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EFFECTS OF PROFESSIONAL DEVELOPMENT AND VIDEOCONFERENCING ON THE INCREASE OF OPPORTUNITIES TO RESPOND AND THE ON-TASK BEHAVIOR OF STUDENTS WITH EMOTIONAL BEHAVIOR DISORDERS

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ABSTRACT

Aim/Purpose	This study explored an alternative means to offering supervisory coaching to teachers, professional development, and virtual teacher coaching through the use of videoconferencing.
Background	Teacher coaching has been identified as an effective way to improve teacher implementation of research proven effective classroom strategies. The use of technology to implement coaching widens the audience of coaches that one coach can reach.
Methodology	A single-case multiple baseline design was used to investigate the effect the intervention had on the frequency with which teachers offer Opportunities to Respond (OTR) and on the on-task behavior of middle school students with emotional/ behavior disorders (E/BD).
Contribution	This paper expands the body of knowledge on teacher coaching to include the use of technology.
Findings	Results indicated there was a functional relationship between virtual teacher coaching with videoconferencing and teacher rates of OTR. However, no func-

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	tional relationship was observed between teachers given OTR and student on-task behavior.
Recommendations for Practitioners	The use of technology to implement coaching widens the audience of coaches that one coach can reach.
Recommendation for Researchers	Future researchers should consider collecting data on academic information such as the number of correct responses in addition to on-task behavior.
Impact on Society	Teacher practitioners will be able to benefit from increased access to coaches, improving effective implementation of evidence-based practices.
Future Research	Among other things, researchers could consider studying students with disabilities other than emotional/behavioral disorders and even students without disabilities may give important information on how opportunities to respond works with other populations.
Keywords	virtual teacher coaching, videoconferencing, professional development, emotional/behavior disorders, opportunities to respond

INTRODUCTION

Technology can be found in all aspects of our daily life. Smart phones, tablets, and computers are essential tools for personal and professional experiences. Not surprisingly, technology used in the classroom has become a staple for many teachers, with the National Center for Educational Statistics (NCES, 2007) reporting that nearly every classroom in the United States is equipped with Internet access. Although technology is used frequently, it is not accessed frequently for teacher professional development (PD), especially when coaching professional educators (Rock et al., 2013).

PD is an in-service training designed to advance the content knowledge and pedagogical skills of teachers. It is widely viewed as an important means of improving teaching and learning and can be a remedy to teacher turnover when it is effectively planned and implemented (Billingsley, 2005). Researchers have suggested that a combination of PD and follow-up coaching support can be more effective than stand-alone PD for novice and experienced teachers to increase the tools they use in the classroom (Aguilar, 2013; Yoon, Duncan, Lee, Scarloss, & Sharpley, 2007).

The literature on coaching is still quite small and many variables warrant further investigation. Although empirical evidence is lacking, coaching has shown some promise in changing teacher behavior towards more effective practice. Nevertheless, school and district coaching positions are often eliminated when schools face budget complications. This has moved efforts towards investigating technology as a cost-efficient and effective means of offering coaching to in-service teachers.

The purpose of this study was to explore the success of a professional development and virtual teacher coaching with videoconferencing intervention to advance special education teachers' use of a low-cost, high-impact evidence-based practice, Opportunities to Respond (OTR), and the on-task behavior of students with emotional/behavior disorders.

LITERATURE REVIEW

COACHING AS TEACHER PD

Coaching is defined as the study and teaching of theory, the observation of demonstrations, and opportunities for feedback given by a peer, mentor, supervisor, or PD provider (Showers, 1982). It is a core component of effective mentoring/induction program implementation for a variety of reasons (Billingsley, 2005). Boe. Bobbitt, Cook, Whitener, and Weber (1997) reported in a survey study with 4798 teachers that mentoring with coaching and administrative support emboldens them to remain in a school and not migrate to other schools or leave the profession completely. They also discovered

that teachers found the profession more fulfilling when they feel confident in the delivery of content. Coaching can increase confidence and performance for classroom teachers (Showers, 1982).

The literature suggests that effective coaching has three critical components (Knight et al., 2015; Showers, 1982). First, coaches should elicit buy-in from the teacher for effective implementation of an evidence-based practice by thoroughly discussing and offering an understanding of the theory guiding the practice. Second, the coach should model effective behaviors to the teacher, preferably in the teacher's own classroom. Finally, the coach should provide low risk feedback that is non-judgmental and encourages a positive, non-evaluative relationship. Although these components have been suggested in the literature, there is little empirical evidence to support their effectiveness. However, there is emerging evidence that teacher behaviors may change if some of these elements are implemented. For example, researchers have reported significant changes in teachers' use of evidence-based practices for the delivery of academic content (Codding, Feinberg, Dunn, & Pace, 2005; Kretlow, Cooke, & Wood, 2012). Less positive results have been reported for changes in teachers' use of evidence-based practices to support appropriate child behaviors (Gregory, Allen, Mikami, Hafen, & Pianta, 2014; Martens, Hiralall, & Bradley, 1997; Miller, Harris, & Watanabe, 1991). Moreover, although teachers may have demonstrated increase use of the targeted behavior, it was not always maintained once the coaching support was removed (Kretlow et al., 2012; Sailors & Price, 2015; Simonsen, Myers, & DeLuca; 2010). Finally, although significant changes may be reported in teacher behaviors, their use of these practices does not always translate into changes in child academic or behavior outcomes. In summary, the empirical evidence about teacher coaching as an effective component of PD is mixed (Knight et al., 2015).

Nevertheless, the positive results, coupled with the practical challenges of offering effective on-site support to teachers, have led researchers and PD providers to investigate how coaching could be delivered effectively with technology. Technological advances have created new opportunities for reimagining teacher training. Of particular interest is the ability to offer more frequent and consistent communication and feedback to teachers in a variety of classroom settings and stages of teaching experience at scale with minimal cost.

Virtual Coaching

As an approach to PD, virtual coaching is a means of offering expert feedback to a teacher to improve his/her classroom practice via online technologies (Israel, Carnahan, Snyder, & Williamson, 2013; Smith & Israel, 2010). Virtual coaching may be a critical strategy for new and struggling teachers to receive regularly scheduled communication, sustenance to properly implement evidence-based strategies, reassuring feedback, and moral support from experienced teachers/coaches (Dal Bello, Lnowlton, & Chaffin, 2007; Israel, Knowlton, Griswold, & Rowland, 2009; Wasburn, Wasburn-Moses, & Davis, 2012).

According to Aguilar (2013), successful virtual coaching requires a coach to display several traits to ensure that teachers are receiving strategies effectively. Aguilar asserts that virtual coaches demonstrate a professional disposition that includes positive praise and constructive feedback that builds the teachers' pedagogical understanding. It is recommended that coaches possess content expertise and incorporate modeling of proper implementation of the skills being coached (Baggerman, Ault, Collins, Spriggs, & Slocum, 2015; Rock et al., 2012; Stormont & Reinke, 2012). Virtual coaches would have the ability to offer feedback loops in an immediate or agreed-upon delayed form to teachers being coached, if these coaches are well versed in technology (Rock et al., 2012; Scheeler, Ruhl, & McAfee, 2004). Researchers have utilized several means to facilitate technology-based coaching, such as email, Bug-In-Ear technology, live webcam coaching, avatar coaches, and videoconferencing.

Email

Email correspondence between coach and teacher has been used as a practical way to answer questions about new teaching strategies and their proper implementation for over two decades (Grugen-

hagen, McCracken, & True, 1999; Rock et al., 2012). Gareis and Nussbaum-Beach (2008) reported that the digital text-based format allows novice teachers to interact more with mentors, seek peers for support, and vent about issues in their classrooms. Although email offers an option for coaching feedback that is both cost effective and time saving, it deprives the teacher of the face-to-face feedback offered by more traditional coaching methods (Ermeling, Tatsui, & Young, 2015; Simonsen et al, 2010). Email correspondence may also lack in providing timely correspondence and may cause confusion in continuous back-and-forth writing with little chance for personal contact (Sailor & Price, 2015).

Bug-In-Ear

Bug-In-Ear (BIE) technology used in educational settings dates back to the 1970s (Bowles & Nelson, 1976). Traditionally consisting of a portable two-way radio with an earpiece and microphone, BIE technology has advanced in recent years to include classroom computers, if they can be equipped with webcams with sound capability, and Bluetooth headsets for both the teacher and coach. BIE technology offers the benefit of immediate feedback that instructs, corrects, encourages, and questions a teacher on instructional decisions as they are happening (Scheeler et al., 2004). Rock and colleagues (2014) used BIE technologies in a six-semester long research study with 14 general and special education teachers in p-12 (pre-kindergarten – twelfth grade) classrooms. Ottley and Hanline (2014) found that BIE coaching showed improvement in student classroom engagement and an increase in desired academic and behavior strategies used by teachers. Similar positive outcomes have been observed in early childhood education classrooms and with special education pre-service teachers (Goodman, Brady, Duffy, Scott, & Pollard, 2008).

Although the immediate feedback offered by BIE technology has been praised in recent research (Ottley & Hanline, 2014; Rock et al., 2012; Rock et al., 2014; Wade, Bohac, & Platt, 2013), some teachers and coaches complain that the two sets of verbal stimuli can be overwhelming while trying to deliver instruction. A novice teacher may struggle more with the added stimuli of coaching via BIE (Smith & Israel, 2010). In addition, BIE technology may be cost prohibitive in many K-12 settings. The cost of implementing BIE technology in one classroom can range from $200 for simple webcam and Bluetooth technologies to $12,000 for highly customizable systems (Rock et al., 2012). Such costs can be impossible for school districts to take on during an economic downturn (Heafner & Petty, 2010).

Live Webcam

Live webcam coaching allows the coach to observe a classroom teacher in real time from a different location, even hundreds of miles away. Unlike videotaped lessons, the coach has access to teachers in various locations during their actual classroom instructional time. In using a live webcam, coaches alleviate the extra time it takes to video record, view the video, analyze, and offer feedback to the teacher. Moreover, feedback can be offered soon after the delivered lesson, as opposed to watching a video later in the day (Mashburn, Downer, Hamre, Justice, & Pianta, 2010; Pianta, Mashburn, Downer, Hamre, & Justice, 2008). Vernon-Feagans, Kainz, Hedrick, Ginsberg, and Amendum (2013) conducted a group design study to measure rural teachers' response to virtual coaching to improve reading instruction to struggling readers. Struggling readers of teachers in the intervention group showed significant gains over struggling readers in the control group. Despite these benefits, live webcam coaching costs and equipment requirements in K-12 classrooms presents a problem in implementing this technology (Ermeling et al., 2015; Heafner, Petty, & Hartshorne, 2011).

