

## RESEARCH ARTICLE

# Teaching rural educators to ask follow-up questions during open-ended interviews via telehealth

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**Abstract:** Educators are mandated to complete functional behavior assessment (FBA) prior to the development of a behavior intervention plan for students in need of special education support for emotional or behavioral needs. FBAs lead to hypotheses as to the function(s) of problem behavior (*e.g.*, to gain access to attention). Research shows educators most often use open-ended interviews to complete FBA within school settings. Interviewers ask questions to gain information about topics, like antecedents and consequences to problem behavior, to inform subsequent assessment or treatment. Unfortunately, research documents variability in the quality of school-based FBAs, particularly with regards to interviewing. Given the variability in quality of open-ended interviews, studies teaching core interviewing skills to educators are sorely needed. Thus, the current study delivered telehealth-based training to six educators who regularly completed open-ended interviews as part of FBAs. Following baseline, showing that educators (a) did not ask relevant questions and (b) did not ask follow-up questions when they needed to, training occurred to teach interviewing skills. The current study showed improvements in interviewing skills following a didactic presentation and behavioral skills training delivered via telehealth. Four of the six educators successfully interviewed a parent with high integrity following training. These results will be discussed in terms of strategies to improve interviewing skills for educators using telehealth services.

**Keywords:** functional behavior assessment, open-ended interview, telehealth, staff training

## 1 Introduction

Functional behavior assessment (FBA) represents procedures to develop hypotheses about evocative antecedents for problem behavior and the consequences that maintain those behaviors (Hagopian *et al.*, 2013). The typical FBA takes place in four phases (Neef & Peterson, 2007). First, educators collect descriptive information about variables related to problem behavior occurrence and maintenance. Educators often use interviews with colleagues/parents or direct observations of the student to collect this information. Using these data, educators next develop hypotheses regarding the function of problem behaviors (*i.e.*, reason “why” problem behaviors occur). For example, interview data may suggest that students engage in problem behaviors to gain access to attention, gain access to preferred items, or to escape from task demands. The third phase is a verification of these hypotheses via experimental assessment (*e.g.*, functional analysis of problem behavior) (Iwata *et al.*, 1982; 1994), and the fourth phase consists of developing function-based treatment strategies based on information gathered during the cumulative FBA (Hanley, 2012). Function-based treatment procedures have widely been considered most effective for treating problem behaviors exhibited by school-age children (Lindgren *et al.*, 2020; Tiger *et al.*, 2008). FBAs are commonly used by educators in school settings due to legislative recommendations and a high volume of research supporting their use (Individuals with Disabilities Education Act, 1997) (Ervin *et al.*, 2001).

A survey of practitioners conducting FBAs showed they most often utilize open-ended interviews (Colombo *et al.*, 2021; Oliver *et al.*, 2015). During an open-ended interview, educators ask colleagues or the student's caregivers questions to understand contextual and consequence variables affecting the maintenance of problem behavior (Fryling & Baires, 2016; Saini *et al.*, 2020). For example, an educator may ask a parent about the types of demands that lead to problem behavior at home and the consequences that often follow. Depending on the completeness of the parent's response, the educator may also need to ask follow-up questions. For example, if a parent responds to a question about what demands lead to problem behavior by saying, “Everything”, an educator may need to ask a follow-up question to elicit

a more specific response. Despite being heavily reliant on respondent memory and verbal report, rich information can be generated from an open-ended interview that can help the educator design subsequent behavioral assessment or treatment. While the importance of FBAs is well established (Ervin et al., 2001), research demonstrates variability in the use of FBA procedures by educators (Bassingthwaite et al., 2018). In fact, several studies showed practitioners often do not ask essential questions and follow-up questions during interviews about student problem behavior (DeJonckheere & Vaughn, 2019; Hudak et al., 2019; Iwata et al., 1982; Miltenberger & Fuqua, 1985). Given the variability in quality of FBAs conducted in school settings, Bassingthwaite and colleagues encouraged ongoing training on all parts of the FBA process.

