

WJEC Trial-Based Functional Analysis to Understand Children's Behaviors

Charlie is a 4-year old preschooler who enjoys playing with his friends at school. Charlie's teacher reports that he has difficulties participating in teacher-directed large-group and small-group activities. Specifically, Charlie engages in challenging behaviors including throwing himself to the ground and leaving the group during teacher-directed activities. Charlie's teacher thinks that he engages in challenging behaviors to escape instructional activities. The behavioral specialist, however, observes Charlie several times and suggests that he uses challenging behaviors both to escape instructional activities and to gain adults' attention. Understanding what Charlie is communicating by engaging in challenging behaviors is the first step in developing a behavioral intervention plan that meets his needs. Therefore, the teacher and behavioral specialist look for ways in which they can learn more about Charlie's behaviors. Another behavioral specialist in the school suggests conducting a trial-based functional analysis.

Persistent challenging behaviors in early childhood can interfere and disrupt children's engagement in social and academic activities within their homes, schools, and communities (Brauner & Stephens, 2006; Division for Early Childhood [DEC], 2017). To address this concern, DEC recommends that early

childhood practitioners use functional behavior assessments (FBAs) to understand what children communicate via challenging behaviors (DEC Recommended Practice [RP] INS9; DEC, 2014; Dunlap & Fox, 2011; Wood et al., 2013). FBAs allow practitioners to identify the antecedent environmental events (i.e., events that immediately precede behaviors) that trigger challenging behaviors and the consequent environmental events (i.e., events that immediately follow behaviors) that maintain those behaviors.

By using FBAs, early childhood practitioners can understand the communicative intent of challenging behaviors and thus, can identify the behavioral function(s) of challenging behaviors (i.e., DEC RP INS9; DEC, 2014; Dunlap & Fox, 2011). Children typically engage in challenging behaviors to obtain or avoid something in their environment. The "something" can be social consequences provided by someone who interacts with them (e.g., attention, toys, food) or non-social consequences that are directly produced by the behaviors (e.g., hitting temple to remove headache). The most common functions of challenging behaviors

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include obtaining social attention (e.g., attention from a peer) or tangibles (e.g., preferred toys), escape/avoid social attention (e.g., attention from a teacher) or tangibles (e.g., a non-preferred instructional activity), and automatic reinforcement (Cooper et al., 2007; Iwata et al., 2000). Challenging behaviors may have more than one function. For example, a child may engage in prolonged crying because it results in adult attention in some circumstances, while in other circumstances the child may use the same behavior to escape non-preferred activities. The same crying behavior might also be sometimes used to gain access to favorite toys.

Trial-based functional analysis (TBFA) is a type of FBA that is highly applicable in early childhood settings and thus, can be used by trained early childhood practitioners to determine the function(s) of young children's challenging behaviors (Bloom et al., 2013; Rispoli et al., 2015; Ruiz & Kubina, 2017). The purpose of this article is to describe how practitioners can use TBFA in early childhood settings to identify the function(s) of challenging behaviors. We first provide a description of TBFA and procedures to conduct one. Then, we provide a discussion of how to record, graph, and interpret TBFA data. The implementation procedures of each TBFA step are summarized in Figure 1. Finally, we address how to use key principles of early childhood assessment when conducting a TBFA.

