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# Comparison of In-Person and Virtual Coaching of Preservice Special Education Teachers

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# COMPARISION OF IN-PERSON AND VIRTUAL COACHING OF PRESERVICE SPECIAL EDUCATION TEACHERS

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THESIS

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A thesis submitted in partial fulfillment of the requirements
for the degree of Master of Science in Education in the
College of Education
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By

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ABSTRACT OF THESIS

# COMPARISION OF IN-PERSON AND VIRTUAL COACHING OF PRESERVICE SPECIAL EDUCATION TEACHERS

Traditionally, university supervisors have provided coaching to special education preservice teachers after direct observations of sessions within the classroom. As a result of the COVID-19 pandemic, many public school districts in the United States enforced visitor restriction policies that made face-to-face observations difficult or impossible. When faced with this challenge, university supervisors were forced to consider alternative ways to provide feedback. Many questioned whether virtual coaching was as effective as in-person coaching in increasing teacher behaviors. Presently, there are limited studies that suggest one delivery method is more effective or efficient than the other. This study used a Repeated Acquisition Design to compare the effectiveness and social validity of in-person and virtual coaching models in increasing the use of HLPs in special education student teachers.

KEYWORDS: High-leverage practices, preservice special education teachers, moderate and severe disabilities, coaching, video annotation software

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04/12/2022
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# COMPARISION OF IN-PERSON AND VIRTUAL COACHING OF PRESERVICE SPECIAL EDUCATION TEACHERS

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## SECTION 1: INTRODUCTION

Sufficient experience in a variety of practicum settings is a crucial part of preparing preservice special education teachers to enter the field (Boe et al., 2007; Brownell et al., 2005; Darling-Hammond & Sykes, 2003). Fieldwork experiences provide preservice teachers the opportunity to hone their skills and practice utilizing strategies learned in their teacher preparation programs (Darling-Hammond & Sykes, 2003). Preservice teachers are trained to incorporate a variety of High Leverage Practices (HLPs) when implementing instructional programs and leading activities with students with moderate to severe disabilities (Collins, 2012; McLeskey et al., 2019). There is currently a list of 22 HLPs developed by the Council for Exceptional Children that describes effective, evidence-based practices that special educators should utilize in their classrooms with students with disabilities (McLeskey et al., 2019). Four domains are targeted (i.e., Collaboration, Assessment, Social/Emotional/Behavioral, Instruction), with Instruction having the highest number of HLPs.

Although special education professors may discuss the importance of utilizing HLPs in their undergraduate methods courses, in order to become fluent, preservice special education teachers must practice implementing these strategies in their practicum and student teaching placements. Experienced supervisors and cooperating teachers should provide regular feedback to preservice teachers on their use of HLPs during their limited time in the classroom (Darling-Hammond & Sykes, 2003). One way to ensure that preservice teachers receive an adequate amount of performance-based feedback is to schedule regular observations with university supervisors. Certified teachers and preservice teachers are more likely to maintain and implement HLPs with fidelity when

coached by a supervisor, peer, or skilled colleague rather than receiving training alone (Rakap, 2017; Rathel et al., 2008; Rudd et al., 2009). During and after observations, supervisors can use a variety of coaching methods to increase preservice teachers' use of HLPs with students with moderate to severe disabilities (Hager et al., 2020; Hemmeter et al., 2011; McLeod et al., 2019; Rakap, 2017).

Various coaching models discussed in the special education and early childhood education literature have been shown effective in increasing target teacher behaviors (Artman-Meeker et al., 2015; Barton et al., 2013; Hager et al., 2020; Kretlow & Bartholomew, 2010; McLeod et al., 2019; Rakap, 2017). There is no gold standard model for coaching adults in educational settings, but the literature "...supports the use of planning, observation, action (e.g., modeling, role-play, assistance), reflection, and feedback as essential to the coaching experience…" (Artman-Meeker et al., 2015, p. 2). According to a literature review of adult coaching methods conducted by Artman-Meeker and colleagues (2015), three of the most commonly used components of coaching included (a) performance-based feedback, (b) practice sessions, and (c) collaborative progress monitoring between supervisors and trainees. Kretlow & Bartholomew (2010) suggest that coaching models for teachers and preservice teachers should include modeling target teacher behaviors and providing performance-based feedback following frequent observations. The delivery methods of each component of coaching also vary in the literature.

Traditionally, university supervisors have provided coaching to preservice teachers after direct observations of sessions within the classroom. As a result of the COVID-19 pandemic, many public school districts in the United States have enforced

visitor restriction policies that make face-to-face observations difficult or impossible. Although there has been a drastic change in how some university supervisors are able to provide coaching, there is still a set of expectations and requirements that the student teachers need to meet prior graduating. When faced with this challenge, university supervisors were forced to consider alternative ways to provide feedback to their preservice teachers while still ensuring that the preservice teachers were able to meet these requirements. While some university supervisors were able to provide immediate feedback in real time (i.e., in-vivo) during in-person or virtual sessions (e.g., Zoom, Skype), others provided delayed feedback on prerecorded virtual lessons.

### *In-Vivo Coaching*

Much of the current literature on observing and coaching preservice teachers includes a face-to-face delivery method. Traditional supervision includes a university supervisor sitting in the classroom while the pre-service teacher delivers a lesson. Feedback can be provided through immediate modeling or coaching. With the advancement of educational and communicative technology, the number of ways in which coaching can be delivered has increased substantially. These technologies make it possible for coaches to observe and communicate in real time with their trainees without ever stepping foot in the classroom. Research has demonstrated the effectiveness of providing virtual in-vivo coaching using bug-in-ear technology (Coogle et al., 2017), text messaging (Barton et al., 2018), and video conferencing (Ault et al., 2018; Dymond et al., 2008; Hager et al., 2012). Ault et al. (2018) evaluated the effectiveness of observing distanced alternative certification teachers in real time through Skype. A previous study conducted at the same university evaluated distance observations using Microsoft Office

Communicator (Hager et al., 2012). Both studies suggested that real time virtual sessions may be a reliable way to observe distanced preservice and special education teachers.

### *Delayed Coaching*

As opposed to in-vivo coaching, more recent studies have evaluated the effects of delivering delayed feedback after observations via email (Barton et al., 2019; Barton & Wolery, 2007; Hemmeter et al., 2011; McLeod et al., 2019), video-based remote supervision (Van Boxel, 2017), and video annotation software systems (Ardley & Hallare, 2020). While in-vivo coaching provides feedback immediately during the observation, delayed coaching provides feedback after an observation is finished. Delayed coaching can occur after an in-person observation (e.g., university supervisor emails a rubric, text message, phone call) or after watching a prerecorded video. University supervisors may choose to have their preservice teachers record themselves teaching a lesson and email it, put it on YouTube, upload it to a video software system, or save it for a self-reflection activity. Coogle et al. (2020) examined the effects of both delayed and immediate feedback on the use of embedded learning opportunities in special education student teachers. The coach provided delayed feedback via email following an in-person observation in the first phase of intervention. During the second phase, the coach used bug-in-ear technology to provide immediate feedback in real time during the observation. Results of the study suggest that both forms of feedback were effective in increasing the target skills.

