

Social Validity of Teacher-Led Trial-Based Functional Analysis

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**Abstract**

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The social validity of teacher-led trial-based functional analysis (teacher-led TBFA) was examined at a university-affiliated early learning program (UAELP) in the U.S. Pacific Northwest. A total of five participants were recruited: three teachers who previously conducted teacher-led TBFA, the principal of the UAELP, and a doctoral student who trained the participating teachers to conduct teacher-led TBFA. All of the participants completed two surveys (2 months in between), and were individually interviewed by the author. The results indicated that the teachers highly valued teacher-led TBFA; they considered it practical and reasonable to conduct, and effective and accurate at identifying the function(s) of challenging behavior(s). The teachers received intensive training and support from the participating doctoral student while conducting teacher-led TBFA, and they appreciated the support they received. Although there were several discrepancies regarding perspectives on teacher-led TBFA among the participants, the overall results indicated that teacher-led TBFA is socially valid

## Introduction

### Challenging Behaviors of Young Children

Young children often use behaviors that challenge adults. Such behaviors include tantrums, screaming, and biting. However these behaviors can be considered “typical” of child development in the early years. Yet, for some children, behaviors can be more severe than what is typical, can occur for longer periods of time, and can be exhibited at ages after which most children have ceased such behavior. It may be difficult for adults to provide appropriate guidance when a young child’s behavior is severe or persistent. For these children, challenging behavior can interfere with healthy relationships and optimal social-emotional development. This is a serious issue, since such children might be suspended or expelled from childcare and preschool programs as a result of their behavior. For example, Gilliam and Shahar (2006) investigated suspension and expulsion rates in preschool and K-12 school system in Massachusetts. They administered a survey to teachers to ask whether they expelled or suspended children who participated in their program within the last 12 months due to behavioral concerns, and found that preschoolers had higher expulsion rate—27.42 children per 1,000 enrolled students—compared to the national average (from 1999 to 2000) of 2.09 expulsions per 1,000 enrolled K-12 students.

Challenging behavior can take a variety of forms. In a study of individuals ranging in age from 5 years to 93 years, Lowe et al. (2007) found the most frequent forms of challenging behavior were disruptive behavior and noncompliance. Other types of behaviors Lowe et al. (2007) reported included aggressive behaviors (e.g., hitting, verbal attack, pinching, scratching); self-injurious behavior (e.g., self-biting, self-scratching, pica); and destructive behaviors (e.g., destruction of personal property). Although severe behaviors such as self-injury, pica, and

elopement are less common than noncompliance and disruptive behaviors, the aforementioned behaviors are also concerning to educators. The consequences of challenging behavior are bleak.

### **Function-Based Intervention**

In light of the deleterious effects of challenging behavior for young children, the field of applied behavior analysis has identified several practices that can help to address such issues. One of the solutions is function-based interventions. Function-based interventions are individualized action plans that are developed based on the information that is obtained by a Functional Assessment. These plans are designed to address the reason(s) the child is using challenging behavior (Artman-Meeker & Hemmeter, 2014). Stahr, Cushing, Lane, and Fox (2006) noted that "...function-based interventions increase the likelihood that the new behavior(s) will produce meaningful, lasting change, which is the objective of all intervention effort...." (p.202). To meet the definition of "function-based," a team must determine the function of a child's behavior before developing interventions. Dunlap, Harrower, and Fox (2005) claimed that "...behavior is functional", which means that there are predictable reasons why individuals engage in specific behaviors. Since the same behavioral form might be exhibited because of different function(s) (Artman-Meeker et al., 2014), it is crucial to identify the reason(s) why an individual engages in challenging behavior, in order to develop an appropriate intervention plan. In order to determine the function of a behavior, a functional assessment is conducted. A functional assessment "...represents a variety of techniques and strategies used to gather information that can be used to maximize the effectiveness and efficiency of behavior support" (LaRue, n.d.). Collected information is used to develop a behavioral intervention plan, including prevention strategies for both direct antecedents and setting events; teaching replacement skills; methods for responding to both challenging and desirable behaviors; and how

to monitor the progress of the behavior(s). LaRue (n.d.) also noted that functional assessment has three categories: indirect measures (e.g., interviews for the caregivers or the child), direct measures (e.g., observation), and functional analysis (FA). This paper will focus exclusively on FA procedures.

### **Functional Analysis (FA)**

An FA is conducted to determine the contexts in which a specific challenging behavior is likely or unlikely to occur. To do so, a target student is placed in environments in which “...systematic manipulation of antecedent and consequent events [are used] to identify contingencies that maintain problem behavior” (Bloom, Iwata, Fritz, Roscoe, & Carreau, 2011, p.19). As such, while conducting an FA, the target challenging behaviors are purposefully evoked. However, this helps to accurately identify the contexts that bring about the target behavior. When patterns of responding are detected across repeated exposure to stimuli, the function(s) of challenging behavior(s) can be determined.

There are several advantages to using an FA. First, FA is effective and provides useful information for building interventions (Kodak, Fisher, Paden, & Dickes, 2013). Second, FA is efficient. While the functional assessment data collection process (i.e., indirect and direct measurement) can be time-consuming and ambiguous, it takes a shorter amount of time to complete an FA with an unambiguous and standardized process (Kern, 2005). Kern (2005) also noted that FA produces a “...readily apparent function without a great deal of data analysis and interpretation” (p.191). Since other methods might not lead to conclusive functions, it is essential to have a tool that makes “readily apparent” the functions of challenging behavior. This, in turn, helps to develop effective behavior intervention plans.

Such plans are needed to address the challenging behavior of children in a variety of situations. Unfortunately, the resources for comprehensive functional assessments are not always available. Specifically, classroom teachers often lack both the time and support necessary for completing a functional assessment, and waiting for a third party to complete one can take several months. Yet, the advantages that FA has could make it a useful tool for classroom teachers as they develop appropriate behavior intervention plans.

**Analogue FA.** According to Kern (2005), analogue FA is a procedure that identifies potential reinforcers or functions for challenging behaviors in a *controlled* (i.e., non-natural) setting, such as an empty classroom. The process takes approximately 5 to 15 minutes, and four different types of conditions are examined: *attention, escape, tangible, and play/control*. If challenging behavior occurs, or the behavior rate was elevated during a specific condition, that condition is considered a reinforcer. Such conditions are usually administered in a random order. Although analogue FA identifies reinforcer(s)/function(s) of behavior in a fairly short period, there are several limitations. For example, the setting that is used for an analogue FA is not a natural setting for children. The session is usually conducted one-on-one in an empty classroom. However children usually attend classes with their peers in environments with many materials (e.g., toys, furniture) that might reinforce their challenging behaviors. Moreover, according to Bloom, Lambert, Dayton, and Samaha (2013), analogue FA is usually session-based.

**Non-analogue FA.** Non-analogue FA includes FAs that a teacher or a trained individual conduct in natural settings (i.e., ones that children attend with their peers, such as their classroom, throughout the school day). As members of the classroom social environment, teachers have a natural opportunity to assess children's behavior under natural circumstances. If teachers were able to effectively conduct non-analogue FAs in the classroom, then at least

one limitation of analogue FAs might be resolved. In fact, there have been several studies in which non-analogue FAs were conducted. For example, Bloom et al. (2013) found that teachers were able to conduct non-analogue FAs successfully in their classrooms. They identified the functions of each student's challenging behaviors, and developed intervention plans, which were effective at decreasing these challenging behaviors while increasing alternative behaviors. Given that teacher-led/non-analogue FAs are conducted in classroom settings, which are a more natural environment for the students, it should be easier to identify the variables that are actually relevant to the challenging behavior. Since a teacher-led FA is usually conducted under trial conditions, FAs will be called *trial-based FAs* (TBFAs) in this paper. In addition, a TBFA that is conducted by teachers will be called teacher-led TBFA.