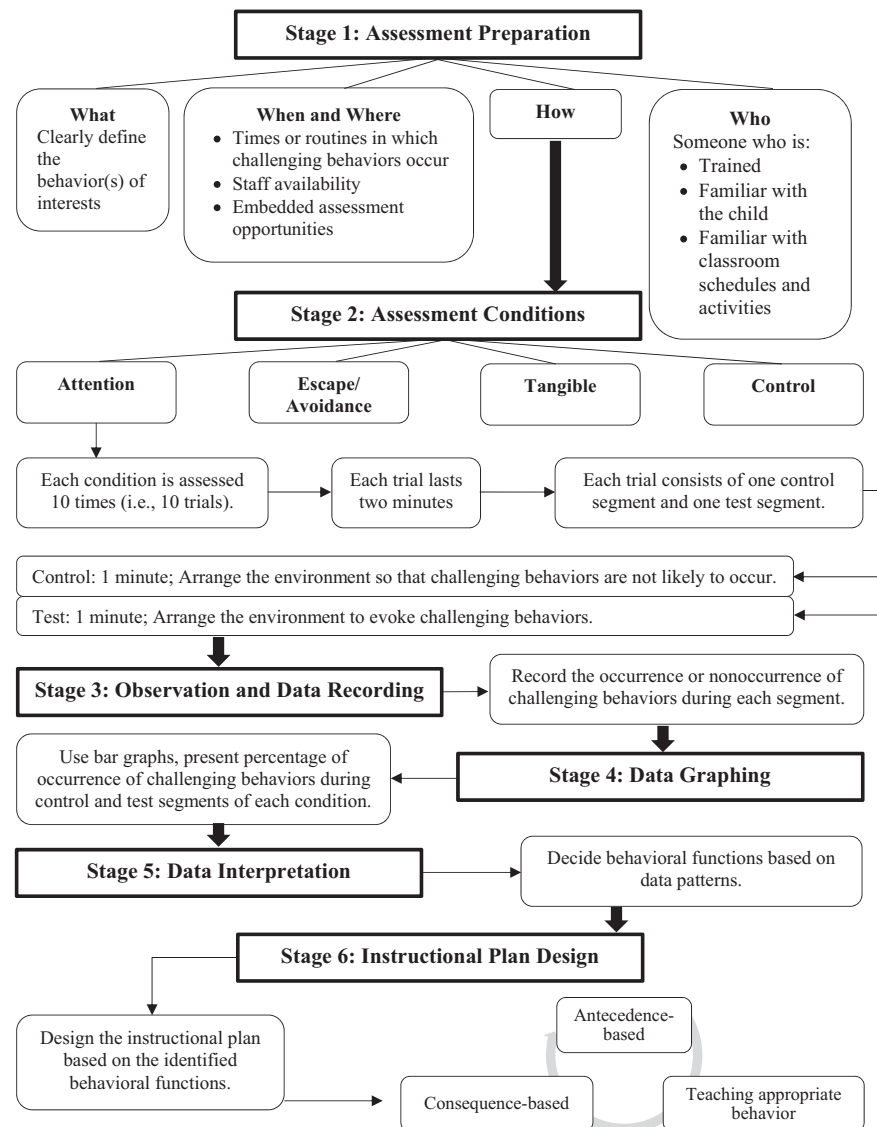
What Is TBFA?

A TBFA is a systematic assessment that allows practitioners to manipulate antecedent and consequent variables within

children's environments to determine the function(s) of challenging behaviors. TBFA can be conducted during regular classroom activities or routines in which children exhibit high rates of challenging behaviors (Bloom et al., 2013; Rispoli et al., 2015; Sigafoos & Saggers, 1995). In general, TBFA are comprised of four conditions (i.e., one condition for each of the aforementioned behavioral functions). Specifically, the attention condition examines whether the function of a behavior is to obtain attention from others (e.g., attention from a teacher). The tangible condition examines whether the function of a behavior is to obtain certain items and/or activities (e.g., favorite toys). The escape condition examines whether a child engages in challenging behaviors to avoid non-preferred activities or other social contexts (e.g., reading time). The control condition examines whether the function of a behavior is automatic reinforcement (e.g., repeatedly flapping hands because of the sensation it produces).

Each of the four conditions consist of control and test segments (see Figure 1). During control segments, the environment is arranged so that challenging behaviors are not likely to occur. For example, in a control segment of an attention condition, practitioners provide sufficient attention to the target child so they are not motivated to engage in challenging behaviors to obtain attention. In contrast, test segments are designed to set the occasion for challenging behaviors. For example, in a test segment of an attention condition, practitioners systematically withdraw their attention to the target child, unless the child engages in challenging behaviors. Ten trials are usually conducted for each condition, and

Figure 1
Graphic organizer of TBFA



Note. TBFA = trial-based functional analysis.

each trial consists of presenting a child with one control segment followed by one test segment (see Figure 1). Each trial lasts up to 2 min (i.e., a 1-min control segment followed by a test segment of up to a minute; Bloom et al., 2013). A test segment lasts for 1 min if children do not exhibit challenging behaviors. However, a test segment stops immediately when children engage in challenging behaviors. Trials should

not be conducted consecutively to avoid one trial affecting the outcome of the next one. Practitioners, for example, can use a 15-min break in between trials. In addition, trials should be presented to children in an alternating sequence (Hains & Baer, 1989; Hammond et al., 2013). For instance, if a practitioner conducted attention, tangible, escape, and control trials on Day 1, then they should rearrange the order of

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conditions on the following days (e.g., attention-tangible-automatic-escape on Day 2, and tangible-escape-attention-automatic on Day 3).

