Individualized clinical coaching with bug-in-ear: Enhancing fidelity of implementation of behavior specific praise among novice teachers of students with developmental disabilities in rural classrooms

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Abstract

Five novice special education teachers in rural classrooms received individualized clinical coaching (ICC) via the Internet to increase their use of behavior specific praise (BSP) with their students who had developmental disabilities (DD) during clinical supervision. Web cameras provided opportunities for the teachers to be observed during their regularly scheduled classroom teaching. The participants received brief coaching prompts through a wireless earpiece that they wore while teaching. A single subject multiple baseline across participants design was used to determine if a functional relation existed between the ICC and the rate of BSP use per minute for each of the participants. Visual data analysis of nonoverlap and trend reflected that once the teachers began to receive virtual feedback, their use of BSP increased. In addition, they maintained the teaching behavior once the intervention was removed. Within a social validity questionnaire, each of the teachers reported that they found the coaching to be a valuable, noninvasive intervention for receiving professional development for using an evidence-based practice with their students.

Keywords
behavior-specific praise, bug-in-the-ear, clinical supervision, developmental disabilities, evidence-based practices, novice teachers, teacher education, virtual coaching

Introduction

The passage of the Education of All Handicapped Children Act (PL 94-142, 1975) established the mandate that all students with disabilities would have access to a free and appropriate public education offered in the least restrictive environment, specially designed to meet their needs. Previously, about one million American children with disabilities were receiving no education from the public-school system (Antosh & Imparato, 2014). Since then, there has been progress in securing quality and integrated educational opportunities for children with disabilities in U.S. public schools. However, few schools are well prepared to meet the needs of students with low incidence disabilities (Antosh & Imparato, 2014, Brownell, Sindelar, Kiely, & Danielson, 2010).

In an effort to address the diverse educational needs of students with developmental disabilities, the U.S. Department of Education Office of Special Education and Rehabilitative Services (OSERS, 1996) established a priority to support projects that increased the number and quality of personnel to serve children with low-incidence disabilities. The priority established projects that provide preservice preparation of special educators, early intervention personnel,

and related services personnel. According to OSERS (1996), the term ``low-incidence disability":

means a visual or hearing impairment, or simultaneous visual and hearing impairment (including deaf-blindness), significant mental retardation, or an impairment such as severe and multiple disabilities, severe orthopedic disabilities, autism, and traumatic brain injury, for which a small number of highly skilled and knowledgeable personnel are needed (p.21233).

Students with severe or multiple disabilities may exhibit a wide range of characteristics, depending on the combination and severity of disabilities and the person's age. The National Dissemination Center for Children with Disabilities (2012) reported that some shared traits may share include: (a) limited speech or communication, (b) difficulty in basic physical mobility, (c) tendency to forget skills through disuse, (d) trouble generalizing skills from one situation to another, and/or (e) the need for support in major life activities (e.g., domestic, leisure, community use, vocational). Given such complexities, teacher preparation courses for this population of students must be linked to a research base that is reflective of and sensitive to the challenges of pupils who have very intricate medical, physical, sensory, cognitive, and behavioral needs (Jones and West, 2009). Therefore, it is particularly important that practitioners model strategies of proven effectiveness within their classrooms (Bullock, Gable, & Mohr, 2008; Horner et al., 2005; Wong et al., 2013).

Behavior Specific Praise as a Fundamental Evidence-Based Practice

One strategy with an evidence-base that can be incorporated into regular ongoing classroom instruction and increase appropriate, student participation is the use of behaviorspecific praise, or BSP (Conroy, Sutherland, Snyder, Al-Hendawi, & Vo, 2009; Simonsen, Fairbanks, Briesch, Myers, & Sugai, 2008). Fundamentally, BSP has been shown to be one of the most consistently effective teacher behaviors associated with improved student behavior (Bayat, 2011; Duchaine, Jolivette, & Fredrick, 2011). Researchers have demonstrated that when appropriate student behavior is followed with teacher attention, the rate of appropriate behavior produced by student also increases (Hayling, Cook, Gresham, State, & Kern, 2008). When used with consistency, BSP is an evidence-based practice (EBP) that can positively affect classroom behavior by increasing student time on-task, responses, and correct answers (Myers, Simonsen, & Sugai, 2011; Sutherland, Wehby, & Copeland, 2007). When used with fidelity, praise has also been shown to increase enjoyment of learning (Chalk & Bizzo, 2004).