Video software systems such as GoReact (2021) allow preservice teachers to submit pre-recorded videos of themselves teaching a lesson or implementing a procedure in the classroom (Ardley & Hallare, 2020). GoReact reports that more than 700

institutions have used their software system to observe and provide feedback to students in practicum settings. Coaches are able to provide performance-based feedback on target behaviors using time event recording measures that automatically generate graphs, making collaborative progress monitoring easier and more accessible (Hager et al., 2020). Although a coach is not present to provide immediate reinforcement or error correction, the observer can insert timestamps in the prerecorded video to indicate that a target behavior occurred or did not occur when given an opportunity (GoReact, 2021; Hager et al., 2020). Having a compilation of videos throughout the placement also allows preservice teachers to self-evaluate and reflect on their progress (Hager et al., 2020; McLeod et al., 2019). Using a software system like GoReact may be a viable component of virtual coaching for preservice special education teachers.

When assessing the social validity of various coaching delivery methods, studies have discussed pros and cons to both virtual and in-person coaching models and the personal preferences of the participants. While some teachers prefer receiving feedback face-to-face following an observation, others report feeling less pressure when being observed virtually (Ault et al., 2018; Dyke, 2008). As public schools return to in-person learning and visitor restrictions subside, university supervisors and administration question whether it is necessary to continue investing in distanced observation technology (e.g., GoReact, video conference platforms) or return to the traditional in-person coaching model. Depending on the size of the teacher preparation program, coaches may invest a significant amount of time and money to travel between placements (Ault et al., 2018; Dyke, 2008; Hager et al., 2012). Perhaps a combination of in vivo and virtual observations is a way to allow student preference and supervisor

feasibility. Presently, there are limited studies that suggest one delivery method is more effective or efficient than the other. There are even fewer studies specifically target special education teachers and preservice teachers that provide instruction to students with moderate and severe disabilities. The purpose of this study is to compare the effectiveness of in-person and virtual coaching models to increase the use of HLPs in special education student teachers.

## SECTION 2: RESEARCH QUESTIONS

The following research questions were evaluated: (a) When comparing in-person and virtual coaching, is one coaching model more effective in increasing the use of HLPs (specifically active student engagement and positive constructive feedback to guide students' learning and behavior) in special education student teachers in the MSD setting? (b) Does the student teacher's preferred method of coaching result in a greater increase in the target behavior than the nonpreferred method?

## SECTION 3: METHOD

### Participants

#### *Student Teachers*

Four special education student teachers participated in this study. To be eligible to participate, the student teachers had to be (a) enrolled in the student teaching course during the 2022 spring semester; (b) placed in an elementary, middle, or high school classroom that served students with moderate to severe disabilities (MSD) for their first placement in January 2022; (c) in good academic standing; and (d) their previous cooperating teachers and university supervisors reported high attendance rates and a professional disposition in their practicum placements. Student teachers were excluded from the study if they were placed in classrooms serving students with learning disabilities or behavior disorders (LBD) for their first eight-week placement or in a school outside of the local school district. Prerequisite skills included the ability to plan and implement lessons, make accommodations and modifications to academic content for students with moderate to severe physical and intellectual disabilities, and manage behaviors within a group of students. Prior to the study, the student teachers had both virtual and in-person practicum experiences in a variety of special education classrooms. The student teachers had received instruction on HLPs in their TEP courses and received feedback from their university supervisor and cooperating teachers in the LBD setting. Prerequisite skills were assessed by reviewing prerecorded lessons uploaded by each participant on GoReact during their Fall 2021 practicum placement. Their university supervisor verified that each participant met the inclusion criteria prior to screening.

#### *Primary Investigator*

The primary investigator was a second year Special Education graduate student. This study was completed as a partial requirement of the final examination for her Teacher Leader Master's in Special Education. She received her undergraduate degree in Special Education with a dual certification in MSD and LBD. Because she graduated from the same Teacher Education Program (TEP), she was familiar with the procedures and data collection system used during student teaching observations.

### *Secondary Data Collector*

The secondary data collector was a second year Applied Behavior Analysis graduate student. She also received her undergraduate degree in Special Education with a dual certification in MSD and LBD from the same TEP. The secondary data collector received training on procedural fidelity (PF) and interobserver agreement (IOA) data collection procedures. Both the primary and secondary data collectors had completed the Human Subjects Protection and Responsible Conduct of Research trainings prior to the study.

## Instructional Setting and Arrangement

All observation sessions for each participant were conducted in their assigned MSD classroom. Each participant was placed in a public elementary, middle, or high school in the local school district. In each observation session, the student teacher provided group instruction with two or more special education students with at least one other adult in the room (e.g., cooperating teacher, paraprofessional). Observation times varied throughout the school day depending on each participant's classroom schedule. All observations occurred during the same type of lesson or activity (e.g., small group math

lesson, calendar, morning meeting) for the duration of the study. During in-person condition sessions, the primary implementor sat in the back of the classroom to decrease distractions to students while collecting data. If reliability data were being collected, the secondary observer sat in the same area of the room as the primary implementor but with some distance between them. This ensured that one data collector could not see the data sheet of the other during each session. After in-person observations, coaching sessions were conducted one-on-one in the hallway. During virtual condition sessions, the student teachers were instructed to stand at the front of the classroom (e.g., with their backs facing toward a wall, screen, or board) and tilt their recording devices in a way that ensured that no students or staff were seen in the video (for confidentiality). Virtual coaching session procedures were conducted through the Student Teaching course pages on GoReact (see below).

**Materials and Equipment**

Each participant required the following materials for observation sessions: (a) a smartphone or tablet with video recording capabilities, (b) Wi-Fi to access their GoReact accounts, and (c) any necessary materials for their individual lesson (e.g., lesson plan template, worksheets, manipulatives, writing utensils). The university provided access to GoReact accounts for all students in the TEP and the student teachers were assigned a course page where they uploaded prerecorded lessons. The primary investigator acted as the teaching assistant for the Student Teaching course and had permission to access the videos uploaded to the course page on GoReact. She downloaded the videos and stored them on a password protected Microsoft SharePoint folder, where the second observer accessed the videos and data collection sheets. Additional materials used by the primary

investigator for each session included (a) data collection sheets for each dependent variable, (b) a laptop with Wi-Fi to access the GoReact account, (c) an interval timer, (d) a clock or phone to record start and stop times, (d) a paper or digital graph for each participant, and (e) a writing utensil. During sessions with IOA and PF data collection, the secondary observer was provided with fidelity data sheets.

## Dependent Variables

Data were collected on three behaviors for each participant: two dependent variables and one control. Behaviors were counterbalanced using random.org across participants and dependent variables.

Table 1 Counterbalanced Dependent Variables

| | In-Person | Virtual | Control |
|---|---|---|---|
| Participant 1 | BSP | OTR | NTI |
| Participant 2 | BSP | NTI | OTR |
| Participant 3 | OTR | NTI | BSP |
| Participant 4 | OTR | BSP | NTI |

### *Opportunity to Respond (OTR)*

An OTR (active student responding) was defined as any instance in which the student teacher provided a discriminative stimulus (e.g., asked a question, provided a task direction) that signaled for one or more students to verbally or physically respond during instruction. Examples included the student teacher asking a question to one student (e.g., "What is today's date?") or providing an opportunity for the whole group to provide a response (e.g., asking the class to hold up their whiteboards). Nonexamples would include an instance in which the student teacher repeats the task direction to prompt the

student to initiate response to a previous task demand. For example, if the teacher said, "what number?" and the student did not respond, and she said, "(student name), what number?" it only counted as one OTR. If the teacher said, "what number?" and the student did not respond, and she then provided a different task direction like "say 3" it counted as two separate OTRs.