TBFA Process

Assessment Preparation

Before conducting a TBFA, early childhood practitioners need to inform children's parents or caretakers about the assessment and the process that it entails. Once practitioners obtain the approval from parents or caretakers to conduct the assessment, they need to identify the what, when, where, how, and who of the assessment. The first step is to clearly define the target challenging behavior (i.e., what). For example, Charlie's challenging behaviors include throwing himself to the ground and running away from group activities. Next, practitioners need to decide when and where to conduct the TBFA, which involves (a) identifying typical times or routines in which challenging behaviors occur and (b) determining specific times and activities during the day in which a TBFA can be embedded (Dunlap & Fox, 2011). Although Charlie's behaviors occur across different instructional activities (e.g., small group and large group), his teacher decides to conduct the TBFA during small group as it is a more convenient time for her to do so (i.e., the large number of children involved in large group makes it difficult for her to conduct a TBFA during that activity).

One practical aspect of TBFA is that the assessment conditions are embedded in ongoing routines and activities (Bloom et al., 2013; Iwata & Dozier, 2008). Therefore,

environmental events relevant to challenging behaviors need to be incorporated in each TBFA condition. For example, staff in Charlie's classroom report that children hardly receive individual attention during small group and large group instructional activities. Charlie's challenging behaviors during these activities usually result in him being placed in time-out, where he is under close supervision by an adult (i.e., he is provided with individual attention). Consequently, attention will be provided or withheld during the attention condition of Charlie's TBFA. Similarly, toys and activities that are associated with challenging behaviors are integrated into the tangible condition. Instructional activities and other demanding situations during which children's challenging behaviors often occur are presented in the escape condition. For example, Charlie's teacher reports that he engages in more challenging behaviors during letter-tracing. Therefore, letter-tracing should be incorporated during the escape condition to determine if Charlie engages in challenging behaviors to escape from those activities. Detailed procedures of Charlie's TBFA are presented in Figure 2. These procedures are individualized for Charlie and thus, only represent general guidelines for conducting a TBFA. Because challenging behaviors are contextual, considerations should be given to the unique activities and routines of the environment in which TBFAs are conducted as well as the individual preferences and needs of the children with whom TBFAs are conducted.

TBFAs need to be designed and implemented by trained practitioners who are familiar with the children