In a recent study, Lenouvel et al. (2022) conducted a literature review of strategies to teach medical students to conduct clinical interviews. These researchers found effective training strategies most often included modeling, rehearsal, and feedback. In one application of these methods, Shea et al. (2007) designed a procedure for training medical students to conduct clinical interviews. These researchers arranged opportunities for the students to conduct videotaped interviews with a simulated client. The students then observed their performance and received feedback from course instructors to improve their interviewing skills. Indeed, this training program resulted in improved clinical interviewing skills. In another example of a training program targeting interviewing skills, Iwata et al. (1982) taught psychology students to conduct open-ended interviews regarding child problem behavior during their Experiment 1. Students met with a confederate who responded to questions based on a script containing brief demographic information about a child, their problem behavior, the antecedents/consequences that preceded and followed problem behavior, and previously attempted treatment approaches. Within a multiple baseline across participants design, these researchers compared a baseline condition in which the students were directed to interview the confederate without training to a treatment condition in which direct training, role playing, and feedback were delivered. For seven students, training resulted in increased correct interviewing behaviors. That is, students reliably asked questions to produce operational definitions and understand the antecedent and consequence conditions that preceded and followed problem behaviors.

In summary, previous research (Iwata et al., 1982; Lenouvel et al., 2022; Miltenberger & Fuqua, 1985) showed that strategies like instruction, modeling, rehearsal, and feedback were important components for training professionals to ask relevant questions during clinical interviews (e.g., Miltenberger & Veltum, 1988; Pashak & Heron, 2022; Roberts et al., 2020). A focus on teaching the types of interview questions to ask may be less relevant currently, though. Many interview forms to obtain information about child problem behavior or clinical presentation are easily accessible to educators via online libraries (e.g., Hanley, 2012). The skill of asking follow-up questions may be one interview skill unaffected by ease of access to interview tools, though. Future research needs to teach others not only what types of questions to ask but also how to know when additional questioning is needed to complete the interview.

Researchers consistently show strategies like instruction, modeling, rehearsal, and feedback effectively teach educators to complete components of FBAs (Parsons et al., 2013). However, limited research focuses on teaching advanced interviewing skills within the context of FBAs, such as asking appropriate follow-up questions as needed. Since educators commonly use open-ended interviews to complete FBAs for their students (Oliver et al., 2015), this extension of the literature seems important. Thus, we implemented the current study to train school staff to conduct in-depth interviews. Educators participated in experimental procedures via telehealth in order to increase accessibility of the training for rural educators. The current study's research questions were:

(1) Could training that included instruction, modeling, rehearsal, and feedback increase both the appropriate questions educators asked to gain information about student problem behavior and follow-up questioning if delivered via telehealth?

(2) Would the improvements documented via telehealth-based training maintain when educators needed to interview an actual caregiver of a student diagnosed with autism spectrum disorder (ASD) engaging in problem behavior?

## 2 Methods

### 2.1 Participants

#### 2.1.1 Educators

School personnel (hereafter referred to as "educators") at three schools in rural school districts in a state in the Mountain West region of the United States participated. Two educators at each

of the three schools volunteered to participate. Thus, six educators (five females, one male) were recruited in total. We paired educators at the same school together to form three dyads. Having the two educators engage in experimental activities at the same time, as opposed to having two separate meetings (one for each educator), was preferred by school administrators. Two of the educators held a doctoral degree in school psychology, one educator had a master's degree in speech and language pathology, and three educators had master's degrees in special education. Each educator reported having been trained in FBA procedures, including interviewing, and reported interviewing others for FBAs was a common part of their job responsibilities. The educators provided consent to participate in this study prior to the initiation of experimental procedures.