### *Behavior-Specific Praise (BSP)*

BSP (positive constructive feedback to guide students' learning and behavior) was defined as an instance in which the student teacher immediately delivered verbal reinforcement while providing a description of the stimulus and student's correct response/appropriate behavior. Examples of BSP statements included, "Great job finishing that worksheet!" or "Correct, today (stimulus) is Monday (student's correct response)!" Nonexamples included generic, nondescriptive praises like "good" or "nice work." To count an occurrence of BSP, the student teacher had to begin providing praise within 3 s of the student's verbal or physical response.

### *Nontarget Information (NTI)*

NTI (positive constructive feedback to guide students' learning and behavior) was defined as a statement made by the student teacher that provided additional information about the stimulus that was not directly related to the objective of the question/lesson. For example, the student teacher might follow up a BSP statement, "Nice job! That is a triangle!" with additional information like, "I see three more triangles. One plus three equals four triangles." If the purpose of the lesson is to teach students how to identify 2D shapes, following up with a verbal model of how to solve an addition equation would be an example of NTI. Another example would be if the student teacher was leading calendar and said "You're right, today is Tuesday. Tuesday starts with the letter T like

"train" and "turtle." A nonexample would be if the student teacher extended their response to provide more information on the targeted content like "If today is Tuesday, that means tomorrow will be Wednesday."

### *Data Collection*

The primary investigator used a timed event recording system to collect data on the student teachers' target behaviors during each condition. Participants were observed for two to three 5-min sessions during 15-min observations. Each 5-min session was divided into 1 min intervals. During pretest and posttest sessions, a count of all three behaviors (i.e., both dependent variables and the control) were collected. During in-person coaching sessions, data were collected in-vivo. For virtual sessions, data were collected on a prerecorded video of a lesson uploaded to GoReact. Data were collected on the control behavior during all sessions across conditions. The primary implementor utilized the Student Teacher Observation data sheet (see Appendix A) for coaching sessions and the Student Teacher Observation – Pre/Posttest data sheet (see Appendix B) for pretest and posttest sessions.

## Experimental Design

A Repeated Acquisition Design (RAD) was used to compare the effectiveness of in-person and virtual coaching of special education student teachers (Ledford & Gast, 2018). When using a RAD, researchers select a set of equally difficult behaviors. Each behavior must be nonreversible, meaning that once the skill is acquired, responding should not return to baseline levels when the treatment is withdrawn. Data are collected before the treatments are introduced (i.e., pretest) and after intervention (i.e., posttest). A

functional relation is demonstrated when there is a clear difference in the change in level from pretest to posttest when visually analyzing the graph; this is strengthened when the difference is repeated across intervention conditions and when the control condition has less change in level than intervention conditions. In this study, the three behaviors were counterbalanced across participants and dependent variables (e.g., Participant 1 received intervention on OTR and BSP with NTI as the control, Participant 2 received intervention on BSP and NTI with OTR as the control). Randomization was used to assign one of the two treatments (i.e., in-person or virtual coaching) to each of the participant's dependent variables. The additional control behavior was assessed across all conditions to help detect multitreatment interference and/or potential history or maturation threats. For example, one participant received in-person coaching on BSP, virtual coaching on OTR, and no treatment for NTI during the coaching condition. The average rate of each target behavior was compared from pretest to posttest for each participant. The intervention with the greater increase from baseline levels to the final observation was identified as the superior coaching model for that participant.

One reason why a RAD was chosen over other designs was that the student teachers were only in their MSD placement for eight weeks. The design needed to allow the primary investigator to quickly collect sufficient data. Studies using RAD can be conducted in significantly shorter amounts of time than other single case designs. The student teachers were likely to naturally increase their skills with more experience and responsibility in the classroom (i.e., maturation) and a shorter study would be more likely to decrease that threat to internal validity. Since coaching sessions occurred after each observation, using a design that rapidly alternated two treatments for one dependent

variable (i.e., Alternating Treatment Design) would make it difficult to confidently say which treatment caused the behavior to change due to possible sequencing effects. Because each intervention was assigned to its own target behavior, using a RAD solved the separation of treatments threat to internal validity. An Adapted Alternating Treatment Design (AATD) was considered but because coaching did not occur until after each 15 min observation (i.e., after the first two to three sessions for each coaching model), the graphic display could have potentially been skewed. Additionally, due to the limited number of weeks the student teachers were placed in their MSD setting, the length of the study was unable to be extended to ensure an adequate number of alternations to determine a functional relation using an AATD.

## Procedures

### *Screening*

An informal interview with the participants' university supervisor verified that student teachers were enrolled in Student Teaching during the spring 2022 semester, placed in an MSD classroom for the first eight weeks, and did not have any reports of truancy or unprofessional behaviors in previous practicum settings. During the screening process, the primary investigator reviewed two prerecorded videos of each participant providing instruction in their LBD practicum setting the fall prior to student teaching. The Screening Checklist data sheet (see Appendix C) was used to assess prerequisite skills. The Screening Checklist was adapted from the observation form used by the university's special education TEP supervisors during practicum and student teaching observations. At the beginning of a screening session, the primary investigator gathered

necessary materials (e.g., screening data sheet, pen, laptop with GoReact) and started the video. While viewing the instructional sessions for each participant, the investigator watched for the following participant behaviors: the student teacher (a) had all materials prepared (e.g., did not need to stop instruction to get additional materials), (b) moved through a hierarchy of prompts when applicable, (c) included all students in the lesson, (d) communicated respectfully with students using age-appropriate language, (e) reviewed expectations, (f) delivered consequences, (g) maintained an appropriate pace, (h) adapted materials/activities for each student's needs, (i) used antecedent or consequent strategies to manage behaviors, and (j) scanned/circulated the classroom frequently. The primary implementor put a plus (+) for each behavior that was observable during the session and a (-) for missed opportunities. If there was no opportunity to observe the behavior, the observer recorded it as "N/A."

### *General Procedures*

This study included three conditions: pretest, coaching, and posttest. During the pretest observation, data were collected on all three target behaviors to establish a baseline before coaching. The average rate of each behavior was used to create a slightly higher goal for the first coaching session. When the interventions were introduced, data were collected for 2-3 sessions per observation (the number of sessions was predetermined using random.org). Although the data collected during the coaching condition were not included in the RAD graphs, knowing the average rate of the target behavior for each observation helped the coach establish a new goal each week to promote a greater increase in the use of the HLPs. After three coaching sessions with each coaching model (i.e., six observations total), all three behaviors were evaluated in a

posttest observation. The average rate of each behavior was compared from pretest to posttest to determine if one coaching model was more effective in increasing the target behaviors.

### *Pretest Procedures*

At the end of their first week of student teaching, the participants submitted a video of themselves providing group instruction in their MSD classroom on the GoReact course page. Each video was at least 15 continuous minutes (i.e., no editing of the video or change in activity). Times varied throughout the school day depending on each participant's classroom schedule. Participants were uninformed of the target behaviors being observed during pretest sessions. Coaching was not provided following any of the pretest sessions. To begin, the primary investigator gathered all necessary materials (i.e., initial probe data collection sheets, timer, pen), started the observation video, and started the 5-min session timer once the lesson began (i.e., data collection did not begin until the student teacher indicated the start of the activity). Because a timed event recording system was used, data were collected continuously on the free operant responding of the participant for each session. Each occurrence of the three target behaviors was recorded. No written feedback was provided during initial pretest sessions. Once the timer ended, the primary investigator paused the video, recorded the total number of occurrences of each behavior at the bottom of the data sheet (see Appendix B), and graphed the data. The primary investigator repeated these steps for the second and third session of the observation. After three sessions, the average number of occurrences per min was calculated for each behavior. The pretest data point was graphed (see Figure 1) and the

average was recorded on the table (see Tables 2-5). The investigator followed these procedures for all participants.