Avatar

Avatar coaching is a little-used software-based technology that offers non-human assistance to teachers on specific skills that they can use to provide instructional information to teachers. PD developers and providers create software that can respond to questions that a coach or teacher may have

about implementing new skills in the classroom. Avatar coaching has the obvious benefit of providing information immediately to coaches and teachers with access to the software. The downside to this very new technology is that access to the software and the rather large financial obligation may be impossible for many school districts (Warner, 2012).

Videoconferencing

Virtual coaching with videoconferencing can take place via free Internet programs such as Skype, OoVoo, Google Hangouts, or Face Time with coaches who are housed in other schools, district offices, or the office of PD providers (Israel et al., 2009). This technology increases the number of teachers that a coach can have contact with on a regular schedule. Videoconferencing offers a cost-effective way to offer one-on-one follow-up to PD without the need to have a coaching expert in each school building; therefore, increasing access and decreasing travel and monetary barriers (Rock et al., 2013). Virtual coaching using videoconferencing considers the time and convenience of both the coach and the teacher. A teacher may be more agreeable to feedback from a coach if the session can take place at a time and place more comfortable and convenient for her/him (Israel et al., 2009). Virtual coaching using videoconferencing technologies can present difficulties in that not all teachers or coaches are proficient in the use of these online technologies. Another anomaly that could hinder the use of this technology is the availability of proper cellular data or Wi-Fi Internet access to teachers in remote or rural areas. To date, no study has been done that isolates the effect of virtual coaching with videoconferencing; however, emerging evidence from studies using BIE technologies to observe classrooms and Skype technologies to later offer feedback suggest that this approach may be effective to pre-service and novice in-service teachers.

Rock and colleagues (2012) used BIE and Skype technologies to offer coaching to pre-service teachers using a mixed methods research approach to evaluate the effectiveness of virtual coaching with BIE and Skype technologies on teachers' delivery of positive behavior interventions and supports in elementary school classrooms. Coaches were housed off campus. Teachers increased their use of evidence-based behavior strategies with the onset of the coaching strategies. Ploessl and Rock (2014) used BIE and Skype technologies to coach teachers to improve co-teaching planning practices. A single case, reversal design, was used to measure a change in planning from six co-teacher dyads. BIE technologies were used to give feedback during instructional time to improve use of specific praise, while Skype technologies were used to coach teachers during lesson planning sessions. Virtual coaching increased teachers varied uses of co-teaching models. Specifically, teachers were measured using more stations and alternative co-teaching models as opposed to their originally observed One Teach One Assist.

Virtual Coaching with Videoconferencing for Special Education Teachers

While all teachers may benefit from technology-enhanced coaching and professional development (PD), this study will focus specifically on special education teachers. Teachers of students with disabilities require continuous PD to support students with challenging academic, social, and behavioral needs effectively (Cullinan & Sabornie, 2004). However, they often do not receive the amount or intensity of PD that is required to sustain effective classroom behaviors (Billingsley, 2005). As a result, special education teachers have reported classroom behavior as one of the reasons that they leave the field at a rate of about 7-15 percent each year (Boe et al., 1997; McLeskey, Tyler, & Flippen, 2004). Special education teachers assigned to a self-contained classroom for students with emotional/behavior disorders (E/BD) tend to leave the field at even greater rates (Billingsley, 2004; George, George, Gersten, & Grosenick, 1995). These teachers report that a lack of support from school administration, low salaries, ineffective induction, and PD programs play a role in making a decision to leave the special education teaching profession (Billingsley, 1993; Boe et al., 1997; Cross & Billingsley, 1994; Gersten, Keating, Yovanoff, & Harniss, 2001; Whitaker, 2003). Therefore, innovative and cost-

effective means of providing effective PD and coaching to both pre-service and in-service special education teachers is a critical need in the field (Darling-Hammond, 2014).

To date, no empirical studies have been conducted to evaluate the effectiveness of virtual coaching with videoconferencing with special education teachers. In fact, relatively few studies have been done on coaching with special education teachers. Of the studies done with special education teachers, many have focused on teachers' use of evidence- based practices with students with challenging behaviors and E/BD. Students with E/BD display both internalizing and externalizing behaviors such as, noncompliance, verbal and physical aggression, off-task behavior, and disruption. These persistent behaviors hinder a student's ability to benefit from vital learning opportunities (Gresham, Lane, MacMillan, & Bocian, 1999; Landrum, Tankersley, & Kauffman, 2003; Reid, Gonzalez, Nordness, Trout, & Epstein, 2004). On-task behavior is defined as the student looking at the teacher while s/he is talking, talking to the teacher about the assignment, talking to other students about the assignment during approved group work, or looking at and working on the assignment.

Survey studies have shown that teachers find PD on evidence-based practices essential to better support students with E/BD (Billingsley, 1993; Boe et al., 1997). Virtual coaching may offer these teachers an opportunity to have regular contact with a coach to manage the behaviors of students with E/BD that may inhibit their ability to maintain positive academic outcomes and desirable behaviors (Rock et al., 2013; Simonsen, Fiarbanks, Briesch, Myers, & Sugai, 2008). Studies that have used face-to-face coaching to provide PD support to special education teachers to implement evidence-based strategies report positive outcomes (Capizzi, Wehby, & Sandmel, 2010; Duchaine, Jolivette, & Copeland, 2011; Simonsen et al., 2010; Sutherland & Wehby, 2001; Sutherland, Wehby, & Copeland, 2000).

Coaching OTR

One teacher behavior that appears to be particularly amenable to coaching is opportunity to respond (OTR). An OTR is an evidence-based practice that has been used successfully in classrooms with students with disabilities. OTR has been cited as an effective practice used to decrease disruptive and other undesirable behaviors, increase on-task behavior, academic engagement, and number of correct responses (Carnine, 1976; Haydon et al., 2010; Sutherland, Adler, & Gunter, 2003; Sutherland & Wehby, 2001; West & Sloan, 1986).

Although not using virtual coaching, three studies have investigated the effect of teacher coaching on teacher given OTR (Capizzi et al., 2010; Simonsen et al., 2010; Sutherland & Wehby, 2001). Capizzi and colleagues (2010) used a single case multiple-baseline across teachers' design to evaluate the effectiveness of coaching teachers to increase the use of behavior-specific praise statements (BSPS) and OTR. Three teachers assigned to graduate-level practicum placement in special education classrooms participated in this study. After the teacher's video recorded their lessons, an educational consultant and doctoral student viewed lessons and offered coaching. Participants met with the educational consultant once per week for approximately one hour to review videoed lesson. The results of this study were inconclusive, with two teachers responding positively to coaching and one teacher showing no increase in OTR with teacher coaching. The researchers reported that classroom management may have played a role on the lack of increase of one teacher. No student data were collected.

A second study by Simonsen et al. (2010) used a single case-multiple baseline across teachers design to examine the effect of PD plus teacher coaching on increased use of prompts, BSPS, and OTR. This study took place in an alternative school serving students with high incidence disabilities with three experienced teachers. Teachers received explicit PD on prompts, BSPS, and OTR prior to coaching. Data were collected after teacher PD without coaching. Teachers began receiving coaching on the three desired behaviors in staggered fashion every day. The researchers found that training alone did not increase OTR; when teacher coaching was introduced, all teachers demonstrated an increase in OTR. Student data were not collected.

Lastly, Sutherland and Wehby (2001) examined OTR with 20 teachers (10 control and 10 experimental) in self-contained classrooms in grades K-8. A total of 216 students (ages 5-15 years old) participated (108 control and 108 experimental). Teacher participants listened to an audio-recording of their teaching and evaluated their delivery of BSPS and OTR. Research assistants collected academic responses of students in the classroom. The results showed positive short-term outcomes for teachers and students, but teacher student participants returned to baseline levels when maintenance data were collected.

Although the aforementioned studies examined teacher coaching of OTR, none isolated OTR as a dependent variable, because it was paired with another dependent variable, such as prompts or BSPS. Therefore, it cannot be determined that positive outcomes were a direct result of the coaching intervention on OTR as a dependent variable. In addition, only one study evaluated student outcomes as a result of teachers' use of OTR. Finally, previous studies only included face to face coaching without the use of virtual teacher coaching. Therefore, it is unknown whether similar positive outcomes can be achieved with a technology based coaching platform like virtual coaching with videoconferencing.

Purpose of Study

The purpose of this study was to investigate the effectiveness of a professional development and virtual teacher coaching with videoconferencing intervention to improve special education teachers' use of a low-cost, high-impact evidence-based practice, OTR, and the on-task behavior of students with E/BD. The following questions were posed:

1. What effect does a professional development and virtual teacher coaching intervention have on the frequency with which teachers offer OTR to middle school age students with E/BD?
2. What effect does OTR have on on-task behaviors of middle-school age students with E/BD?
3. To what extent do teachers report that virtual coaching is a socially valid form of professional development?
4. To what extent do teachers report that increased OTR is a socially acceptable intervention to increase on-task behavior of middle-school age students with E/BD?

METHOD

Participants and Setting

The study took place in three self-contained classrooms in two middle schools, located inside a major metropolitan city in the southeastern United States. Intervention sessions were conducted during a 15-minute span within an interactive English/Language Arts (ELA) class period. The teacher participants included one female, Ms. Harold, and two males, Dr. Roberts and Mr. Winters (pseudonyms are used throughout for teachers and students). All three teachers were certified by the state to teach special education (Table 1). Ms. Harold and Dr. Roberts taught at the same school, while Mr. Winters was at a second school. Two additional teachers were recruited and consented for this study; however, they were not able to complete the study due to time constraints, school commitments, and family obligations.

Each teacher nominated from his or her classroom two students with E/BD eligibility as possible participants for the study. Student participants included six students (five boys and one girl), two from each of the three classrooms. (The students for each teacher are shown in Table 1.) To be included in the study, students had to be receiving services for E/BD based on district requirements and nominated by their ELA teacher for displaying chronic off-task behavior, which would include inattention, disruptive behavior during a lesson, such as walking around, talking to other students, and an inability to complete assigned classwork (pseudonyms are used throughout for teachers and students).

Table 1. Participant Demographic Information

Participant	Highest Degree or Grade	Certification	Years of Teaching Experience	Gender
Ms. Harold	Bachelors	Special Education	2	Female
Anthony	7th	N/A	N/A	Male
Jordan	7th	N/A	N/A	Male
Mr. Winters	Masters	Special Education	2	Male
Elijah	8th	N/A	N/A	Male
Emily	8th	N/A	N/A	Female
Dr. Roberts	Doctorate	Special Education	10	Male
Simon	8th	N/A	N/A	Male
Michael	8th	N/A	N/A	Male

Ms. Harold taught a seventh-grade ELA class and nominated two seventh grade male students, Anthony and Jordan, for student participants. Based on anecdotal notes taken during 12 observations in Ms. Harold's classroom, the researcher observed a minimum of two discipline-focused events per observation. During each observation, Ms. Harold corrected Jordan and Anthony repeatedly for talking out of turn, leaving their seats, playing around with classmates, and leaving the room without permission. Undesirable behaviors continued despite disciplinary actions and verbal reprimands. A school wide positive behavior intervention support (SWPBIS) was in place at this school, but Ms. Harold did not display the use of these interventions on a consistent basis.