### 2.1.2 Parents

The research team consented one parent and their student into the project for two of the three school teams. The educators selected these parents because their students engaged in problem behavior in the classroom. Students ranged in age from 5 years, 0 months to 11 years, 0 months, held an educational diagnosis of ASD, and engaged in problem behaviors in the classroom. Parents were only included in the Maintenance condition. Parents consented to be part of the study prior to participating.

## 2.2 Setting and materials

### 2.2.1 Telehealth center

Experimenter provided all coaching from an office located at a Children's Hospital in the Mountain West region of the United States. The telehealth center was modeled off the technological features described by Lee et al. (2015). The office measured approximately 3.0 x 3.0 m and contained a desk, lap-top computer, and an external web-camera. The lap-top computer had Vidyo installed to transmit and receive audio and visual input from the educator's school. A video recording software (*i.e.*, Debut Video Capture) was installed on the lap-top computer to record the computer screen. A second observer used these videos to code data.

### 2.2.2 Schools

As discussed, the three educator dyads were located at three different schools. The average distance from the Children's Hospital was 166 miles (range, 124 miles – 189 miles). Dyads were instructed to select private office spaces that had access to a computer with at least an internal web-camera to conduct telehealth sessions.

## 2.3 Response definitions, observation system, and interobserver agreement

Consultation with the state's Department of Education while referencing other published interview tools (Fisher et al., 2013; Hanley, 2014) assisted the authors with identifying FBA categories to evaluate. These interview tools were used as references because their use has helped inform effective behavioral treatment (Hanley et al., 2014). The 12 categories most commonly used by the aforementioned interview tools, and thus targeted by the current study, were: Identify the most concerning problem behaviors, identify precursor problem behaviors, operationally defined the problem behaviors, describe the hypothesized function of the problem behaviors, ask about antecedents preceding problem behavior occurrence, ask about the intensity of problem behaviors, ask about the frequency of problem behaviors, ask about the duration of problem behaviors, ask about the latency to problem behavior occurrence, ask about communication, ask about consequences following problem behavior occurrence, and ask about child preferences. Table 1 is a description of the 12 FBA categories. Of note, the educators were only expected to ask questions about ten categories. Experimenters asked participants to develop a functional hypothesis (*e.g.*, did problem behaviors occur to gain access to attention/toys or to escape from task demands) and to create an operational definition following the interview. These last two categories required use of all the interview information to complete.

### 2.3.1 Response definitions

There were two dependent variables for the current study. First, we evaluated which of the 10 categories on an FBA addressed during educator interviews. For example, we evaluated if the educator asked about problem behavior, problem behavior intensity, etc. (see in Table 1). Following each interview, the number of categories addressed by at least one question was summed, divided by ten, and then multiplied by 100 to produce percentage of categories addressed during each interview. The research team then graphed to evaluate changes across

**Table 1** Operational definitions for each category on the functional behavior assessment

Category on Functional Behavior Assessment	Definition
Description of Problem Behavior	Obtaining information about the structural characteristics of problem behavior.
Operational Definition	Defining problem behaviors in specific and observable terms.
Hypothesized Function	Stating whether the information obtained via interview suggests problem behaviors occur to escape from demands, gain access to attention, or gain access to preferred toys.
Antecedents	Obtaining information environmental events that occasion problem behaviors.
Intensity	Obtaining information about potential for bodily harm or damage to physical property as the result of problem behavior occurrence.
Frequency	Obtaining information about how often the problem behavior occurs.
Duration	Obtaining information about how long the problem behavior lasts.
Latency	Obtaining information about how long after an antecedent is introduced does a problem behavior occur.
Communication	Obtaining information about the ways the student communicates.
Consequences	Obtaining information about common consequences that follow problem behavior occurrence.
Preferences	Obtaining information about preferred stimuli.
Precursor Behaviors	Obtaining information about behaviors that occur immediately prior to problem behaviors.

experimental conditions. These data were retrospectively analyzed and did not contribute to changes in experimental conditions.