### *In-Person Coaching Sessions*

Upon entering the classroom, the coach (i.e., primary investigator) greeted the participant, the cooperating teacher, and the students before sitting in the back corner of the classroom. When the student teacher indicated that their lesson was about to begin, the coach started a silent 5-min interval timer. Two to three 5-min sessions were conducted per observation, where the coach collected data on the number of occurrences of the in-person target behavior and the control behavior. Once data were collected for the appropriate number of sessions, the coach summarized the data, took observational notes, and waited for the end of the lesson. When the student teacher was finished, a coaching session was conducted in the hallway outside of the MSD classroom. During in-person coaching sessions, the coach would provide the total count of the target behavior, at least two positive feedback statements, and one growth statement (e.g., example of a missed opportunity). No feedback was provided on the control behavior. The coach and participant ended the session by graphing the dependent variable on a paper graph and set a goal for the next observation together. In-person coaching sessions lasted approximately 10 min. The coach updated the graph, uploaded a copy of the data sheet to the SharePoint folder, and filed the hard copy by the end of the day.

### *Virtual Coaching Sessions*

During the observation portion of virtual sessions, the coach followed the same data collection procedures, but feedback was provided on GoReact for the participant to

review. Since there was no face-to-face contact with the participant for virtual sessions, coaching was provided through the comments section. Participants were able to click on timestamps on the video to review occurrences of the target behavior or missed opportunities. Data were collected on the same Student Teacher Observation data sheets used for in-person sessions. The coach provided the same types of feedback as in-person sessions, only in written form, on the target behavior. Data were collected on the control behavior during each session, but no feedback was provided. A screenshot of their updated graph was posted at the bottom of the comments section. The graph only included the data from the virtual sessions (i.e., no control, no in-person target behavior). The participants were instructed to spend about 10 min reviewing the timestamps, watching the corresponding segments of the video, and reading the written feedback provided by the coach by the end of the week.

### *Posttest Procedures*

After three coaching sessions for each condition, the participants uploaded a final video to GoReact during their last week of their MSD placement. The primary implementor followed the same data collection procedures as in the pretest condition. The second data point was graphed, and the posttest average was entered in the table. At the end of the posttest, the primary implementor left a comment thanking the participants for taking part in the study. The results of the posttest were not shared with the participants until after the anonymous social validity survey was completed.

## Social Validity

A social validity survey (see Appendix D) was conducted via Google Forms after the completion of the study. The participants were notified by the primary investigator that the survey was anonymous and that the Google Form would not collect their email or personal information. Participants were not informed of their results from the posttest observation before taking the survey. The survey consisted of six statements in which the participants rated their personal opinions on a Likert Scale from 1 (Strongly Disagree) to 5 (Strongly Agree).

## Reliability

IOA and PF data were collected by the trained secondary observer for at least 20% of sessions across all conditions for all participants. During reliability training, the primary investigator and secondary observer reviewed the operational definitions of each behavior and practiced collecting IOA data using prerecorded videos of the participants teaching lessons in their LBD practicum placements. After each video, the secondary observer calculated agreement for the session. Training sessions continued until there were two consecutive sessions with a minimum of 80% agreement between the two observers. For PF training, the secondary observer reviewed the implementor procedures for observation and coaching sessions and practiced collecting data through role play. If at any point the percentage of PF or IOA had been below 80%, the primary investigator and secondary observer would have retrained, reviewed the operational definitions and procedures, and returned to acceptable levels before continuing the study. See Appendices E-G for reliability data collection sheets.

IOA and PF data were collected by the secondary observer for 33% of pretest and posttest sessions for all participants. Reliability data were collected for 22-33% of coaching sessions. During in-person sessions, IOA and PF data were collected for 22% of sessions (2/9 sessions) for Participant 1, 33% of sessions (2/6 sessions) for Participant 2, and 29% of sessions (2/7 sessions) for Participants 2 and 3. During virtual sessions, IOA and PF data were collected for 25% of sessions (2/8 sessions) for Participants 1 and 3 and 29% of sessions (2/7 sessions) for Participants 2 and 4.

### *Inter-Observer Agreement*

IOA data were collected by the secondary observer for 22-33% of sessions across all conditions for each participant. The point-by-point method was used to calculate agreement between the primary implementor and second observer. The formula used to calculate IOA was as follows: (# of trials with agreement / total # of trials) x 100 = percentage of IOA. The interval was scored as an agreement (+) if the number of occurrences within each interval was the same or +/- 1 occurrence (e.g., the primary implementor recorded six tallies and the second observer recorded seven tallies). If the difference between the two observers exceeded one occurrence, the interval was scored as a disagreement (-) (e.g., the primary observer recorded nine tallies and the second observer recorded six tallies). At the end of a reliability session, the second observer compared the number of tallies in each of the five intervals within the session for the target behavior(s) and control. The mean percentage of IOA across participants was 96% agreement (range: 93%-100%) during pretest conditions, 96.25% agreement (range: 92.5%-100%) during coaching, and 90% agreement (range: 80%-100%) during posttest test conditions.

### *Procedural Fidelity*

PF data were collected to ensure that all procedural steps were implemented correctly by the primary investigator. PF was assessed for 22-33% of sessions across all conditions for each participant. Data were collected on the following implementor behaviors for all coaching sessions: (a) all necessary materials were prepared (e.g., data binder, data collection sheets, writing utensil), (b) the interval timer was initiated at the beginning of the session, (c) data were collected on the correct target behavior and control, and (d) the interval timer was stopped and reset for the following session(s). Data were collected on post-session (i.e., coaching) procedural steps at the end of the observation. The primary implementor (a) ended the observation after the correct number of sessions (i.e., 2-3), (b) provided at least two positive feedback statements, (c) provided at least one area for growth (e.g., gave an example of a missed opportunity), (d) graphed the number of occurrences of the target behavior in the data binder or uploaded a screenshot to GoReact, and (e) collaboratively set a goal for the next session. Because coaching was not provided during pretest and posttest sessions, PF data were only collected on post-session procedural steps during the coaching condition. The following formula was used to calculate PF: (# of correct steps implemented / total # of steps) x 100 = % of PF. The second observer recorded the number of procedural steps completed by the primary investigator, divided it by the total number of procedural steps, and multiplied that number to get a percentage of PF. The mean PF was 100% across all participants in all conditions.

## SECTION 4: RESULTS

Data collected on the average rate of occurrence per min during the pretest and posttest conditions are represented in the graph below (see Figure 1). Dashed lines represent in-person observations, solid lines represent virtual observations, and dotted lines represent the control. Circle markers represent OTR, triangle markers represent BSP, and square markers represent NTI. For example, the first data path for P1 has a dashed line and triangle markers, which means their in-person target behavior was BSP.

