

Using eCoaching to Improve Practice of Novice Teacher Educators

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Abstract: Coaching is becoming a more widely accepted model of support for both preservice and inservice, preschool to twelfth grade teachers. With the use of technology such as Bluetooth headsets and live streaming, coaching has become less intrusive and more “in the moment.” In this case study, we describe the use of an eCoaching process for two PhD students who taught courses in a teacher preparation program of a higher education institution. The four-step process included (a) observing the PhD students teach, (b) collaboratively developing instructional goals with the coach, (c) providing performance feedback while coaching, and (d) reflecting on the process with the two PhD students who were teaching undergraduate courses. Findings indicate that eCoaching was well received and provided multiple opportunities for both PhD students and their coach to reflect on instruction as well as the eCoaching process. Implications for practice and future research are discussed.

Keywords: teacher educators, doctoral preparation, virtual technologies, coaching.

Coaching is becoming a more commonly accepted means of supporting new teachers in preschool through twelfth grade (P-12) school settings (Knight, 2011; Kretlow & Bartholomew, 2010). However, less attention to coaching and the development of skills has been given to supporting new teacher educators (Cochran-Smith, 2003). Although few doctoral programs have teacher education as a line of inquiry (Israel, 2009), the skills of college teaching are expectedly developed during doctoral preparation programs. For example, doctoral students in the field of education may actively collaborate with faculty members while teaching college classes, co-teach with highly skilled teacher educators, provide course lectures and/or workshops, provide supervision to graduate and/or undergraduate students, and study the literature on effective special education programs. Throughout these types of experiences, doctoral students hopefully develop an effective style of interacting with college students and learn to transition to their new teaching role in academia. However, doctoral students often do not receive adequate supervision of their independent teaching experiences. Derek Bok (2013) surmised that, “the most glaring defect of our graduate programs (for doctoral candidates in the United States) is how little they do to prepare their students to teach” (para. 4). If new PhD candidates are expected to take on the

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role of teacher educator, they should explore the various options and experiences in order to excel in teaching (Mamlin, 2012). Doctoral programs preparing teacher educators may benefit from considering the coaching practices used in PK-12 settings.

Characteristics of Effective Coaching

Coaching, in the education literature, refers to the individualized, ongoing support a teacher receives from an expert mentor (Israel, Carnahan, Snyder, & Williamson, 2012). It is embedded within practice, so coaching provides the opportunity to link research-based ideas and theories with the realities of the day-to-day classroom experience. One of the main premises behind the concept of coaching both pre-service and in-service teachers is that, as adults, they learn while they are “in experience...it is the place in which knowledge is constructed” (Israel et al., 2012). This premise may also hold true for the coaching of new teacher educators. To better understand coaching, the following three components are relevant: goal setting, performance feedback, and technology.

Goal setting

Coaching usually begins with an uncoached observation, followed by a discussion between the teacher and the coach, in which they set specific behavioral goals for coaching. Previous research includes the coaching of a variety of instructional goals including the use of low and high access instructional practices, teacher praise, and student engagement (Rock et al., 2009; Rock et al., 2012; Rock, Schumaker, & Gregg, 2014). Baseline data are typically collected using observational measures (e.g., frequency counts, time-sampling methods) and then coaching begins. Additional uncoached observations may occur for data collection purposes and revisions to goals take place as progress is made. Coaching is focused on specific behaviors and does not attempt to address all teaching behaviors at once (Israel et al., 2012). Rather, feedback addresses a goal the learner selects to improve his/her performance.

Performance feedback

Coaching provides the opportunity to provide immediate, positive, corrective, and specific performance feedback, a critical factor in getting teachers to use effective practices in their classrooms. In a review of ten studies that evaluated feedback in changing teacher behavior, Scheeler, Ruhl, and McAfee (2004) determined that “(a) feedback is better than no feedback, (b) immediate feedback is better than delayed feedback, and (c) feedback that is immediate, specific, positive, and corrective holds the most promise for bringing about lasting change in teacher behavior” (p. 205). Scheeler and colleagues (2004) operationalized and defined five types of feedback as it pertains to teacher preparation. These definitions have been used in subsequent research and include specific feedback (i.e., objective information related to predetermined teaching behaviors), corrective feedback (i.e., ways to correct the error are suggested), non-corrective feedback (e.g., type or extent of error is identified), general feedback (e.g., vague and non specific), and positive or encouraging feedback. A 4:1 ratio of encouraging to corrective feedback is recommended (Alberto & Troutman, 2003). A review of single subject studies involving pre-service special education teachers suggests that performance feedback is an evidence-based practice when used to increase the accuracy and consistency of instruction

delivered with fidelity (Cornelius & Nagro, 2014). Previous research also suggests that the immediacy to which performance feedback can be provided for teachers, regarding a specific goal, during task acquisition, may be the most influential component for impacting change in teacher behavior (Hattie & Timperley, 2007; Scheeler et al., 2004).