The second dependent variable was frequency of question asking during interviews. The purpose of this dependent variable was to evaluate follow-up questioning during interviews. Ideal educator response to each FBA category would be to ask three questions. This criterion may seem arbitrary. Certainly, educators will need to ask more-or-less than three clarifying questions on occasion. We used this for comparison purposes across educator dyads. When they asked a question about a category, the experimenter responded with a very general response. For example, when asking about specific problem behaviors, the experimenter first responded, "My child rages." The educator was then expected to ask a clarifying question. The experimenter then provided a bit more specific second response. For example, when asking about problem behaviors, the second experimenter response was, "Rages are tantrums and being out-of-control." A third follow-up question was then expected, and the experimenter provided the most specific information about the target problem behaviors (*i.e.*, "During tantrums, he will hit himself in the head and scratch my arms and legs.").

Educators received different point values depending on how many questions they asked during their interview. If they did not ask about a category, they received a score of 0. If they asked one question about a category, with no follow-up questions, they received a score of 1. If they asked two questions about a category, they received a score of 2. If they asked three questions about a category, they received a score of 3. Educators could not receive a score higher than a "3."

The only exception to this data collection system was for the questions requiring the educator to operationally define problem behaviors and describe a functional hypothesis for the problem behaviors. These data were scored on a rating of 0 - 3 too. However, ratings were based on the specificity of educator response. A rating of 0 would have been given for an educator who indicated they did not have enough information to produce an operational definition or functional hypothesis. A rating of 1 would have been given to an educator who provided a very general response. For example, if the operational definition was described as "hitting" or the functional hypothesis was stated as "sensory." A rating of 2 would have been given to an educator who provided a somewhat general response. For example, if the operational definition was described as "the child swinging at people" or the functional hypothesis was stated as "controlling others." A rating of 3 would have been given to an educator who provided the most specific response. For example, if the operational definition was described as "the child swinging at people and making contact that knocks them off balance" or the functional hypothesis stated as escape, tangible, or attention. At the end of the session, the points earned in each of the 12 categories were summed, divided by the total number of questions that could have been asked, and multiplied by 100. These data were graphed to evaluate changes across experimental conditions, and were used to guide transitions between experimental conditions.

A similar evaluation system was used during maintenance, though this was obviously more difficult since the parents were not purposefully providing a combination of general and specific responses. Thus, when the educator asked questions about the FBA categories, the two observers

rated whether the response recorded from the parent met criteria for a score of 0, 1, 2, or 3 based on the types of responses associated with those scores for the previous vignettes used to evaluate response to treatment.

### 2.3.2 Observation system

Experimenter responded to educator questions using three clinical vignettes (see Table 2 for an example). Clinical vignettes were created based on commonly occurring problem behaviors and preferences documented in the *Journal of Applied Behavior Analysis*. For example, aggression, self-injury, and property destruction. Responses about antecedents and consequences were developed based on the Questions About Behavioral Function questionnaire (Matson & Vollmer, 1995). For example, the vignette described in Table 2 was developed on the item stating, “Does he/she seem to be saying, ‘leave me alone’ or ‘stop asking me to do this’ when engaging in the behavior?” The same three clinical vignettes were randomized, and used during baseline and training for the current project. All educators contacted each vignette during the study. The same vignette was never used consecutively, though.