Mr. Winters taught an 8th grade ELA class and nominated two eighth grade student participants, one male, Elijah, and one female, Emily. Mr. Winters implemented a variety of SWPBIS strategies, such as using good behavior tickets for SWPBIS rewards. Based on anecdotal notes taken during 14 classroom observations in Mr. Winters' classroom, the researcher observed that Mr. Winters reprimanded Emily on five occasions for talking out of turn. Mr. Winters' students displayed off-task behaviors, but fewer undesirable behaviors than observed in Ms. Harold's classroom.

Dr. Roberts was the special education department chair and taught an eighth grade ELA class. Dr. Roberts nominated two eighth grade male student participants, Michael and Simon. Based on anecdotal notes taken during 17 classroom observations in Dr. Roberts' classroom, the researcher observed an average of one discipline-focused event per observation. Dr. Roberts focused his reprimands on the entire class as opposed to targeting individual students.

Materials

In addition to the intervals mobile application and digital video cameras, teachers used the standard ELA curricular materials during classroom instruction; there was no change in class curriculum or content made by the researcher. Teacher participants and the researcher used cellular telephones or a computer with a Skype or Facetime video conferencing application for coaching sessions. Each interactive session was digitally video recorded. Teachers uploaded classroom videos to a privately as-

signed, password protected, and encrypted cloud storage account. The camera had a USB arm that plugged directly into the computer for direct upload to the password protected Dropbox account.

Measures

Study outcomes were measured for both the virtual coaching intervention to increase OTR in participant teachers and the on-task behavior of participant students.

Teacher data

A frequency count was used to record OTR per 15-minute interactive period; then each OTR was recorded on a data sheet (Appendix A). Based on the average number of OTR offered during baseline, a criterion for mastery was set. The average number of OTR offered during baseline plus three additional OTR determined each teacher's OTR goal during intervention. If any of the teachers had offered zero OTR during baseline, the OTR goal was set to three OTR per session.

The researcher observed teachers in person in the classroom or by video. In-class observations took place in 88% of teacher observations. During classroom observations, the researcher collected only data on teacher given OTR; no student data were collected during classroom visits, although anecdotal notes were taken pertaining to teacher/student interactions. Twelve percent of teacher OTR classroom observations were conducted by viewing a video uploaded to a personal password protected Dropbox account. Before the interactive ELA session, each teacher set up his or her camera on a tripod. After each lesson, the teacher would upload the video to the password protected Dropbox site. The researcher observed each dependent variable independently in class or via video upload. Student data were observed separately. When collecting student data, the researcher watched each video twice, one time for each targeted student.

Student data

On-task behavior was measured every 10 seconds using whole interval recording (Carnett et al., 2014; Gourwitz, 2014; King, Radley, Jenson, Clark, & O'Neill, 2014) during a 15-minute interactive class period. The mobile application, Intervals, an ABA interval recording application (Mays, 2013), was used to signal a 10 second interval as data collectors used pencils to record the occurrence and non-occurrence of on-task behavior of students on data sheets (Appendix B). The percentage of on-task intervals was calculated by dividing the number of observed on-task intervals by the number of total possible intervals and multiplying by 100 percent per each student. Although student data were not used to determine phase change, the effect of the intervention on on-task behavior was of interest.

The researcher and graduate assistant collected all student on-task behaviors by viewing uploaded videos. The teacher participant always turned the camera toward the student participants and stood close enough to the camera that his or her voice could be heard. The researcher and graduate assistant also collected anecdotal notes during these observations to record classroom activities and interactions.

Fidelity of PD and Coaching

To measure the fidelity of PD, each session was recorded using a video recorder. A graduate assistant watched 33 percent of PD sessions, one entire session for one teacher, and scored fidelity using the PD treatment fidelity checklist. The PD checklist (Appendix C) ensured that (a) PD was offered in a one to one environment; (b) an overview was given of OTR; (c) the benefits of OTR were described; (d) examples of OTR were given; (e) teachers could view videos of OTR used in a classroom; (f) chances were given for the teacher to practice OTR; (g) identify critical components of coaching; (h) there were discussions of the specifics of virtual teacher coaching with videoconferencing; and (i) opportunities for questions were allotted. To measure the fidelity of the coaching intervention, the researcher followed a coaching feedback script used after the observation of every other lesson. During the coaching session the researcher (a) asked the teacher how s/he felt about the last

two sessions; (b) asked the teacher about his/her perceived strengths; (c) asked the teacher about his/her perceived weaknesses; (d) discussed student on-task behavior; (e) discussed specific OTR given by the teacher; (f) discussed number of OTR given; (g) compared the number OTR given to goal; (h) discussed ways to increase OTR; (i) reminded the teacher of goal for next 2 sessions; and (j) asked the teacher if s/he had any questions or concerns (Appendix D). In all, teachers received 90 minutes of PD and 20 minutes of virtual coaching for 3 sessions for a total of 150 minutes of professional development and coaching during a 4-week intervention.

Social validity

Teacher participants were given a social validity survey after the completion of data collection for the OTR intervention (Appendix E). Social validity was measured using a modified version of the *Intervention Rating Profile-15* (IRP-15) (McKee, Witt, Elliot, & Pardue, 1987). The IRP-15 is a 15-item social validity instrument used to measure acceptability and perceived effectiveness of an intervention. Each item was rated on a 6-point Likert-type scale ranging from 1 (strongly disagree) to 6 (strongly agree). The IRP-15 was adapted to obtain social validity ratings on the use of OTR to increase on-task behavior. The wording of the survey items was modified to reflect the intervention.

Social validity for the coaching intervention (Appendix F) was measured using a researcher-created, 7-item instrument. Each item was rated on a 6-point Likert-type scale ranging from 1 (strongly disagree) to 6 (strongly agree). Teachers had the opportunity to write supplementary statements in the opened-ended section of the survey.

Materials

In addition to the intervals mobile application and digital video cameras, teachers used the standard ELA curricular materials during classroom instruction; there was no change in class curriculum or content made by the researcher. Teacher participants and the researcher used cellular telephones or a computer with a Skype or Facetime video conferencing application for coaching sessions. Each interactive session was digitally video recorded. Teachers uploaded classroom videos to a privately assigned, password protected, and encrypted cloud storage account. The camera had a USB arm that plugged directly into the computer for direct upload to the password protected Dropbox account.

Design

A multiple baseline single-case design was used to investigate the effect of PD and virtual teacher coaching through videoconferencing on the number of OTR teachers gave to students. Teacher OTR was used for phase change decisions. Percentage of intervals of on-task behaviors displayed by students during interactive work time was also measured. Multiple baseline was appropriate for this study because coaching, as an intervention, is not reversible. The information gained during the coaching process could not be withdrawn; therefore, a withdrawal design was not appropriate (Alberto & Troutman, 2012; Kazdin, 2011). If there was a change in performance during intervention over baseline and it was replicated across the tiers of the multiple baselines, then the change could be credited to the intervention rather than to other changes in the environment, such as history or maturation. The study included three phases: baseline, intervention, and maintenance across three teachers (Gast & Ledford, 2010).

Independent Variable and Dependent Variables

The independent variable was PD with virtual teacher coaching with videoconferencing, which was operationally defined as offering teachers a PD workshop, followed by one-on-one training prior to feedback using Internet programs such as Skype or Facetime. Data were collected on two dependent variables: OTR and on-task behavior. An OTR was operationally defined for this study as a teacher asking a question of an individual or group that necessitates a specific academic response or was open ended with the purpose of having a student or students describe the thought process. To be

counted, the question had to request an explicit response that was linked to the ELA lesson being observed (Haydon et al., 2010; Sutherland et al., 2003). On-task behavior was operationally defined as the student looking at the teacher while s/he was talking, talking to the teacher about the assignment, talking to other students about the assignment during approved group work, or looking at and working on the assignment.

Data Collector Training

The primary researcher and one graduate student conducted all data collection. Prior to beginning the study, the graduate student was trained on the data collection procedures. The researcher and graduate student used role-playing procedures and watched videos of classrooms to practice collecting data on OTR and on-task behavior, properly using the data sheet, and the operational definition of OTR and on-task behavior was reviewed along with possible examples and non-examples. Training was conducted for a total of two hours and 25 minutes over a three-day period. Progress was measured until 100% agreement was reached. Agreement was reached after watching and scoring two videos watching teachers deliver OTR and three separate videos to score student on-task behavior. The graduate student also was trained on proper use of the *Intervals* (Mays, 2013).

Procedure

To get an accurate record of OTR in baseline, teachers were not fully informed of the purpose of the study until after baseline data were collected. During the informed consent process, teacher participants were told that the purpose of the study was to examine the effect of positive behavior support on on-task behaviors. Teachers were given the option to discontinue involvement in the study once they were told the purpose of the study. All teachers remained in the study. Teachers participated in PD one at a time in a staggered manner. After PD, teachers continued to teach ELA as normal. After student assent and parent consent was gained, baseline observations were conducted. Observations were conducted on all three teachers daily. Once Ms. Harold reached six baseline data points with a downward trend, she was moved into intervention. Mr. Winters and Dr. Roberts continued in baseline.

Baseline

During baseline, the researcher observed a 15-minute interactive ELA class period. The interactive period consisted of review of previous instruction, guided practice, and review of student warm-up or homework answers. Warm-up and homework review was done as group work at the teachers' discretion. Frequency recording was used to measure teacher use of OTR. The decision rule to move a teacher from baseline to intervention was based on stability of data or a downward trend in teacher given OTR. Stability was defined as 50 percent or less variability around the mean and/or a downward trend which was characterized by a downward slant of data within the phase (Kazdin, 2011).

Professional development

Teacher participants attended a 90-minute PD workshop on offering OTR and teacher coaching (Appendix C). Each teacher received one-on-one training by the researcher in person directly before entering the intervention phase. Teacher participants were given an overview of OTR. During the session, the researcher discussed the benefits of offering OTR in the classroom with extensive examples of ways to increase OTR. The researcher used a combination of lecture, role-playing, and videos that demonstrate in-class use of OTR, benefits of OTR, and how teachers can increase OTR in their classroom.