Technology

Even though the benefits of coaching can be seen, providing immediate feedback during instruction with students can be intrusive and difficult. However, recent technological advances have made it possible for *eCoaching* to provide this timeliness to which feedback is provided. One approach for providing this type of *eCoaching* is online bug-in-ear (BIE) coaching (Rock, Zigmond, Greg, & Gable, 2011). In BIE coaching, the coach observes the classroom using live streaming over the internet. The teacher in the classroom uses a webcam to capture video and audio and then is connected to the coach's audio through a Bluetooth headset that rests in the teacher's ear. The coach provides feedback and direction to the teacher through the headset so that the students cannot hear the coach and instruction is not disrupted. Rock and others (e.g., Rock et al., 2009; Scheeler et al., 2012) have used BIE technology to provide *eCoaching* to P-12 teachers, resulting in significant changes in both teacher instructional behavior (e.g., increase in use of high access practices) and related student behavior (e.g., on-task behavior) that has maintained change over time (Rock et al., 2014; Scheeler, McAfee, Ruhl, & Lee, 2006). Teachers state that the technology is easy to use and provides opportunities to receive valuable feedback and reflect on their teaching (Rock et al., 2014).

eCoaching for Teacher Educators

Teaching is clearly not only a P-12 endeavor. Coaching and the process of *eCoaching* could be mirrored at the doctoral level, as well. Specifically, there is evidence underlining the need for high-quality leadership including quality teacher educators in the field of special education. The field has seen an increase in the number of vacant faculty positions for special education at institutions of higher education (IHEs) across the nation (Robb, Smith, & Montrose, 2012; Sindelar & Rosenberg, 2003). Therefore, doctoral preparation should include the development of research and teaching skills.

Purpose and Research Questions

Although *eCoaching* has been used to provide feedback for teachers in K-12 classrooms, *eCoaching* has yet to be generalized for PhD students while teaching. Thus, the purpose of this study was to explore how one PhD preparation program can incorporate *eCoaching* in the development of quality teacher educators. We did so by piloting an *eCoaching* process during one academic semester for two PhD students in their first teaching experience in academia. Specifically, the purpose of this case study was to better understand the process of *eCoaching*, improve our own practice as coaches, and to provide meaningful opportunities of learning for future teacher educators. The research questions that guide this study are as follows:

1. How can *eCoaching* be used to develop the quality of teacher educators?
2. How does the coach and PhD student establish specific behavioral goals for coaching?

3. How is performance feedback delivered by the coach and received by the PhD participants?
4. How does the technology of *eCoaching* for PhD students provide challenges and/or affordances?

Method

Given the need for faculty at one university program to collaboratively develop a process for improving the preparation of PhD students to teach in higher education, the authors conducted a case study. An *eCoaching* process was implemented at one particular university in order to “bring about understanding that in turn can effect and perhaps even improve practice” (Merriam, 2009, p. 51). By understanding the role of goal setting, performance feedback, and technology on the *eCoaching* process in the context of higher education, we hoped to inform future revisions of the process.

Applying a Framework of eCoaching

We anchored our work within a framework of *eCoaching* used to coach new special education teachers who work with students with significant disabilities (Israel et al., 2012). Israel and colleagues described the *eCoaching* model as having four steps. The current study used these steps of the *eCoaching* model as a guide. First, the coach observes the new teacher in order to better understand the context of the classroom and the initial needs of the teacher. Second, the coach and teacher collaboratively determine a goal to improve practice (e.g., increase positive reinforcement to students). This goal may change depending on teacher progress. Third, the coach schedules and completes virtual coaching sessions with the teacher. During this time, feedback is delivered in real time to be potentially used immediately by the teacher. This step in the framework also includes professional development that may include explicit modeling, observations of videos, and/or demonstrations of a strategy for the teacher. Finally, the teacher and the coach reflect on the initial goals and reevaluate next steps in the coaching process.

In the current case study, the researchers used this framework and followed the steps with doctoral students as the new instructors. The lead author served as the coach for each doctoral student. After initial observations, goals were set, virtual coaching followed, and feedback was provided to encourage future teacher educators to be more aware of their practice. The second and third authors were faculty members who supported doctoral students in the process of their development. The second author used virtual technologies to coach inservice special education teachers (SETs) and the third author was an expert in instructional technology. All three faculty members participated in the 8-month long study inclusive of data collection and analysis.

Setting and Context

This study was conducted in a College of Education’s Special Education department. The College was located in the Mid-Atlantic area. The special education department includes teacher preparation programs that prepare undergraduates and graduate students to teach students with disabilities. The College of Education also includes a program for preparing students for a doctoral degree. The PhD in Education program is one of the largest in the country and, at the time of the study, offered advanced professional study in 17 specialization and secondary

emphasis areas. Faculty affiliates teach undergraduate, graduate, and PhD students. PhD students also have an opportunity to teach undergraduate students as part of a teaching internship or as an adjunct instructor.

In the PhD in Education program, doctoral students are encouraged to seek out opportunities for presenting their research projects to large audiences and guest lecturing in courses. For those students who anticipate entering academia after earning the doctoral degree, a teaching internship is recommended, as well. At the time of this study, PhD students with a specialization in special education who are completing a teaching internship could do so in one of two ways. First, they may co-teach a graduate level course with a faculty member serving as the lead instructor for a full semester. This entails observing and shadowing the instructor as well as sharing the instructional responsibilities under expert guidance. Another way, if prior approval is given based on experience and professional degrees, the PhD student can independently teach an undergraduate level course for a semester. In this instance, the student acts as an adjunct instructor who prepares the syllabus and independently provides instruction. A faculty expert on the course is available for support, for any initial or ongoing questions. The student also has a faculty supervisor, but this individual typically does not provide direct supervision of instruction.