**Table 2** Example of experimenter response during baseline and telehealth treatment interviews

FBA Category	Most General Response	Somewhat General Response	Most Specific Response
Communication	Yeah, he talks	He once said something like, “No work or no shower”	He usually speaks in single words.
Play Skills and Preferences	He plays with a few toys.	He likes to play cars.	He likes to talk about cars, especially their engines.
Problem Behaviors	Rages. He’ll rage.	Rages are tantrums and being out of control.	During tantrums, he will hit himself in the head and scratch my arms and legs.
Problem Behavior Intensity	He’s so aggressive. My other kids never behaved like this.	I’m worried that he is going to hurt himself or me.	He will bruise his face and has broken my skin multiple times.
Problem Behavior Frequency	They happen all the time.	Multiple times every morning and afternoon.	He rates at least once per hour.
Problem Behavior Duration	It seems like they can go on forever.	It seems like they happen all day.	They last about 30 min.
Latency to Problem Behavior Occurrence	I’m not sure.	It seems like problem behaviors always happen.	She can work for 5 min before acting out.
Precursor Problem Behaviors	Rages occur out of nowhere. He’ll be fine one minute and then angry the next.	They usually start with him crying.	Crying will usually lead into scratching and then he’ll eventually start hitting himself.
Antecedents to Problem Behavior Occurrence	I can’t predict it. Rages can happen anytime.	He hates when I talk to him or when I come into his room.	I go into his room and tell him it is time to take a shower. He has not showered in days.
Consequences to Problem Behavior Occurrence.	I tell him he needs to shower to be clean.	I’ll offer him coping skills to help him calm down.	I don’t make him shower. I don’t want him to be mad.

### 2.3.3 Interobserver Agreement (IOA)

The primary observer was always the first author. A second observer, a graduate student, collected data on an average of 46% of sessions for each educator with a minimum of 43% of sessions ( $M = 48.8\%$ , range, 43% - 50%) coming from each condition. Point-by-point IOA was then calculated to compare the first observer’s record to the second observer’s record. Agreements were defined as both data coders indicating that the educator asked at least one question about an FBA category and the same number of questions about each category. Disagreements were defined as one observer indicating an educator did not ask a question about an FBA category when the other observer did or if the observers disagreed about the number of questions asked about each category. Number of agreements were divided by the number of agreements and disagreements multiplied by 100.

IOA for Educator 1 was calculated on 40% of sessions and averaged 91% (range, 88% - 94%). IOA for Educator 2 – 4 were was calculated on 50% of sessions and averaged 85.7% (range, 75% - 94%), 84.6% (range, 80% - 94%), and 84.9% (range, 66.7% - 94%), respectively. IOA for Educator 6 was calculated on 43% of sessions and averaged 83.9% (range, 83.3% - 85%). IOA for each educator was below 90% on at least one occasion, which is a limitation of the current study. When low IOA occurred, data coders met to review operational definitions and coding procedures to improve subsequent IOA. Procedural integrity on experimenter behavior (*i.e.*, did the experimenter provide more specific information correctly) was calculated for each session that IOA was calculated for and averaged 95% (range, 90% - 100%) for all educators.

## 2.4 Experimental Design.

We used a brief experimental design to evaluate the effect of telehealth-delivered training on changes in follow-up questions used during the interview (Wacker et al., 2004). Specifically, we

used a concurrent multiple baseline across educator-dyad design. Within the multiple baseline design, concurrent baselines across the educator dyads were established with the independent variable (telehealth-based training) being introduced sequentially across baseline to study its effect on behavior change (Kennedy, 2005).

## 2.5 Procedures

### 2.5.1 General procedures

The experimenter sent a Vido conferencing link to the educators via e-mail 15 min prior to their scheduled appointment. During initial appointments, the experimenter called the educators via phone to help them download the Vido software and log into the virtual conference room. The experimenter provided this type of consultation throughout the study to ensure educators logged into Vido appropriately. Educators did not need this support following this first meeting, though. Once logged into the virtual conference room, the experimenter tested the video and audio connections by making sure the educator could be heard by the experimenter and vice versa.