In addition, PD included a definition of teacher coaching. Teacher coaching was defined, for the purposes of this study, as an outside expert or supervisor offering a critique of observed behavior that is specific, positive, and corrective when needed after the completion of the observed lesson (Joyce & Showers, 1981, 1982; Maeda, 2001; Simonsen et al., 2010). Teachers received an overview of

teacher coaching, including goal setting criteria and teacher coaching procedures. The combination of this 90-minute PD session and subsequent coaching sessions incorporated the critical components of coaching identified by Kretlow and Bartholomew (2010). The critical components of coaching include (a) highly engaged, instructive training session(s); (b) follow-up observations; and (c) specific feedback to include sharing of observational data and self-evaluation. During PD, teachers had the option of choosing which video conferencing application they would be most comfortable using. The teachers then had the opportunity to ask questions following the 90-minute training session.

Coaching

During this 15-minute interactive ELA period, teachers engaged in a review of previous instruction, guided practice, review of student answers, and games covering previously taught materials. After every other session, the researcher had a coaching session with the teacher. This coaching session took place via Skype or Facetime video conferencing by telephone, tablet, or computer after school hours at a time agreed upon by both researcher and teacher participant.

Maintenance

To determine if OTR techniques maintained over time, maintenance data were collected in each teacher's class one week after data collection ended for the student in that teacher's class. Teacher coaching was not conducted during the week prior to maintenance data collection. One maintenance data point was collected at individual times based at the end of data for collection for each teacher.

Interobserver Agreement

Interobserver agreement (IOA) was collected by a graduate assistant distributed evenly across phases and participants for teacher OTR (40.0%) and student on-task (37.5%) behavior data collection (Kennedy, 2005). The graduate assistant collected all IOA data by viewing video recorded classroom instruction. IOA for frequency of OTR was collected using total agreement and yielded a mean of 94.0 percent (range of 83.0% - 100.0%) agreement (Kennedy, 2005). For Ms. Harold, IOA for OTR was assessed for 42.0 percent (n = 5) of classroom and video recorded observations with 95.2 percent agreement (range 88.0% - 100.0%). For Mr. Winters, IOA for OTR was assessed for 43.0 percent (n = 6) of classroom and video recorded observations with 93.3% agreement (range 83.0% - 100.0%). For Dr. Roberts, IOA for OTR was assessed for 35.2 percent (n = 6) of classroom and video recorded observations with 94.0 percent agreement (range 87.0% - 100.0%). All OTR IOA data were collected via video recording by the graduate assistant. The graduate assistant watched the videos chosen for IOA and scored the frequency of OTR. When possible, the researcher and graduate assistant watched the videos together and scored the frequency of teacher given OTR.

Interobserver agreement for on-task behavior (Appendix B) was calculated using point-by-point agreement (Kennedy, 2005). Point-by-point agreement was calculated by the number of agreements divided by the number of agreements plus disagreements multiplied by 100.0 percent. IOA for student on-task behavior generated a mean of 91.5 percent (range of 74.0% - 100.0%) agreement. For Anthony, IOA for on-task behavior was assessed for 41.7 percent (n = 5) of video recorded observations with 82.2 percent agreement (range 74.0% - 98.0%). For Jordan, IOA for on-task behavior was assessed for 41.7 percent (n = 5) of video recorded observations with 97.4 percent agreement (range 96.0% - 99.0%). For Emily, IOA for on-task behavior was assessed for 35.7 percent (n = 5) of video recorded observations with 94.0 percent agreement (range 80.0% - 100.0%). For Elijah, IOA for on-task behavior was assessed for 35.7 percent (n = 5) of video recorded observations with 82.2 percent agreement (range 74.0% - 98.0%). For Michael, IOA for on-task behavior was assessed for 35.3 percent (n = 6) of video recorded observations with 95.2 percent agreement (range 90.0% - 99.0%). For Simon, IOA for on-task behavior was assessed for 35.3 percent (n = 6) of video recorded observations with 97.8 percent agreement (range 97.0% - 100.0%). IOA for on-task behavior was completed

by synchronously taking observational data using the mobile application to cue the 10 second intervals and the data collection sheet. The observation period was synchronized by both observers counting down from three to begin each observation period on the Intervals application.

Treatment Fidelity

Teachers received PD individually to maintain the independence of the tiered legs of the multiple baseline design. It was important for each teacher's PD to be consistent, so treatment fidelity was assessed on 33 percent of PD sessions. Each session was recorded using a video recorder. A graduate assistant watched 33 percent of PD sessions, one entire session for one teacher, and scored fidelity using the PD treatment fidelity checklist. Dividing the number of PD steps correctly completed by the total number of PD steps expected for the PD session and multiplying by 100 percent calculated PD fidelity. Treatment fidelity for PD was 100 percent.

To ensure that coaching sessions were implemented as designated, a graduate assistant collected fidelity of the researcher's implementation of coaching sessions. Each coaching session was recorded using QuickTime audio. A graduate assistant listened to 33 percent of coaching sessions and scored fidelity using the coaching treatment fidelity checklist; the graduate assistant scored one coaching session per teacher for fidelity of implementation (Appendix D). Coaching fidelity was calculated by dividing the number of coaching steps correctly completed by the total number of coaching steps expected for the coaching feedback session and multiplying by 100 percent. Treatment fidelity collection was at 100 percent.

Data Analysis

Visual analysis was used to assess the effects that PD with virtual coaching with video conferencing had on teacher given OTR and student on-task behavior. Within- and between-phase data patterns were examined, and the following criteria were used to determine if there was a functional relation between the independent and dependent variables: (a) level: mean score for the data within each phase; (b) immediacy of effect: the change in level during the time of onset or termination of a phase; (c) overlap: the number of data points from one phase that overlaps with data from the previous phase; and (d) variability: the degree to which individual data points deviate from the overall trend (Alberto & Troutman, 2012; Kazdin, 2011).

Anecdotal notes were kept on data collection sheets; the researcher kept anecdotal notes on student behavior, teacher reprimands, and disciplinary interactions. These notes were analyzed to report classroom climate, student behaviors, and negative and positive teacher/student interactions.

Results

Teacher OTR Outcomes

Teacher participant outcomes can be found in Figure 1. During baseline, Ms. Harold displayed a decreasing trend; a decreasing trend is a downward pattern in the data within a phase (Figure 1). Her scores ranged from 0 - 13 (M = 6) OTR per 15-minute session during baseline. Ms. Harold's goal following PD was 9 OTR per 15-minute session. Once PD and coaching were introduced, Ms. Harold's data path showed an immediate change in level (M = 6 to M = 19) and trend. The intervention data ranged from 10 - 30 (M = 19) OTR per 15-minute session, with 17 percent overlapping data. One maintenance data point was collected. Ms. Harold's OTR at maintenance was 21 OTR per 15-minute session, which was higher than her mean OTR during intervention.

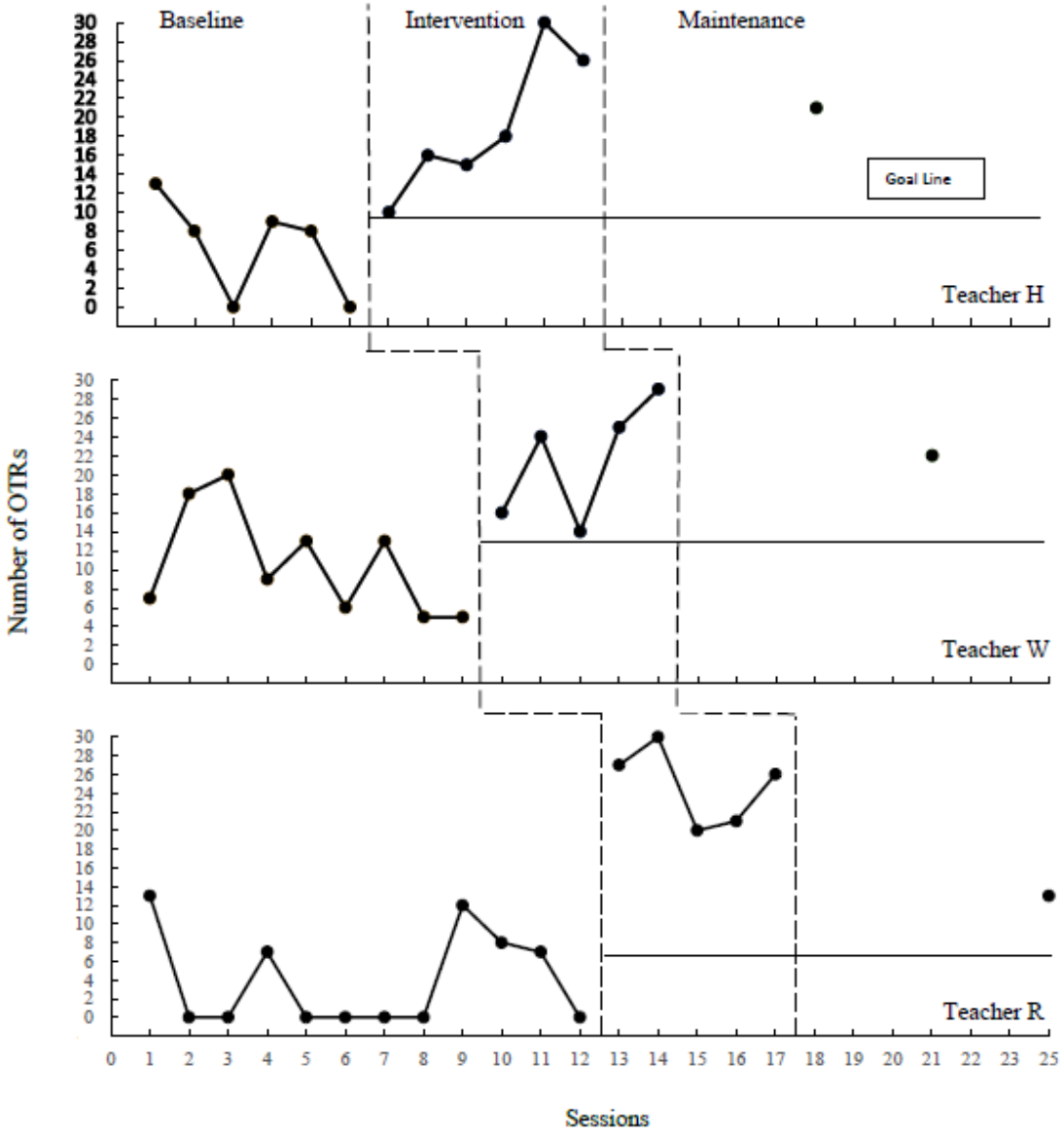

Figure 1. Teacher participants' graph

During baseline, Mr. Winters displayed stable data and a decreasing trend. His scores ranged from 5 - 20 (M = 11) OTR per 15-minute session. Based on his mean OTR during baseline, Mr. Winters' goal was set at 14 OTR per 15-minute session. Once coaching was introduced, Mr. Winters' data path showed a change in level (M = 11 to M = 22) and trend, with 40.0 percent overlapping data. The data ranged from 14 - 29 (M = 22) OTR per 15-minute session. During maintenance, Mr. Winters gave 21 OTR for the session, a score very close to his intervention mean.

