Coach provides **feedback** to the teacher		**2:** Coach **models** for teacher	
	• Specific based on teacher's use of intervention or practice • Prioritized and timely (e.g., 1-2 specific areas to focus on) • Positive or corrective statements		• Demonstrates an instructional task with students while teacher watches • Occurs (**a**) at teacher request, (**b**) to support implementation of new strategy, (**c**) upon incorrect implementation
3: Coach encourages use of **student data**		**4:** Coach provides teacher with opportunities for **reflection**	
	• References multiple sources / current student data • Reviews student performance data **and** provide specific next step for instruction		• Poses reflective questions e.g., What did you like…, what would you do differently…, how do you think students responded? • Analyzes actions, practices, strategies, or ideas based on new or intended outcomes
Specialized Content / EPB Knowledge			
1: Coach monitors **adherence** of EBP		**2:** Coach monitors **exposure** to the EBP	
	• Monitors adherence to implementing all components of the EBP in the correct order • Reinforces a practice being implemented by teacher		• Monitors length and appropriate pacing (ensure all components included) • Reinforces pacing of lesson
3: Coach monitors **student response** to EBP with aligned tools		**4:** Coach monitors **quality** of delivery of EBP	
	• Refers to use of specific data tools aligned with EBP • Reinforces the use of specific data tools aligned with EBP		• Monitors instructional delivery of practices supporting key features EBP (e.g., feedback, blending) • Reinforces teacher's use of key practices aligned with EBP
Inter-personal Coaching Skills			
1: Coach demonstrates **collaboration**		**2:** Coach demonstrates active **listening**	
	• Successive turns moving from one idea to the next		• Evidence of teacher talk (e.g., teacher completes thought without interruption)
	• Refers EB strategy **or** what's working for student (data-based)		• Demonstrates deep understanding of EBP in response to teacher move/action (including foundational knowledge needed to implement EBP) • Demonstrates knowledge of EBP materials
Interpersonal Coaching Skills			
1: Coach demonstrates **collaboration**		**2:** Coach demonstrates active **listening**	
	• Interaction becomes conversation with successive ideas (teacher and coach) toward the next step or common outcome • Uses what do *we* or how do *we* questions		• Allows teacher talk (e.g., teacher completes thought without interruption) • Eye contact, open body posture, nodding, comments in response to teacher talking • Brief paraphrasing or acknowledgement of teacher's point
3: Coach fosters **trust** with interactions		**4:** Coach builds **rapport** and **alliance** with the teacher	
	• Uses non-evaluative comments • Offers support and follow-up • Refers to follow-up with promises/commitment • Aligns communication to teacher style • Acknowledges teacher expertise		• Refers to previous or current accomplishments (e.g., praise which is not specific feedback) • Evidence of knowing teachers as individuals • Having friendly, casual conversation • Sharing personal anecdotes or comments to connect with teacher
Anecdotal Notes			

APPENDIX H: TRANSCRIPT FROM MEMBER CHECKING INTERVIEW

Requested permission to record prior to recording

Coach 1: PhD, TRI Intervention Director, TRI Coach for 3 years, no previous coaching experience, 17.5 years' classroom experience

Coach 2: Joined TRI Fall, 2015 started graduate program, PhD candidate, TRI coach for 3 years, TRI Graduate Research Assistant (primarily data collection) 4th year, 8 years Early Education: PreK and K teacher, Disability Coordinator and Education Manager at Head Start- responsibility was coaching for the classroom assessment system, coaching for instructional/emotional supports/classroom management domain, coming to TRI was first time I transferred those skills to literacy

Coach 3: Classroom teacher 12 years, summer worked as a special education teacher- would travel to preschools, elementary schools, and homes, and teach children with disabilities and special needs- did that for 2 or 3 summers, stayed home with my children and had a preschool- so I taught preschool for about 4 years, after that I started as an assessment specialist with the TRI- so I did assessing for 3 years, where I helped with the TRI project as an assessor, went on hold because we didn't have grant money and during that time I taught at a public school as an Instructional Facilitator …so as a coach doing that for a couple of years. And then when we got grant money, I went back to the TRI and became a coach for the TRI. So I have coached with the TRI about 6 years…does that sound right Heather? If you've done 3, I think I've been there 3 years before you. So I would say 6 years as a TRI coach. And I have my Masters in Special Ed and my basic degree in elementary education.