Figure 2
Procedures for each of the TBFA conditions

Procedures for the Attention Condition	
Control Segment	
1.	Initiate the instructional activity (e.g., “create a butterfly with shaving cream”).
a.	The control segment starts at this point (i.e., timer will be started).
2.	Provide attention to Charlie (e.g., eye contact, pat his back) every 10 seconds for one minute, regardless of what he is doing.
a.	Attention will be positive, but neutral in regard to the behavior of the child (e.g., <i>I see you are creating a butterfly</i>).
3.	The control segment will last one minute. Record on the data sheet whether or not the target behaviors occurred during the control segment.
Test Segment	
1.	Initiate the instructional activity.
a.	The test segment starts at this point (i.e., timer will be started).
2.	Refrain from looking at or talking to Charlie for one minute, unless he engages in challenging behaviors.
a.	If Charlie does not engage in the target behavior(s), the segment will last one minute. Record on the data sheet that the target behavior(s) did not occur during the test segment.
b.	If Charlie engages in the target behavior(s), face him and say, “ <i>Charlie, you can say, ‘Talk to me please.’</i> ”
i.	The segment ends once attention is given to Charlie. Record on the data sheet that the target behavior(s) occurred during the test segment.
Procedures for the Tangible Condition	
Control Segment	
1.	Sit near Charlie and let him play with his preferred items (e.g., Thomas the Train) for one minute.
a.	The control segment starts at this point (i.e., timer will be started).
2.	Comment on the items or on the environment approximately every 10 seconds without issuing any demands (e.g., “ <i>It looks like you are having fun playing with that toy</i> ”).
3.	The control segment will last one minute. Record on the data sheet whether or not the target behavior(s) occurred during the control segment.
Test Segment	
1.	Sit near Charlie and place preferred items in sight, but outside of his reach. Tell Charlie, “ <i>You can play with this later.</i> ”
a.	The test segment starts at this point (i.e., timer will be started)
b.	All attempts made by Charlie to obtain the items will be blocked by the teacher.
2.	Make comments approximately every 10 second and respond to Charlie if he asks questions, makes comments, or attempts to interact.
a.	If Charlie does not engage in the target behavior(s), the segment will last one minute. Record on the data sheet that the target behavior(s) did not occur during the test segment.
b.	If Charlie engages in the target behavior(s), give the preferred items to him and say, “ <i>You can have them.</i> ”
a.	The segment ends once the preferred item is given to Charlie. Record on the data sheet that the target behavior occurred during the test segment.
b.	Charlie will have access to the items for at least 30 seconds after the segment ends.
Procedures for the Escape Condition	
Control Segment	
1.	Tell Charlie that he can have a break from the group activity (e.g., tracing letters). Continue instructing other students.
a.	The control segment starts at this point (i.e., timer will be started).
2.	Refrain from placing any demands on Charlie or provide any attention to him.
3.	The control segment will last one minute. Record on the data sheet whether or not the target behaviors occurred during the control segment.
Test Segment	
1.	Give demands to Charlie every 10 seconds during instructional activities (e.g., “ <i>trace the letter A</i> ”).
a.	The test segment starts at this point (i.e., timer will be started).
2.	If Charlie does not respond to the initial instruction, the teacher can use other strategies to proceed the instruction. For example, model how to do it and ask Charlies to do it; or physically guide Charlies to trace.
3.	Praise Charlie for successfully completing the demands.
a.	If Charlie does not engage in the target behavior(s), the segment will last one minute. Record on the data sheet that the target behavior(s) did not occur during that segment.
b.	If Charlie engages in the target behavior(s), immediately cease the demand or instruction (e.g., “ <i>It is OK; you do not have to do it</i> ”).
i.	The test segment ends upon the first occurrence of any of the target challenging behaviors. Record on the data sheet that the target behavior(s) occurred during the test segment.
Procedures for the Control Condition	
Control/Test Segment	
1.	Tell Charlie to “ <i>play by yourself.</i> ” Charlie will be seated alone (e.g., in the library area) with no access to play or work materials.
a.	The control/test segment starts at this point (i.e., timer will be started).
2.	The control/test segment will last one minute.
a.	Refrain from giving attention, eye contact, or reaction if challenging behavior(s) occur.
b.	Challenging behavior does not terminate the control/test segment. Charlie can leave the seat. However, if he finds and interacts with toys or finds and speaks with an adult or a peer, a failed trial should be recorded on the data sheet and the trial will be conducted at a later time.
c.	Record on the data sheet whether or not that the target behaviors occurred during that segment.

exhibiting challenging behaviors, such as lead teachers, paraprofessionals who provide individual support to children, or special education teachers. In Charlie's case, the lead teacher prefers to conduct the TBFA by herself because she is familiar with Charlie's challenging behaviors, she received TBFA training from an experienced behavior specialist and can conduct it reliably, and she wants to take the opportunity to learn more about the communicative intent behind Charlie's behaviors.

Observation and Data Recording

During TBFAs, data are collected to determine whether target behaviors occur during each trial (see Figure 3 for an example of TBFA data collection sheet). During each segment of each trial, practitioners circle "1" if a child exhibits the target behavior or "0" if the child does not. After collecting data for 10 trials for each assessment condition, practitioners then sum up the total occurrences of challenging behaviors during each segment and calculate the percentage of occurrence by dividing the number of occurrences by the total number of assessment trials (e.g., 10) and multiplying by 100. For example, using the data collection sheet shown in Figure 3, Charlie's teacher documents that he engaged in challenging behaviors 6 times across the 10 test segments of the escape condition. Therefore, the percentage of occurrence of challenging behaviors during the test segments of the escape condition is 60%. Practitioners can also collect data using other methods that may be more feasible or convenient to them (e.g., using sticky notes on a piece of paper to document

occurrence/non-occurrence of challenging behaviors).