As part of the special education program initiative, the two lead authors participated in a 'Technology Enabled Coaching of Coaches' training on *eCoaching*. Technology was purchased to explore the potential of *eCoaching* with preservice, inservice, and doctoral candidates who prepare teachers of students with disabilities. The technology included Bluetooth headsets, MacBook Pro laptop computers, Web cameras and Skype. During the 2014-2015 school year, faculty provided *eCoaching* to inservice teachers and to PhD students who independently taught undergraduate students preparing to become SETs. Following approval from the university review board, PhD students were asked to participate in *eCoaching* while independently teaching undergraduates.

PhD Student Participants

In the spring 2015 semester, three PhD students with a specialization in special education were completing their teaching internships. One PhD student elected to complete hers in the co-teaching model. Two others independently taught undergraduate courses. A purposeful sampling of the latter two students was selected because we wanted to understand the process for PhD students who elected to teach independently. The two teachers were invited and agreed to participate in the study.

PhD Student 1: Ethan. Ethan was a 30 year-old male who was a full-time student in the PhD program as a scholar of a federally funded leadership grant. Ethan had no prior experience teaching a university course. He held a Bachelor's degree in Government, a Masters degree in special education and was licensed to teach students with mild disabilities. Ethan had four years of P-12 teaching experience instructing students with cognitive, emotional, and behavioral disabilities. During the study he taught a 3-credit undergraduate class of 16 students enrolled in Introduction to Special Education course. The class sessions observed for coaching included the following topics: Individualized Educational Plans, disability identification, and characteristics of varied disabilities.

PhD Student 2: Linda. Linda was a 29 year-old female who was a part-time PhD student at the time of the study. Linda had no prior experience teaching a university course. She had a Bachelor's degree in Psychology and Religious Studies, a Masters degree in Early Childhood and

Human Development, and a post Masters certificate in Applied Behavior Analysis. Linda was also a board certified behavior analyst with almost ten years of experience in the P-12 school systems. At the time of the study she worked as a preschool supervisor for a public school system and as an Applied Behavior Analysis (ABA) consultant. During the study Linda taught a 3-credit class of eight undergraduates enrolled in Classroom Management and Applied Behavior Analysis. The observed class sessions included the following topics: observational recording procedures, single subject visual analysis, and interpreting data graphs.

Faculty Coach

The lead author was the coach for both PhD students. She was a female with a PhD in Education, eight years of P-12 teaching experience as a special educator and, at the time of the study, had eight years of experience teaching in higher education. The faculty coach taught reading instruction and methods courses in the graduate preparation program for teachers of students who access the general education curriculum. She also taught PhD courses on topics of teacher preparation and research in special education. The coach had formerly provided university supervision for pre-service teachers in preparation programs prior to this study. However, this was the first time providing virtual coaching to PhD students.

Procedures

After the two PhD students provided consent to participate in the study, they met with the coach face-to-face on campus to first test the technology. Each student participant received a Plantronics Bluetooth headset and each already owned a MacBook Pro laptop. The coach had a MacBook Pro laptop as well and a Plantronics Audio headset. Skype accounts were established, as needed. Using Skype, the coach and each PhD student tested the equipment. Any troubleshooting with the audio and/or video image was completed at this time.

For the first class observation in the following weeks, the coach provided only positive comments intermittently using the BIE technology to build a comfort level and to once again test the technology prior to any coaching session. Following the first class observation, students were given a Creative Webcam to use instead of their computer cameras so that the coach had a wider view of the classroom. No coaching was provided during this first class observation session. First class observations took place during the third week of the semester for both Ethan and Linda.

Based on the first class observations, the coach met with each PhD student participant face-to-face and discussed his/her performance. The goals for *eCoaching* were discussed and set up in mutual collaboration between the coach and each participant. It was decided that *eCoaching* for Ethan would be to talk less. In order to do so, his goal was two fold. The focus was on him posing a question to a student or the class and then to provide wait time. Wait time was also encouraged as well when a student asked a question or made a comment. The goal for Linda was to engage students. In order to do so, Linda could pose questions, have students read content aloud, and/or ask peers to connect to other's comments. In addition to identifying the goal, the coach's verbal prompt to cue the participant to a type of behavior was agreed upon. For Ethan, for example, the coach would say 'wait (pause), wait.' This verbalization cued him to pause after a question or to wait for the undergraduate student to finish speaking. For Linda, direct suggestions and/or requests were prompted to improve student engagement.

Since Linda and Ethan taught evening classes 1x a week, the coach arranged a schedule

of coaching that was convenient to both parties. Coaching took place only during direct instruction in order to capture the greatest number of opportunities for behavioral change related to each student's goals. Coaching sessions lasted an average of 20 minutes and the coach completed sessions at her home, at out of state conferences, and/or on campus. Three eCoaching sessions for Ethan and three eCoaching sessions for Linda took place throughout the semester.

Data Sources and Analysis

There were three data sources that were independently analyzed and then collaboratively discussed by the researchers to answer the research questions. First, video data were gathered. Then, document sources including observational field notes completed by the coach after each session, debriefing email exchanges between the coach and each PhD student, and video transcripts were assembled. The third data source included interview transcripts of each PhD student and the coach.