Coach 4: started with TRI as a literacy coach back in 2012, which I'm realizing now is almost 10 years ago which is kind of crazy. Before that, I worked as a reading therapist at a Dyslexia Center for 1-2 years. Then transitioned to working on the TRI as both a literacy coach and a research assistant, like Sarah. I did that for 5 years and then in 2017, I transitioned to being the intervention director of TRI for 2 years. In 2019, I came to the University of Texas Health – Science Center at Houston and a lot of my work now is training coach supervisors and developing a coach certification in my career credential program. We are hopefully getting funding to keep rolling that out.

Ann: Talk to me a little bit about what you feel through all of your vast coaching experiences are some of the most effective practices that you think…and how you incorporate those in your sessions. So effective coaching practices that you have used …and within TRI.

Coach 3: I can start if nobody else wants to jump in. Effective coaching practices…I think getting to know your teacher- so having a relationship with the teacher so that you can then give them feedback and not be scary or not sound like you are coming from a place that is not a warm place of genuinely trying to help them. Another thing I try to think about as I'm coaching is where they are at in their knowledge of what they know, what they think they know, and trying to get them to the point where we want them to be – which is understanding what we are trying

to teach them to do- and being aware of what they know they need to learn- to get there. So, just being aware of all of those different parts of coaching – and who you are coaching.

Coach 4: I agree with Teresa- I think building relationships and rapport is a positive foundational skill that coaches need to have with teachers- particularly if they are reluctant or struggling – but I also think there are a lot of higher lift coaching strategies that are also helpful like demonstrating and modeling activities – I think are really impactful, I think especially when you can get into classrooms and work side-by-side with teachers, co-teaching, so that teachers can actually see how practices should look like in the context of their own classrooms. I think that's something that's really important for teachers to be able to see, and I think that the role that coaches play in helping teachers reflect on their own practices is also really important. I think that's the way that you really help teachers understand/help situate their practice and identify areas for improvement.

Coach 2: I was just going to build a little bit on what Coach 4 said. I think the coaching supervision that we got as part of the TRI helped us be reflective about our practices and model that for teachers. So even- asking for permission to interject into their lesson instead of just …you know… interrupting…discussing with them ahead of time things that we had thought about or reflected on from the last lesson- and saying that in an email. so that they had some sort of advance organization for what we might try to target the next time. So kind of having that written guide or model for reflecting on things I felt was like one of the high impact things that we did. And I agree that modeling that – while also sort of respecting the flow of their lessons – so if they are amenable – if it's a lesson that's really sort of struggling and they're amenable to having a short interruption where you can kind of show them how the activity works, I found that was really helpful for teachers that were struggling – but some were, you know, took right to the intervention and you could kind of just let them roll – and then let them guide the discussion on what they wanted to work on the next time. So kind of balancing knowing their skills and knowing how much support to give them- and how much scaffolding.

Coach 1: I am still here…but they have all just done a really good job, and I know you want to keep this moving…

Ann: Just thinking about the critical components of TRI –so you talked about relationships and when it might be appropriate to model or interrupt… what are the critical components of TRI that you are really looking for?

Coach 3: I can go first again…I think some of the critical components would be just our layout of a lesson. So we have a really well created scope and sequence – so there's actual lesson guides that go with everything. And I think that's a really important component of the TRI that the teachers know what's coming – and they have a very strong lesson formatted – not scripted out for them, but they know where to go with it. So it's not just free-fall. We want you to do this…go ahead and start- but we give them lots of pieces to put it all together with easily. And we really did try to make it teacher friendly – over the years, we've created better and more accessible things for teachers to be able to use in building a really strong lesson. And so I think that's one of our strengths- is those components.