Data Graphing

Bar graphs are often used to compare the occurrence of challenging behaviors during control and test segments and across different conditions. Figure 3 depicts how data collected during a TBFA can be transferred to bar graphs. The height of each bar represents the percentage of occurrence of challenging behaviors during the control or test segment of each condition, which helps with data interpretation and identifying the function(s) of challenging behaviors.

Data Interpretation

The discrepancy between the heights of bars in each condition is used to decide on the function(s) of challenging behaviors. In this section, we discuss four possible data patterns in relation to behavioral functions.

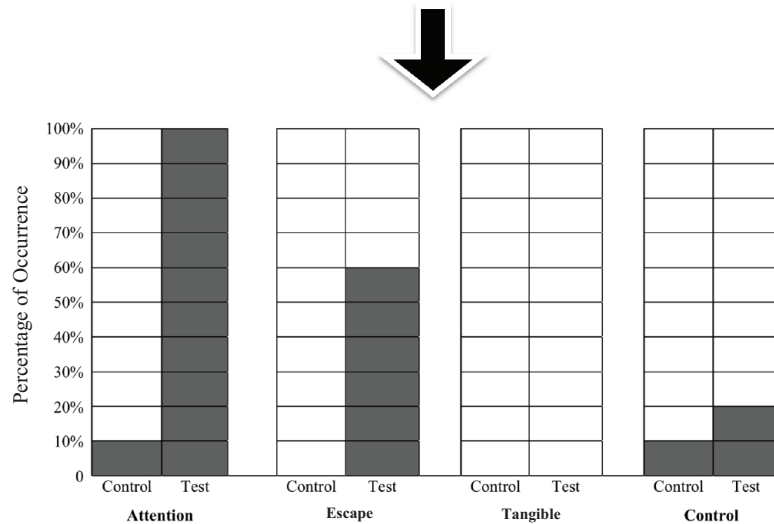
High-high

If challenging behaviors occur with high percentage during both control and test segments of a condition, and there is no clear discrepancy between segments (i.e., the heights of the bars are similar), it is likely that the behaviors are not maintained by the condition (see Pattern 1 in Figure 4). This pattern is usually indicative of automatic reinforcement (e.g., obtaining or avoiding sensory input, such as running away to avoid loud sounds in a classroom). Charlie did not engage in high rates of challenging behaviors in both control and test segments of any condition. Therefore,

Figure 3
Data recording and data graphing

Attention				Escape				Tangible				Control			
Trial #	Date	Control	Test	Trial #	Date	Control	Test	Trial #	Date	Control	Test	Trial #	Date	Control	Test
1	10/1	0	1	1	10/1	0	1	1	10/1	0	1	1	10/1	0	1
2	10/2	0	1	2	10/2	0	1	2	10/2	0	1	2	10/2	0	1
3	10/3	0	1	3	10/3	0	1	3	10/3	0	1	3	10/3	0	1
4	10/4	0	1	4	10/4	0	1	4	10/4	0	1	4	10/4	0	1
5	10/5	0	1	5	10/5	0	1	5	10/5	0	1	5	10/5	0	1
6	10/6	0	1	6	10/6	0	1	6	10/6	0	1	6	10/6	0	1
7	10/7	0	1	7	10/7	0	1	7	10/7	0	1	7	10/7	0	1
8	10/8	0	1	8	10/8	0	1	8	10/8	0	1	8	10/8	0	1
9	10/9	0	1	9	10/9	0	1	9	10/9	0	1	9	10/9	0	1
10	10/10	0	1	10	10/10	0	1	10	10/10	0	1	10	10/10	0	1
Total Occurrence		1/10	10/10	Total Occurrence		0	6/10	Total Occurrence		0	0	Total Occurrence		1/9	2/9
% of Occurrence		10%	100%	% of Occurrence		0	60%	% of Occurrence		0	0	% of Occurrence		10%	20%

Note: Circle "1" if challenging behavior is observed during the segment; Circle "0" if challenging behavior is not observed.



Charlie's teacher did not obtain a high-high pattern during his TBFA.