### 2.5.2 Baseline

During baseline, one of the educators sat directly in front of the computer while the second educator sat behind them. The experimenter directed the educator in front of the computer to conduct an interview with the parents of an 8-year-old student who had a history of engaging in problem behavior coming to their school for the first time. They were told to assume that they reviewed a complete medical history, which was shown to be non-significant. Educators were not allowed to use any interview forms or materials during Baseline. As the educator asked questions, the experimenter responded given the predetermined script (see Table 2 for an example). If the educator asked questions about the same category more than once, the experimenter responded with more specific information as per the information described in Table 2. The interview ended when the educator vocally indicated they were finished. After the interview, the experimenter asked the educator to operationally define the problem behaviors of most concern and then develop a hypothesis about the function of problem behaviors. After the interview ended, the experimenter immediately directed the next educator to sit in front of the computer to engage in these procedures. The experimenter did not provide feedback on educator performance during or following interviews.

### 2.5.3 Telehealth training

We used an interview form and instructions, modeling, rehearsal, and feedback to teach educators to ask questions about each FBA category and to teach educators to ask follow-up questions if needed. When each educator dyad participated in training, they engaged in training at the same time. At the start of training, the experimenter provided each educator with an open-ended interview form. The interview form synthesized published interviews from Hanley (2012) and the University of Nebraska Medical Center's Destructive Behavior Severity Scale (Fisher et al., 2013). Please see Appendix 1 for the interview form used. After receiving the interview form, experimenter and the educator engaged in a 30-min didactic presentation on the importance of each question on the interview and how to ask follow-up questions. Training on how to integrate information about antecedents and consequences gathered from the interview to inform a hypothesis about behavioral function and to create an effective operational definition occurred during this period. The experimenter answered all educator questions during this 30-min period. The training information was not re-presented. Following this period, the experimenter modeled how to ask follow-up questions to obtain more specific information from the interviewee. Afterwards, the educators practiced asking these follow-up questions with immediate feedback and error correction from the experimenter.

Following the didactic training, the experimenter directed educators to put the open-ended interview form away before each session. The interview form could not be used after the training period ended. No other changes to the procedures described during Baseline occurred. No feedback on educator performance occurred during or after each interview. The same three clinical vignettes were used. The Telehealth Training condition ended when each educator gained 80% of points from the interviews on two consecutive sessions. Once this occurred, the educator transitioned to the Maintenance condition.

### 2.5.4 Maintenance

After consenting the parents into the study, two of the educator dyads interviewed the parent they nominated using the interviewing skills mastered during the Telehealth Training condition. The purpose of this exercise was to evaluate adherence to the procedures taught in the training

program when implemented with parents of students the educators were currently evaluating. Before each session, one educator and parent sat directly in front of the computer. The educator not interviewing, stood away from their partner and the parent. The educator completed the interview and vocally indicated when the interview had ended. After both educators had completed the interview, the parent left the room. The experimenter asked each educator individually to operationally define problem behaviors and then develop a hypothesis about the function of those problem behaviors.

### 3 Results

Figure 1 shows results regarding the percentage of FBA categories addressed via interviews; Figure 2 shows results regarding percentage of questions asked by each educator. For both figures, Educator-Dyad 1 is represented by the top panel, Educator-Dyad 2 by the middle panel, and Educator-Dyad 3 by the bottom panel.