Coach 4: I think a huge part of what's interesting about TRI coaching is that it really does emphasize fidelity to the intervention – and so I think that's a big part of what coaching is- is making sure that the teachers are implementing the TRI components and strategies as they should be in order to make sure that they are effective – but I think that there's also another layer of also making sure that the teacher is developing diagnostic thinking – is reflecting on student's progress – is understanding how lessons match the student's abilities- and …and so I think that those parts are also layered on in addition to intervention fidelity – so I think those are the two components that I really see of coaching within the context of TRI.

Coach 2: I think we did a pretty good job of collecting intervention and implementation data – at kind of a granular level…that helped us give feedback to teachers – so even how long the lesson is going, realizing that for some children the difference between a 15 minute and an 18-minute lesson can be enormous. And helping them kind of see the parts of the lesson that they may be spending more or less time on that the child could benefit from ...more or less… so I think the implementation characteristics- and how we reviewed those ourselves… and kept track of them so that we could give feedback to the teachers mattered a lot.

Coach 1: I always come back to Coach 4's comment about how we are coaching on kind of two levels: fidelity of the implementation- the basic procedures of TRI in the intervention itself, and then we layer on top of that- that diagnostic piece... what is working for this child. And it's…I think one of the things that I love about TRI is that we do have that emphasis- that it's not pure scope and sequence- and you're following blindly.

Ann: So you have touched on this a little bit…. everyone mentioned the teacher – how we approach things …whether we interrupt, the relationship … all of those different pieces. So in terms of interpersonal skills- what interpersonal coaching skills do you feel that you try to use during a TRI coaching session?

Coach 3: My biggest thing is just to come across as…not as an administrator level person, but more on their level. So that I come across as - and not to say I'd be a friend… but more on a friend level than on an evaluative level. So I want them to know I'm not evaluating what they're doing- I'm not keeping score – I'm not going to go to anybody and say this teacher's doing it wrong- so I think having that relationship is really important. It's probably most of the important things because you can see a teacher turn real quick and now want to even do a TRI lesson if they feel like it's evaluative or that they don't feel good about how they are doing things. So, I think also building a teacher up in order to get them to continue doing the TRI – to continue meeting with their student- because they won't see the progress until they do it … and so if we lose them right – that they're not going to buy-in into it – then we never get the actual results of them working with the student.

Coach 4: Yea, I think for in terms of interpersonal skills or qualities, I guess being a coach assumes that you are the more like (air quotes) knowing other…but I think it's often best not to act like you are the more knowing other in the context of that relationship in order to not come across as condescending or demeaning, or you know…whatever it is in that relationship or interaction. I think that was especially true with TRI teachers where we worked with teachers who had all sorts of varying backgrounds, levels of experience, education levels, and I think

what I realized the most about interpersonal skills is the importance of sort of matching – finding ways to match your sort of communication style with the preferences of the teacher you're working with. So, if you had a more mellow teacher…I would probably match my affect to be a little more mellow. So I would sort of adapt my own communication and interpersonal style to be a little more responsive to that teacher.

Coach 2: I smiling at the beginning of that question, Coach 4- because I was thinking about the time I had feedback from you about that teacher's affect and how easy it is for teachers who really are senior – and have decades of experience to become reluctant if they perceive that they're getting – unwarranted expertise – especially since I was the younger coach. And I had to kind of modulate – how I dispensed guidance to – especially some of the more expert teachers we worked with. Because you didn't want to cross that line in feeling like you sort of sage on the stage- because that could quickly induce a lot of reluctance.