Coaching the appropriate use of praise has been established to be a critical element of preparing personnel who work with individuals with moderate to severe disabilities in residential settings (Stancliffe, Harman, Toogood, & McVilly, 2008; van Oorsouw, Embregts, Bosman, & Jahoda, 2009). Researchers have also used praise as a component of quality training programs for parents of children with DD (McIntyre, 2008; Smith, Greenberg, Seltzer, & Hong, 2008). In studies where development was provided to novice educators of students with developmental disabilities, BSP has been historically shown to be an effective means of fostering positive teacher/student relationships (Bullock, Gable, & Mohr, 2008; Burnett, 2002) and improving selfesteem among students with low incidence disabilities (Bayat, 2011).

However, reinforcement of newly learned teaching skills from an expert is crucial for practitioners to use them effectively while teaching (Conderman, Moring, & Stephens, 2005;

Scheeler, 2008). When examining how well teachers maintain a newly learned skill, Joyce and Showers (2002) found that teachers will not transfer skill learning without follow-up coaching. For nearly 40 years, coaching has shown to be a powerful practice in teacher education and is defined by the study of pedagogy, observation, and active learning (Joyce & Showers, 1982). Coaching can increase implementation and fidelity of EBPs and subvert limitations of skill acquisition, transfer, and fidelity of intervention strategies for novice teachers (Cornett & Knight, 2009; Kretlow & Bartholomew, 2010; Vince Garland, Holden, & Garland, 2016; Vince Garland & Garland, 2020).

Moreover, when coaching feedback is immediate rather than delayed, teachers are more likely to make necessary changes to their pedagogy (Scheeler, Ruhl, & McAfee, 2004, Vince Garland, Vasquez, & Pearl, 2012; Vince Garland et al., 2016). Ideal conditions for preparing teachers to conduct EBPs with fidelity include practicing in a safe, highly controlled environment with immediate feedback and opportunity for frequent, repeated practice. Although such conditions are typically difficult to realize, technologies may optimize conditions to focus on immediate, corrective feedback from an instructional coach (Hayes, Straub, Dieker, Hughes, & Hynes, 2013; Vince Garland, et al., 2012; Vince Garland et al., 2016). These circumstances provided the premise for providing ICC via BIE to novice in-service teachers of students with developmental disabilities in rural schools. By overcoming geographic and logistical impediments during clinical supervision, the researcher could provide the nascent teachers with rich opportunities to learn a critical and fundamental evidence-based practice with fidelity.

Integrating technology into clinical supervision of teacher candidates in rural settings

Clinical experiences are a hallmark of high-quality teacher preparation programs in special education (McElwee, Regan, Baker, & Weiss, 2018). Within such programs, clinical supervisors face the challenges of ensuring that their candidates can demonstrate the unique knowledge and skills required of highly qualified special educators (Paulsen, DaFonte, & Barton-Arwood, 2015). When novice in-service teachers are located in rural schools, geography can exacerbate the challenges. Scheduling, travel time, and other logistical factors can undermine the ability of university supervisors to provide high quality feedback that is crucial to fostering their candidates' successful acquisition and maintenance of the knowledge and skills necessary to successfully work with their students. To address these challenges, university coaches, mentors, and supervisors can leverage technology in order to provide covert and immediate feedback to newly minted teachers over the Internet at distances spanning hundreds of miles so they can master and maintain evidence-based practices (Rock, Gregg, Gable, & Zigmond, 2009; VanBoxtel, 2017).

One discreet method of providing novice teachers with ICC on their use of evidence-based practices is through audio and video technologies, collectively referred to as Bug-in-Ear (BIE) (Ottley, Grygas Coogle, Rahn, & Spear, 2017; Coogle, Rahn, Ottley, & Storie, 2016; Rock et al., 2009; Rock, Schumacker, Gregg, Howard, Gable, & Zigmond, 2014). Major components that make up BIE include the Internet, a web camera, and a wireless earpiece. Web conferencing platforms are frequently used in conjunction with BIE technology to facilitate discreet observations and feedback to novice teachers during coaching sessions.