High-low

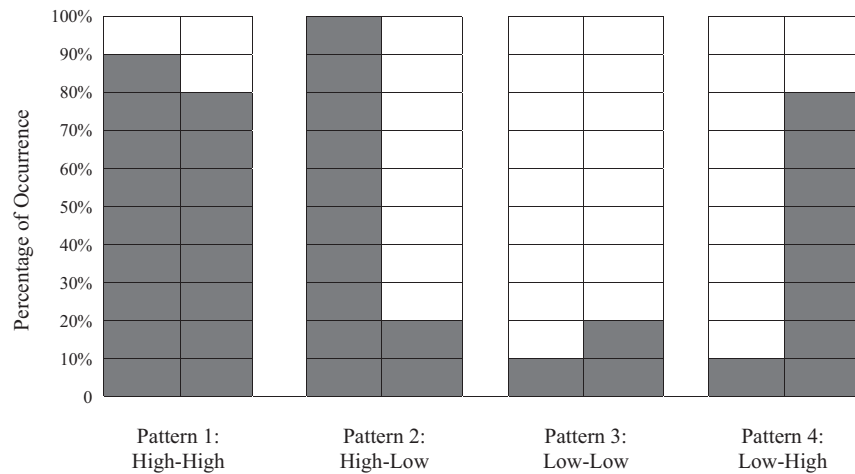
If challenging behaviors occur at a high-level during control segments and rarely occur during test segments, the behaviors may be maintained by automatic reinforcement (i.e., do not have socially mediated functions; see Pattern 2 in Figure 4). Charlie's

teacher did not obtain this pattern while conducting the TBFA.

Low-low

If challenging behaviors rarely occur during either control or test segments (see Pattern 3 in Figure 4), this data pattern indicates that challenging behaviors are not maintained by the function tested in that condition. For example, Charlie did not engage in challenging

Figure 4
Data patterns



behavior during the control or test segments of the tangible condition, which indicates that his behaviors are not maintained by tangible items or activities. The TBFA failed to detect behavioral functions, if the low-low pattern occurs across all four conditions. In this case, practitioners should conduct more trials and/or reevaluate the procedures (e.g., determine if the TBFA should take place during other routines or activities).

Low-high

The last possibility is that challenging behaviors occur relatively more during test segments than control segments. This data pattern indicates that the behaviors may be maintained by the function tested in that condition (see Pattern 4 in Figure 4). For example, under the attention condition, all of Charlie's challenging behaviors took place during the test segments (i.e., 100%) while no challenging behaviors occurred during the control segments. In addition, he engaged in

a considerable amount of challenging behaviors (i.e., 60%) during the test segments of the escape condition and hardly engaged in challenging behaviors (i.e., 10%) during the control segments of the escape condition. The discrepancy between the heights of the bars under the attention and escape conditions suggests that Charlie's challenging behaviors are most likely maintained by both attention and escape functions.

After conducting 10 trials in each condition, Charlie's teacher obtained a clear pattern of his challenging behaviors. That is, his behaviors mostly occurred during the test segments of the attention and escape conditions (Figure 2), indicating that Charlie's behaviors are maintained by obtaining social attention and escaping from instructional activities.

Post-Assessment

A critical component of services for young children is to use assessment to inform practice (DEC,

2014). Therefore, practitioners should use the results of a TBFA to make data-driven decisions when developing instructional practices that are effective in meeting the individual needs of young children (i.e., DEC RP INS3; DEC, 2014). Instructional practices based on TBFA results are beyond the scope of this paper. However, interested readers can find more information on the following websites: the IRIS center (<https://iris.peabody.vanderbilt.edu/module/ecbm/>), the National Professional Development Center on Autism Spectrum Disorder (<http://autismpdc.fpg.unc.edu/evidence-based-practices>), and Center on the Social and Emotional Foundations for Early Learning (http://csefel.vanderbilt.edu/resources/what_works.html).