### **Social Validity of Teacher-Led TBFA**

Although functional assessment is an evidence-based practice (Bloom et al., 2011; Bloom et al., 2013; Lambert, Bloom, & Irvin, 2012), the effective and efficient use of the assessment methods by classroom teachers is still an emerging practice. There is a burgeoning body of research covering teacher-led TBFA that is focused on its effectiveness. For example, Bloom, et al. (2011) found that classroom teachers could conduct accurate teacher-led TBFA without using specialized equipment/tools when proper training is provided. Furthermore, Bloom, et al. (2013) and Lambert, et al. (2012) indicated that teacher-led TBFA can be used to conduct successful intervention plans. If teachers are able to conduct FAs that yield reliable results in regular classroom settings, then TBFA seems to be a very useful and convenient tool for teachers.

Yet there are several limitations concerning teacher-led TBFA. For example, it requires teachers to temporarily reinforce challenging behaviors in order to determine the function(s) of such behavior (Kern, 2005). Kern (2005) noted that teachers typically hesitate to reinforce

problematic behaviors in any situation, even if it is a test session. Another limitation is that a teacher-led TBFA identifies only direct antecedents. Lifestyle and setting events could also significantly affect challenging behavior (Kern, 2005). However, teacher-led TBFA does not take those factors into consideration. Those limitations could impact the perspectives of teachers regarding the usefulness of conducting teacher-led TBFAs.

Although there is a growing body of work addressing the effectiveness of teacher-led TBFA, there is little research examining its social validity. Even when social validity is discussed, it is often mentioned only within a small section of a manuscript. For example, Lloyd et al. (2015) found that teachers rated the acceptability of teacher-led TBFA above 5.0 on a scale of 1.0 to 6.0 (1 = strongly disagree, 6 = strongly agree), which was a very high acceptability. Paraprofessionals rated the difficulty as very easy (Lloyd et al., 2005). Ledford, Wolery, and Gast (2014) noted that information regarding social validity might help researchers understand the acceptance, implementation, and effects of their interventions when they are employed by practitioners. Since there is not much research directly addressing the social validity of teacher-led TBFA, it remains unclear why teachers have responded so well to it. Since teachers' backgrounds vary, it would be interesting and informative to analyze more data about the social validity of teacher-led TBFA, and determine what factors might contribute to its usability (e.g., training, educational background). If teachers are able to conduct teacher-led TBFA, it could help them to address challenging behavior in the classroom. However, if it is not socially valid, then teacher-led TBFA is less practical. Since teachers are the primary implementers of interventions in their classes, obtaining information on the social validity of teacher-led TBFA is also helpful for researchers when developing effective and efficient interventions.

In light of these considerations, the purpose of this research is to gather data on teachers', school administrators', and researchers' perspectives concerning teacher-led TBFA; and to (a) determine whether teachers find teacher-led TBFA to be practical and realistic to implement, (b) analyze what factors/elements of training, classroom support, or personal background contribute to teachers' opinions about what is important for implementing teacher-led TBFA; and (c) identify whether there are any differences in thoughts about teacher-led TBFA among teachers, school administrators and researchers. The following research questions were examined:

1. How do classroom teachers who have conducted teacher-led TBFA, school administrators, and researchers feel about teacher-led TBFA? What differences in perspectives exist among teachers, administrators, and researchers?
2. What modifications do teachers report to be either beneficial or necessary when implementing teacher-led TBFA and why?
3. What factors/elements of training, classroom supports, or features of personal background do teachers find important in order to successfully implement teacher-led TBFA?

## **Method**

### **Participants**

A total of five participants who were adult volunteers over the age of 18 participated in this study. The participants were: (a) three teachers who had previously conducted teacher-conducted teacher-led TBFAs; (b) a school principal at a University-Affiliated Early Learning Program (UAELP); and (c) a doctoral student who had experience training/supporting teachers to conduct teacher-led TBFAs. Since one of the purposes of this study was to identify whether there

were any significant differences in thought regarding teacher-led TBFA among teachers, school administrators, and researchers, the school principal and the doctoral student were invited to participate in this study. Participants were not excluded on the basis of gender, race, ethnicity, or age.

Because teacher-led TBFA is an emerging practice, it was difficult to find (a) teachers who had already trained and conducted teacher-led TBFAs in their classes and (b) school administrators who had previously supervised teachers who had conducted teacher-led TBFAs in public/private schools. However, the UAELP had invited the doctoral researcher to conduct TBFAs with teachers, so there were a small number of teachers who were trained and supported to conduct teacher-led TBFAs during the 2015-2016 academic year. These five adults were purposefully sampled due to their respective experiences with teacher-led TBFAs. Pseudonyms have been used in this paper for the purpose for identifying the participants.

Olivia was a lead teacher in a preschool classroom. Her highest level of education was a master's degree, and her job titles were *early childhood special education teacher* and *general education teacher*. Olivia had been teaching children for 4 years, and had conducted one teacher-led TBFA. Olivia conducted the teacher-led TBFA while being supervised and supported by the doctoral student, Chloe. As such, Olivia had never conducted teacher-led TBFAs without receiving supervision/support from researchers or school administrators. She learned how to conduct teacher-led TBFAs by receiving training from Chloe. The training included (a) lectures, (b) receiving instructions while conducting a teacher-led TBFA, (c) frequent meetings with Chloe, and (d) practicing how to conduct teacher-led TBFAs (e.g., role-play, modeling).

Hannah's background was similar to that of Olivia. Hannah held a master's degree, and was a lead teacher in a preschool classroom. Her job title was *early childhood special education*

*teacher*. She had been a teacher for 2 years, and had conducted one teacher-led TBFA. Hannah conducted this teacher-led TBFA while receiving supervision and support from Chloe. As such, Hannah also did not have experience conducting teacher-led TBFAs without receiving supervision/support from researchers or school administrators. Hannah had taken classes about FA at the university level, and she had received training from Chloe to learn how to conduct teacher-led TBFAs. The training from Chloe included (a) lectures and (b) receiving instructions while conducting the teacher-led TBFA.

Ashley was a *paraeducator* in Hannah's classroom at the time she conducted the teacher-led TBFA. Her highest level of education was a bachelors' degree, and she had been working with children for 1.5 years. Ashley had never conducted a teacher-led TBFA before conducting the one in Hannah's class. Ashley learned how to conduct teacher-led TBFAs by receiving Chloe's supervision/support. The support Ashley received included real-time feedback and coaching from Chloe through a Bluetooth headset that Ashley wore while conducting the teacher-led TBFA. Chloe and her assistant were either in Hannah's/Ashley's classroom or an observation booth with a one-way mirror that looks into the classroom. They provided Ashley with immediate feedback through the headset while Ashley conducted the teacher-led TBFA. Ashley also received training by having frequent meetings with Chloe.

Chloe was an advanced doctoral student, and her areas of study were *special education* and *applied behavior analysis*. She had been training and supporting teachers who conduct teacher-led TBFAs for approximately 3 years. Chloe also had experience conducting teacher-led TBFAs in classrooms as a researcher and Board Certified Behavior Analyst.

Jacob was a principal of the UAELP. He had worked as an administrator for 10 years. He held a master's degree and principal certification. Jacob had never conducted teacher-led TBFAs

in classrooms, but he had previously trained or provided support for teachers who had conducted teacher-led TBFAs. He learned how to conduct teacher-led TBFAs by (a) taking classes at the university level and (b) receiving training from researchers.

### **Setting**

All of the teachers and Jacob worked at the UAELP, which provided an inclusive education for students with and without disabilities in the U.S. Pacific Northwest. The program provided classroom-based services for infants and toddlers, preschoolers, and kindergarteners. An observation booth with a one-way mirror was attached to each classroom, from which people (e.g., parents, researchers, students, guests) were allowed to observe the classrooms. Several microphones were installed in each classroom, so observers were able to hear what was going on in the classroom. Since the program was university-affiliated, many researchers from the university were present in the building and several were conducting research in the classrooms at the time of this study. There were also many graduate students from the early childhood special education and applied behavior analysis programs who worked in the classrooms for practicum or student teaching. As such, there were usually 4 or more adults (a lead teacher, 2 paraeducators, and a practicum student) in a preschool classroom, in addition to parents, volunteers, and/or multidisciplinary team members.