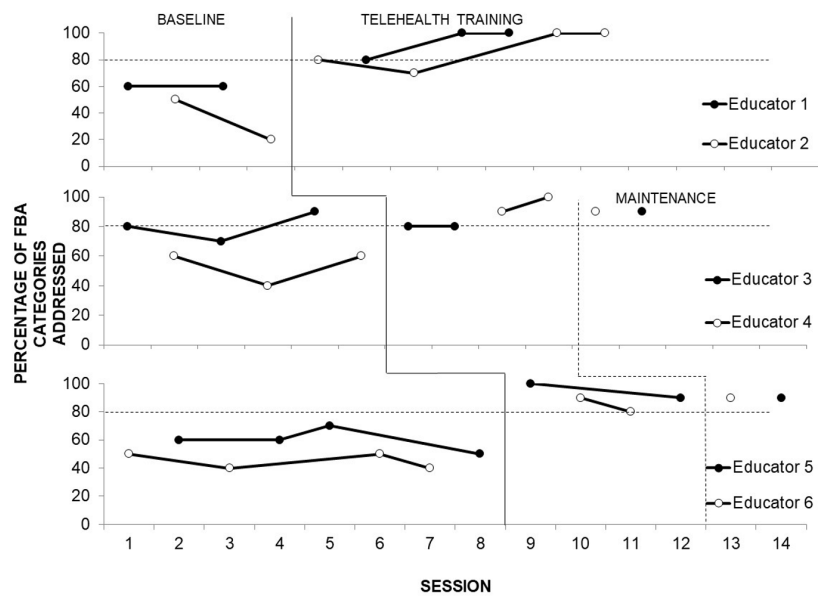


Figure 1 Percentage of categories on the functional behavior assessment addressed by each educator

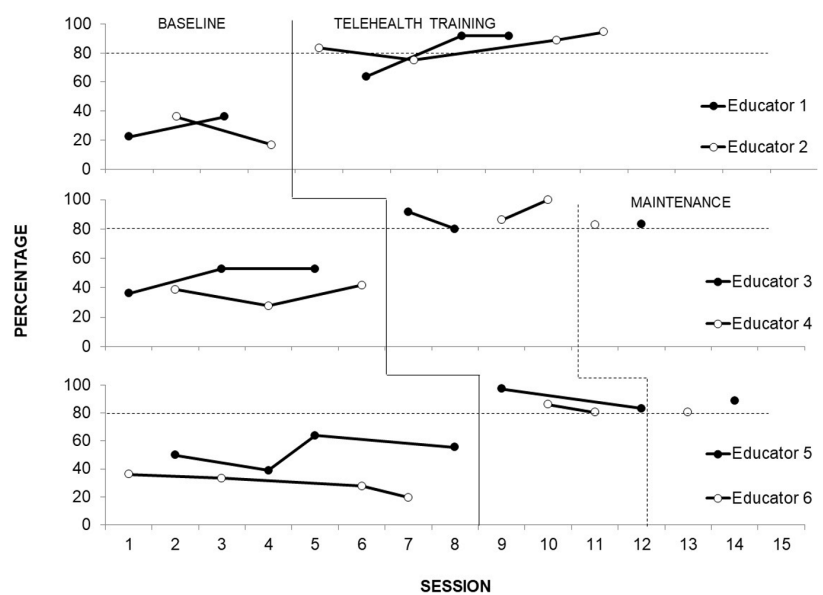


Figure 2 Percentage of questions asked by each educator

All educators demonstrated deficits in interviewing skills during Baseline. During Baseline for Dyad 1, Educator 1 asked 60% of questions on the FBA, and asked an average of 29.2% (range, 22.2% - 36.1%) of total questions. Educator 2 asked an average of 35% (range, 20% - 50%) of questions on the FBA, and an average of 26.4% (range, 16.7% - 36.1%) of total questions. For Dyad 2, Educator 3 asked an average of 80% (range, 70% - 90%) questions on the FBA, but only an average of 47.2% (range, 36.1% - 52.8%) of total questions. Educator 4 asked an average of 53.3% (range, 40% - 60%) of questions on the FBA, and an average of 36.1% (range, 27.8% - 41.7%) of total questions. For Dyad 3, Educator 5 asked an average of 60% (range, 50% - 70%) of questions on the FBA, and an average of 52.1% (range, 38.9% - 63.9%) of total questions. Educator 6 asked an average of 45% (range, 40% - 50%) of questions on the FBA, and an average of 29.2% (range, 19.4% - 36.1%) of total questions.