During baseline, Dr. Roberts displayed a decreasing trend. His scores ranged from 0 - 13 (M = 4) OTR per 15-minute session. During intervention, Dr. Roberts' goal OTR per 15-minute session was set at 7. Once coaching was introduced, Dr. Roberts' data path showed an immediate change in level (M = 4 to M = 25), trend. The data ranged from 21-30 (M = 25) OTR per 15-minute session. There were no overlapping data. During maintenance, Dr. Roberts displayed 13 OTR per 15-minute session.

Student Outcomes

Student participant outcomes can be found in Figure 2. Ms. Harold's students displayed variable on-task interval percentages in baseline and intervention. Antony had a baseline range of 46.0 percent – 84.0 percent of on-task intervals (M = 66.7%) and during intervention his on task behavior ranged from 44.0 percent – 100.0 percent (M = 73.6%). During baseline, Jordan displayed an on-task percentage of interval range of 0.0 percent – 54.0 percent (M = 33%) and during intervention he had a range of 27.0 percent – 89.0 percent (M = 51.3%). Maintenance data were not collected on student participants.

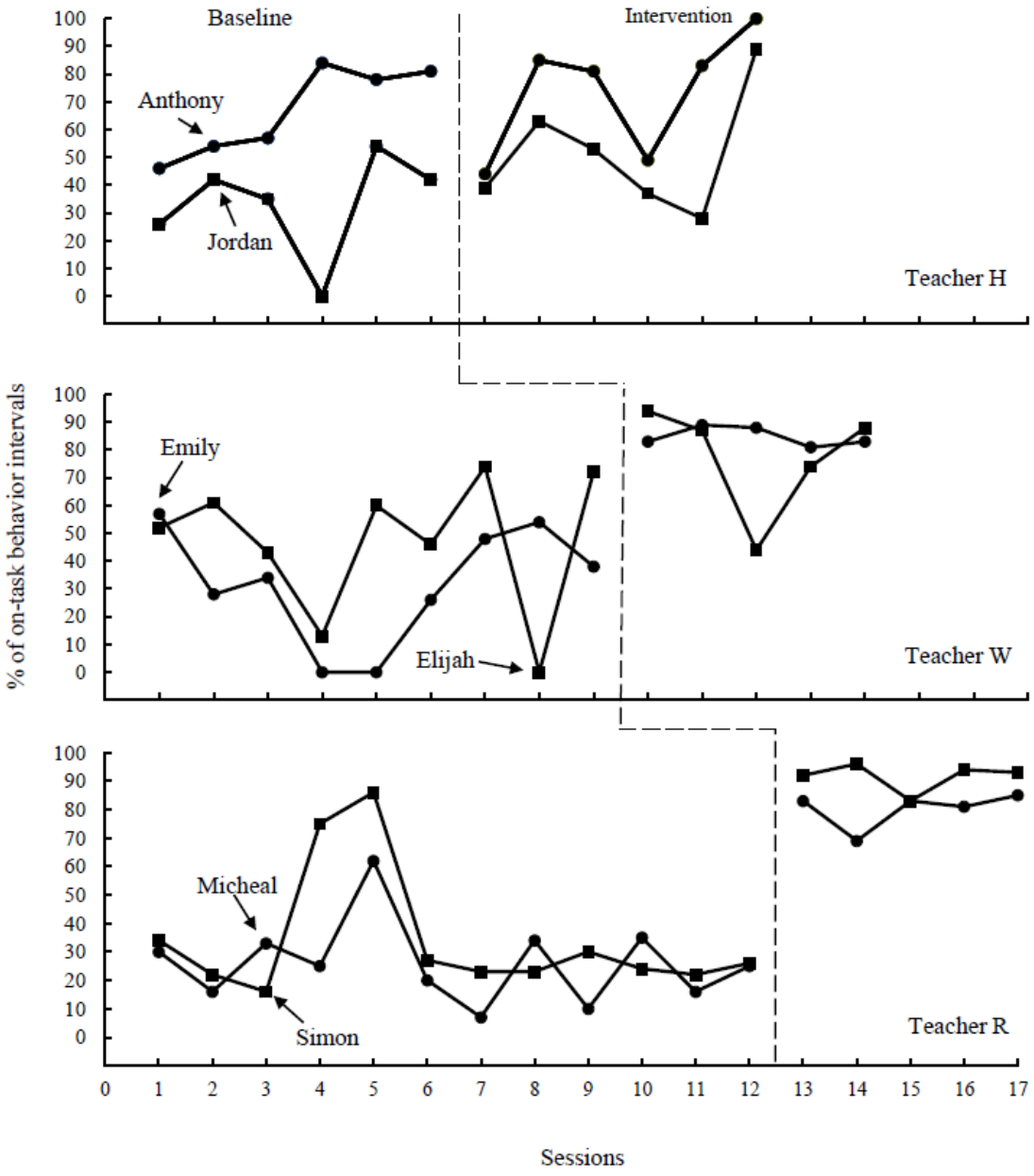

Figure 2. Student participants' graphs

Mr. Winters' students displayed variable and unstable on-task interval percentages during baseline. Emily had a baseline range of 0.0 percent – 57.0 percent of on-task intervals (M = 31.6%); she dis-

played stability and an increase in trend during intervention with a range of 44.0 percent – 100.0 percent of on-task intervals (M = 73.6%). Elijah displayed a baseline range of 0.0 percent – 74.0 percent of on-task intervals (M = 46.7%); he displayed stability and an increase in trend during intervention with a range of 44.0 percent – 94.0 percent of on-task intervals (M = 77.4%).

Dr. Roberts' students displayed variable and unstable on-task interval percentages during baseline. Michael had a baseline range of 7.0 percent – 62.0 percent of on-task intervals (M = 26%); he displayed stability and an increase in trend during intervention with a range of 69.0 percent – 85.0 percent of on-task intervals (M = 80.2%). Simon displayed a baseline range of 16.0 percent – 86.0 percent of on-task intervals (M = 34.8%); he also displayed stability and an increase in trend during intervention with a range of 83.0 percent – 96.0 percent of on-task intervals (M = 91.6%).

Social Validity on OTR

On the OTR questionnaire, each of the teachers either agreed or strongly agreed with the following statements: "Most teachers would find OTR appropriate for behavior problems," "Most teachers would find OTR suitable to increase on-task behavior," "OTR is consistent with things I have used in my classroom," "OTR was a fair way to handle the child's problem behavior," "OTR is reasonable for the off-task behavior described," and "I liked the procedures used in this intervention." All participant teachers strongly agreed with the following statement: "I would be willing to use OTR in the classroom setting."

The participants strongly disagreed with the statement "I would NOT suggest the use of OTR to other teachers." Two teachers strongly disagreed and one disagreed that "OTR would NOT be appropriate for a variety of children."

Questions on the survey about the teachers' observations of their students' response to the intervention varied. For all six students, the teachers either agreed or strongly agreed with the following statement: "Increased OTR would be an acceptable intervention for the child's problem behavior." Participants strongly disagreed that "Overall, OTR would NOT be beneficial for the child" for five of the six students. Participants also either strongly disagreed or disagreed, for five of the six students that "OTR would result in negative side effects for the child." In addition, teachers concluded they either agreed or strongly agreed that "OTR was a good way to handle this child's behavior problem" and "OTR would prove effective in changing the child's problem behavior" for five of the six students.

Social Validity on Virtual Coaching with Videoconferencing

Participants completed a virtual coaching survey. Two participant teachers strongly agreed and one teacher agreed with the following statements: "Coaching to increase OTR in the classroom is an acceptable form of teacher training," "Virtual teacher coaching using video conferencing is an acceptable form of professional development," "I would recommend virtual coaching to other teachers," and "Virtual coaching would be effective to improve a variety of teaching practices." Two of the three teachers strongly disagreed, and one disagreed with the following statements: "The time spent on virtual coaching was NOT acceptable" and "I would NOT be willing to participate in virtual coaching to develop another instructional skill." One teacher wrote the following comment in the open-ended section, "The coaching experience added value to my classroom; the introduction of OTR, increased on-task behavior for all of my students. Using OTR in my class has also increased my familiarity with other PBIS strategies. I would be interested in a coaching experience using one of the other strategies because of the success I achieved with OTR." Another teacher added, "Although I enjoyed the experience, I think that my instructional technique and my students would benefit from a longer coaching intervention. I wish this study could be a year long." The final teacher included in the study commented that "The functionality of the digital camera was an issue, at times teachers had

to share a camera." and added, "Overall, I really enjoyed being a part of the study and learned a great deal about my practice and how to improve it."

DISCUSSION

The purpose of this study was to investigate the effects of PD along with virtual coaching on special education teachers' increase in an evidence-based practice, OTR. This study also sought to investigate the effect increased OTR would have on students with E/BD who display chronic off-task behavior. In general, the findings indicated that PD and virtual coaching resulted in a change in teacher OTR but not student on-task behavior.

TEACHER RESULTS

A functional relationship was observed between the implementation of PD and virtual coaching and an increase in teacher given OTR. All three teachers' data showed an immediate change in level after PD and coaching. One teacher showed high levels of OTR during baseline during certain classroom activities, such as game playing and reviewing homework on the board, and low levels during seatwork. With the onset of PD and virtual coaching, his data path became less variable. Although the teachers' baseline data were not always consistent, all teachers met their OTR goal on each intervention session. The findings of this study are consistent with previous research, indicating that PD and teacher coaching can have an immediate effect on the implementation of evidence-based strategies (Bethune & Wood, 2013; Kretlow et al., 2012; Simonson et al., 2010; Sutherland et al., 2000). Like other successful studies, this study used PD and teacher coaching as a package; therefore, these positive results were not surprising. However, it was unclear whether such positive results could be maintained if coaching was delivered through videoconferencing content. Not only were teachers able to learn and use the targeted practice, but teacher feedback also indicated that virtual coaching was an acceptable.

Importantly, teachers also noted that they appreciated the flexibility offered by videoconferencing. All teachers participated in PD and virtual coaching before or after school hours, as mandated by one school principal. Two teachers were housed at the school with this principal. For consistency of intervention, the researcher only worked with all three teachers on this schedule. Teachers were willing to participate on this schedule and voiced that it was very convenient, even coaching on the weekends from home or on a weekend trip in one instance. That said, it cannot be assumed that all teachers would be willing to participate in PD and coaching during off hours. Technology allowed for this flexibility and for teachers to receive useful information on their own schedule and without interfering with school day commitments.