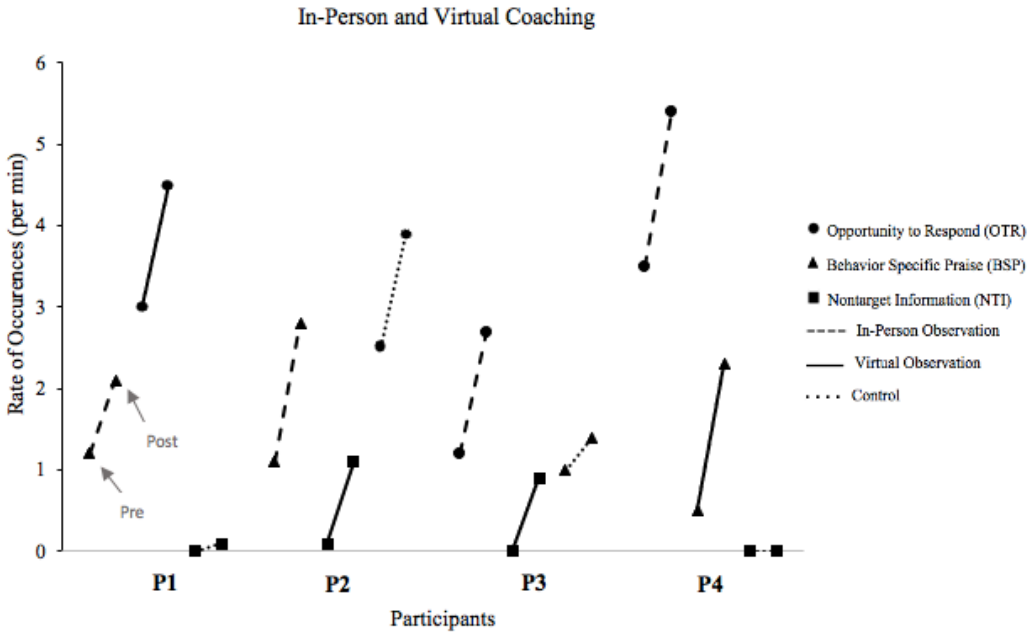


Figure 1 In-Person and Virtual Coaching RAD Graph

### Participant 1 (P1)

Prior to intervention, P1 provided an average of 1.2 BSP statements, 3 OTR, and 0 NTI statements per min during whole group calendar and morning meeting. The average of each behavior remained at similar levels during the first observation before coaching was introduced. After the first coaching session (see Observation 2 in Table 2),

there was an immediate increase in the average rate of occurrence for both target behaviors while the control remained at low levels. According to Table 2, the virtual target behavior (OTR) continued to increase with each observation with the highest rate of 4.5 OTR per min occurring in the posttest. The in-person target behavior (BSP) continued to increase up to 3 BSP per min, but slightly decreased in the posttest. In the posttest, P1 provided an average of 2.1 BSP statements, 4.5 OTR, and 0.1 NTI per min. According to the graph (see Figure 1), both the in-person target behavior and the virtual target behavior had a positive change in level. The control behavior (NTI) remained at a near zero level. Although both interventions resulted in an increase in level, there was a slightly higher magnitude of change for the virtual target behavior than the in-person target behavior. This differentiation demonstrates that virtual coaching was more effective in increasing the target behaviors for P1.

Table 2. P1's Data Across All Conditions

| | In-Person | Virtual | Control |
|---|---|---|---|
| Pretest | 1.2 per min | 3.0 per min | 0 per min |
| Observation 1 | 1.1 per min | 3.1 per min | 0.1 per min |
| Observation 2 | 2.2 per min | 4.1 per min | 0.04 per min |
| Observation 3 | 3.0 per min | 4.1 per min | 0.1 per min |
| Posttest | 2.1 per min | 4.5 per min | 0.1 per min |
| Magnitude of Change | + 0.9 | + 1.5 | + 0.1 |

**Participant 2 (P2)**

P2 provided an average of 1.1 BSP statements, 0.1 NTI statements, and 2.5 OTR per min during the pretest condition. The average rate for all three behaviors remained at

baseline levels during the first observation prior to coaching. There was an immediate increase in both target behaviors following the first coaching session (see Observation 2 in Table 3). The in-person target behavior (BSP) continued to increase to 3.5 BSP per min in the third observation, but slightly decreased in the posttest. The highest average rate of the virtual target behavior (NTI) occurred after the first coaching session in observation 2 but continued to decrease slightly for the remaining observations. P2's average control behavior (OTR) continued to increase despite not receiving either intervention. During the posttest, P2 provided an average of 2.8 BSP statements, 1.1 NTI statements, and 3.9 OTR per min. Data presented on the graph (see Figure 1) show all three behaviors increased in level but the in-person coaching showed the greatest magnitude of change from a medium to high level.

Table 3. P2's Data Across All Conditions

| | In-Person (BSP) | Virtual (NTI) | Control (OTR) |
|---|---|---|---|
| Pretest | 1.1 per min | 0.1 per min | 2.5 per min |
| Observation 1 | 2.2 per min | 0.2 per min | 2.8 per min |
| Observation 2 | 2.4 per min | 2.6 per min | 3.2 per min |
| Observation 3 | 3.5 per min | 2 per min | 4.1 per min |
| Posttest | 2.8 per min | 1.1 per min | 3.9 per min |
| Magnitude of Change | + 1.7 | + 1 | + 1.4 |

**Participant 3 (P3)**

During the pretest, P3 provided an average of 1.2 OTR, 0 NTI statements, and 1 BSP statement per min. The in-person target behavior (OTR) and virtual target behavior (NTI) remained at similar rates during the first observation before intervention while the

control behavior (BSP) increased by 1.3 occurrences per min. The highest average rate of the control behavior occurred before intervention and continued to decrease slightly until the posttest condition. The highest average rate of the virtual target behavior was 1.9 NTI per min, which occurred immediately after the first virtual coaching session. The average rate of the in-person target behavior steadily increased to 2.8 OTR per min in the third observation and slightly decreased during the posttest. Visual analysis of the graph (see Figure 1) indicates that both target behaviors showed an increase in level. The control made a slight increase but remained at a low level. The in-person data path shows the greatest magnitude of change from a low level during the pretest to a medium level in the posttest. This indicates that in-person coaching was most effective in increasing the target behaviors for P3.

Table 4. P3's Data Across All Conditions

| | In-Person (OTR) | Virtual (NTI) | Control (BSP) |
|---|---|---|---|
| Pretest | 1.2 per min | 0 per min | 1 per min |
| Observation 1 | 1.7 per min | 0.2 per min | 2.3 per min |
| Observation 2 | 2.7 per min | 1.9 per min | 1.6 per min |
| Observation 3 | 2.8 per min | 0.8 per min | 1.5 per min |
| Posttest | 2.7 per min | 0.9 per min | 1.4 per min |
| Magnitude of Change | + 1.5 | + 0.9 | + 0.4 |

**Participant 4 (P4)**

P4 provided 3.5 OTR, 0.5 BSP statements, and 0 NTI statements per min during small group math activities in the pretest condition. The virtual target behavior (BSP) and the control (NTI) remained at baseline levels during the first observation while the in-

person target behavior (OTR) slightly increased before intervention. After intervention was introduced, the average of both target behaviors immediately increased by more than 1 occurrence per min. The highest average rates of the target behaviors occurred during the third in-person observation and the second virtual observation. The control behavior remained at near zero levels across all conditions. Data presented on the graph (see Figure 1) show both target behaviors increased in level while the control behavior remained at zero levels. The in-person target behavior shows significant growth from a medium to high level. The virtual target behavior shows an equally significant amount of growth from a low to medium level. The magnitude of change for both target behaviors was almost identical, meaning that both coaching models were equally effective in increasing the use of HLPs for P4.