Bug-in-the-Ear technology has been used in a variety of educational settings and allows for feedback to novice teachers in order to implement best practices in their classrooms in real time and without being physically present. (Garland & Dieker, 2019; Rock et al., 2009; Scheeler, McKinnon, & Stout, 2012; Scheeler, Ruhl, & McAfee, 2004; Wade, 2010). Studies in numerous general and special educational environments covering content in math, reading, social skills, and spelling have demonstrated increased facilitation of evidence-based instructional strategies with immediate feedback provided to novice teachers (Rock et al., 2009; Scheeler et al., 2010; Scheeler et al., 2012; Wade, 2010). More recently, O'Handley, Durfene, and Wimberley (2021) used BIE for increasing teacher instructional delivery and student compliance.

Qualitatively, beginning teachers who receive immediate, consistent, and formative feedback during clinical supervision have reported having a feeling of support and the ability to manage their classroom more effectively (Colvin et al., 2009; Rock et al., 2009; Scheeler, 2008). When reporting on their experiences of receiving ICC via BIE, novice teachers shared their experiences to be formative, innovative, and supportive (Rock et al., 2009; Scheeler, 2008). In contrast to delayed feedback, the ability of supervising teachers to observe and provide immediate feedback (i.e., within three seconds) provides the opportunity to immediately correct undesirable teacher behaviors as they occur (Colvin, Flannery, Sugai, & Monegan, 2009; Scheeler et al., 2012). In addition, ICC via BIE increases the geographic range at which clinical supervisions can take place, and eliminates repetitive and time-consuming travel to clinical sites (Scheeler et al., 2012). To this end, ICC via BIE can present similar values to using mixed reality classrooms to prepare teachers of students with developmental disabilities to master and maintain the use of evidence-based practices in a reduced amount of time (Vince Garland et al., 2012; Vince Garland et al., 2016).

Schaefer and Ottley (2018) determined that ICC with BIE has a strong evidence base for increasing frequency and accuracy of teaching behaviors of practitioners in a variety of classroom settings. Using BIE, mentors and clinical supervisors can conduct observations and provide coaching to neophyte teachers as they provide instruction with discretion and limited distraction to them or their students (Coulter & Grossen, 1997; Rock et al., 2009; Van Boxtel, 2017). In this study, novice in-service teachers of students with developmental disabilities received ICC with BIE in order to increase their rate of BSP statements per minute during their classroom instruction. The research questions that guided this study were: (a) Does a functional relationship exist between the intervention of ICC with BIE and the rate of BSP used by novice teachers of children with DD with their students? and (b) Given an increased rate of BSP use, do teachers maintain the rate when the intervention is removed?

Method Participants and Setting

A convenience sample was employed for the purpose of this study, and the five participants selected were graduate level special education majors who were pursuing their graduate degrees and state certifications in severe and profound disabilities at a large research university in the southeast. The certification programming required that the in-service teachers successfully complete a graduate internship in which the implementation of evidence-based practices occurs. Four females and one male ranging in age from 23 to 41 volunteered for the

study. An inventory assessment was distributed prior to the first baseline probe session to measure participants' present level of knowledge regarding BSP. Results from the inventory assessment indicated that no participant had previous knowledge of BSP. Demographic information is provided in Table 1.

< Insert Table 1 about here>

Participant	Age	Gender	Undergraduate Degree	Training in BSP
Katherine	25	Male	History/Special Education	none
Marie	23	Female	Elementary Education	none
James	30	Male	Social Studies/Special Education	none
Charlotte	41	Male	Early Childhood/Childhood Education	none
Barbara	26	Female	Special Education/ Elementary Education	none

Table 1. Participant Demographic Information.

During this study, the participants were enrolled in a course that focused on conducting research while using evidenced-based practices among children with severe disabilities. Criteria for selection of participants included being enrolled in the course and having no previous formal experience or preparation in the EBP of BSP. The teachers who participated in the study were Katherine, Marie, James, Charlotte, and Barbara (pseudonyms). Katherine and Marie taught at a K-12 center public school for children with disabilities in a rural school district, and collectively described their students as having a range of disabilities including physical and speech impairments, intellectual delays, and seizure disorders. James taught at a K-12 charter school in a rural school district. He described his students' range of disabilities as including autism spectrum disorders and intellectual delays. Charlotte and Barbara also taught in a K-12 center public school for children with disabilities in a rural school district, and collectively described their students as having moderate to severe intellectual disabilities and a range of moderate to severe developmental disorders.