Video analysis. Coaching sessions for Ethan and Linda occurred via Skype and were recorded using the screen capturing software program, Camtasia. Recordings included the view and audio of the classroom, instructor, and the coach. Ethan and Linda were recorded during three coaching sessions. Recorded coaching sessions lasted approximately 16-20 min.

After reviewing goals established for each PhD student participant, the second author viewed all video recordings in their entirety. Then, using a new observational tool, the Co-Teaching Scan or CT Scan, developed by Michael Kennedy and colleagues, the second author coded each coaching session for three variables: (1) questions asked of students/opportunities to respond, (2) interruptions of student talk, and (3) coaching occurrences. Within the CT Scan, there is also a context feature that allows the observer to code the components of the lesson, including direct instruction and discussion. The measure provides results in two formats. The first is a count of each variable. For example, in coaching session 2, Ethan asked 19 questions, and there were 22 coaching occurrences. The second is a timeline that indicates when the variables occurred across each observation.

In addition, the second author transcribed all of the statements made during coaching occurrences across each recorded session. These statements were matched in the CT Scan timeline and categorized by type of feedback, including encouraging feedback. This feedback may have been general (e.g., good) or specific (e.g., great interactive review). Additionally, all directive comments were identified with the CT Scan. These comments were then distinguished as directive feedback (noncorrective), corrective feedback, or questioning feedback. At times, the coach provided feedback specific to Ethan or Linda's goal (e.g., wait, wait); however, some feedback was unrelated to the established goals (e.g., I can't tell what they are doing). Therefore, directive, corrective, and questioning feedback was then distinguished between directive feedback specific to the goal, corrective feedback related to the goal, and questioning feedback related to the goal. Each occurrence had at least one statement but could have included more than one, such as the occurrence where the coach stated to Ethan in session 2, "Good questioning. Wait." The first statement was categorized as encouraging specific feedback and the second as directive feedback related to the goal.

Given the goals for eCoaching, an interruption was defined as when Ethan spoke over a student. An opportunity to interrupt was identified as the number of times a student spoke. In order to establish reliability, the first and third author watched each of the videos and coded for number of interruptions, number of opportunities for interruption, and the type of feedback

related to the goal.

Documents. After each observation and *eCoaching* session, the coach prepared a report for each participant. A total of five electronic field note documents were prepared and shared with Ethan and four for Linda. These documents ranged from one to three pages capturing the context, reflections, and/or quotes. Other documents included email exchanges between the PhD participant and the coach. These emails generally followed each observation and/or coaching session. The email from the coach included both positive feedback in regards to the established goal, questions about the technology, suggestions for next time, and questions, as needed.

Interviews. The third author, who was not involved in the *eCoaching*, scheduled phone interviews with each PhD student based on their availability. The semi-structured protocol was developed and used as a guide. There were 10 questions guiding the discussion about the participants' goals, instructional behaviors, advantages and disadvantages of *eCoaching*, and their concerns and insights about the BIE coaching experiences. The interviews lasted 22 min for Ethan and 20 min for Linda. In addition, a face-to-face interview was also conducted with the coach. A similar protocol was used to guide the discussion about the BIE experiences and the feasibility of *eCoaching* in higher education. The interview lasted 30 min. All interviews were recorded and transcribed verbatim for the data analysis.

Findings

The major findings in this study are presented according to the key characteristics identified in the *eCoaching* literature. The descriptive findings are also aligned with the research questions that we asked to better understand the *eCoaching* process. Based on an analysis of multiple data sources, the findings are discussed in the areas of goal setting, performance feedback, and technology challenges and affordances. In addition, social validity of BIE coaching experiences for both the PhD students and the coach were revealed.

Goal Setting

Goal setting is a critical component of the *eCoaching* process. In order to set a goal, the coach first observed each PhD participant via Skype to better understand the context of the classroom and the instructor's needs. Following this uncoached observation of Linda and Ethan's classrooms, a face-to-face discussion between the student and the coach took place. During this time, the coach shared her observations and the PhD student shared perceived strengths and challenges. In turn, the coach and student collaboratively determined a goal to improve practice. The coach commented about the process of setting goals as "...*There were three or four things, but we could only pick one...*" (interview). This process of setting goals collaboratively was preferred and appreciated by PhD student participants as Ethan commented, "*I felt like I didn't have a good handle on the classroom, but I wasn't quite sure what was missing*" (interview).

Establishing goals. Both students established goals towards improving interactions with students. Linda's primary goal was to increase student engagement in class by asking more questions, adding verbalizations, and/or incorporating more peer interaction. Positive validation for this particular goal occurred after the first coaching session when Linda wrote an unsolicited email to the coach,

I had a great class tonight - largely due to your goal for me. I got quite a bit of class

participation and the students were much more engaged than any class I have taught so far.

Ethan's primary goal was to increase the number of questions posed to students and to reduce his interruptions during student talk. The purpose of his questioning was for him to talk less and check for student understanding. The latter was prompted by the coach with a 'wait (pause), wait' request. Ethan commented on his goal:

I was notorious for not giving wait time and jumping to answering questions I asked. I wouldn't wait long enough for a student to respond before I started prompting into that question and leading them to where I wanted them to go with their answer rather than actually just letting them respond. (interview)

Ethan's lectures would often entail him talking for long periods of time without any break in language. By eliciting questions, students would be more engaged and Ethan would have a better sense of their understanding.