Table 5. P4's Data Across All Conditions

| | In-Person (OTR) | Virtual (BSP) | Control (NTI) |
|---|---|---|---|
| Pretest | 3.5 per min | 0.5 per min | 0 per min |
| Observation 1 | 4 per min | 0.8 per min | 0.1 per min |
| Observation 2 | 5.6 per min | 1.9 per min | 0.1 per min |
| Observation 3 | 5.6 per min | 2.4 per min | 0.1 per min |
| Posttest | 5.4 per min | 2.3 per min | 0 per min |
| Magnitude of Change | + 1.9 | + 1.8 | + 0 |

**Social Validity**

Of the four participants, 100% strongly agreed with the statements "My target behaviors were relevant to my success as a future special education teacher" and "Coaching is an important component of training student teachers rather than instruction

alone." 75% of the participants strongly agreed and 25% agreed with the statement, "I will utilize the feedback I was given in this study to increase my use of evidence-based teaching strategies (i.e., BSP, OTR, NTI) in the future." 100% of the participants either strongly agreed or agreed with the statement, "The feedback and coaching I received during in-person observations helped me increase my use of evidence-based teaching strategies (i.e., BSP, OTR, NTI) in the MSD setting." For the same statement regarding virtual observations, two of the participants strongly agreed, one disagreed, and one felt neutral. When asked which coaching model they most preferred, 75% of the participants chose in-person and 25% chose virtual. An optional question at the end of the survey gave the participants the opportunity to provide any additional comments. One participant responded, "I really liked in person coaching, but virtual made it available for me to reflect back on my own teaching and look at specific points that I could do better at."

One of the research questions asked in this study was "Does the student teacher's preferred method of coaching result in a greater increase in the target behavior than the nonpreferred method?" The table below shows the intervention that was superior for each participant as well as the method of coaching they reported preferring. P1 preferred in-person coaching but data show that virtual coaching was more effective in increasing their target behaviors. P2 is the only participant who preferred virtual coaching, but in-person coaching was more effective. P3 is the only participant who preferred their most effective intervention. P4 preferred in-person coaching but both coaching models were deemed equally effective.

Table 6. Each Participant's Superior Intervention

| | Superior Intervention | Preference |
|---|---|---|

| | | |
|---|---|---|
| Participant 1 | Virtual | In-Person |
| Participant 2 | In-Person* | Virtual |
| Participant 3 | In-Person | In-Person |
| Participant 4 | Equally Effective | In-Person |

*In-person coaching was slightly more efficient than the control.

## SECTION 5: DISCUSSION

The purpose of this study was to compare the effectiveness of in-person and virtual coaching models in increasing the use of HLPs (specifically active student engagement [OTR] and positive constructive feedback to guide students' learning and behavior [BSP, NTI]) in special education student teachers in the MSD setting. Results suggest that both coaching models were effective in increasing each of the participants' target behaviors, but there is a need for further research to determine a superior model. This adds to the current literature that suggests that both in-person and virtual coaching can be effective for preservice and novice special education teachers (Ault et al., 2018; Hager et al., 2012). Due to the small sample size and variable results, more research is needed to determine if one coaching model is more effective than the other.

One advantage to providing virtual coaching through a video annotation software system like GoReact is that it gives preservice teachers the opportunity to watch themselves teach. When giving delayed feedback, coaches are able to timestamp where a target behavior occurred (or should have occurred) in the lesson. When giving in-person feedback after an observation, the preservice teacher may not remember the exact moment a coach is referring to. Having timestamps with comments is a permanent product that the preservice teacher can go back to as many times as needed and reread the feedback. When providing in-person feedback, the student may not be able to fully take

in all of the information that is being provided. A disadvantage of using video annotation is that the preservice teachers may not review the feedback in a timely manner, therefore continuing to make the same mistakes during instruction.

Another advantage to providing virtual coaching is that the university supervisor is able to provide feedback more frequently because they are not spending as much time traveling between preservice teacher placements. When providing feedback virtually, a university supervisor can observe many preservice teachers in one day as opposed to only one to two per day in person because of the travel time between schools. The university supervisor may also be able to observe certain activities that occur during parts of the day that are not feasible to come in person to observe. On the other hand, some districts require that the preservice teachers only record themselves (i.e., cannot record students or other staff members), which can make it difficult for the supervisor to capture the whole picture. For example, teachers often walk around the room during instruction to manage behaviors and provide different levels of prompting. When the preservice teachers move to a different location in the room, the video does not show how they are engaging with the students. It can also be difficult to hear over typical classroom noises (e.g., vocalizations, talking, moving chairs) and differentiate the voices of the all of the adults in the room.

Lastly, there may be a novelty effect (for both students and the preservice teacher) when a new supervisor comes to observe in person. When preservice teachers are anxious about having a university supervisor watch them in person, they may not perform with as much confidence or fidelity as when they implement procedures on their own. Using a video annotation software system rather than having a university supervisor come in

person decreases the amount of disruptions to the students' schedules. However, a prerecorded video may or may not capture what is truly happening in the classroom on a daily basis. When preservice teachers are given the opportunity to submit a prerecorded video of the instruction, they have the advantage of recording as many times as they need. When observing in person, the preservice teacher only has one opportunity to show what they are capable of doing.

**Implications**

The results of this study suggest that both in-person and virtual coaching may increase the use of HLPs in special education student teachers. Although in-person observation is the typical coaching model for university TEP students, virtual observation or a combination of both could possibly be effectively used. Certain situations can arise where in-person observations are not feasible for the preservice teacher or the supervisor/coach (e.g., COVID-19 restrictions, placements in rural or highly populated urban settings). Data collected in this study suggest that virtual coaching can be effective, if not equally as effective as in-person coaching. If student teachers are faced with situations where they are unable to receive coaching in vivo in person, delayed virtual coaching may be a viable alternative.

The COVID-19 pandemic made many professionals realize the importance of flexibility. If university supervisors were still going to hold preservice teachers to certain standards, they needed to be able to provide feedback using methods they may not have had experience with. When universities switched to virtual learning, many questioned whether virtual instruction and delayed coaching would be as effective in increasing

target skills as it had been when observing in person. The results of this study support the literature that suggests that both methods are effective and can be used to increase essential teacher behaviors. When problems arise in the future (e.g., elevated gas prices, snow days, placements in rural settings, illness), university superiors can feel confident about using either or a combination of both methods of coaching evaluated in this study. If the university has the means to do so, it may be beneficial for university supervisors to use both in-person and virtual coaching as standard practice; if an event caused extended school closures, having both coaching models in place would make transitioning from in-person to virtual coaching easier for the preservice teachers and supervisors.

There are currently a limited number of published studies using a RAD in the literature (Ledford & Gast, 2018). Although there are limitations and possible threats to internal validity when using a RAD, this design could help answer research questions that could not be answered in a relatively short amount of time using other designs. Using a RAD could be more practical than using other types of single case research designs to compare the effects of interventions on nonreversible behaviors. When providing intervention to preservice teachers who are only in placements for a limited time, using a RAD may be more a more feasible option.

**Limitations and Directions for Future Research**

One limitation that may have had an effect on the results of this study was the difficulty of the target behaviors. According to Ledford and Gast (2018), all target behaviors in studies using a RAD need to be equally challenging, meaning all behaviors in a set should require the same level of skill and effort. The three behaviors in this study

were chosen because they are the three main behaviors that data are collected on in the traditional observations at this university. NTI had the lowest rate of occurrence for all participants, regardless of condition. The highest average rate of NTI was only 1.9 NTI statements per min. This was significantly less than the highest average rate of BSP and OTR for all participants. During discussions with the participants who had NTI as one of their target behaviors, it was reportedly more difficult to incorporate NTI than OTR or BSP. There are not as many natural opportunities to incorporate NTI in a group lesson as the other target behaviors, especially the way the operational definition was written for the purpose of this study. Some participants combined the target behaviors (e.g. using OTR to provide NTI) during instruction. This might have had an effect on the rate of certain behaviors, particularly OTR (control) for P2. For example, P2 often provided an OTR as a way of incorporating NTI in the lesson (e.g., "This marker is purple [NTI]. What color is your marker? What else is purple in this room?" [OTRs]). Although he did not receive coaching on OTR, his rate of OTR increased with each observation.