The study took place over an eight-week period during an academic semester. Coaching sessions occurred three days per week, two times per day, for 15 minutes at a time in the teachers' classrooms. Observations were scheduled to take place when the teachers were implementing direct instruction with their students. All observations were made over the Internet using the Adobe® Connect™ web conferencing platform. The researcher observed the teachers from a university, which was located approximately four miles away from one teacher, 26 miles from two teachers, and 80 miles away from other two teachers. Once consents to conduct the study were obtained, the researcher met with the teachers and taught them how to use the technologies and devices that would be used during the study. The researcher tested the technology devices in each classroom for ideal placement of the web cameras and audio quality of the Bluetooth earpieces. To protect student privacy, the web camera within each classroom was positioned so that the students' faces could not be seen. The teachers were observed from a webcam enabled laptop computer during each session during prearranged sessions.

Dependent Variable and Measure

The dependent variable was measured as the average rate per minute of BSP statements made during reading instruction. Behavior specific praise (BSP) is operationally defined as positive comment(s) about an academic or social behavior that describes the behavior and affirms a student's response or actions and is paired with a student's name (Bani, 2011; Capizzi, Wehby, & Sandmel, 2010; Sutherland, Wehby, & Copeland, 2007). Examples of BSP include pointing at a written response paired with a verbal affirmation to the student (e.g., "nice job using correct punctuation, Joey"), verbal descriptions of the behavior paired with a praise statement (e.g., "thanks for raising your hand, Karen"), and repetition of answers paired with a praise statement (e.g., "you're right, Lily, the word is *capture*, good job"). Praise statements that are not "behavior-specific" (e.g., "Right, Joey" "Good job, Karen" "Thank you for..." "Yes!" and "You've got it!") were not counted as an occurrence of BSP. The mean rate per minute of specific feedback statements was tallied using a data collection sheet (see Figure 1). The average rate per minute was determined by: (a) counting the number of BSP statements made in each interval, and (b) dividing the total number of BSP statements made in each interval by five to determine the average rate per minute.

Participant:						
Date:						
	Session:		Session:		Session:	
5-min. Intervals	# of Prompts	BSP Statements	# of Prompts	BSP Statements	# of Prompts	BSP Statements
0-5 min.						
6-10 min.						
11-15 min.						
Total						

Figure 1. Data sheet for recording frequencies of behavior specific praise.

Experimental Design

A multiple probe across participants' single case design (Gast, 2010) was utilized to examine the delivering immediate feedback on to increase BSP statements via BIE. A multiple probe design is a variation of a multiple baseline design in that data are collected recurrently to evaluate trends and patterns in data within and between tiers (Horrocks & Morgan, 2011). Multiple baseline procedures are ideal for evaluating change over time, and therefore are particularly useful in teacher preparation research (Scheeler, et al., 2012). A single subject research design was chosen because the design allows for the participants to serve as their own comparison (Tankersley, Harusaola-Webb, & Landrum, 2008) and has been found to be particularly useful in defining educational practices at the individual level (Gast, 2010; Horner et al., 2005). Furthermore, single subject designs have been considered to be philosophically parallel to special education's core principles of individualized instructional decision-making and frequent monitoring of student progress (Tankersley et al., 2008).

Participants underwent concurrent baseline sessions. After three baseline sessions, a visual analysis was conducted and the first participant began the intervention phase. When the dependent variable showed a clear and marked acceleration of trend, the second participant began intervention. This process was repeated for each participant. Once a participant met the mastery criteria of 80% for fidelity of BSP for three consecutive sessions, maintenance data were collected for the remainder of the study.

Baseline was collected concurrently and treatment was staggered across participants. If baseline data remained stable and the rate of BSP statements increased only following the intervention of coaching sessions, then the following conclusions would be supported: (a) observed effects were likely due to the intervention and not due to an external variable that may have occurred, and (b) repeated exposure to baseline conditions did not affect performance. Based upon visual analysis of baseline, Katherine was brought into the treatment phase first, and the remaining participants continued in baseline. When Katherine demonstrated consistent gain (across four intervention sessions), Marie was brought into the treatment phase, followed by James, Charlotte, and Barbara, respectively.