One maintenance data point was collected one week after the cessation of the coaching intervention. All teachers met their intervention goal during maintenance. Maintenance data and responses to the social validity surveys suggest that teachers felt like this was a worthwhile intervention and would continue to use it without coaching. Similar studies that collected maintenance data 5-7 days after the conclusion of intervention have shown that teachers maintain evidence-based strategies at goal levels after coaching ended (Bethune & Wood, 2013; Codding et al., 2005; Duchaine et al., 2011). Other researchers have shown positive maintenance results as far as three months after the intervention (Miller et al., 1991; Thompson, Marchant, Anderson, Prater, & Gibb, 2012).

STUDENT RESULTS

Student data did not exhibit the favorable results that teacher data did. While student data showed a demonstration of effect and one replication, the conclusion must be made that there was no functional relationship. According to Kratochowill et al. (2010), a demonstration and two replications are necessary to claim a function relation. Similar results have been reported in prior research studies. For example, Duchaine and colleagues (2011) found that the collection of on-task behavior of ran-

dom students during observations did not produce a functional relation between the coaching of behavior specific praise statements and on-task behavior of students. Gregory et al. (2014) saw only a modest shift in student engagement after implementing the My Teaching Partner – Secondary program intervention.

If student data in Ms. Harold's class had been stable, a functional relationship could have been observed. The students in Ms. Harold's class demonstrated significant behavioral difficulties during baseline and intervention. Her classroom management style may have played a role in her students' variable on-task behavior. Ms. Harold presented loud and sometimes negative interactions with her students, and they did not respond well to this discipline style. This has also been reported in the literature (Newberry & Davis, 2008). Although baseline data were variable, the students in Mr. Winters and Dr. Robinson's classes showed an increase in trend with the onset on teacher given OTR. These results suggest that OTR is an intervention that could have more successful results with students who display less challenging behaviors or with teachers who display more positive interactions with students.

Social Validity

Teachers reported that OTR was an appropriate intervention to respond to their students' off-task behavior. Moreover, they reported that they would continue to use OTR in their classrooms and that it would be beneficial to students both academically and behaviorally. Overall, teachers strongly agreed that OTR is effective in changing students' challenging behaviors. Positive social validity for OTR in coaching studies has been reported in previous studies. For example, Simonsen et al. (2010) reported that overall teachers responded that the intervention increased appropriate behaviors in their classrooms, was relatively easy to implement, and should be recommended to other schools for teacher training. Teachers also reported that virtual coaching would be an acceptable form of PD and did not take more time than they were willing to spend to improve their practice. They agreed that virtual coaching would be an effective way to improve a variety of classroom practices and that they would recommend it to other teachers.

One teacher reported that he had some complications with the video recording technology. At times the teacher reported that his camera would not record or would cut off during the 15-minute session and the session would end up in two or three sections. The teacher also reported that uploading to the encrypted site often took a long time and was inconvenient. It is recommended that researchers consider investing in high quality video equipment. Although teachers received training on the operation of the equipment, refresher training on equipment use would be beneficial to teacher participant and researcher. Moreover, such technology-based interventions may be restricted in contexts that do not have reliable networking capabilities. Although access to the Internet is constantly growing, there are still many areas that continue to lack consistent, high quality accessibility (NCES, 2007).

Limitations and Implications for Future Research

Several limitations in this study are important to discuss. First, the three teacher participants in this study were housed in two different schools. Ideally, all teachers involved would be housed at separate schools. The two teachers housed in the same building were asked not to discuss the intervention until intervention was complete. The staggered implementation helped to control for contamination, maturation, and history, but using teachers in different buildings would reduce the possibility of training carryover. Another population sample limitation included the fact that there was only one female teacher and one female student. Future researchers should vary the gender mix of participants.

Second, teachers voiced in the social validity survey that the intervention was not long enough. Although the intervention met standards for single case research (Kratochwill et al., 2010), teachers felt that more time receiving virtual coaching could have produced more time to introduce different

methods to increase OTR, such as choral responding, use of individual white boards, yes/no popsicle sticks, and other ways to engage students to respond.

Third, a classroom assessment tool could be used before baseline begins to assess the teacher's classroom interactions, such as the *Classroom Assessment Scoring System – Secondary* (CLASS-Secondary) (Allen, Pianta, Gregory, Mikami, & Lun, 2011). The CLASS – Secondary is an observational teacher assessment tool that captures teacher behaviors that describe the classroom climate, such as positive and negative teacher/student interactions. Armed with information from a measure like the CLASS-Secondary, the researcher could make both design and implementation decisions about how the intervention may be affected by the teacher's existing classroom management style.

Fourth, future researchers should consider collecting data on academic information such as the number of correct responses in addition to on-task behavior. Adding this number of correct responses to a study of this nature would require the researcher to collect permanent products from students to score correct answers. Data collected on correct responses may give teachers an idea of how prepared students are for upcoming classroom assessments. Teachers may also use this information to group students according to ability for re-teaching and enrichment.

Finally, studying students with disabilities other than E/BD and even students without disabilities may give important information on how OTR works with other populations. Duchaine and colleagues' (2011) intervention was conducted in a co-taught classroom with students with and without disabilities and did not show a functional relation, but they used a random sampling of students. If researchers concentrate on a particular disability or challenging behavior, the field could learn more about what kinds of students are helped the most by OTR.

CONCLUSION

The increased OTR for all three teachers using PD along with virtual teacher coaching indicates that the intervention may be useful in offering instruction to students with E/BD who display chronic off-task behavior, although this study failed to show a functional relation in student on-task behavior. OTR is an evidence-based practice, and further investigation may lead researchers to know what population receives benefits the most from its use and would be valuable to special education. Social validity measures support the study's findings that teachers also report that virtual coaching and OTR are worthwhile interventions to be used to improve teacher practice and student behaviors. The use of technology frees teacher participants to improve practice at their own pace and at times convenient for them.

REFERENCES

Alberto, P. A., & Troutman, A. C. (2012*). Applied behavior analysis for teachers*. Upper Saddle River, NJ: Pearson Higher Ed.

Allen, J. P., Pianta, R. C., Gregory, A., Mikami, A. Y., & Lun, J. (2011). An interaction-based approach to enhancing secondary school instruction and student achievement. *Science*, *333*, 1034-1037. https://doi.org/10.1126/science.1207998

Aguilar, E. (2013). *The art of coaching: Effective strategies for school transformation*. San Francisco, CA: John Wiley & Sons.

Baggerman, M. A., Ault, M. J., Collins, B. C., Spriggs, A. D., & Slocum, V. (2015). The effect of coaching on a faith community volunteer's use of effective teaching behaviors. *Research and Practice for Persons with Severe Disabilities*, *40*(4), 294-306. https://doi.org/10.1177/1540796915602479

Bethune, K. S., & Wood, C. L. (2013). Effects of coaching on teachers' use of function-based interventions for students with severe disabilities. *Teacher Education and Special Education: The Journal of the Teacher Education Division of the Council for Exceptional Children*, *36*, 97-114. https://doi.org/10.1177/0888406413478637

Billingsley, B. S. (1993). Teacher retention and attrition-in special and general education: A critical review of the literature. *The Journal of Special Education*, *27*, 137-174. https://doi.org/10.1177/002246699302700202

Billingsley, B. S. (2004). Special education teacher retention and attrition: A critical analysis of the research literature. *The Journal of Special Education*, *38*(1), 39-55. https://doi.org/10.1177/00224669040380010401

Billingsley, B. S. (2005). *Cultivating and keeping committed special education teachers: What principals and district leaders can do*. Thousand Oaks, CA: Corwin Press.

Boe, E. E., Bobbitt, S. A., Cook, L. H., Whitener, S. D., & Weber, A. L. (1997). Why didst thou go? Predictors of retention, transfer, and attrition of special and general education teachers from a national perspective. *The Journal of Special Education*, *30*(4), 390-411. https://doi.org/10.1177/002246699703000403

Bowles, P. E., & Nelson, R. O. (1976). Training teachers as mediators: Efficacy of a workshop versus the bug-in-the-ear technique. *Journal of School Psychology*, *14*(1), 15-26. https://doi.org/10.1016/0022-4405(76)90058-3

Capizzi, A. M., Wehby, J. H., & Sandmel, K. N. (2010). Enhancing mentoring of teacher candidates through consultative feedback and self-evaluation of instructional delivery. *Teacher Education and Special Education: The Journal of the Teacher Education Division of the Council for Exceptional Children*, *33*(3), 191-212. https://doi.org/10.1177/0888406409360012

Carnett, A., Raulston, T., Lang, R., Tostanoski, A., Lee, A., Sigafoos, J., & Machalicek, W. (2014). Effects of a perseverative interest-based token economy on challenging and on-task behavior in a child with autism. *Journal of Behavioral Education, 23,* 1-10. https://doi.org/10.1007/s10864-014-9195-7

Carnine, D. W. (1976). Effects of two teacher presentation rates on off-task behavior, answering correctly, and participation. *Journal of Applied Behavior Analysis*, *9*(2), 199-206. https://doi.org/10.1901/jaba.1976.9-199

Codding, R. S., Feinberg, A. B., Dunn, E. K., & Pace, G. M. (2005). Effects of immediate performance feedback on implementation of behavior support plans. *Journal of Applied Behavior Analysis*, *38*(2), 205-219. https://doi.org/10.1901/jaba.2005.98-04

Cross, L. H., & Billingsley, B. S. (1994). Testing a model of special educators' intent to stay in teaching. *Exceptional Children*, *60* (5), 411-421. https://doi.org/10.1177/001440299406000504

Cullinan, D., & Sabornie, E. J. (2004). Characteristics of emotional disturbance in middle and high school students. *Journal of Emotional and Behavioral Disorders*, *12*(3), 157-167. https://doi.org/10.1177/10634266040120030301

Dal Bello, A., Knowlton, E., & Chaffin, J. (2007). Interactive videoconferencing as a medium for special education knowledge acquisition in preservice teacher education. *Intervention in School and Clinic*, *43*(1), 38-46. https://doi.org/10.1177/10534512070430010501

Darling-Hammond, L. (2014). Strengthening clinical preparation: The holy grail of teacher education. *Peabody Journal of Education*, *89*(4), 547-561. https://doi.org/10.1080/0161956X.2014.939009

Duchaine, E. L., Jolivette, K., & Fredrick, L. D. (2011). The effect of teacher coaching with performance feedback on behavior-specific praise in inclusion classrooms. *Education and Treatment of Children*, *34*(2), 209-227. https://doi.org/10.1080/0161956X.2014.939009

Ermeling, B. A., Tatsui, T. T., &. Young, K. R. (2015). Virtual coaching for instructional leaders: A multi-method investigation of technology-enabled external assistance. *Teachers College Record*, 117(11), 110303.