Providing NTI can look different when using different instructional arrangements (e.g., 1:1 systematic instruction, whole group, small group). For example, during 1:1 instruction, NTI information is usually provided as instructional feedback immediately following a correct response (e.g., "You're right, that is a 3!" [BSP] "A triangle has 3 sides" [NTI]). Because the participants were providing small and whole group instruction on a range of similar topics (e.g., days of the week, word of the day, weather, number identification), it was difficult for the primary implementor and secondary observer to differentiate between what was targeted instruction and NTI when collecting data. For the purpose of this study, the operational definition of NTI was limited to ensure reliability

between observers. This may have had an inhibitive effect on the average rate of NTI for each participant. The operational definition of OTR was not as limiting (i.e., included both verbal and physical OTRs), which may explain why it was the target behavior with the highest average rate for all participants during the posttest, regardless of condition.

Another limitation in this study was the history threats to internal validity (i.e., variables outside of the study that impact the participant's behavior) that could not be controlled for due to the nature of the setting; because the student teachers were observing an experienced cooperating teacher provide BSP, OTR, and NTI in the classroom, this may have had an effect on their own use of the HLPs. Also, in addition to the observations conducted by the primary investigator, the participants' university supervisor also provided feedback during three additional in-person observations. These observations were a part of the student teacher course syllabus and were included in their overall grade. Data collected for the purpose of this study could not ethically be tied to a grade. If the primary investigator was also deciding their grades for the course, the participants could have felt coerced to be a participant even if they did not wish to consent. Therefore, it was not feasible to stop the university supervisor observations during their MSD placement.

The length of time students were placed in the MSD setting impacted the structure of this study. Time constraints limited the number of coaching sessions that could be feasibly conducted. Each participant also had numerous other assignments and tasks to complete each week in their setting. To avoid burnout and possible attrition, the observations were limited to one per week. Every participant experienced at least a slight decrease in one or both of their target behaviors from the third observation to the posttest.

It should be taken into consideration that the posttest observation videos were recorded in the last week of their MSD placement. A variety of outside factors (e.g., stress, increased workload, midterm) could have played a role in their performance.

Time constraints also made it impossible to collect maintenance data after the final coaching session. Studies that use a RAD "...rarely evaluate maintenance; thus, conclusions regarding the efficiency and effectiveness of interventions compared may be incomplete" (Ledford & Gast, 2018, p. 350). Had maintenance probes been conducted, there would have been an opportunity to see additional data after the posttest. Additional data would have helped make a determination about the short- and long-term effectiveness of both types of coaching. Collecting generalization data would also be valuable information. Interventions may result in an immediate increase in target behaviors, but it is just as important for those skills to be maintained and generalized to new conditions after treatment.

When using a RAD, only two data points are shown on the graph, the average before intervention and the average after intervention. This makes visually analyzing the graphic display difficult. It is impossible to see any kind of variability or immediacy of effect during the intervention condition. When using this type of single case design, "...evaluation of potential threats due to history and maturation are not possible; potential increasing trends also cannot be evaluated" (Ledford & Gast, 2018, p. 350). To control for this, a control behavior that did not receive coaching or feedback was included for each participant. Tables were included in the results above to show the average rate for each behavior during each observation. If the graph was the only visual representation given for this study, the reader would not have known that the highest rate of occurrence

for one or both target behaviors across all participants occurred within the coaching condition rather than in the posttest.

Further research is necessary to determine a superior coaching model for increasing HLPs in preservice special education teachers. Future research should include more participants with differing levels of performance prior to the study. The four participants included in this study were the top of their class and already had experience using HLPs in previous placements. Future studies should recruit participants that require more support or have limited knowledge of the target behaviors (e.g., practicum students who have just entered the TEP). Practicum students stay in one placement for the entirety of the semester (as opposed to just 8 weeks), therefore more observations and coaching sessions could be conducted. This would also increase the likelihood that there would be additional time to collect maintenance data on the target behaviors.

The participants in this study were all placed in a self-contained MSD classroom. Future studies might include participants placed in an LBD resource room with students with high incidence disabilities. For the purpose of this study, participants were asked to work with a group of two or more students. Future studies in the MSD setting could focus on 1:1 instructional arrangements like individual systematic instructional programs (e.g., coaching on constant time delay or system of least prompts). Additionally, data could be collected on the child's responding before and after the preservice teacher receives coaching on these types of target behaviors.

In addition to the count of each target behavior, the primary investigator also collected anecdotal data on the student teacher's strengths throughout the observation. The initial purpose of taking additional notes was to have an abundance of positive

feedback to give in the first few coaching sessions to help build a positive rapport. These notes included information about the participant's tone of voice, enthusiasm, and excited facial expressions when providing BSP, OTR, and NTI. Anecdotal data suggested that the participants were using more enthusiasm in their responses and showed more positive emotion on their faces (e.g., raised eyebrows, smiling eyes) at the end of the coaching condition than they were during the pretest. Although data were not collected on these behaviors in a systematic way in this study, future research could include rubrics or rating scales with operational definitions of these quality indicators.

Three out of four of the participants reported in the social validity survey that they preferred in-person observations over virtual observations on GoReact. Virtual coaching was the superior coaching model for only one of the four participants. Periodically throughout the study the primary investigator would ask the participants if they had a chance to review the feedback from their last virtual observation on GoReact. On a few occasions, the student teachers responded that they had not had time to look at the comments or watch the timestamped portions of the video. Because there was no way to check if the participants went back to look at the virtual feedback, it is unclear how much time they actually spent reviewing the comments section. If this study were to be replicated, there should be some type of check-in process to ensure that the student teachers are regularly reviewing their virtual feedback prior to their next observation.

## Conclusion

The purpose of this study was to compare the effectiveness of two coaching models in increasing the use of HLPs and determine if the participants' preferred

coaching model resulted in a larger magnitude of change. The results of this study add to the current literature that suggests that both in-person and virtual coaching can be effective in increasing target skills, but further research is necessary to determine a superior coaching model. The results of the social validity survey suggest that the preservice teacher's preferred method of coaching may not always be the most effective coaching model. In conclusion, one or a combination of both coaching models could be used to increase target preservice teacher behaviors in the MSD special education setting.