Validity and Reliability

The author and a graduate student volunteer practiced data collection using the data collection sheet while observing both live and recorded baseline performance of a volunteer who was not used in study. The two practiced until reaching 90% agreement. Agreement was then calculated on the data collection sheet by dividing the number of agreements by the number of agreements plus disagreements for each session, and multiplying by 100% (Gast, 2010). A disagreement was documented if there was a discrepancy between observers. Inter-observer agreement (IOA) checks occurred across 30% of each phase of the study on each participant. Inter-rater reliability for scored sessions averaged 98% average agreement, ranging from 92%100%.

The graduate student volunteer conducted fidelity checks on the author's fidelity of ICC on over 30% of each participant's sessions (specifically, in demonstrating BSP statements) using the same operational definitions that were provided to the participants. Fidelity of implementation was 100%. Each teacher completed an online questionnaire to assess acceptability of the intervention (Wolf, 1978). Each participant completed the survey after data

collection was completed. The questionnaire consisted of the following questions: (a) Did you like receiving feedback from the researcher using Bluetooth earpieces? Why/why not; (b) Were you distracted by the feedback you received while wearing the earpiece; (c) Would you recommend using Bluetooth earpieces and webcams to other teachers or supervisors? (if no, please give a brief explanation for your answer.); (d) What other ways could Bluetooth technology be used by teachers; and (e) What impact, if any, did using the Bluetooth earpieces and webcams have on your students (e.g., changes in student behavior).

Procedure

On the days of scheduled observations, participants turned on their classroom computers, which were equipped with a webcam that captured the direct instruction of their students, and logged into the web conferencing platform so they could be seen and heard by the researcher. They also turned on their Bluetooth earpieces and confirmed audio reception from the researcher. Prior to each observation, the researcher wrote identifying information on the top of the data collection sheet and initiated the observation session upon the prearranged meeting times.

Baseline

In baseline data collection, participants wore headsets. There was, however, no feedback provided to any participant. The researcher collected data during scheduled baseline observations. After baseline data was collected on all participants for at least four observation sessions, visual analysis was conducted. The teacher with the lowest and slightly descending data was brought into the intervention phase first. The teacher with the next lowest average rate of BSP per minute was designated participant two, and then transitioned to the next phase of intervention, followed by the third, fourth, and fifth teachers. If all teachers had demonstrated a low initial average rate, the primary researcher would have drawn names out of a hat to determine the order for the introduction of the intervention phase.

Intervention

When participants entered the treatment phase, they were given the operational definition of BSP. During the intervention, the researcher prompted the participants to use BSP through the Bluetooth earpieces from a remote location (university campus) during the teachers' direct instruction to their students. The researcher provided feedback using short phrases.Examples included, (a) "remember to praise"; (b) "be specific"; and (c) "name the student". No other feedback was given to the participants. Fifteen-minute observations were broken down into three consecutive, five-minute intervals. During this time, the number of specific feedback statements the teachers provided to their students was recorded. The average rate per minute of BSP statements made to students was then determined.

Maintenance

Each participant was probed for independent maintenance of using BSP after the intervention of ICC was removed. Maintenance data were collected once a week following termination of the intervention for each participant. Each participant remained in maintenance phase until all five participants completed the intervention, and maintenance data on all participants were collected at least twice.

Results

Results from the visual analysis of this study suggests that providing ICC via BIE was successful in increasing the teachers' use of BSP. There is a clear increase in both slope and level

for all the participants. The rate of BSP statements per minute is presented in Figure 2. During the baseline condition, the rate of BSP statements used per minute for the group ranged from 0 to 0.4 (Katherine, *M* = 0.1, range = 0 to 0.2, Marie, *M* = 0.125. range = 2.0 to 3.2, James, *M* = 3.67, range = 3.2 to 4.2, Charlotte, *M* = 0.125, range = 0 to 0.2, and Barbara, *M* = 0,025 range = 0 to 0.1). When ICC via BIE was introduced in the intervention phase, the rate of BSP statements used per minute increased from baseline condition for all five teachers. Rate of BSP ranged from 14 to 42 (Katherine, *M* = 4.55, range = 3.2 to 6.0, Marie, *M* = 2.67. range = 2.33 to 3.2, James, *M* = 4.0, range = 2.8 to 5.6, Charlotte, *M* = 3.8, range = 2.0 to 5.8, and Barbara, *M* = 3.1 range = 1.8 to 4.2. When the intervention was removed and maintenance of it was measured among the participants, the rate of BSP statements used per minute for the group ranged from 2.0 to 5.6 (Katherine, *M* = 4.55, range = 3.8 to 5.6, Marie, *M* = 2.67. range = 2.0 to 3.2, James, *M* = 3.67, range = 3.2 to 4.2, Charlotte, *M* = 3.8, range = 3.6 to 4.0, and Barbara, *M* = 3.5 range = 3.2 to 3.8).