Strengths and Other Considerations of Trial-Based Functional Analysis

TBFAs have several strengths when compared to other FBA methods. First, TBFAs allow practitioners to identify behavioral functions experimentally by systematically manipulating contextual and environmental variables (Sigafoos & Saggers, 1995; Wallace & Knights, 2003). Second, practitioners can conduct TBFAs during typical classroom activities and routines (Bloom et al., 2013; Iwata & Dozier, 2008; Rispoli et al., 2015), which enables them to continue providing supports to other children in their classrooms while conducting TBFAs. Because TBFAs are conducted in the environments

and contexts in which challenging behaviors occur, they provide more reliable and valid information about behavioral functions than assessments conducted in other settings (e.g., a separate observation room). Finally, DEC's position statement on challenging behaviors emphasizes that professional development and competence building are essential to "ensuring meaningful inclusion and implementation of evidence-based practices for children with challenging behaviors" (DEC, 2017, p. 5). TBFAs provide early childhood practitioners opportunities to understand behavioral functions in natural environments. Therefore, training early childhood practitioners to conduct TBFAs may increase their confidence and competence in preventing and addressing challenging behaviors (i.e., DEC RP L9; Bloom et al., 2013; DEC, 2014; Rispoli et al., 2015).

The above features of TBFAs are consistent with well-established approaches to understanding the needs children express via challenging behaviors. However, TBFAs have limitations that require further considerations. First, TBFAs are only one of the many types of FBAs. Other FBA procedures, such as indirect methods (e.g., structured interviews or rating scales) and descriptive methods (e.g., direct observations) have been more widely used in school settings for a variety of reasons, such as convenience, limited number of behavior analysts in schools, and lack of staff training in implementing experimental methods (e.g., TBFAs). Because TBFAs are more labor and experience intensive, we recommend that TBFAs should be considered if (1) the person who will be

Table 1
Key Early Childhood Assessment Principles and Their Implications for TBFA

Key assessment principles	Implications for TBFA
1. Use ethical and legal principles to guide assessment practices	The potential for harm must be carefully evaluated. If there is a potential for harm, TBFA should only be conducted if the benefits of the assessment (e.g., understanding the behavioral functions) outweigh the harm (e.g., severe consequences caused by self-injury behaviors, trauma) and the potential of harm is minimized (e.g., using protective pads, explaining the assessment purpose to the child). Otherwise, assessment methods with no or less harm should be considered.
2. Maintain professional criteria for assessment quality	Individuals who are responsible for planning, conducting, and analyzing TBFA must be professionally trained to high fidelity. Otherwise, professional development and support must be in place to maintain professional criteria for assessment quality.
3. Center and partner with families (DEC Recommended Practice A1; DEC, 2014)	Efforts need to be made to ensure that families are knowledgeable about TBFA and its strengths and limitations. TBFA should only be conducted if families consent to do so. Families should be actively involved in every stage of TBFA. Their social and cultural values, preferences, and goals should be fully considered and respected.
4. Identify the child's strengths, needs, and preferences (DEC Recommended Practice A4; DEC, 2014)	It is important to identify the child's present level of challenging behaviors. It is critical to conduct preference assessment using a variety of data sources and methods before TBFA implementation.
5. Use a team-based approach to gather assessment information (DEC Recommended Practice A2; DEC, 2014)	TBFA should involve trained individuals who are familiar with the child and have experienced target challenging behaviors. These individuals may include but not limited to parents, classroom teachers, and service providers. These individuals should be actively engaged in all stages of TBFA.
6. Use assessment materials and strategies that are developmentally and individually appropriate and educationally significant (DEC Recommended Practice A3; DEC, 2014)	The determination of whether a behavior is challenging should incorporate considerations of the child's age, culture, home language, socioeconomic status, abilities and disabilities, and other related characteristics. TBFA conditions should accommodate the child's sensory, physical, communication, linguistic, social, and emotional characteristics (e.g., using an alternative communication system instead of verbal language).
7. Conduct assessments in the child's dominant language and in additional languages when needed (DEC Recommended Practice A5; DEC, 2014)	Because TBFA conditions are designed to mirror real-life situations, the language used in the natural environments where challenging behaviors occur should be used during TBFA.
8. Use of a variety of assessment methods to gather information from multiple sources (DEC Recommended Practice A6; DEC, 2014)	TBFA is NOT suggested to be used in isolation. Data on behavioral functions should be assessed multiple times, using multiple methods of assessment and information from multiple key stakeholders.
9. Gather assessment information in on-going activities and routines from natural environments (DEC Recommended Practice A7; DEC, 2014)	The design of the different assessment conditions (i.e., attention, tangible, ignore, and control) must assimilate the real contexts in which challenging behaviors often occur. TBFA should be conducted in natural environments where challenging behaviors are contextualized.
10. Use assessment results to inform instructional activities (DEC Recommended Practice A8; DEC, 2014)	TBFA results should lead to improved knowledge about what a child intends to communicate by engaging in challenging behaviors. The knowledge is translated into developing and implementing effective instructional activities.
11. Maintain and sustain assessment efforts (DEC Recommended Practice A9; DEC, 2014)	Forms and functions of challenging behaviors may change frequently. It is important to conduct frequent on-going assessments. A variety of appropriate assessment methods including TBFA should be periodically used to "keep up" with behavioral functions.
12. Inform families and staff about assessment procedure and results (DEC Recommended Practice A11; DEC, 2014)	TBFA results must be presented in an understandable, useful, and meaningful way to families, caregivers, and early educators. The dissemination method (e.g., bar graph, table, quantitative data) may vary from audience to audience based on their preference of information processing.