### **Design**

This study used a mixed method design, which included survey methodology with participant interviews. The survey and interview methodologies were selected because one of the purposes of this study was to learn about the experiences of professionals who had used of teacher-led TBFA. The surveys and interviews were individually provided and conducted with

all of the participants. Two surveys were administered with an interval of two months between (i.e., November and January), and an initial interview for each participant was held on the date the first survey was collected from each teacher. There were no interviews held while administering the second survey. Before interviews were conducted, all of the participants were asked to provide consent for audio recording.

### **Data Source**

**Survey protocols.** Surveys were developed to investigate the unique perspectives of each group of participants at two points in time. A total of 6 surveys were developed: a *Time 1* survey and *Time 2* survey for teachers, the principal, and the doctoral student. These surveys included multiple-choice questions, open-ended questions, and rating-scales. For the *Time 1* surveys, each participant was asked 16 to 20 questions (18 questions for teachers; 16 questions for the principal; and 20 questions for the doctoral student). The questions were divided into four types: (a) background information of participants; (b) how participants feel about teacher-led TBFA; (c) how teachers use teacher-led TBFAs in their classrooms (e.g., modifications); and (d) what factors or elements might contribute to conducting teacher-led TBFAs successfully. Surveys were developed by the author. They were reviewed by the faculty advisor and revised based on feedback. The final survey instruments are provided in Appendix.

For the *Time 2* surveys, each participant was asked 4 to 8 questions (8 questions for teachers; 4 questions for the principal; and 5 questions for the doctoral student). Because the *Time 2* surveys were designed to follow-up on the *Time 1* surveys, the questions of the *Time 2* surveys were developed based on the responses from the *Time 1* surveys. The *Time 2* surveys for teachers included questions regarding the sustainability of teacher-led TBFAs and whether they considered and/or actually conducted teacher-led TBFAs since the *Time 1* survey and interview.

The *Time 2* survey for Jacob included similar questions as the *Time 2* survey for teachers, such as whether he had recommended teacher-led TBFAs to any teachers, and whether teachers actually conducted teacher-led TBFAs in their classrooms since the *Time 1* survey and the interview. The *Time 2* survey for Chloe asked her thoughts about the practicality of conducting teacher-led TBFAs outside of the UAELP.

**Interview protocols.** Semi-structured interview protocols were used to investigate each participant's experiences with teacher-led TBFA. Separate interview protocols were developed for the teachers, the principal, and the doctoral student. The author developed interview protocols after a thorough review of the literature. Protocols were reviewed by the faculty advisor and revised based on feedback. Three sets of interview questions were developed (one for each group of participants): 6 questions for teachers, 5 questions for the principal, and 5 questions for the doctoral student.

## Procedure

### Steps of the Study

**Step 1—recruitment.** Invitations were offered to the principal of the UAELP, a doctoral student who had conducted research on TBFA, and three teachers who had prior experience implementing teacher-led TBFAs. All five responded via email affirming their interest in participating. The author made an appointment to meet with each prospective participant in-person. During the meeting, the author explained (a) the purpose of the study; (b) study procedures; (c) possible risks, stress, or discomfort; (d) benefits of the study; (e) confidentiality of research information; (f) other information; and (g) research-related medical information. After explaining these components, prospective participants were invited to review the material, ask questions, and provide informed consent. All recruitment and study procedures were

reviewed by the university's Institutional Review Board, and the study was determined to be exempt.

**Step 2—time 1 survey and interview.** The *Time 1* surveys were provided to all participants via paper or email (based on participant preference), and participants were given approximately one week to complete the survey. There was a 100% response rate on all *Time 1* surveys. Olivia, Hannah, Ashley, and Chloe directly received and returned the *Time 1* surveys. Jacob directly received a physical copy of the survey, and returned it via email as a PDF.

Interviews were conducted on the same day the participants returned their *Time 1* survey, with one exception (Jacob). Due to a scheduling difficulty, Jacob was interviewed two months after the *Time 1* survey was collected. All teacher and principal interviews took place at the UAELP. Each interview was held one-on-one in the teacher's office or in Jacob's office at the program. Only the participant and the author were present. Chloe's interview was held in a private study room at a University library.

A semi-structured interview protocol was used for this study. The author developed and prepared questions to ask each participant, and she followed that protocol. However, based on each participant's responses, the author altered the trajectory of the conversation when appropriate (e.g., ask extra questions based on a participant's responses). The lengths of the interviews for each participant are as follows: Olivia (5 minutes and 45 seconds), Hannah (6 minutes and 46 seconds), Ashley (5 minutes and 50 minutes), Jacob (10 minutes and 51 seconds), and Chloe (19 minutes and 53 seconds).

**Step 3—time 2 survey.** The *Time 2* (follow-up) surveys were administered to all participants approximately three to four months after the *Time 1* surveys. The *Time 2* surveys were developed based on the participants' responses on the *Time 1* surveys. The author either

collected the surveys in person, or the participants submitted them via email. They were directly distributed to Olivia, Hannah, and Ashley on paper. Chloe received the *Time 2* survey via email, and the author dropped the survey off for Jacob at the front desk of the university-affiliated early learning program. Olivia and Ashley returned the survey by hand, and Chloe sent it back to the author via email. The author picked up Jacob's survey at the front desk of the university-affiliated early learning program. There was a 100% response rate on all *Time 2* surveys.

**Step 4—data analysis.** The collected data was analyzed by the author, and she discussed the data with her graduate faculty adviser.

***Quantitative data analysis.*** Each survey contained several items with a Yes/No response and several items rated on a Likert-type scale. These quantitative data were aggregated by participant role and sorted by the types of questions. The *mean* was calculated for each item per participant role (i.e., teacher, principal, doctoral student). The scale ranged from 1 to 5, with 1 being the most negative (e.g., least likely, least satisfied), and 5 most positive (e.g., most likely, most satisfied).

***Qualitative data analysis.*** Open-ended survey and interview questions were analyzed by theme. First, the data from both the *Time 1* and *Time 2* surveys was sorted by theme and organized using a table in Microsoft Excel. Each survey question was typed into a row on the table. Then, each participant's response to each question was typed verbatim and sorted into one of three columns: positive, negative, and neutral. Comments were linked to individual participants by color-coding or ID number.

All qualitative data from the interviews were transcribed from audio-recordings of the interviews. Interview data were also analyzed by theme, and sorted into positive, negative, and neutral categories. The participants' comments from the interviews were integrated into the table

format of the *Time 1* and *Time 2* surveys. After sorting into three columns, the author discussed the results with the faculty advisor.

### **Intercoder Agreement**

The author organized data and coded all data independently. Her faculty advisor reviewed all qualitative coding. Meetings were held once to twice a month to discuss emerging themes and categories. The author and the faculty advisor discussed disagreements until a consensus was reached during both in-person meetings and via email. Final coding represented consensus agreement between both researchers.

## **Results**

### **Research Question (RQ) 1: Perspectives on Teacher-Led TBFA**

Perspectives on teacher-led TBFA fell into four main categories: *First impression of teacher-led TBFAs, practicality and reasonability, sustainability, and effectiveness and accuracy*. These categories were analyzed by participant role. Detailed explanations of the four categories by participant role are presented in the following sections.

#### **First impression of teacher-led TBFAs.**

*Teachers' perspective.* All of the teachers reported both positive and negative first impressions of teacher-led TBFA. Olivia reported that it sounded “great” and would be very helpful for identifying the function(s) of her target student’s behavior. While it was initially overwhelming for her, this feeling was mitigated once she received training from Chloe. Hannah was worried about staffing issues when she first learned about teacher-led TBFA. She mentioned that although she was excited to conduct teacher-led TBFA with the target student, she was also

wary about how it would impact the classroom. Hannah did not want to personally conduct it because she needed to lead her class. In addition, she had never worked with her two paraeducators before and was not sure about how introducing teacher-led TBFA would affect the classroom. Ashley reported that teacher-led TBFA sounded a little intense, and she was skeptical about the fact that teacher-led TBFA purposefully evokes challenging (i.e., the target) behaviors. It was especially troubling because her target student exhibited significantly aggressive behaviors. However, team training helped her to overcome these concerns, since Chloe discussed what they would do and explained the methods and reasons behind teacher-led TBFA.