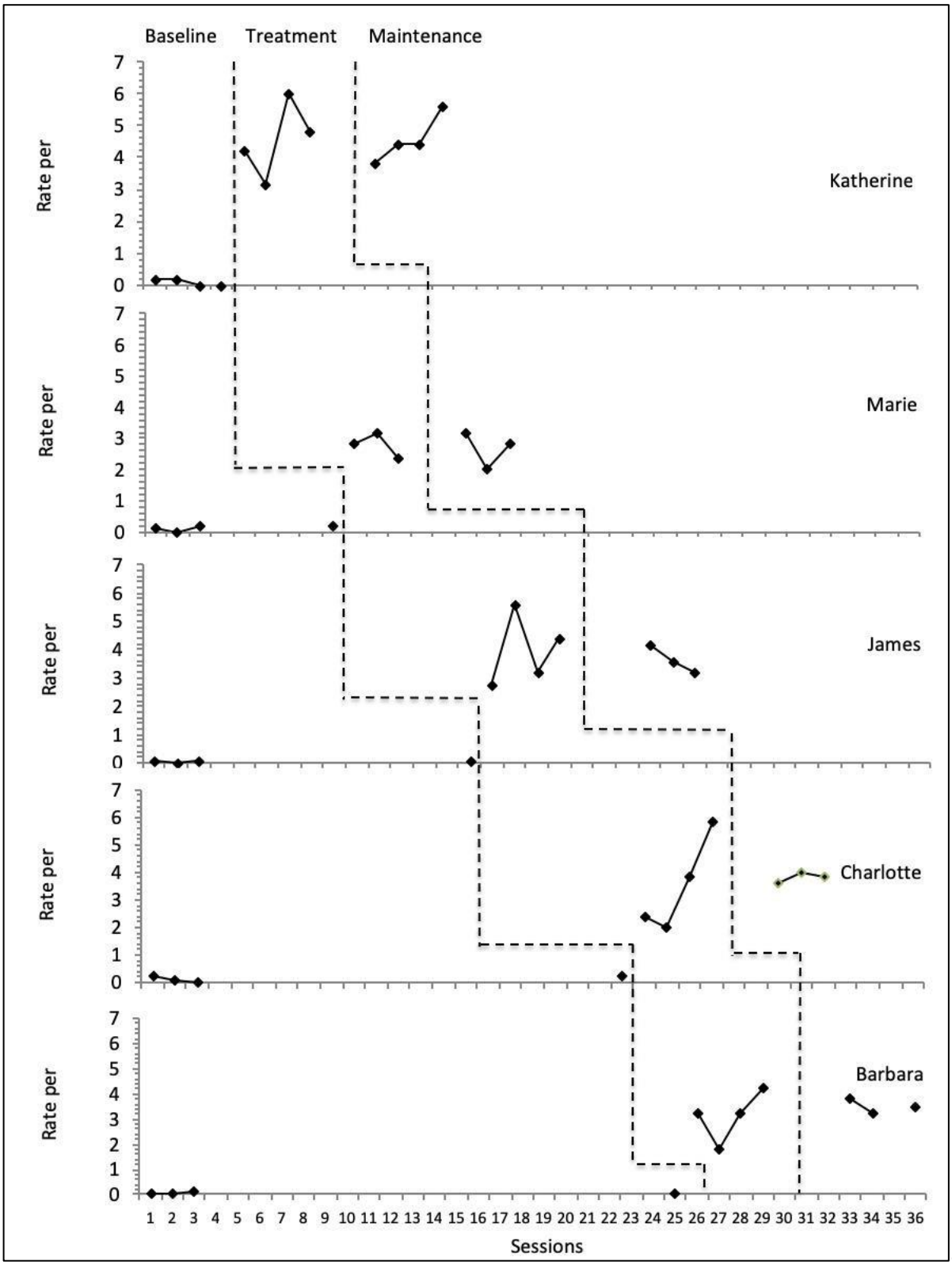

Figure 2. Rate of BSP statements per minute used by teachers.