Coach 1: I think one of the things…was really helpful in the whole coaching process was being part of the original face-to-face coach training days. I know that Coach 2 and I split a school- and the bonds that I was able to make with the teachers at that training carried through in a way that may have been a lot more challenging – and I mean it started with one of the teachers getting breakfast from the buffet that was not part of our buffet. You know- so we just started off on this joking foot – and were able to keep that kind of relationship going all the way through. And so I think those little things are really important – and I know Coach 3 was talking about coming in not as an evaluator- and I think that's the other piece – and I think one of my definite strategies was when I had to tell a teacher to do something that – because it was kind of fidelity where the teacher had made it her own- I was like, well, STATE… that is running this study wants you to do this- it's not me, it's somebody else. But I think sometimes having that kind of cover as a coach to be a little more forceful about something that maybe – you can understand why the teacher is doing what they are doing… I think is helpful. But also, expressing that- like sometimes the teachers will make an adaptation and you're like- yea, that makes a lot of sense- however, in this instance- we do it this way – when you're on your own…go ahead and do it that way. In a few years- but not when you're actually being coached.

Ann: So, I'm going to turn to the initial COT draft- and I am open to any feedback. My two questions around the tool are (a) do you feel that this tool might adequately capture a coaching session you are involved in, (b) overall authentic feedback (and I have tough skin) and I would love your thoughts because you are helping me make this stronger. So, open to any thoughts around (a) do you feel the tool could capture your work, and (b) overall feedback- good, bad, ugly, change, thoughts, things I should consider would be awesome.

Coach 1: I need to think more about whether it will adequately capture … I don't know how to answer that. One of the things that jumped out at me – is if you are aiming toward IRR I felt like some of the points felt kind of vague – and I know some of that is because you were trying to make an instrument that would work for TRI and possibly other EBPs- I don't know- maybe there is a document that goes along with this that specifies the criteria are based on what you're looking at- and maybe you had already planned that.

Ann: Yea- no I think that's great feedback.

Coach 1: There were just some of those little things – that I was like, I'm not sure how this is going to… you know…I might view this one way, but somebody else scoring it might view it another.

Ann: 100%

Coach 3: Almost like a narrative that goes along explaining maybe some of it.

Ann: So there definitely will be a training protocol that will help kind of characterize what this will look and sound like- so any thoughts you have around that would support my thinking around that, as well.

Coach 3: I'll just throw this one thing- my one thing just to clarify – and something that came up because Coach 1 and I have been watching videos- doing something else- but- seeing some of the videos and watching some of the differences- and I'm looking at – you write up- it was at the part monitors instructional delivery…it was about implementing all of the components- in the correct order- monitors length and appropriate pacing- reinforces pace of lesson- and I think that's all good- but I do think what we found watching lots of different coaches and what you will find- I think- is just something to talk to you about- is what we saw was some coaches might do a 40-minute session because they had time and the teacher had time – and other coaches that have lots of teachers that they have to get to within an hour, let's say, they have to do 3 teachers because that's their only reading block- so they would do a 20 min session. So- something on there when you're putting in points and saying this coach didn't get to it…I think it's just something to be aware of. Even though we want them to get to all of the components, we may not have time- and yet- as we should be saying…you know… you don't want to spend so much time here… or…that but I think as an observer watching them, just to be aware of that- that you will see big differences in those videos- and that's why it depended on the teacher themselves and it depended on the coach's situation. Coach 1, is there another way to explain that too?

Coach 1: No- I think that kind of covers that- yea were different constraints- and I think there is the space for anecdotal notes- and maybe that's the kind of thing that goes into anecdotal notes. I also think that comes back to what is the purpose of this measure? Is this aimed at – it doesn't feel like it's aimed at an overall score- is it aimed at improving coaching? Do we have some things that have – that are like hard and fast- and some that are a little bit looser types- like…

Ann: Yea, yes- the idea would be some might be more quantitative, and some might be more qualitative. But also beyond that- it's not necessarily evaluative- it would be more informing us – what practices might be more effective, maybe eventually looking at some fidelity scores around teachers and coaches, not in an evaluative of the coach but getting a sense of what practices might be used that might have a greater impact – also, eventually perhaps- if we are doing training, hey these are the things you want to go after – these are the most effective – that kind of thing. And so- initially the tool was really directed around TRI – but my committee at large said- let's look more generally at EBP – so it has the 3 components when I looked at the overall literature – I found kind of what I thought about was 3 buckets: effective practices, specialized content knowledge – which I ended up defining as the EBPs, as well as the interpersonal