Gareis, C., & Nussbaum-Beach, S. L. (2008). Electronically mentoring to develop accomplished professional teachers. *Journal of Special Education Leadership, 23*, 14-20.

Gast, D. L., & Ledford, J. (Eds.). (2010). *Single-subject research methodology in behavioral sciences*. New York City, New York: Routledge.

George, N. L., George, M. P., Gersten, R., & Grosenick, J. K. (1995). To leave or to stay? An exploratory study of teachers of students with emotional and behavioral disorders. *Remedial and Special Education*, *16*(4), 227-236. https://doi.org/10.1177/074193259501600406

Gersten, R., Keating, T., Yovanoff, P., & Harniss, M. K. (2001). Working in special education: Factors that enhance special educators' intent to stay. *Exceptional Children*, *67*, 549-567. https://doi.org/10.1177/001440290106700408

Goodman, J. I., Brady, M. P., Duffy, M. L., Scott, J., & Pollard, N. E. (2008). The effects of "Bug-in-Ear" supervision on special education teachers' delivery of learn units. *Focus on Autism and Other Developmental Disabilities*, *23*(4), 207-216. https://doi.org/10.1177/1088357608324713

Gourwitz, J. R. (2014). *iPads for students with ASD: Comparing delivery modes for visual activity schedules* (Unpublished doctoral dissertation, University of Central Florida Orlando, Florida).

Gregory, A., Allen, J. P., Mikami, A. Y., Hafen, C. A., & Pianta, R. C. (2014). Effects of a professional development program on behavioral engagement of students in middle and high school. *Psychology in the Schools*, *51*, 143-163. https://doi.org/10.1002/pits.21741

Gresham, F. M., Lane, K. L., MacMillan, D. L., & Bocian, K. M. (1999). Social and academic profiles of externalizing and internalizing groups: Risk factors for emotional and behavioral disorders. *Behavioral Disorders, 24*(3), 231-245. https://doi.org/10.1177/019874299902400303

Gruenhagen, K., McCracken, T., & True, J. (1999). Using distance education technologies for the supervision of student teachers in remote rural schools. *Rural Special Education Quarterly, 18*(3/4), 58-65. https://doi.org/10.1177/8756870599018003-407

Haydon, T., Conroy, M. A., Scott, T. M., Sindelar, P. T., Barber, B. R., & Orlando, A. M. (2010). A comparison of three types of opportunities to respond on student academic and social behaviors. *Journal of Emotional and Behavioral Disorders, 18*(1), 27-40. https://doi.org/10.1177/1063426609333448

Heafner, T. L., & Petty, T. (2010). Observing graduate interns remotely. *Kappa Delta Pi Record*, *47*(1), 39-43. https://doi.org/10.1080/00228958.2010.10516559

Heafner, T. L., Petty, T. M., & Hartshorne, R. (2011). Evaluating modes of teacher preparation: A comparison of face-to-face and remote observations of graduate interns. *Journal of Digital Learning in Teacher Education*, *27*(4), 154-164. https://doi.org/10.1080/21532974.2011.10784672

Israel, M., Carnahan, C. R., Synder, K. K., & Williamson, P. (2013). Supporting new teachers of students with significant disabilities through virtual coaching: A proposed model. *Remedial and Special Education,* 34, 195-204. https://doi.org/10.1177/0741932512450517

Israel, M., Knowlton, E., Griswold, D., & Rowland, A. (2009). Applications of video-conferencing technology in special education teacher preparation. *Journal of Special Education Technology*, *24*(1), 15-25. https://doi.org/10.1177/016264340902400102

Joyce, B. R., & Showers, B. (1981). Transfer of training: The contribution of "coaching". *Journal of Education, 163*, 63-72. https://doi.org/10.1177/002205748116300208

Joyce, B. R., & Showers, B. (1982). The coaching of teaching. *Educational Leadership, 40*, 4-10.

Kazdin, A. E. (2011). *Single-case research designs: Methods for clinical and applied settings*. New York, NY: Oxford University Press.

Kennedy, C. H. (2005). *Single-case designs for educational research*. Boston, MA: Prentice Hall.

King, B., Radley, K. C., Jenson, W. R., Clark, E., & O'Neill, R. E. (2014). Utilization of video modeling combined with self-monitoring to increase rates of on-task behavior. *Behavioral Interventions*, *29*(2), 125-144. https://doi.org/10.1002/bin.1379

Knight, J., Elford, M., Hock, M., Dunekack, D., Bradley, B., Deshler, D., & Knight, D. (2015). 3 steps to great coaching: A simple but powerful instructional coaching cycle. *Journal of Staff Development: The Learning Forward Journal*, *36*(1), 10-18.

Kratochwill, T. R., Hitchcock, J., Horner, R. H., Levin, J. R., Odom, S. L., Rindskopf, D. M., & Shadish, W. R. (2010). Single-case designs technical documentation. What Works Clearinghouse. Retrieved from http://ies.ed.gov/ncee/wwc/pdf/wwc_scd.pdf

Kretlow, A. G., & Bartholomew, C. C. (2010). Using coaching to improve the fidelity of evidence-based practices: A review of studies. *Teacher Education and Special Education, 33*, 279-299. https://doi.org/10.1177/0888406410371643

Kretlow, A. G., Cooke, N. L., & Wood, C. L. (2012). Using in-service and coaching to increase teachers' accurate use of research-based strategies. *Remedial and Special Education, 33*, 348-361. https://doi.org/10.1177/0741932510395397

Landrum, T. J., Tankersley, M., & Kauffman, J. M. (2003). What is special about special education for students with emotional or behavioral disorders? *The Journal of Special Education*, *37*(3), 148-156. https://doi.org/10.1177/00224669030370030401

Maeda, J. K. (2001). Teacher coaching in physical education: A review. *Physical Educator*, *58*(3), 140-149.

Martens, B. K., Hiralall, A. S., & Bradley, T. A. (1997). A note to teacher: Improving student behavior through goal setting and feedback. *School Psychology Quarterly*, *12*, 33. https://doi.org/10.1037/h0088945

Mashburn, A. J., Downer, J. T., Hamre, B. K., Justice, L. M., & Pianta, R. C. (2010). Consultation for teachers' and children's language and literacy development during pre-kindergarten. *Applied Developmental Science*, *14*(4), 179-196. https://doi.org/10.1080/10888691.2010.516187

Mays, C. (2013). *elocinSoft Web Site* (Version 2.1) [Mobile application software]. Retrieved from http://itunes.apple.com

McKee, W. T., Witt, J. C., Elliott, S. N., Pardue, M., et al. (1987). Practice informing research: A survey of research dissemination and knowledge utilization. *School Psychology Review, 16*(3), 338-347

McLeskey, J., Tyler, N. C., & Flippin, S. S. (2004). The supply of and demand for special education teachers: A review of research regarding the chronic shortage of special education teachers. *The Journal of Special Education*, *38*(1), 5-21. https://doi.org/10.1177/00224669040380010201

Miller, S. P., Harris, C., & Watanabe, A. (1991). Professional coaching: A method for increasing effective and decreasing ineffective teacher behaviors. *Teacher Education and Special Education, 14*, 183-191. https://doi.org/10.1177/088840649101400305

National Statistics for Education Statistics. (2007). *The condition of education 2007* (NCES 2007-064). Washington, DC: US. Department of Education. Retrieved from http://nces.ed.gov/pubs2007/2007064.pdf

Newberry, M., & Davis, H. A. (2008). The role of elementary teachers' conceptions of closeness to students on their differential behaviour in the classroom. *Teaching and Teacher Education*, *2*, 1965-1985. https://doi.org/10.1016/j.tate.2008.02.015

Ottley, J. R., & Hanline, M. F. (2014). Bug-In-Ear coaching impacts on early childhood educators' practices and associations with toddlers' expressive communication. *Journal of Early Intervention*, *36*(2), 90-110. https://doi.org/10.1177/1053815114563614

Pianta, R. C., Mashburn, A. J., Downer, J. T., Hamre, B. K., & Justice, L. (2008). Effects of web-mediated professional development resources on teacher-child interactions in pre-kindergarten classrooms. *Early Childhood Research Quarterly*, *23*(4), 431-451. https://doi.org/10.1016/j.ecresq.2008.02.001

Ploessl, D. M., & Rock, M. L. (2014). eCoaching: The effects on co-teachers' planning and instruction. *Teacher Education and Special Education: The Journal of the Teacher Education Division of the Council for Exceptional Children*, 37 (3), 191-215. https://doi.org/10.1177/0888406414525049

Reid, R., Gonzalez, J. E., Nordness, P. D., Trout, A., & Epstein, M. H. (2004). A meta-analysis of the academic status of students with emotional/behavioral disturbance. *The Journal of Special Education*, *38*(3), 130-143. https://doi.org/10.1177/00224669040380030101

Rock, M. L., Gregg, M., Gable, R., Zigmond, N., Blanks, B., Howard, P., & Bullock, L. (2012). Time after time online: An extended study of virtual coaching during distant clinical practice. *Journal of Technology and Teacher Education*, *20*(3), 277-304.

Rock, M. L., Scheonfeld, N., Zigmond, N., Gable, R. A., Gregg, M., Ploessl, D. M., & Salter, A. (2013). Can you skype me now? Developing teachers' classroom management practices through virtual coaching. *Beyond Behavior*, *22*(3), 15. https://doi.org/10.1177/107429561302200303

Rock, M. L., Schumacker, R. E., Gregg, M., Howard, P. W., Gable, R. A., & Zigmond, N. (2014). How are they now? Longer term effects of eCoaching through online bug-in-ear technology. *Teacher Education and Special Education: The Journal of the Teacher Education Division of the Council for Exceptional Children*, *37*(2), 161-181. https://doi.org/10.1177/0888406414525048

Sailors, M., & Price, L. (2015). Support for the improvement of practices through intensive coaching (SIPIC): A model of coaching for improving reading instruction and reading achievement. *Teaching and Teacher Education*, *45*, 115-127. https://doi.org/10.1016/j.tate.2014.09.008

Scheeler, M. C., Ruhl, K. L., & McAfee, J. K. (2004). Providing performance feedback to teachers: A review. *Teacher Education and Special Education: The Journal of the Teacher Education Division of the Council for Exceptional Children*, *27*(4), 396-407. https://doi.org/10.1177/088840640402700407

Showers, B. (1982). *Transfer of training: The contribution of coaching.* Center for Educational Policy and Management. University of Oregon.

Simonsen, B., Fairbanks, S., Briesch, A., Myers, D., & Sugai, G. (2008). Evidence-based practices in classroom management: Considerations for research to practice. *Education and Treatment of Children, 31*, 351-380. https://doi.org/10.1353/etc.0.0007

Simonsen, B., Myers, D., & DeLuca, C. (2010). Teaching teachers to use prompts, opportunities to respond, and specific praise. *Teacher Education and Special Education: The Journal of the Teacher Education Division of the Council for Exceptional Children, 33*(4), 300-318. https://doi.org/10.1177/0888406409359905

Smith, S. J., & Israel, M. (2010). E-Mentoring: Enhancing special education teacher induction. *Special Education Leadership*, *23*(1), 30-40.