Percentage of Non-overlapping Data

A secondary analysis Percentage of Non-overlapping Data (PND) was completed. The purpose of the PND is to provide the reader with an overall effect similar to effect sizes in group designs. Percentage of non-overlapping data (PND) was calculated by examining the percentage of intervention data points that did not overlap with the highest baseline data point (Gast, 2010). A horizontal line was drawn from the most extreme data point in baseline and extended the line through the intervention condition phase (Gast, 2010). Scruggs, Mastropieri, and Castro (1987) identified the following guidelines for interpretation of PND: Percentage of non-overlapping that were greater than 90% represented very effective treatment, 70-90% effective, 50-70% questionable, and below 50% ineffective. The PND for this study was 100%.

Social Validity

Each teacher completed a five-item questionnaire on the acceptability of the intervention upon completion of the data collection. Results reflect that all of the participants felt comfortable wearing the Bluetooth earpiece for the duration of the observations. Barbara found the feedback distracting initially, but the other teachers were not distracted at all. All five teachers indicated that they would welcome feedback in the future from administrators using BIE, and one participant indicated that she thought it would be especially useful for outside research observations. Suggestions for future use of BIE included (a) classroom observations by administrators; (b) pairing the Bluetooth earpiece with walkie-talkies so the teacher could use both hands while addressing behavioral issues and communicate with administration for assistance; (c) recording themselves for self-assessment and reflection; (d) assisting students with homework; and (e) using the technology to monitor their classrooms while teachers are in meetings or trainings. In terms of impact on students, no participant indicated that students were distracted by the webcam or earpiece.

Discussion

The purpose of this study was to examine the effects of delivering immediate virtual feedback via BIE technology using the Adobe® Connect™ platform on the rate of BSP statements per minute that teachers used during direct instruction of students with moderate to severe and/or profound disabilities, and to determine if the intervention was acceptable to the participants. Findings of this study suggest that (a) immediate virtual feedback delivered via BIE technology increased the use of an evidence-based practice (behavior specific praise) and (b) the intervention was an acceptable way for supervisors to provide support to teachers from remote locations. The findings provide support for the use of immediate virtual feedback with teachers to improve teaching techniques, and suggest that the technology used in the study is a useful efficient way to deliver the feedback in a discreet manner. Given the trend toward an increased use of web-based instruction in teacher preparation programs, BIE is a relevant means by which teacher candidates can receive immediate feedback from clinical supervisors during their nascence.

Limitations

Limitations of this study include the fact that the results are unique to the teachers who participated. In addition, conditions such as spring break and field trips were limiting factors in terms of scheduling data collection. Greater consistency in the scheduling of observations would have likely produced conditions favorable to monitor the maintenance of the intervention. Since

many of the students were nonverbal, it was at times difficult to determine whether or not they responded to the requests of their teachers. Therefore, the researcher may have missed opportunities to deliver coaching prompts to the teachers. Lastly, data was not collected on the students' correct responses, which could be a considered a limitation of the study. Future studies should take student-learning measures into consideration.

Implications

This study has implications for the field of teacher preparation in special education in that it extends previous research on delivering discreet feedback to teachers via webcam and Bluetooth earpieces from a distance to include teachers of students with developmental disabilities. Technology was a facilitator of providing immediate feedback without interrupting instruction or distracting students. To be effective, feedback must be immediate, positive, specific, and corrective (Scheeler, Ruhl, & McAffee, 2004; Van Houten, 1980). In this study, the researcher provided ICC via BIE to novice teachers of students with DD in rural classrooms. One of whom was teaching four miles away, two were in schools 26 from the university, and the other two were in schools 80 miles away. In their responses to a social validity survey, the participants suggested that future research could extend the exploration of using innovative technologies to provide support to special and general educators in the learning and mastery of evidence-based practices to ensure that their students receive a high-quality education in the least restrictive setting. Additional future research could include the training of school administrators to use BIE technology for formative evaluations and college internship supervisors could be trained to use BIE technology for purposes of providing feedback to student teachers in rural areas.

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