Expanding goals. After two coaching sessions, Linda's goal expanded to include decreasing her proximity to the computer and moving around the classroom. Linda shared in an email exchange and personal conversation with the coach that she feared being away from her PowerPoint notes as they reminded her of what to say and included written examples to support her lectures. Linda would "*retreat sometimes to the PowerPoint for her notes*" (coach field notes) and was observed lecturing from a chair at arms length to the computer. However, as this behavior only exacerbated the lack of instructional engagement, the coach provided her with a remote clicker to advance the slides while away from the computer. Incidentally, as Linda began to engage students more so, she often posed questions that were used to check for student understanding. As she clarified and incorporated examples to support student understanding, proximity to the computer waned. In addition, by the third month of class, the coach's field notes remarked on the "*...friendly climate in classroom – laughing- playful [with students].*" Soon after, Linda's goal expanded to incorporating the coach's suggestions provided in the debriefing emails such as having a systematic process for using videos as a learning tool and to provide more modeling. After coaching session three, for example, the coach's field notes indicated that,

I prompted at times for her to provide modeling. Much more modeling was needed given the students who were challenged by the independent practice (e.g., interpreting a graph of data that showed student behavior).

Although Ethan's primary goal was maintained throughout the coaching sessions, other suggestions were given in the debriefing emails. For example, when Ethan used videos and data charts to support instruction, the coach's field notes commented that Ethan should prepare his students *before* the video was shown and to "*not talk during the video*" and to reflect on whether or not "*students were aware of what they are listening/watching for.*" Incidences specific to instruction like this example did not occur in every session. Therefore, those behaviors were not necessarily coached in subsequent lessons. As Ethan increased questions in his instruction, he was prompted to use purposeful questioning that would help students' conceptual understanding. The prompt used was, '*Connect the questioning here to the learning objective [Ethan]*'. Video analysis and performance feedback indicated that these goals were relevant for both participants.

Performance Feedback for Addressing Behaviors

Although the progress of doctoral students' goals was monitored over time via observations, formal baseline data was not collected prior to the onset of coaching. Therefore, videos were analyzed to provide an overview of (a) the performance feedback provided by the coach and (b) the behaviors exhibited by both Ethan and Linda during the coaching sessions.

Coach. On average, the coach vocalized 20 performance feedback occurrences in a 19 min session (see Table 1). Brief phrases were used by the coach. The ratio of encouraging feedback to directive feedback was typically 1:1 or 1:2 for Ethan and 2:1 for Linda. The type of feedback provided to both Linda and Ethan was predominantly directive feedback (for the goal or general), followed by specific encouraging feedback and generic encouraging feedback. Directive feedback was defined as when the coach instructs the teacher to do something. For example, the coach may say, "*Restate as a question*" or "*Check for understanding*." Specific encouraging feedback was defined as a coach's statement that was specific to an action and often included praise. For example, the coach may have said, "*Nice wait time, Ethan*" or "*Great explanation*." Generic encouraging feedback included coaching comments such as "*nice*" or "*that's great*." Table 2 provides specific examples of the observed behavior, the type of performance feedback provided by the coach, and the PhD student participant's subsequent behavior. Specific observations for Ethan and Linda are described below.

Table 1. *Frequencies of Feedback (FB), Type, and Total Coaching Occurrences per Session*

Participant	Session	Length (min)	DF B	DFB (Goal)	CFB	CFB (Goal)	EFB (Specific)	EFB (Generic)	QFB	QFB (Goal)	Other (banter, etc.)	Total Coaching Occurrences
Ethan	1	17	3	9	0	2	6	2	0	0	0	22
	2	22	2	8	0	4	8	9	0	2	3	30
	3	16	4	2	0	1	3	2	0	1	4	15
Linda	1	20	3	2	0	0	6	4	1	3	0	16
	2	20	3	1	0	0	4	3	3	2	2	15
	3	20	5	3	0	1	9	9	0	1	1	27

DFB = Directive Feedback; CFB = Corrective Feedback; EFB = Encouraging Feedback; QFB = Questioning

Table 2. Examples of Coach Feedback, and Participants' Actions in Response to Coaching

Type of eCoaching Statement	Coach Feedback	Participant's Action
Directive Feedback	(Ethan asked, "What's decoding?") <i>Good. Wait. They should know this.</i>	Pause. Pause. Student responds and Ethan repeats response. "Sounding out the words...". Ethan pauses. Another student responds.
	(Ethan spoke for over 5 minutes). <i>Check in if they have questions.</i>	Ethan asks, "So are there any questions so far?"
Encouraging Feedback	<i>Good question...</i> (student comments that the reinforcement used in the video was appropriate)... <i>How so, what's appropriate?</i>	Linda asks, 'Ben, how do you think it was appropriate?'
	<i>Nice. I like them coming up</i> [to the smart board]. <i>That is great.</i>	None. Continues instruction.
	<i>Nice checking in with them.</i> (during independent practice). <i>Good individual support</i> [Linda]. <i>They really needed that.</i>	None.
Corrective Feedback	<i>Seems like the same girl participating. Try to expand.</i>	Linda calls on a student by name who has not participated.
	(Student says, "would that be like taking a word and breaking it in half, like...um.." Ethan interrupts and says, "Yeah, right. So, like...") <i>Let him finish.</i>	Ethan pauses and lowers voice, "speech sounds." Pauses and student completes thought.
Questioning Feedback	<i>Are the two girls on the laptops engaged? And the guy at the back of the room? Just try to engage them.</i>	Linda says to self, "OK", giggles. Continues instruction. Later calls on one of the girls on a laptop.