Note. TBFA = trial-based functional analysis; DEC = Division for Early Childhood.

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conducting a TBFA is trained and skilled in its use and is familiar with the target student and (2) results from other FBA methods indicate the need for a TBFA (Anderson & Peter, 2013). For example, TBFAs may be considered when the results from observations and interviews show distinct differences or when staff and/or family disagree upon what contextual factors may have impacted the occurrence of challenging behaviors. In Charlie's case, because his teacher and behavior specialist held different hypotheses about the communicative intent of Charlie's challenging behaviors, there was a need to conduct further assessments.

Multiple sources of data and information should be used to determine behavioral functions instead of solely relying on TBFAs. For example, practitioners can interview parents in conjunction to conducting a TBFA. Because children are likely to engage in challenging behaviors during the test segments of a TBFA, practitioners should consider whether TBFAs are the best assessment method to use when children engage in challenging behaviors that may result in severe harm to themselves or others. Relevant ethical issues and

considerations are addressed in Table 1. Table 1 presents key principles of early childhood assessment, which should be considered when conducting TBFAs. These principles were obtained from DEC's recommended practices (DEC, 2014), DEC's recommendations for assessment (DEC, 2007), and the National Association for the Education of Young Children's (NAEYC, 2003) position statement on early childhood assessment.

Conducting TBFAs in educational settings to understand what children communicate via challenging behaviors is ethical and aligns with DEC recommended practices (INS9; DEC, 2014). By conducting TBFAs, practitioners do not set the occasion for children to engage in new challenging behaviors or in more severe forms of the existing challenging behaviors. TBFAs help practitioners to identify functions of challenging behaviors and thus, help them to select or design interventions that teach children alternative, replacement behaviors. Interventions that are based on FBA results are more likely to be effective in preventing and decreasing challenging behaviors and have sustainable effects than interventions that do not take into consideration of the function(s) of challenging behaviors (Ingram et al., 2005).

Without conducting TBFAs or other forms of FBA, practitioners may not understand the function(s) of challenging behaviors and thus, they may select arbitrary interventions to address these behaviors. This intervention selection process is inefficient and unethical because non-evidence-based interventions may result in more frequent or severe challenging





behaviors. This in turn may increase the likelihood of practitioners implementing reactive, punishment-based interventions as opposed to proactive, reinforcement-based interventions (Cooper et al., 2007). Because proactive and evidence-based strategies are critical components of DEC's position statement on addressing challenging

behaviors in early childhood (DEC, 2017), we recommend that early childhood practitioners conduct TBFAs or other forms of FBA when appropriate to identify the function(s) of challenging behaviors as a means to efficiently design and implement function- and evidence-based interventions.

After conducting the TBFA, Charlie's teacher and behavioral specialist have a shared understanding of his challenging behaviors. His challenging behaviors are maintained by both escape and social attention. Now that they have a consensus of what Charlie communicates via his challenging behaviors, they are working toward developing a behavioral intervention plan to meet his needs. Perhaps, the first step is to remove the use of time-out as it provides both attention and escape for Charlie and reinforces exclusionary, not inclusive practices.

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