coaching skills – one thing I heard Cheryl say and other people say was interpersonal skills was almost like a foundational piece- I'm almost wondering about flipping the actual and putting that first…so, I'm at the very early stages and basically this was done looking at – after I found those buckets- a systematic literature review – and this is kind of where it landed. This is just my first shot at it- it's going to look probably very different- but I'm interested in understanding what happens during the coaching session- I can't find much literature about that- it might be if it's a single case design there- might be some data around implementation fidelity at that lens. we talk so much about teacher fidelity and what it looks like – the teacher's doing, I just am curious about coaching behaviors. 30 minutes is going so fast – is there any other… like Ann- I really need you to think about this…or I don't like this…

Coach 3: Overall I thought that it was really good.

Coach 4: Yea, I agree- I think overall it is very comprehensive – I think the one thing I might think about is where you have the exposure to the EBP – the indicators of length and packing – I almost think about that as something about adherence- and quality and less so of exposure. I think about exposure of how often the teacher was implementing the session or how often the student was receiving any sort of exposure to that EBP- TRI in this case. And the other indicators might fall either in quality or adherence

Coach 1: I would break apart – in effective coaching practices- coach provides feedback to the teacher… where you have positive or corrective statements…I think that needs to be two separate items to better inform coaching

Coach 4: And maybe instead of just like positive statements… I think there's value in specific positive statements that are like – it's not just like good job…good job doing this---

Ann: Right, so maybe take where I have specific at the top and add it- pair that with the positive. I guess I was trying to --- I'm probably trying to tease out too many things. So that's really helpful.

Coach 4: I think you're just going to find – I think coaches do a really good job already of naturally saying good job or praising the teacher – but I think there are different aspects of praise that could be more important to capture.

Ann: I agree, and that's super helpful. So my next step…

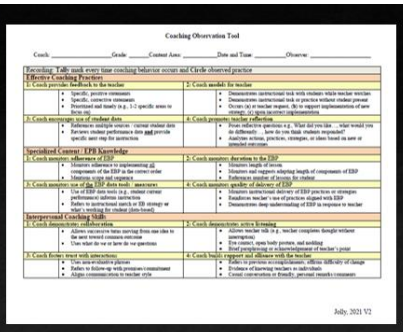
APPENDIX I: COACHING OBSERVATION TOOL VERSION 2

COT_V2

Recording: **Tally** mark every time coaching behavior occurs and **Circle** observed practice			
Effective Coaching Practices			
1: Coach provides **feedback** to the teacher		**2:** Coach **models** for teacher	
	• Specific, positive statements • Specific, corrective statements • Prioritized and timely (e.g., 1-2 specific areas to focus on)		• Demonstrates an instructional task with students while teacher watches • Occurs (**a**) at teacher request, (**b**) to support implementation of new strategy, (**c**) upon incorrect implementation
3: Coach encourages use of **student data**		**4:** Coach provides teacher with opportunities for **reflection**	
	• References multiple sources / current student data • Reviews student performance data **and** provide specific next step for instruction		• Poses reflective questions e.g., What did you like…, what would you do differently…, how do you think students responded? • Analyzes actions, practices, strategies, or ideas based on new or intended outcomes
Specialized Content / EPB Knowledge			
1: Coach monitors **adherence** of EBP		**2:** Coach monitors **duration** to the EBP	
	• Monitors adherence to implementing all components of the EBP in the correct order • Reinforces a practice being implemented by teacher		• Monitors length of lesson • Reinforces the appropriate lesson length
3: Coach monitors **student response** to EBP with aligned tools		**4:** Coach **quality** of delivery of EBP	
	• Refers to use of specific data tools aligned with EBP • Reinforces the use of specific data tools aligned with EBP		• Monitors instructional delivery of practices supporting key features EBP (e.g., feedback, blending) • Reinforces teacher's use of key practices aligned with EBP
Inter-personal Coaching Skills			
1: Coach demonstrates **collaboration**		**2:** Coach demonstrates active **listening**	
	• Successive turns moving from one idea to the next		• Evidence of teacher talk (e.g., teacher completes thought without interruption)
	• Uses what do *we* or how do *we* questions		• Eye contact, open body posture, and nodding; brief paraphrasing
3: Coach fosters **trust** with interactions		**4:** Coach builds **rapport** and **alliance** with the teacher	
	• Uses non-evaluative phrases • References following-up on promises/commitment from previous sessions		• Refers to previous accomplishments; affirms difficulty of change • Evidence of knowing teachers as individuals (e.g., snippet of conversation related to setting outside of lesson)
Anecdotal Notes			