*Principal's perspective.* During the interview, Jacob mentioned that he did not have an impression of teacher-led TBFA when he was first introduced to it. Rather, he evaluated what teacher-led TBFA was, considered its usefulness, its limitations, and how it might be applicable in classrooms.

*Doctoral student's perspective.* Chloe was not asked questions regarding her first impression. Because this study focused on teachers' impressions, researchers did not seek to identify Chloe's first impressions of teacher-led TBFA in the current study.

### **Practicality and reasonability of teacher-led TBFAs**

*Teachers' perspectives.* Positive thoughts regarding teacher-led TBFA reported by the teachers included: teacher-led TBFA sounded great and could be very helpful in figuring out the function(s) of a student's behavior; it seemed exciting; teacher-led TBFA was effective for a student, especially when s/he was non-verbal; teacher-led TBFA was convenient because it was implemented within the context of the classroom; conducting teacher-led TBFA made examining the target behavior and coming up with strategies to address the behavior simple. All three

teachers responded with ‘yes’ to the question “*Do you think teacher-led TBFA are practical for teachers to implement?*”

The mean difficulty or ease—on a scale of 1 to 5 (1 being the easiest and 5 the most difficult)—of conducting teacher-led TBFAs was a 3 (Olivia: 2, Hannah: 4, Ashley: 3). Olivia reported that Chloe and her assistant were in the observation booth or classroom, and provided her with immediate feedback and coaching through a Bluetooth headset, which made the teacher-led TBFA easier to conduct. Olivia also expressed confidence that she could conduct teacher-led TBFAs on her own without researcher’s support. However, she also noted that having to divert attention from other classroom tasks when conducting the teacher-led TBFA made it difficult to conduct.

Hannah reported that the requirement of one-on-one interaction between a staff member and the target student made the teacher-led TBFA difficult to conduct. Ashley, who actually conducted the teacher-led TBFA in the Hannah’s class, noted that conducting the teacher-led TBFA was easier when additional staff was present. While Olivia related both positive and negative perspectives on the ease of conducting teacher-led TBFAs, Hannah reported only a negative perspective on this issue (staffing). Yet, Hannah also stated that she felt capable of conducting a teacher-led TBFA without researcher support—she did not think that much training was required (for head teachers) to successfully conduct teacher-led TBFAs. However, it is important to note that Hannah did not directly implement the teacher-led TBFA.

Ashley reported that she was not able to conduct the teacher-led TBFA without a researcher’s support. She noted that, if she had more experience conducting teacher-led TBFAs with such support, she might be able to confidently do so on her own. From these reports, it seems that Olivia’s and Ashley’s positive perspectives were contingent upon the support that

they received while conducting teacher-led TBFAs (e.g., extra staff in the classroom, immediate support from Chloe and her assistant), while the negative perspectives of Olivia and Hannah related largely to staffing issues.

***Principal's perspective.*** Jacob reported that teacher-led TBFA was *not* practical for teachers to implement in their classrooms—both the level of training required to accurately implement a teacher-led TBFA and the resources that are demanded were very high. He mentioned in the interview that teachers who were not able to have additional staff members in their classrooms when conducting a teacher-led TBFA might find it challenging, since they might lose control of the rest of the class. Given the difficulty of managing an entire class while conducting a teacher-led TBFA, Jacob indicated that teacher-led TBFAs were not only impractical, but also unreasonable for teachers to conduct on top of their regular workloads.

***Doctoral student's perspective.*** Chloe reported that she neither agreed nor disagreed with the practicality of teacher-led TBFA, given that not many studies regarding teacher-led TBFA's usefulness have been conducted (at the time of this study). As such, more research is necessary in order for her to come to a conclusion regarding this issue. The positive perspectives on teacher-led TBFA that Chloe reported relate to its effectiveness. She agreed that teacher-led TBFA provided clear and contextually relevant data regarding the function(s) of student behavior, which enables the development of effective and functionally relevant intervention plans. She also noted that existing research and her own social validity data indicated that teachers conducting teacher-led TBFA in their classrooms is practical. Her thoughts on this issue were consistent across the *Time 1* and *Time 2* surveys. Chloe mentioned that teacher-led TBFAs have been used by teachers in non-university affiliated programs. In light of this, she believed that teacher-led TBFAs might be practical not only for teachers in the university-affiliated early

learning program (UAELP), who have ample support, but also for teachers who worked outside of the program (e.g., in public schools).

In addition, the question “*What opinions or feelings about teacher-led TBFAs do you think teachers have?*” was posed to Chloe. She responded that one teacher (who was not a participant of this study) who had many experiences with functional behavior analysis (FBA) thought that teacher-led TBFA was interesting. However, Chloe was not sure how the other teachers who do not have much experience with FBA think about teacher-led TBFA, because such teachers might misunderstand the differences between FBA and teacher-led TBFA. When Chloe and her colleague questioned how often teachers use “*...functional behavior assessment methods, ... 90% of the teachers said they were doing them*”. However, because “*...most behavior analyst don’t do [TBFAs] ...*” and “*[m]ost people are not trained to do [TBFAs]*”, she thought that teachers might not be sure of what to think about teacher-led TBFAs.

### **Sustainability of teacher-led TBFAs**

***Teachers’ perspectives.*** The results indicated that the teachers considered teacher-led TBFA practical and reasonable. Teacher-led TBFA is supposed to be useful for teachers who want to identify the function(s) of students’ challenging behaviors and then address such behaviors. Yet, even if teacher-led TBFA is effective at identifying the function(s) of challenging behavior and can be conducted in a classroom, teachers must find it practical to embed this practice in their everyday instruction in order for it to be sustainable. To evaluate this, several questions related to sustainability were posed in the *Time 1* and *Time 2* teacher surveys. Such questions included: (a) whether teachers were satisfied with the results that they obtained from conducting a teacher-led TBFA; (b) how likely they would consider conducting it again in the future; (c) whether they actually considered and/or conducted teacher-led TBFAs in between the

*Time 1* and *Time 2* surveys (approximately 2 months); (d) how likely they were to recommend teacher-led TBFA to other teachers; and (e) whether they actually had recommended it to other teachers between the *Time 1* and *Time 2* surveys.

The mean reported satisfaction of conducting teacher-led TBFAs was 3.66 out of 5 (Olivia: 4, Hannah: 3, Ashley: 4), with 1 being least satisfied and 5 being most. The mean likelihood of conducting teacher-led TBFAs in the future was 3.33 out of 5 (Olivia: 4, Hannah: 3, Ashley: 3), with 1 being the least likely and 5 most likely. Both Olivia and Hannah noted that conducting teacher-led TBFAs was time-consuming. The reasons for the reported likelihood of conducting teacher-led TBFAs in the future included: teacher-led TBFA was worth conducting and easy once she got used to conducting it; teacher-led TBFA was a little invasive in the classroom setting; future conducting of teacher-led TBFAs would be dependent upon the student's communication level and the severity of the challenging behavior. Olivia and Ashley did not conduct or consider conducting teacher-led TBFAs between the *Time 1* and *Time 2* surveys. However, Hannah reported that she and her team members, including an unnamed researcher, conducted a teacher-led TBFA after the *Time 1* survey was administered, and that they were currently (at the time when the author collected the *Time 2* survey) in the process of developing an intervention plan.

The mean likelihood for recommending teacher-led TBFA to other teachers on the *Time 1* survey was 3.66 out of 5 (Olivia: 4, Hannah: 3, Ashley: 4), with 5 being most likely. On the *Time 2* survey, Olivia reported that she recommended, in the interim between surveys, teacher-led TBFA to another teacher to help identify the function(s) of student behavior. However, Ashley made no recommendations for using teacher-led TBFA, as no such opportunities or reasons arose. While Hannah did not recommend conducting teacher-led TBFAs to other

teachers during the time between the surveys, she had already recommended teacher-led TBFA to other teachers *before* the *Time 1* survey was administered.