Ethan. Three teaching sessions were observed and coded using the CT scan for Ethan.

Two codes were used to address Ethan's behavior as related to his goals: (1) asking a question and (2) interrupting a student response. In addition, all coaching occurrences were coded and comments transcribed. Across the three teaching sessions, which occurred during the direct instruction part of the class, Ethan used predominantly a lecture style type of presentation. In the first two sessions, he lectured during 100% of the observation; 90% of the time in session three.

Table 3. Frequencies of Participants' Behaviors during Coaching Sessions

Participant	Coaching Session	Type of Instruction during Coaching (%)	Questions Asked (N)	# of Interruptions (% out of opportunities)
Ethan	1	Direct Instruction (100%)	19	3 (14%)
	2	Direct Instruction (100%)	19	5 (14%)
	3	Direct Instruction (90%) Discussion (10%)	17	3 (10%)
	1	Direct Instruction (65%) Guided practice (35%)	18	N/A
Linda	2	Direct Instruction (100%)	28	N/A
	3	Direct Instruction (90%) Guided practice (10%)	29	N/A

Table 3 presents the number of times Ethan asked questions and the percentage of interruptions he made across coaching sessions. The percentage of interruptions was calculated by dividing the number of times Ethan interrupted a student divided by the number of times a student spoke. As can be seen in Table 3, the number of questions Ethan asked remained relatively constant across the sessions, as did the percentage of interruptions in each session with a slight decrease in session three. The transcript of the coaching sessions provided detail as to the specific given directives that were related to Ethan's goal. Some of the directive feedback was specific to Ethan's goal to not interrupt while other directives varied. When Ethan did interrupt a student, the coach provided corrective feedback with, "Let her/him finish" or "Let them talk."

This trend of coaching was identified from the transcripts. For example, in coaching session one, the coach directed Ethan on nine occurrences with the prompt, “Wait” and two corrections with “let her finish” and “let them talk.” In session two, the coach directed Ethan on seven occurrences with the prompt, and four corrections with “let her/him finish.” In session three, the coach cued Ethan on two occurrences with the prompt, and one correction with “let her finish.” Given slight variations of total length of session and performance for Ethan, the three sessions indicated a reliance on the coaching support to maintain a relatively constant performance. However, there was a noted decrease in instances of directive and corrective feedback, particularly in the latter, which may suggest improved performance over time; however, change in behavior was not the primary purpose of this case study.

Linda. The coach recognized more substantive changes in Linda’s performance. In field notes, following the third coaching session, the coach wrote about Linda’s proximity and confidence as an instructor, “[Linda] *sometimes leaned against a desk and used hand gestures to support her comments. She and her students seemed much more engaged.*” In her interview, the coach noted, “*I could clearly observe her walking around the room rather than sitting.*”

Three teaching sessions were observed and coded using the CT scan for Linda. Linda provided direct instruction as well as opportunities for guided practice during the sessions. As seen in Table 3, she increased the number of questions she posed during instruction from session one to session three and the number of directive coaching occurrences was relatively constant across the sessions. Session three specifically included a higher number of coaching occurrences given a mismatch between Linda’s expectation of student understanding and their actual performance. In this session, Linda presented a graph showing behavioral recording for a student and asked the class what they saw. Students sat in silence. The coach praised her for appropriate wait time but then saw that students were not able to answer the question as posed. The next series of coaching occurrences included directives and praise that walked Linda through the process of modeling the behavior she expected from her students. Though not a direct goal for Linda, the observed video data indicated that Linda was less prepared to remediate students’ confusion in the session.

The transcript of the coaching comments indicated that most of the directives given to Linda were related to Linda’s goal to increase engagement. The coaching instances were framed as a statement at times (e.g., *Call on [student name]*; “*model first*”; “*Seems like the same girl participating. Try to expand*”). However, questioning was frequently used as well (e.g., “*So, ask again.*” “*What is that an example of?*”; “*Can they discuss with each other?*”). In summary, the performance feedback data corroborated the coach’s perspective that:

BIE was not necessarily something prolific, changing them [instructors], but it was an added bonus that they wouldn’t have otherwise. It made [instructors] think a bit more about the practice of teaching beyond just delivering content. They were starting to think not just “what” these students need to know but “how” I am delivering it. (coach interview)

Technology Challenges and Affordances

BIE coaching provided opportunities of ongoing support for the new teacher educators. The coach used the technology to provide authentic instant feedback. The coach reported that BIE technology was “*more manageable, time efficient, resource efficient, and inexpensive*