APPENDIX A

**Student Teacher Observation**

**Participant #_____ Observation # _____ Date_____**

**Coaching Method (circle one): In-person / Virtual**

**Target Behavior: BSP OTR NTI Control: BSP OTR NTI**

| | Start/ Stop Times | Bx | Min 1 | Min 2 | Min 3 | Min 4 | Min 5 | Total |
|---|---|---|---|---|---|---|---|---|
| 1 | | T | | | | | | |
| | | C | | | | | | |
| 2 | | T | | | | | | |
| | | C | | | | | | |
| 3 | | T | | | | | | |
| | | C | | | | | | |
| Rate of Occurrences (Total # per session / 5 mins) | | | | | | | | |

| | |
|---|---|
| **Session 1 (Target Bx)** | |
| **Session 1 (Control)** | |
| **Session 2 (Target Bx)** | |
| **Session 2 (Control)** | |
| **Session 3 (Target Bx)** | |
| **Session 3 (Control)** | |

APPENDIX B

**Pre / Post Test Data Collection Sheet**

Participant # _____ Date_____ Observer_____

| | Start/ Stop | Bx | Min 1 | Min 2 | Min 3 | Min 4 | Min 5 | Total |
|---|---|---|---|---|---|---|---|---|
| 1 | | BSP | | | | | | |
| | | OTR | | | | | | |
| | | NTI | | | | | | |
| 2 | | BSP | | | | | | |
| | | OTR | | | | | | |
| | | NTI | | | | | | |
| 3 | | BSP | | | | | | |
| | | OTR | | | | | | |
| | | | | | | | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | **NTI** | | | | | | |
| **Rate of Occurrences (Total # per session / 5 mins)** | | | | | | | | |
| **Session 1: BSP_____ per min OTR_____ per min NTI_____ per min** | | | | | | | | |
| **Session 2: BSP_____ per min OTR_____ per min NTI_____ per min** | | | | | | | | |
| **Session 3: BSP_____ per min OTR_____ per min NTI_____ per min** | | | | | | | | |

APPENDIX C

**Screening Checklist**

Participant #_____ Setting_____

Date (uploaded to GoReact)_____ Activity_____

| **Prerequisites (Informal interview with EDS 550 instructor)** | |
|---|---|
| Enrolled in EDS 550 for Spring 2022 semester | |
| Placed in an MSD classroom in FCPS for the first 8 weeks of student teaching | |
| No reports of truancy or unprofessional behavior in previous placements | |

| **Screening Checklist** | **+ or -** | **Comments** |
|---|---|---|
| All materials prepared at the start of instructional session | | |
| kUses hierarchy of prompts | | |
| Includes all students in instruction | | |
| Communicates respectfully with students using age-appropriate language | | |
| Enforces classroom rules / reviews expectations | | |
| Delivers consequences | | |
| Maintains appropriate pace of instruction | | |
| Adapts materials/activities to ensure all students can participate | | |
| Uses antecedent and/or consequent strategies | | |
| Frequently scans/circulates the classroom | | |
| # of + | | |
| % | | |

*****This data collection sheet was adapted from the Immediate Feedback Observation Form used by Dr. Horn for practicum and student teachers

APPENDIX D

**Social Validity Survey**

| Questions | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| 1. My target behaviors were relevant to my success as a future special education teacher. | | | | | |
| 2. I will utilize the feedback I was given in this study to increase my use of evidence-based teaching strategies (i.e., BSP, OTR, NTI) in the future. | | | | | |
| 3. The feedback and coaching I received during ***in-person*** observations helped me increase my use of evidence-based teaching strategies (i.e., BSP, OTR, NTI) in the MSD setting | | | | | |
| 4. The feedback and coaching I received during ***virtual*** observations helped me increase my use of evidence-based teaching strategies (i.e., BSP, OTR, NTI) in the MSD setting. | | | | | |
| 5. Coaching is an important component of training student teachers rather than instruction alone. | | | | | |
| 6. Which method of coaching did you most prefer? | | | | | |
| 7. Optional- Is there anything else you would like me to know? Please leave any comments about the study below. | | | | | |

**Key**: 1- Strongly Disagree, 2- Disagree, 3- Neutral, 4- Agree, 5- Strongly Agree

APPENDIX E

**Pre / Post IOA Data Sheet**

**Participant # _____ Date_____ Session #_____ Observer_____**

| Start/ Stop | Bx | Min 1 | Min 2 | Min 3 | Min 4 | Min 5 | Total |
|---|---|---|---|---|---|---|---|
| | **BSP** | | | | | | |
| | +/- | | | | | | A: |
| | **OTR** | | | | | | |
| | +/- | | | | | | A: |
| | **NTI** | | | | | | |
| | +/- | | | | | | A: |
| **Rate of Occurrences (Toal # per session / 5 mins)** | | | | | | | |
| | | | | | | **BSP** | |
| | | | | | | **OTR** | |
| | | | | | | **NTI** | |
| **Interobserver Agreement (Point-by-Point)** | | | | | | | |

| | |
|---|---|
| _____/ **15** Total Trials | ____ % |

APPENDIX F

## Intervention IOA Data Sheet

Participant #_____ Observation # _____ Session(s)_____ Date_____

Coaching Method (circle one): In-person / Virtual

Target Behavior: BSP OTR NTI Control: BSP OTR NTI

| # | Start/ Stop Times | Bx | Min 1 | Min 2 | Min 3 | Min 4 | Min 5 | Total |
|---|---|---|---|---|---|---|---|---|
| | | **T** | | | | | | |
| | | +/- | | | | | | A: |
| | | **C** | | | | | | |
| | | +/- | | | | | | A: |
| **Rate of Occurrences (Total # per session / 5 mins)** | | | | | | | | |
| | | | | | | | **Target Bx** | |
| | | | | | | | **Control** | |
| **Interobserver Agreement (Point-by-Point)** | | | | | | | | |
| | | | | | | | _____**/ 10** Total Trials | _____ % |

| # | Start/ Stop Times | Bx | Min 1 | Min 2 | Min 3 | Min 4 | Min 5 | Total |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | **T** | | | | | | |
| | | +/- | | | | | | A: |
| | | **C** | | | | | | |
| | | +/- | | | | | | A: |
| **Rate of Occurrences (Total # per session / 5 mins)** | | | | | | | | |
| **Target Bx** | | | | | | | | |
| **Control** | | | | | | | | |
| **Interobserver Agreement (Point-by-Point)** | | | | | | | | |
| _____**/ 10** Total Trials | | | | | | | | _____ % |

APPENDIX G

## Procedural Fidelity (In-Person)

| Pre-observation fidelity | + or - |
|---|---|
| All materials prepared (data sheets, interval timer, writing utensil) | |

| Session Fidelity | |
|---|---|
| Started interval timer | |
| Collected data on the correct behaviors (target, control, or all) | |
| Ended session after 5 mins | |
| Reset or ended interval timer | |

| Post-observation fidelity | + or - |
|---|---|
| Ended observation after correct number of sessions (2-3 sessions per observation) | |
| Provided at least 2 positive verbal feedback statements | |
| Provided 1 area for growth (e.g., gave example of missed opportunity) | |
| Graphed rate of target behavior | |
| Collaborative goal for next session | |
| # of + | |
| % PF | |

## Procedural Fidelity (Virtual)

Participant #_____ Date: _____ Session #_____Observer_____

| Session fidelity: | + or - |
|---|---|
| Collected data for all 5 intervals | |
| Collected data on the correct behaviors (target, control, or all) | |
| Included timestamps on the video (good examples of target behavior) | |

| | |
|---|---|
| Data were collected only within the 5 min session (as indicated in the stop/stop column on data sheet) | |

| **Post-observation fidelity:** | |
|---|---|
| Provided at least 2 positive verbal feedback statements | |
| Provided 1 area for growth (e.g., gave example of missed opportunity) | |
| Included a screenshot of the graph (showing only the target behavior, not control) | |
| Included goal for next virtual session | |
| # of + | |
| % PF | |

**Pre/Post Procedural Fidelity**

Participant #_____ Date: _____ Observer_____

| **Session fidelity:** | **+ or -** |
|---|---|
| Collected data for all 5 intervals | |
| Collected data on the correct behaviors (target, control, or all) | |
| Data were collected only within the 5 min session (as indicated in the stop/stop column on data sheet) | |
| No feedback was given on GoReact (does not include personal notes on bottom of data sheet) | |
| Data sheet was uploaded to SharePoint folder | |
| Graph updated on SharePoint | |
| # of + | |
| % PF | |

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