APPENDIX J: TRAINING FOR COACHING TOOL (V2) SAMPLE SLIDES

Observable Behaviors during Real-time Coaching Session


Coaching Observation Tool

Coach: _____ Grade: _____ Content Area: _____ Date and Time: _____ Observer: _____

Recording: Tally mark every time coaching behavior occurs and Circle observed practice

Effective Coaching Practices	
1: Coach provides feedback to the teacher	2: Coach models for teacher
• Specific, positive statements • Specific, corrective statements • Prioritized and timely (e.g., 1-2 specific areas to focus on)	• Demonstrates instructional task with students while teacher watches • Demonstrates instructional task or practice without student present • Occurs (a) at teacher request, (b) to support implementation of new strategy, (c) upon incorrect implementation
3: Coach encourages use of student data	4: Coach promotes teacher reflection
• References multiple sources – current student data • Reviews student performance data and provide specific next step for instruction	• Poses reflective questions e.g., 'What did you like … what would you do differently … how do you think students responded' • Analyzes actions, practices, strategies, or ideas based on new or intended outcomes
Specialized Content / EPB Knowledge	
1: Coach monitors: adherence of EBP	2: Coach monitors: deviations to the EBP
• Monitors adherence to implementing all components of the EBP in the correct order • Monitors scope and sequence	• Monitors length of lesson • Monitors and supports adopting length of components of EBP • Enhances number of lessons for student
3: Coach monitors: use of the EBP data tools / measures	4: Coach monitors: quality of delivery of EBP
• Use of EBP data tools (e.g., student current performance) informs instruction • Refers to instructional match or EB strategy or what's working for student (data-based)	• Monitors instructional delivery of EBP practices or strategies • Recalibrates teacher's use of practices aligned with EBP • Demonstrates deep understanding of EBP in response to teacher
Interpersonal Coaching Skills	
1: Coach demonstrates collaboration	2: Coach demonstrates active listening
• Allows successive turns moving from one idea to the next toward common outcome • Uses what do we or how do we questions	• Allows teacher talk (e.g., teacher completes thought without interruption) • Uses paraphrasing • Uses positive non-verbal body posture and nodding • Uses verbal encouraging or acknowledgement of teacher's point
3: Coach forms trust with interactions	4: Coach builds rapport and alliance with the teacher
• Uses non-evaluative phrases • Refers to follow-up with previous commitment • Aligns communication to teacher style	• Refers to previous accomplishment, affirms difficulty of change • Evidence of knowing teachers as individuals • Casual conversation or friendly, personal remarks/comments

July, 2021 V2

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1) Coach provides **feedback** to the teacher

- Specific, positive statements
- Specific, corrective statements
- Prioritized and timely (e.g., 1-2 specific areas to focus on)

Examples

Specific positive

- "You provided appropriate scaffolded support

Specific corrective

- "Try having the student…

Prioritized and timely

- Let's focus on this one…
- Coach assisted when teacher [needed]

Non-Examples

- "Good job"
- These are the five things you need to work on…
- Coach allows teacher to struggle or implement EBP incorrectly

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Recording

- Mark a tally in the box, circle any specific indicators and add any anecdotal notes that assist in understanding the context at the bottom (anecdotal notes section)
- Identify one indicator per area (ECP, SCK, ICP)
- One behavior may be captured in two sections; e.g., use of student data (ECP 3) and data-collection aligned with EBP (SCK 3)

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Let's Practice Scenario #1

Teacher is in a small group reading instruction working with expository text. Three students are in the group, and a coach is observing and providing real-time feedback.