(interview).” The majority of sessions began promptly and had minimal to no technical glitches. Early email exchanges indicated that when technology was a problem, the coach and PhD student communicated by texting messages using their cell phones. Technical problems included an inability to connect via Skype (e.g., Skype would show the person on-line, but the call was unanswered) or the image would freeze on the screen. During one session, Ethan’s laptop battery was dead and he needed to find a plug. One challenge for the coach was her inability to hear student comments clearly due to the distant computer in the classroom. Linda remarked,

I was comfortable with the technology for the most part. It took a little getting used to that I was the only one who could hear you, and at one point it felt like the earpiece was falling out, but other than that it was good. (email)

Other challenges were less technical and more about building a comfort level with the process. For example, when Linda was attempting to engage students by asking questions, she explained that a few times the coach would “[prompt] to ask a question when [I] was planning on asking that question a little later in the lesson (interview).” Ethan noted slight difficulty with “having a device in [his] ear because it sometimes affected how [he] could hear students (interview).” Overall, both PhD students noted that the aforementioned challenges were very minor and could be easily overcome with some additional practice. In addition, Linda suggested that having a “practice session without students, so you can get used to the voice and the fact that you cannot respond to the voice (interview)” might be helpful.

Social Validity: PhD Students

Both student participants noted their willingness to engage in BIE coaching again. They felt like it was a worthwhile experience that helped them grow as instructors and they noted an advantage of BIE coaching over typical teaching supervision. First, the BIE technology allowed the undergraduate students to perceive the instructor as the lead professor rather than someone merely being monitored by faculty on a regular basis. Linda explained that:

They just thought it was a natural process. ... I explained that this was my first time teaching college level class, so I think that they just assumed it was part of me becoming a better professor (interview).

Second, all of the undergraduates in both classes welcomed the BIE coaching process. The PhD students explained to the undergraduates that the process was to focus on the instructors and not them. One student even helped Linda reset the computer when Skype became disconnected.

Both participants also noted the coach’s timing of feedback, indicating that she was very mindful of what was happening in the classroom, respectfully choosing moments to provide feedback. This might have contributed to the fact that students in both classes were not disturbed by BIE coaching in any way.

[Coach] was really good at trying to speak at those moments when there was a pause in the class... She wasn’t trying to override what was happening with students speaking or something going on. She was mindful of what was happening in the classroom (interview).

Ethan summarized,

I would definitely do it again. [BIE coaching] helped with the classroom management piece, ... so I could focus more on the content. It was an excellent experience because it really helped me think through [my teaching]. It gave you that confidence boost to be that professor and to really take charge of that class, but yet still get that feedback and make sure what you were doing was right (interview).

Social Validity: Coach

According to the coach's interview, at times she felt like she wanted to say more during the coaching sessions than she did. She commented that to coach, at times, "... *would be disruptive to the lesson.*" When coaching Ethan, she remarked that it was difficult to find the time to redirect or reinforce, as he often spoke in lengthy lectures without pauses. Whereas Linda's pacing was less of a problem as she paused more frequently. Nevertheless, the coach expressed that at first, she was unsure if the coaching cue was heard at times, since Linda did not provide any indication that she received and understood the feedback right away. In time, the response to the feedback would occur, but the coach was unprepared for this lag time. Another challenge for the coach was to focus only on the selected goals and "*dismiss all other things [she] wanted to speak to.*" She was overwhelmed to overlook the instructional practices that could be improved. Both PhD students recognized this as well. Linda even suggested to increase the number of coaching sessions in the future and to "*[set] up new goals if you reached the [original] goal.*"

Despite these challenges, the coach perceived great potential for BIE coaching for doctoral students who desired to become better teacher educators. She shared, What we are doing is establishing something we don't typically do for new doctoral students. We put them teaching undergraduate classes all the time assuming that they can translate their K-12 teaching experience into adult learning. But [the BIE coaching] reestablished that they need support and supervision a lot more than we might otherwise think (interview).

Discussion

This case study helped us better understand the process of *eCoaching*, improve our own practice as coaches, and provide meaningful opportunities of learning for future teacher educators. Our understanding was informed by the observed videos of the instructors, the field notes prepared by the coach, the transcripts of the coach's feedback, email exchanges, and participant interviews.

Foremost, the described study illustrates that *eCoaching* can be used with doctoral students to support their development as teacher educators. Israel et al's (2011) framework of *eCoaching* was used to provide us with a four-step sequence to follow when using online bug-in-ear (BIE) coaching. Consistent with previous studies that have used BIE with pre-service teachers (e.g., Rock et al, 2014; Scheeler et al., 2006), we completed a pre-training with two doctoral students, established instructional goals for each, and completed coaching sessions of approximately 20 min in length. We also were able to similarly apply the type of performance

feedback introduced by Scheeler and colleagues (2004). As observed for preservice teachers of students with varying disabilities (Israel, 2009; Rock et al., 2014; Scheeler et al., 2006), this study also suggests that BIE can be a nonintrusive way to provide real time feedback to a novice teacher educator. BIE coaching advances the traditional opportunities available to doctoral students for gaining college-teaching experiences, allowing individuals to teach independently while still receiving feedback in real time. As Scheeler et al. stated, “feedback is better than no feedback.” Both instructors perceived the process positively, developed confidence in their teaching, and stated that they would participate again in the BIE process. As noted by Knight (2011), coaching for the learner is most effective when there is a comfortable rapport between both parties.