***Principal's perspective.*** In the Time 1 survey, Jacob reported a likelihood of recommending using teacher-led TBFAs of 3. Although he considered recommending teacher-led TBFAs to teachers when other strategies did not work, he reported that he would not do so until all other strategies available were exhausted. In the interview, he also pointed out why he considered recommending teacher-led TBFAs to teachers in the program when necessary:

*“...it would be more possible for us to do [FAs] independently than other sites, because of the experience level of the staff and their knowledge base, whereas I feel like [if] I was a principal at an elementary school, maybe that would work, but I don't think I can be confident that would work with as many teachers in my building, in a public school system as I would here”*

As a result, he did not recommend teacher-led TBFA to other teachers by the time the *Time 2* survey was collected.

***Doctoral student's perspective.*** The feedback that Chloe received indicated that it is not very difficult to conduct teacher-led TBFAs once teachers have a good understanding about how to conduct them. Given that both Olivia and Hannah reported being able to conduct a teacher-led TBFA without researcher support, Chloe's claims seem to have some anecdotal support. Yet, Chloe also reported that there were differences between UAELP and other schools or institutions. These differences include:

*“Staffing, access to additional resources that promote implementation of evidence based practices (related service professionals, planning time, materials, leadership support, etc.).”*

Regarding question (d), as a researcher, Chloe reported that she did not necessarily recommend FA to teachers who consulted her about students’ challenging behavior. This is largely because FA is an area of developing research. On the likeliness of recommendation scale, she marked 1—least likely to recommend.

### **Effectiveness and accuracy of teacher-led TBFAs**

Both Olivia and Ashley reported that teacher-led TBFA was effective and helpful at identifying the function(s) of students’ behaviors, and Hannah reported that teacher-led TBFA provided her with accurate data which helped in planning subsequent plans and interventions. Although Ashley found teacher-led TBFA to be effective for a student who was non-verbal, she also reported being apprehensive toward teacher-led TBFA, particularly given the nature of her target student’s behaviors (e.g., biting and scratching), by saying that she “...*was a little standoffish to the idea of purposefully ... [evoking] those behaviors*”. Ashley also noted that if she did not have the support that she received (e.g., immediate feedback using a headset), teacher-led TBFA might *not* have been as effective as it was because she might have been overwhelmed without such support. Although teachers were not directly asked about the accuracy of teacher-led TBFA, Olivia noted that teacher-led TBFA provided accurate data, which helped in consequent planning. Hannah and Ashley also reported that teacher-led TBFA helped to determine the function(s) of the target behavior and develop the consequent plans. As such, it seems reasonable to conclude that teachers considered teacher-led TBFA accurate at

identifying the function(s) of the target behavior(s). Both Chloe and Jacob indicated that they considered teacher-led TBFA accurate and effective. Chloe noted that teacher-led TBFA provides clear and contextually relevant data regarding the function(s) of behavior(s), which ultimately enables the development of effective intervention(s).

## **RQ 2: Modifications Made While Conducting Teacher-Led TBFA**

**Teachers' perspectives.** Overall, teachers reported making some changes to their everyday routines as they implemented teacher-led TBFA. Olivia reported that she was required to communicate with the other staff members. She had another teacher lead the classroom while Olivia was conducting the teacher-led TBFA, since Olivia was not able to lead the classroom while doing so. Olivia also needed to inform other staff members that she was conducting a teacher-led TBFA, so they would not interrupt her. She also mentioned that she needed to plan more in advance, so everyone was on the same page.

Hannah also reported that she communicated with the other staff members, and she discussed each staff member's responsibilities. Since Ashley was not able to teach while conducting the teacher-led TBFA, the other staff members were required to take on more responsibilities to support the other students in the classroom. Hannah noted that, except for time spent conducting the teacher-led TBFA, no changes were necessary from the normal classroom agenda. Ashley mentioned a staffing concern, which kept her from teaching while conducting the teacher-led TBFA. However, she also reported that they fortunately had enough teachers in the classroom. She noted that without them it would have been difficult to conduct the teacher-led TBFA. In addition, because they anticipated that the target student would exhibit higher level of aggressive behavior, Ashley wore protective gear to keep her hair out of the way and moved the

target student away from the other students during circle time. Other than these modifications, they continued with their regular daily routine.

**Principal's perspective.** Jacob reported that teachers' modifications were based on resources, such as extra staff members. During the interview, he also extended the conversation about the teachers who worked outside of UAELP, and he focused on the modifications that other schools would need to make. Jacob reported that if he were a principal of a public school, he would have to make sure that teachers are more familiar with behavior analysis. Since schools also generally do not have many resources, they would be required to consider how to implement a teacher-led TBFA, allocate resources, and keep classes running well. Jacob also mentioned that, considering the effects and immediate changes that it could have, teacher-led TBFA might be more helpful in schools that are not university-affiliated. His opinion stems from the fact there might be one or two students who exhibit challenging behavior in a general education classroom, but who do not have individual education plan(s). As such, they might not be able to receive appropriate interventions because the function(s) of their behavior have not been identified.

**Doctoral student's perspective.** Chloe reported that the teachers with whom she worked needed to make modifications, but that they were "subtle". Teachers were required to make time for staff meetings, and one teacher needed to run trials, which took approximately 2 minutes for each trial. Typically, team members came up appropriate modifications, and teachers or a researcher recommend specific modifications in some cases.

### **RQ 3: Important Factors/Elements of Training and/or Classroom Supports to Successfully Implement Teacher-Led TBFA**

**Teachers' perspectives.** Teachers reported that they received in-the-moment coaching and feedback while conducting their teacher-led TBFAs. Both Olivia and Ashley, who directly

conducted teacher-led TBFAs, reported that this type of support was the most helpful when conducting a teacher-led TBFA. This increased their confidence level, and helped them know what to do while conducting it. Hannah reported that she had frequent meetings with Chloe to discuss how the teacher-led TBFA was progressing, which was the most important factor to conduct the teacher-led TBFA successfully. Frequent meetings helped to keep everyone on the same page, ensuring that they had the same priorities and goals. All of the teachers reported that live training while conducting teacher-led TBFA was very helpful, and they felt that they had ample support—each of them rating support received as a maximum 5 out of 5 (most supported).

**Principal’s perspective.** Jacob reported that the teachers were provided with student intervention team support, and teachers’ feedback indicated that this was very helpful. As such, he believes that the support they provided was sufficient. Jacob also mentioned that when considering providing support, he did not think about which support was realistic or unrealistic. He rather considered what was *necessary* for successfully conducting a teacher-led TBFA. When a teacher-led TBFA was required, he stated that schools should figure out how to conduct it, rather than whether it is possible to do so. This position stems from his belief that “...*a free and appropriate public education shouldn’t be limited by [what is] realistic. It should be limited by what’s necessary.*” Since he believes that students should receive the necessary support, he feels that a teacher-led TBFA should be implemented when all other strategies are exhausted (as mentioned under RQ 1). If a student is not able to receive appropriate education because of his/her challenging behavior, then schools need to allocate resources to support that student. Jacob also mentioned an impracticality regarding the implementation of teacher-led TBFA: that not every behavior needs a teacher-led TBFA, or the associated required resources, in order to be properly addressed. While teacher-led TBFA can be very useful for identifying the function(s) of

a behavior, it is sometimes possible to determine the function(s) without conducting a teacher-led TBFA. In such cases, a teacher-led TBFA would waste resources that are already in short supply, without providing any extra benefit.

During the interview, Jacob also noted the differences between UAELP and other schools, which was largely the availability of resources. UAELP was usually able to provide sufficient support because “...we can send extra people, we have a lot of people [to] begin with, we have a different ratio of students, and that allows for teachers to be more participatory...”. As mentioned in RQ1, many teachers who work at UAELP also went through the graduate program at the university, and they have experience working with students with a variety of levels of challenging behavior. As such, Jacob noted that teachers at UAELP spoke a similar professional language, had similar understandings of the relevant concepts, and shared a similar fundamental knowledge base. In light of this, Jacob was able to train teachers in a similar manner. However, paraprofessionals did not always come from backgrounds similar to that of the teachers. Because of Jacob’s experience with teachers and paraprofessionals, he felt that it could be more challenging for teachers who work at the other schools to conduct teacher-led TBFAs because of both their lack of a familiarity with related concepts and fewer physical resources.