- T: "Today we are going practice using the strategy we learned for how to paraphrase an expository text, the RAP strategy. Does anyone remember what the R in RAP stands for?"
  S1: "um…remember?"
- T: "Close, remember does start with r. But that is not it. Any other ideas?"
  S2: "Right! Like, get the right answer."
- T: "No, not right…any other ideas"
- C: "Provide visual of RAP steps and tell students what R stands for."
- T: Shows the students the RAP anchor chart for RAP. Points to R and says "R stands for read the passage. Say R stands for read the passage."
- Ss: "R stands for read the passage."
- T: Points to A on RAP anchor chart, says "A stands for ask yourself the main idea and two details. Say A stands for ask yourself the main idea and two details."
- Ss: "A stands for ask yourself the main idea and two details."
- C: Nice job explicitly teaching the steps for the students when they couldn't recall

What COT indicator(s) might be identified during in this scenario?

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APPENDIX K: COACHING OBSERVATION TOOL VERSION 3

COT_V3

Recording: **Tally** mark every time coaching behavior occurs and **Circle** observed practice			
Effective Coaching Practices			
1: Coach provides **feedback** to the teacher		**2:** Coach **models** for teacher	
	• Provides specific, positive statements • Provides specific, corrective statements • Provides specific focus for teacher (e.g., 1-2 specific areas to focus on)		• Demonstrates instructional task with students while teacher watches • Demonstrates instructional task or practice without student present • Models teaching behavior (e.g., diagnostic thinking) • Occurs (**a**) at teacher request, (**b**) to support implementation of new strategy, (**c**) upon incorrect implementation
3: Coach encourages use of **student data**		**4:** Coach promotes teacher **reflection**	
	• References multiple sources / current student data (e.g., universal screeners or additional assessments) • Reviews student performance data **and** provide specific next step for instruction		• Poses reflective questions • Analyzes actions, practices, strategies, or ideas based on new or intended outcomes • Provides prompts related to teacher making instructional decisions
Specialized Content / EPB Knowledge			
1: Coach monitors **adherence** of EBP		**2:** Coach monitors **duration** to the EBP	
	• Monitors adherence to implementing all components • Monitors EBP components delivered in the correct order • References the scope and sequence		• Monitors length of lesson • Monitors and suggests adapting length of components of EBP • References number of lessons for student
3: Coach monitors use of the EBP **data tools / measures**		**4:** Coach monitors **quality** of delivery of EBP	
	• Use of EBP data tools (e.g., student current performance) informs instruction within EBP • Refers to instructional match of student performance and progression within EBP		• Monitors instructional delivery of EBP practices or strategies • Reinforces teacher's use of practices aligned with EBP
	• Refers EB strategy **or** what's working for student (data-based)		• Demonstrates deep understanding of EBP in response to teacher move/action (including foundational knowledge needed to implement EBP) • Demonstrates knowledge of EBP materials
Interpersonal Coaching Skills			
1: Coach demonstrates **collaboration**		**2:** Coach demonstrates active **listening**	
	• Interaction becomes conversation with successive ideas (teacher and coach) toward the next step or common outcome • Uses what do *we* or how do *we* questions		• Allows teacher talk (e.g., teacher completes thought without interruption) • Eye contact, open body posture, nodding, comments in response to teacher talking • Brief paraphrasing or acknowledgement of teacher's point
3: Coach fosters **trust** with interactions		**4:** Coach builds **rapport** and **alliance** with the teacher	
	• Uses non-evaluative comments • Offers support and follow-up • Refers to follow-up with promises/commitment • Aligns communication to teacher style • Acknowledges teacher expertise		• Refers to previous or current accomplishments (e.g., praise which is not specific feedback) • Evidence of knowing teachers as individuals • Having friendly, casual conversation • Sharing personal anecdotes or comments to connect with teacher
Anecdotal Notes			

APPENDIX L: TRAINING PROTOCOL FOR COACHING TOOL (V3) SAMPLE SLIDES