Stormont, M., & Reinke, W. M. (2012). Using coaching to support classroom-level adoption and use of interventions within school-wide positive behavioral interventions and support systems, *Beyond Behavior*, 21(2), 11-19.

Sutherland, K. S., Alder, N., & Gunter, P. L. (2003). The effect of varying rates of opportunities to respond to academic requests on the classroom behavior of students with EBD. *Journal of Emotional and Behavioral Disorders, 11*(4), 239-248. https://doi.org/10.1177/10634266030110040501

Sutherland, K. S., & Wehby, J. H. (2001). Exploring the relationship between increased opportunities to respond to academic requests and the academic and behavioral outcomes of students with EBD: A review. *Remedial and Special Education, 22*(2), 113-121. https://doi.org/10.1177/074193250102200205

Sutherland, K. S., Wehby, J. H., & Copeland, S. R. (2000). Effect of varying rates of behavior-specific praise on the on-task behavior of students with EBD. *Journal of Emotional and Behavioral Disorders*, *8*, 2-8. https://doi.org/10.1177/106342660000800101

Thompson, M. T., Marchant, M., Anderson, D., Prater, M. A., & Gibb, G. (2012). Effects of tiered training on general educators' use of specific praise. *Education and Treatment of Children*, *35*, 521-546. https://doi.org/10.1353/etc.2012.0032

Vernon-Feagans, L., Kainz, K., Hedrick, A., Ginsberg, M., & Amendum, S. (2013). Live webcam coaching to help early elementary classroom teachers provide effective literacy instruction for struggling readers: The targeted reading intervention. *Journal of Educational Psychology*, *105*(4), 1175. https://doi.org/10.1037/a0032143

Wade, W., Bohac, P., & Platt, J. S. (2013). Technology-based induction: professional development strategies for correction education. *Journal of Correctional Education*, *64*(2), 22.

Warner, T. (2012). E-coaching systems: Convenient, anytime, anywhere, and nonhuman. *Performance Improvement*, *51*(9), 22-28. https://doi.org/10.1002/pfi.21305

Wasburn, M. H., Wasburn-Moses, L., & Davis, D. R. (2012). Mentoring special educators the roles of national board certified teachers. *Remedial and Special Education*, *33*, 59-66. https://doi.org/10.1177/0741932510364549

West, R. P., & Sloan, H. N. (1986). Teacher presentation rate and point delivery: Rate effects on classroom disruption, performance accuracy, and response rate. *Behavior Modification, 10*, 267-286. https://doi.org/10.1177/01454455860103001

Whitaker, S. D. (2003). Needs of beginning special education teachers: Implications for teacher education. *Teacher Education and Special Education*, *26*, 106-117. https://doi.org/10.1177/088840640302600204

Yoon, K. S., Duncan, T., Lee, S. W., Scarloss, B., & Sharpley, K. L. (2007). Reviewing the evidence on how teacher professional development affects student achievement issues and answers. *Regional Education Laboratory Program.*

APPENDICES

Appendix A

Frequency of Opportunities to Respond Recording Sheet

Teacher: _____**Date**: _____ **Start Time**: _____ **End Time**: _____

Person recording data: _____ Primary_____
IOA_____

Target Behavior: Opportunities to Respond

Behavior Definition: An opportunity to respond is operationally defined as a teacher asking a question of an individual or group that necessitates a specific response or is open ended with the purpose of having a student describe his/her thought process. To be counted, the question must seek an explicit response that is linked to the E/LA lesson being observed.

Directions: For 15 minutes use a slash mark (/) each time the teacher offers an OTR.

How to Record: Observer will use slash marks to record each OTR observed.

	Notes

Total number of OTR observed_____ Goal OTR_____

Total Agreement IOA Formula:

Lower Total _____ / Higher total _____ * 100% = _____

Appendix B
On-Task Interval Recording Sheet

Student: _____**Date**:_____ **Start Time**: _____ **End Time**: _____ **Person recording data**: _____ **Target Behavior**: On-Task Behavior

Behavior Definition: Looking at the teacher while she is talking; talking to the teacher about the assignment; talking to other students about the assignment during approved group work, or looking at and working on the assignment

How to Record: For a one-minute recording period, mark each box with (x) for on-task intervals and (0) if the student did not remain on-task for the entire interval.

	10 s	20 s	30 s	40 s	50 s	60 s	Notes
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							

Total Intervals of on-task behavior observed____/ Total possible intervals ____ X 100% = _____

Total IOA Formula: Agreement divided by agreement plus disagreement times 100%

A /A + D X 100% =

____/____+____= ___ X 100% = ___%

Appendix C

Professional Development Treatment Fidelity Checklist

Teacher: _____

Date: _____Beginning Time: _____ End Time: _____

Data Collector
Name_____

	yes	no
Professional Development		
Professional development delivered in a one-on-one environment		
Overview of Opportunities to Respond (OTR) – Delivered as Lecture		
Researcher describes evidence-based benefits of OTR– Delivered as Lecture		
Researcher gives examples of ways to increase OTR– Delivered as Lecture		
Teacher views at least 2 videos of OTR used in a classroom		
Researcher and teacher role play OTR		
Definition of Teacher Coaching given to teacher by researcher		
Critical components of coaching were identified		
a) highly engaged, instructive training session(s)		
b) follow-up observations		
c) specific feedback to include sharing of observational data and self-evaluation		
Researcher discussed the specifics of virtual teacher coaching with videoconferencing		
a) Use of videoconferencing technologies		
Teachers had opportunities for questions following the 90-minute training session		
Total yes /13		

Appendix D

Virtual Coaching with Videoconferencing Treatment Fidelity Checklist

Teacher: _____

Date: _____Beginning Time: _____ End Time: _____

Data Collector
Name_____

	yes	no
Coaching The coach:		
How have you felt about the last 2 sessions?		
Tell me about your strengths during these sessions.		
Tell me about your weaknesses during these sessions.		
The student(s) on-task behavior for the last 2 sessions…		
The OTR that you delivered were as follows…		
You delivered _____ number of OTR		
Your goal OTR was _____		
You could increase OTR by…		
Remember, your goal OTR for the next 2 sessions is ____.		
Do you have any questions or concerns?		
Total yes /10		

Appendix E

Social Validity – Opportunities to Respond Intervention

The purpose of this questionnaire is to obtain information that will aid in the selection of classroom interventions. Teachers of students with behavior problems may use these interventions. Please circle the number which best describes your agreement or disagreement with each statement.

Teacher: _____ Date: _____

	Strongly Disagree	Disagree	Slightly Disagree	Slightly Agree	Agree	Strongly Agree
Most teachers would find OTR appropriate for behavior problems.	1	2	3	4	5	6
I would NOT suggest the use of OTR to other teachers.	1	2	3	4	5	6
Most teachers would find OTR suitable to increase on-task behavior.	1	2	3	4	5	6
I would be willing to use OTR in the classroom setting.	1	2	3	4	5	6
OTR would NOT be appropriate for a variety of children.	1	2	3	4	5	6
OTR is consistent with things I have used in classroom settings.	1	2	3	4	5	6
OTR was a fair way to handle the child's problem behavior.	1	2	3	4	5	6
OTR is reasonable for the off-task behavior described.	1	2	3	4	5	6
I liked the procedures used in this intervention.	1	2	3	4	5	6

Student 1	Strongly Disagree	Disagree	Slightly Disagree	Slightly Agree	Agree	Strongly Agree
Increased OTR would be an acceptable intervention for the child's problem behavior.	1	2	3	4	5	6
The child's behavior is severe enough to warrant OTR.	1	2	3	4	5	6
OTR would result in negative side effects for the child.	1	2	3	4	5	6
OTR was a good way to handle this child's behavior problem.	1	2	3	4	5	6
OTR would prove effective in changing the child's problem behavior.	1	2	3	4	5	6
Overall, OTR would NOT be beneficial for the child.	1	2	3	4	5	6

Appendix F

Social Validity - Virtual Coaching

The purpose of this questionnaire is to obtain information that will aid in the selection of professional development techniques. Please circle the number which best describes your agreement or disagreement with each statement.

Date: _____

	Strongly Disagree	Disagree	Slightly Disagree	Slightly Agree	Agree	Strongly Agree
1. Coaching to increase OTR in the classroom is an acceptable form of teacher training.	1	2	3	4	5	6
2. The time spent on virtual coaching was NOT acceptable.	1	2	3	4	5	6
3. Virtual teacher coaching using video conferencing is an acceptable form of professional development.	1	2	3	4	5	6
4. I would recommend virtual coaching to other teachers.	1	2	3	4	5	6
5. I would NOT be willing to participate in virtual coaching to develop another instructional skill.	1	2	3	4	5	6
6. Virtual coaching would be effective to improve a variety of teaching practices.	1	2	3	4	5	6
7. Virtual coaching would NOT cause negative effects in my teaching practices.	1	2	3	4	5	6

What else would you like to share about your coaching/professional development experience?

BIOGRAPHIES

Dr. Millicent Carmouche received her PhD from Georgia State University, in Atlanta, GA. She is currently an Assistant Professor of Special Education at Alabama A&M University in Huntsville, AL. Dr. Carmouche's research interest include students with emotional and behavior disabilities (E/BD), positive behavior interventions and supports (PBIS), classroom collaboration and co-teaching, special education teacher development, teacher coaching, and adolescent students with high-incidence disabilities. Dr. Carmouche is currently working on continuing her line of research using technology to coach co-teaching teams of general and special education teachers.

Jelisa Thompson received her MEd in elementary education from the Alabama A&M University in Huntsville, AL. She worked closely with Dr. Carmouche in the collection and analysis of data for this article. Jelisa has worked with NASA to bring science challenging instruction into local classroom. Jelisa is now a classroom teacher in Decatur City Schools in Decatur, AL and was recently named 2017-2018 New Teacher of the Year. Her research interest include small group learning in elementary classrooms, math and science instruction in elementary classrooms, professional development of teachers, and professional collaboration.

LaTiegra Carter received her Bachelor of Arts degree from the University of Alabama in Communicative Sciences and Disorders in 2012. LaTiegra is currently working on her Master of Education degree in Special Education Collaborative Teaching K-6. She is a former McNair Scholar recipient. LaTiegra's research interest includes co-teaching, collaboration, inclusion, classroom management, multidisciplinary teams and professional development. This article on professional development is vital in the field of education. Educators need to be equipped with the knowledge and skill sets to keep up with the ever-changing demands of education and the diversity of students.