**Doctoral student’s perspective.** Given the feedback that Chloe had received, she reported that “...one of the biggest things that we hear is that they were, they feel supported, and I think that’s because of the way that we’ve done training in the past, using bug-in-ear”. Chloe was planning to reduce the amount of support she would provide to teachers, but she was also worried to do so, because it could affect the social validity of her research. Although she thought the support she provided was effective (she scored 4 out of 5; 1 was very ineffective and 5 was

very effective), this support was also not often sustainable. Chloe reported that she provided a choice for the teachers after they reached mastery level: whether they wanted her to stay or leave. As a result, all of the teachers chose for Chloe to stay with them.

Chloe noted that the most important factor for teachers to implement teacher-led TBFA efficiently and successfully was to receive training (e.g., providing live training while teachers are conducting a teacher-led TBFA, providing them with behavior specific feedback). This allowed the teachers to quickly reach mastery level and fidelity of implementing. Chloe reported that “...if a teacher did implement an FA, they would need significant training, a controlled environment, and an understanding of [applied behavior analysis]”. However, she also noted several areas of teacher-led TBFA about which little is known: social validity, how researchers can support teachers, and aspects of the practice in which teachers do not need support.

### **Discussion**

The purpose of this study was to determine the social validity of teacher-led TBFA by identifying: (a) the opinions and thoughts of the participants regarding teacher-led TBFA as used by classroom teachers; (b) the modifications that teachers made while conducting a teacher-led TBFA; (c) important elements or factors of training, classroom supports, and/or features of the personal backgrounds of teachers that allow for successfully conducting teacher-led TBFA.

There were several similarities and discrepancies among the perspectives of the teachers, principal, and doctoral student regarding teacher-led TBFA. First, all participants agreed that teacher-led TBFA was effective, helpful to identify the function(s) of a student’s challenging behavior, and that it provided accurate information. Second, the teachers and Jacob reported that a lack of staffing and other resources could create challenges. Since teacher-led TBFA requires a teacher to focus on a target student (even if only for a short period), this could take the teacher

away from her regular work. The likelihood of recommending teacher-led TBFA to other teachers was relatively similar for teachers and the principal (teachers: 3.66; Jacob: 3).

There were four main differences in perspective on teacher-led TBFA. First and most notably, Jacob and the teachers disagreed widely on the practicality of using teacher-led TBFA. While the teachers considered teacher-led TBFA as practical, Jacob reported that teacher-led TBFA was not practical for teachers to conduct on top of their workloads. His reasons for this were: (a) it could be difficult to manage the rest of the classroom while conducting a teacher-led TBFA, and (b) the resources and training required to accurately implement it are very high. Alternatively, the teachers thought the procedure was practical because: (a) teacher-led TBFA are conducted within the context of the classroom, (b) they received sufficient support while conducting it, and (c) conducting them is simple.

Second, Jacob and the teachers had different initial impressions of teacher-led TBFA. The teachers reported both positive and negative impressions, while Jacob refrained from offering a first impression. Rather, he preferred to evaluate how TBFA fit into the program. This dissimilarity seems to make sense in light of the differences in the job requirements of the participants. For the teachers, they approach this subject considering how it will directly impact their classes and students. As such, the potential upshots (e.g., identifying functions) and complications (e.g., lack of resources, necessary training) might explain their mixed responses toward teacher-led TBFA. On the other hand, as an administrator, Jacob is more interested in how teacher-led TBFA might be implemented throughout a program. Given that it can require a large amount of time and resources, implementation should be considered on a case-by-case basis. Even though teacher-led TBFA might be effective at identifying the function of challenging behavior, other options might make more sense pragmatically.

Third, Jacob and Chloe had different perspectives regarding the practicality for teachers who work outside of university-based settings. While Jacob reported that it might be more difficult for teachers who work outside of UAELP, Chloe indicated that it could be practical for teachers in other schools to conduct teacher-led TBFAs. The reasons behind Jacob's response largely involved a lack of teacher experience with behavior management and resources that schools can provide. For example, Jacob knew where he should start training teachers who worked at UAELP, since many teachers had graduated from the university's early childhood special education M.Ed. program. However, teachers who worked at other schools may not necessarily have the same background. As such, it could be more challenging to conduct teacher-led TBFAs in such schools, and thus might not be practical for them. In contrast, Chloe reported that teachers who worked at other schools have used teacher-led TBFAs, and that current research also demonstrated that teacher-led TBFA was practical.

It seems the teachers' responses support Jacob's claim that it might be more difficult for teachers who work outside of the UAELP to conduct teacher-led TBFA. Both Olivia and Hannah reported they would be able to conduct teacher-led TBFA with confidence even if there was not researcher support. Hannah noted that although teacher-led TBFA without a researcher's support might not be as effective as when receiving support, she would be willing to conduct it even if she did not receive a researcher's support. However, Ashley noted that she did not have confidence conducting teacher-led TBFA without researcher's support. The difference between Olivia/Hannah and Ashley was primarily their educational backgrounds. Both Olivia and Hannah held master's degrees, while Ashley held a bachelor's degree. The specific names of universities or programs where they received their educations were not asked of the participants, because that was not relevant information for the purposes of this study. Since teachers who work outside of

the UAELP do not necessarily have similar educational backgrounds as Olivia and Hannah, it seems reasonable for Jacob to consider teacher-led TBFA as impractical for teachers who work outside of the UAELP.

Finally, the likelihood for recommending teacher-led TBFA to other teachers was different across participants. The teachers' average score was 3.66 and Jacob's was 3, while Chloe scored it as 1. Olivia and Hannah actually recommended using teacher-led TBFA to other teachers by the time the *Time 2* survey was collected. However, Chloe reported that since teacher-led TBFA was an area of developing research, she does not necessary recommend it to other teachers. In light of this, there was a discrepancy of thought toward teacher-led TBFA between the practitioners (i.e., teachers and a principal) and the researcher.

All of the participants mentioned that they were required to make modifications, when conducting a teacher-led TBFA. The most frequent modifications were adjustments to daily routines among staff members (i.e., who was responsible for specific activities). The reasons why they needed to make such modification were consistent across the participants' responses. Since teachers who conducted a teacher-led TBFA were not able to lead or teach other students at that moment, it was essential for other staff members to lead the class and take more responsibility in supporting the other students. However, the modifications that teachers were required to make were relatively minor. Teachers reported that other than staff communication and subtle changes, their daily schedules remained mostly unaltered. In light of this, it seems reasonable to conclude that communicating with staff members, and having extra team members would significantly help teachers conduct teacher-led TBFA in their classroom. Even if the modifications are subtle, these modifications still need to be taken into consideration when conducting a teacher-led TBFA.

Because of the findings, it is also important to note that general education teachers in typical general education classes might face significant challenges when conducting teacher-led TBFAs. There are usually 25 students in a typical general education class with only one lead teacher and no paraeducators. As such, even if teachers have a desire to conduct a teacher-led TBFA, it could be very difficult for them to do so in such settings unless they have access to extra staff members.

Teachers noted several supports were critical to their use of teacher-led TBFA. The support that the teachers appreciated the most included (a) live training, in which Chloe provided immediate feedback and coaching while they were conducting teacher-led TBFAs, and (b) team collaboration to ensure agreement regarding plans and goals. These were also reported as the most important factors for conducting a teacher-led TBFA effectively and successfully. Ashley reported that without such support, she was not sure whether she would have been able to conduct a teacher-led TBFA as effectively. In addition, Jacob noted that resources, training, and time were important factors for teachers to conduct teacher-led TBFAs successfully and effectively. Chloe mentioned that teachers needed “significant” training in order to successfully conduct teacher-led TBFAs. In light of this, it seems reasonable to conclude that training and resource were the most important factors for teachers to successfully implement teacher-led TBFAs.