Secondly, this study provided an awareness of the performance feedback provided by the coach. As an initial *eCoaching* experience for the first author, three areas are acknowledged as areas of improvement. The coach needed to use more explicit encouraging feedback, vary the encouraging feedback statements (i.e., overuse of ‘good’), and increase the use of encouraging feedback statements for every directive comment. As often observed in P-12 classrooms, there was a need for the coach to provide more encouraging feedback. Nevertheless, both instructors were receptive to the *eCoaching* model and the performance feedback provided.

A final component realized for a successful BIE coaching experience is the need to develop a common language between the coach and the instructor. Although the directive “wait, wait” cued Ethan to pause, other comments such as “check for understanding” were also used by the coach. However, the term was less clear to the instructor. This suggests that the coach and the instructor should have a clear and common understanding of the language used during a coaching session, so that the brief phrases are interpreted as intended. Consider performance feedback expressed in terms such as “Model it” or “Have them practice.” Without further input as to what these terms imply, these phrases are ambiguous to the learner. Video modeling may be one way to establish accurate interpretations of the coaching terminology. Israel and colleagues (2012) mentioned the use of modeling videos, professional development, and/or showing the learner a teaching strategy as the third step in the model of virtual coaching. In future applications of BIE coaching for doctoral students, videos that illustrate exemplars of instruction may be beneficial for situating self-reflections and accurately analyzing performance. Operationalizing the language used during coaching would also allow for consistency among multiple coaches. Furthermore, supporting novice PhD students with the described type of *eCoaching* is certainly only one component of their learning in a teacher educator program. This practice is intended to only enhance their development as a teacher educator in the context of a more comprehensive teacher educator program.

Limitations and Future Research

We generalized an *eCoaching* process to teacher educators in higher education, but there are several limitations to this case study, which provide direction for future research. First, since a baseline of the targeted goals was not established, this study is inconclusive for determining if BIE coaching influences change in a teacher educator’s behavior. A future study that addresses the effectiveness of coaching doctoral students is needed. In addition, we did not determine if the instructors would continue the observed level of desired teaching without *eCoaching*. Foremost, empirical evidence is needed to determine the effects of *eCoaching* for altering the instructional behaviors of teacher educators. Similarly, as there is evidence that a longer duration of

eCoaching feedback may provide long-term effects for preservice learners (Rock et al., 2014; Scheeler et al., 2006), future research is also needed to examine the needed number of coaching sessions for future teacher educators to benefit and maintain instructional behaviors. In this study, only three coaching sessions in a semester were conducted. Future research is also needed to establish a common language for the performance feedback provided by coaches and to understand how the types of performance feedback influence the teacher educator. For example, we realized in this case study, that the PhD student participants could have been influenced by not only the verbal feedback provided while *eCoaching*, but also by the electronic documents (e.g., emails) provided by the coaches. Finally, the virtual coaching model followed in this study can be extended. For example, by sharing the video recordings with teacher educators, the coach can more explicitly illustrate progress towards the targeted goals and subsequently, promote self-reflective practice.

Implications for Practice

As teacher preparation programs provide special education teachers with opportunities to practice their acquired knowledge and skills, PhD students should have scaffolded experiences for teaching in higher education. Both instructors prior to this study had provided guest lectures in university classrooms and presented at conferences. Nevertheless, Linda was still leery of teaching in higher education and even reluctant to leave the computer that contained her lecture notes. Ideally, Linda would have had opportunities, prior to BIE, to develop confidence in her skills.

A proposed sequence of scaffolded practice opportunities for novice teacher educators may include first observing varied styles of university teaching, dialoguing about teaching with experienced faculty, then guest lecturing, co-teaching, and then *eCoaching*. The BIE technology saves time and resources for providing these scaffolded experiences. In addition, both coaching (Knight, 2011) and *eCoaching* allow for more opportunities in a day for coaches to observe and is less time consuming than traditional supervision.

As technology in the form of podcasts, online delivery systems, simulations, and technology-based supervision are underway for many teacher preparation programs (Dieker et al., 2014), why can't teacher educators benefit in a similar way? Given a more systematic and supportive model of *eCoaching*, successful preparation of teacher educators may, in turn, have a positive impact on one's intent to stay in higher education. Given the growing number of vacant faculty positions at IHEs across the nation, including special education faculty, (Robb, Smith, & Montrose, 2012; Sindelar & Rosenberg, 2003; Smith & Montrose, 2012), this should be of heightened interest. Although the practice of *eCoaching* for PhD student teachers is new, the evidence for prospective preservice teachers suggests that similar outcomes for new teacher educators is possible. Thus, university faculty who are preparing federally funded personnel preparation leadership grants may also seriously consider *eCoaching* to develop high-quality special education leaders.

Acknowledgements

Financial support for this research was provided by the Virginia Department of Education. Also, this research was supported by the U.S. Department of Education, Office of Special Education Programs No. H325D120036. The views expressed herein do not necessarily represent the positions or policies of the Department of Education. No official endorsement by the U.S.

Department of Education of any product, commodity, service or enterprise mentioned in this publication is intended or should be inferred. Project Officer is Celia Rosenquist. We also would like to acknowledge the PhD students who participated in the eCoaching model.

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