These results are important when examining the social validity of teacher-led TBFA. All of the participating teachers taught preschool students in their classroom every day. As such, these results portrayed “first hand” opinions regarding the use of teacher-led TBFA. The inclusion of the principal of the UAELP and a doctoral student who trained the participating teachers provides further relevant data regarding the practicality and effectiveness of teacher-led

TBFA. Previous studies regarding teacher-led TBFA focused on its effectiveness, but social validity seemed to be overlooked. Given teachers' roles as the primary assessors in teacher-led TBFA, social validity is critically important for understanding buy-in, effectiveness, and implementation. Teachers are not likely to use an intervention that they dislike or find impractical—even if the practice is effective and accurately identifies the function(s) of students' behaviors. As such, the social validity of teacher-led TBFA should be examined either concurrently with research addressing its effectiveness, or it needs to be further examined independently of such research. When examining social validity, participants should have varied backgrounds. They should also work in varied settings and schools to allow for generalizing the results. Even if teachers do not always highly value the use of teacher-led TBFA, it is important to document these results. This will help to further develop how to conduct teacher-led TBFA in a classroom, and promote its usefulness among teachers. This will, in turn, help students whose education is impacted by challenging behavior. If students receive appropriate intervention, they might have broader access to the general education curriculum and, ultimately, a better quality of life.

Even though this study supports the social validity of teacher-led TBFA, it is limited in three ways. First, all of the teachers worked at the UAELP where more personnel, support, and resources were available than in typical educational settings. Jacob reported in his interview that “...*the nice thing is that we can send extra people, we have a lot of people [to] begin with...*” and indicated that, if necessary, they could provide sufficient resources to teachers who conducted teacher-led TBFA. However, this is not necessarily applicable to other schools. In addition, since the setting was a university-affiliated program, many researchers from the university and graduate students from the applied behavior analysis program were working in the same

building. In light of this, it might also be easier for the participating teachers to consult experts about how to identify the functions of students' behaviors than it would be for teachers who work outside of the program.

Second, all of the participants received extensive support and training. The teachers were well educated in the first place, and they received significant and intensive support from Chloe. Given that participating teachers received training, coaching, and feedback on teacher-led TBFAs, it might be expected that they would look favorably on teacher-led TBFA. However, one might question whether such findings would generalize to teachers in other non-university affiliated institutions. Other institutions might not be able to provide sufficient support, training, and/or resources. In addition, typical early childhood educators, on average, might not be as educated as the participating teachers. As such, it could be more difficult for teachers with less preservice behavioral training to find teacher-led TBFA to be effective or practical. Thirdly, there were only five participants in this study. Since the sample size is relatively small, it might not be reasonable to conclude that the results can be generalized.

To conclude, teachers who received intensive support from their school and a researcher reported that teacher-led TBFA was helpful, effective, and practical to conduct in their classroom. All participants described teacher-led TBFA as effective at identifying the function of a child's behavior and relatively easy to implement with support. However, teachers were hesitant to use the procedure without support from a coach or behavior specialist. Given these results, further studies into the effectiveness and social validity of teacher-led TBFA are highly recommended.

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**Appendix A***Time 1 Survey; Time 2 Survey; Interview for Teachers**Time 1 Survey*

1. **What is your job title? (If applicable, check all that apply)**
  - Early Childhood Special Education Teacher
  - General Education Teacher
  - Project Data Teacher
  - Paraeducator
  - Other ( )
2. **What is your highest level of educational?**
  - High School Degree
  - Associate Degree
  - Bachelors' Degree
  - Master's Degree
  - Doctoral Degree
  - Other ( )
3. **How long have you been working as a teacher?**  
( ) Years
4. **How many teacher-led functional analyses (FAs) have you previously conducted?**  
( )
5. **Have you conducted teacher-led FAs without supervision/support from researchers or school administrators?**
  - Yes     No
6. **How have you learned about teacher-led/trial-based FAs and their procedures? (Check all that apply)**
  - Took classes at a college/university level
  - Attended conferences
  - Received training sessions provided by your employer
  - Received trainings from researchers
  - Attended community programs
  - Other ( )

**7. What kind of training have you received to conduct teacher-led FAs? (Check all that apply)**

- Lecture type training (e.g., a trainer presented materials, and you listened to him/her)
- Received instructions while conducting a teacher-led FA
- Having frequent meetings with trainers
- Other ( )

**8. Do you think teacher-led FAs are practical for teachers to implement?**

- Yes     No

**Why do you think so?**

**9. How easy/difficult is it to implement teacher-led FAs? (From *easy* (1), to *moderate* (3), to *difficult* (5))**

1                      2                      3                      4                      5

**What factor(s) made it easy/difficult?**

**10. Do you think teacher-led FAs are generally helpful in planning behavior supports?**

- Yes     No

**Why do you think so?**

**11. How do you rate your satisfaction with conducting FAs and the results they provide? (From *least satisfied* (1) to *most satisfied* (5))**

1                      2                      3                      4                      5

**12. How likely is it that you will use teacher-led FAs in the future? (From *least likely* (1) to *most likely* (5))**

1                      2                      3                      4                      5

**What made you rate so?**

**13. How likely is it that you will recommend teacher-led FAs to other teachers (From *least likely* (1) to *most likely* (5))**

1                      2                      3                      4                      5

**14. Are there any special things that you have done while conducting teacher-led FAs that you usually do not do? (e.g., provide extra time for free choice, intentionally ignored student's challenging behavior)**

Yes       No

**If yes, what were they?**

**15. Have you received sufficient support when conducting teacher-led FAs?**

Yes

**If yes, what type of support?**

No

**If not, what kind of support did you wish to receive?**

No support needed

**16. What kind of help/support is the most important to conduct teacher-led FAs successfully?**

**Why do you think so?**

**17. If there was a kind of support that you wished to have while conducting a teacher-led FA, did you request that support from your supervisor or school administrators?**

Yes

**If so, was/were the request(s) accepted?**

No

**If not, what hindered you from making the request for support?**

**18. Is there anything that you would like to share regarding teacher-led FAs, which was not covered in this survey?**

*Time 2 Survey*

**1. Have your thoughts, ideas, or impressions toward teacher-led/trial-based FA changed since the first survey and last interview?**

Yes     No

**If yes, how did it change? What thoughts, ideas, or impressions do you currently have?**

**2. Currently, do you think/feel that you are able to conduct teacher-led FA with *confidence* even if there is no researcher support (e.g., immediate feedback, bug-in-ear support)?**

Yes     No

**3. Have you *considered* conducting a teacher-led FA since the first survey and last interview?**

Yes     No

**If yes, why did you consider conducting a teacher-led FA?**

**4. Have you *actually conducted* a teacher-led FA since the first survey and last interview?**

Yes     No

**If yes, what kind of support did you receive from the school?**

**If yes, how satisfied are you with that support? (From least satisfied (1) to most satisfied (5))**

1                      2                      3                      4                      5

**Why did you rate this so?**

**If yes, how much are you satisfied with the results and following actions? (From least satisfied (1) to most satisfied (5))**



Interview

1. What was your first impression of teacher-led Functional Analysis (FA) when you learned about it?
2. Currently, do you have any concerns or impressions about teacher-led FA? If yes, what are they?

Yes             No

3. What degree of training do you think is necessary to conduct functional analyses successfully and effectively? (From *least necessary* (1), to *moderately necessary* (3), to *very necessary* (5))

1                      2                      3                      4                      5

4. How do you conduct teacher-led functional analyses in your classroom?
  - A. Are there any modifications that you need to make? If yes, what modifications are they?

Yes             No

- B. Do you have to make extra effort to conduct functional analyses? If yes, what efforts are you required to make?

Yes             No

- C. On a scale of 1 to 5, how much effort do you put into conducting teacher-led functional analyses? 1 is the lowest and 5 the highest.

1                      2                      3                      4                      5

5. On a scale of 1 to 5, how supportive is the school when you conduct teacher-led functional analyses? 1 is the lowest and 5 the highest.

1                      2                      3                      4                      5

What makes you rate so?

6. Are there any other thoughts that you would like to share about teacher-led FA?

**Appendix B***Time 1 Survey; Time 2 Survey; Interview for Principal**Time 1 Survey***1. What is your job title?****2. What is your highest level of education?**

- Bachelors' Degree
- Master's Degree
- Doctoral Degree
- Other ( )

**3. How long have you been working as an administrator?**

( ) Years

**4. Have you actually conducted teacher-led/trial-based FAs in the classroom?**

- Yes
- No

**If yes, what was your role at the time?**

- School Administrator
- Lead Teacher (General Education)
- Lead Teacher (Special Education)
- Assistant Teacher / Paraeducator
- College Student
- Other ( )

**5. How have you learned about teacher-led/trial-based FAs, including the procedures for training/supporting teachers?**

- Took classes at a college/university level
- Attended conferences
- Received training sessions provided by your employer
- Received trainings from researchers
- Attended community programs
- Other ( )

**6. Have you previously trained and/or provided support for teachers who have conducted teacher-led FAs?**

- Yes     No

**7. Are there any rules that your school has established regarding conducting teacher-led/trial-based FAs?**

- Yes     No

**If yes, what are they?**

**8. Do you think teacher-led/trial-based FAs are practical to implement?**

- Yes     No

**Why do you think so?**

**9. Do you think teacher-led/trial-based FAs are generally accurate at identifying the function of a child's behavior?**

- Yes     No

**Why do you think so?**

**10. How likely is it that you will recommend teachers to implement teacher-led FAs in their classes when they consult you about how to address students' challenging behavior?**

**(From *least likely* (1) to *most likely* (5))**

1                      2                      3                      4                      5

**What made you rate so? (e.g., it is difficult to train teachers about how to conduct teacher-led FAs)**

**11. Do you think conducting teacher-led FAs is reasonable for teachers on top of their regular workload?**

- Yes     No

**Why do you think so?**

**12. Do you have any positive or negative feeling(s) toward teacher-led/trial-based FAs**

Yes       No

**What are they?**

**Why do you feel so?**

**13. What kind of support have you provided to teachers who conducted teacher-led FAs?  
(e.g., extra staff members, extra time to prepare for classes)**

**14. Do you think the support you provided was sufficient for them?**

Yes       No

**What makes you think so?**

**15. What factors are necessary for teachers to conduct teacher-led FAs effectively and  
successfully?**

**Why do you think so?**

**16. Is there anything that you would like to share regarding FAs that was not covered in  
this survey?**



## Interview

1. **What was your first impression of teacher-led Functional Analysis (FA) when you learned about it?**
  
  
  
  
  
  
  
  
  
  
2. **Currently, do you have any concerns or impressions about teacher-led FA? If yes, what are they?**  
 Yes             No
  
  
  
  
  
  
  
  
  
  
3. **How do teachers conduct teacher-led functional analyses in their classroom?**  
  
  
  
  
  
  
  
  
  
  
**D. If necessary, what modifications do they need to make?**  
  
  
  
  
  
  
  
  
  
  
**E. Do they receive any support while they conduct teacher-led functional analyses? If yes, what are they?**  
 Yes             No
  
  
  
  
  
  
  
  
  
  
4. **When teachers need/ask for support from the school around challenging behavior, what kinds of support are realistic and unrealistic to provide? Why?**
  
  
  
  
  
  
  
  
  
  
5. **Are there any other thoughts that you would like to share about teacher-led FA?**

**Appendix C**

*Time 1 Survey; Time 2 Survey; Interview for Doctoral Student*

*Time 1 Survey*

**1. What is your area of study? (Check all that apply)**

- Special Education
- Applied Behavior Analysis
- Psychology
- Other ( )

**Please briefly explain about your research area. (e.g., How children develop social skills through pretend-play; Social validity of teacher-led functional analysis; How to promote collaborations between families and practitioners)**

**2. Before starting to train/support teachers who conduct teacher-led/trial-based Functional Analyses (FAs), did you know what they are?**

- Yes     No

**What was your role when you learned about teacher-led/trial-based FAs?**

- School Administrator
- Lead Teacher (General Education)
- Lead Teacher (Special Education)
- Assistant Teacher / Paraeducator
- College Student
- Other ( )

**3. For how many years have you trained/supported teachers who conduct teacher-led FAs?**

( ) years

**4. Have you conducted teacher-led/trial-based FAs in a classroom?**

- Yes     No

**If yes, what was your role at the time?**

- School Administrator
- Lead Teacher (General Education)
- Lead Teacher (Special Education)

- Assistant Teacher / Paraeducator
- College Student
- Other ( )

**5. How easy/difficult is it to train teachers to effectively and successfully conduct teacher-led FAs without significant support? (From *easy* (1), to *moderate* (3), to *difficult* (5))**

1                      2                      3                      4                      5

**6. Do you think it is practical for schools to implement teacher-led/trial-based FAs?**

- Yes     No

**Why do you think so?**

**7. Do you think it is practical for teachers to implement teacher-led FAs?**

- Yes     No

**Why do you think so?**

**8. Do you think teacher-led/trial-based FAs are generally effective for students?**

- Yes     No

**Why do you think so?**

**9. When teachers consult you about addressing students' challenging behavior, how likely are you to recommend that they implement teacher-led FAs in their class? (From *least likely* (1) to *most likely* (5))**

1                      2                      3                      4                      5

**10. Do you think it is reasonable for teachers to conduct teacher-led FAs on top of their regular workload?**

- Yes     No

**Why do you think so?**

**11. How much effort do you think teachers considered themselves to put into conducting teacher-led FAs? (From *very little* (1), to *a moderate amount* (3), to *an excessive amount* (5))**

1                      2                      3                      4                      5

**12. Have you found there to be any modifications (e.g. environmental, curricular) that are necessary when teachers conduct teacher-led FAs?**

Yes     No

**If yes, what were they?**

**How practical were the modifications for both the teachers and the school? (From *very impractical* (1), to *very practical* (5))**

*For teachers*

1                      2                      3                      4                      5

*For School*

1                      2                      3                      4                      5

**13. Have you ever been consulted by teachers who wanted/needed to make modifications because they would conduct teacher-led FAs?**

Yes     No

**If yes, what kind of modifications were they (e.g., curriculum, daily routine)?**

**How reasonable were the requests? (From *very unreasonable* (1) to *very reasonable* (5))**

1                      2                      3                      4                      5

**14. When training teachers to successfully/effectively conduct teacher-led FAs, what kind of support do you find to be most effective to provide them? (Check all that apply)**

- Live training while teachers are conducting an FA
- Frequent meetings: Frequency (                      )
- Provide teachers with behavior specific feedback
- More adult help in class
- Others (Please Specify

**15. What kinds of support have you actually provided to teachers while training them? (Check all that apply)**

- Live training while teachers are conducting an FA
- Frequent meetings: Frequency (                      )
- Provide teachers with behavior specific feedback
- More adult help in class
- Others (Please Specify)

**16. How effective do you think the support you provided was for helping the teachers? (From *very ineffective* (1) to *very effective* (5))**

1                      2                      3                      4                      5

**Why do you feel that this support was effective/ineffective?**

**17. Did the teachers request any additional support?**

- Yes     No

**If yes, what kind of support was requested?**

**How reasonable were those requests? (From *very unreasonable* (1) to *very reasonable* (5))**

1                      2                      3                      4                      5

**What make you feel these requests to be reasonable/unreasonable?**

**18. What factors are necessary for teachers to conduct teacher-led FAs effectively and successfully? (Check all that apply)**

- Training
- Extra time for completing FAs
- Resources (e.g., additional staff members, materials)
- Others (Please specify)

**19. What are the most important factors in order to implement teacher-led FAs efficiently/successfully? Why do you think so?**

**20. Is there anything that you would like to share regarding teacher-led/trial-based FAs that was not covered in this survey?**



## Interview

1. **Would you indicate the clear definitions of the terminologies teacher-led and trial-based FA? If there are other terminologies regarding FA and their definitions, please let me know.**
  
2. **What feedback do you usually receive when/after you train teachers to conduct functional analyses (e.g., difficulty, ethical issues)?**
  
3. **What opinions/feelings about FAs do you think teachers have?**
  
4. **Are there any necessary modifications that teachers have to make in order to successfully/effectively implement functional analyses (e.g., curriculum, programs)?**  
 Yes  No
  - A. **What modifications have you or the teachers made?**
  
  
  - B. **Who recommended making the modifications, you or the teachers?**
  
5. **What kinds of support are realistic and unrealistic to provide for conducting functional analyses? Why they are realistic/unrealistic?**
  
6. **Are there any other thoughts that you would like to share about FAs?**