Responding increased to high and stable levels during initiation of the Telehealth Training condition for all six educators. For Dyad 1, Educator 1 asked 93.3% (range 80% - 100%) of questions on the FBA, and an average of 91.2% (range, 63.9% - 91.7%) of total questions. Educator 2 asked an average 90% (range, 70% - 100%) of questions on the FBA, and an average of 85.4% (range, 75% - 94.4%) of total questions. For Dyad 2, Educator 3 asked 80% of questions on the FBA, and an average of 85.8% (range, 80% - 91.7%) of total questions. Educator 4 asked 95% (range, 90% - 100%) of questions on the FBA, and an average of 93.1% (range, 86.1% - 100%) of total questions. For Dyad 3, Educator 5 asked 95% (range, 90% - 100%) of questions on the FBA, and an average of 90.3% (range, 83.3% - 97.2%) of total questions. Educator 6 asked 85% (range, 80% - 90%) of questions on the FBA, and an average of 82.4% (range, 80.6% - 86.1%) of total questions.

Following training, four of the six educators transitioned into the Maintenance condition and interviewed the parent of a student that met the criteria described above. The first dyad did not participate due to difficulty identifying a family for participation. Dyads 2 and 3 asked 90% of the questions on the FBA. For Dyad 2, Educator 3 performed at 83.3% and Educator 4 performed at 83%. For Dyad 3, Educator 5 performed at 88.9% and Educator 6 performed at 80.6%.

In addition to these more general data, we also analyzed educator responding by each individual FBA category in Table 3. As can be seen, the frequency of question asking following training increased (or at least remained the same) in most categories for all six educators. The only categories for which decreases in performance were noted was “Consequences” and “Preferences” for Educator 5.

**Table 3** Average responding by individual functional behavior assessment category

	Educator 1		Educator 2		Educator 3		Educator 4		Educator 5		Educator 6	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
Description of Problem Behavior	2.5	3	3	3	3	3	2.33	3	3	3	2.5	3
Operational Definition	0.5	2	1	2	1.3	1.5	1	3	1.25	2.5	0.75	2
Hypothesized Function	0	2.67	0.5	3	0.67	3	1	3	2	3	1	3
Antecedents	0	3	0.5	2.25	2.33	3	1	3	2.5	2.5	1.25	3
Intensity	1	2.33	0	2.25	0.33	1.5	0	3	0	3	0	3
Frequency	1	2.33	0	2.25	1.67	2	1.33	3	1.5	2.5	0	2
Duration	1	2	0	1.75	1.33	3	0.33	3	2.25	3	1	3
Latency	0	2	0	2	0.67	1	0	3	0.25	3	0	0
Communication	0.5	3	1	2.5	1.33	2	1	3	0.5	3	0	2.5
Consequences	1.5	3	0.5	2	1	3	1.67	1.5	2.25	1.5	1	3
Preferences	2	2.67	1	3	2.67	3	3	3	3	2.5	2.5	3
Precursor Behaviors	0	1.67	0	2.25	0.67	0	0	2	0.25	2.5	0.75	1.5

## 4 Discussion

The current study evaluated a training program to teach rural educators to conduct open-ended interviews via telehealth. Results for the three educator dyads (six total educators) showed improved interview skills following a training program consisting of a didactic presentation, interview form, and modeling, rehearsal, and feedback delivered via telehealth. The two dyads who recruited a parent/student maintained these interviewing skills from the training context to a maintenance context.

The triple aim of modern healthcare describes improved population health, reduced costs of care, and enhanced care experiences (Lindgren et al., 2016). Providing educators with opportunities to receive training on specific behavioral assessment and treatment procedures may be one way to improve population health for children engaging in problem behaviors in the classroom environment. Since school-age children spend most of their day in school, interventions directed



at training school personnel seem to be important. Additionally, researchers have suggested that the FBA process may be variable depending on educator training (Bassingthwaite et al., 2018; Sasso et al., 2001). Thus, teaching each of the components of the process, beginning with the open-ended interview, may be important towards the goal of creating more consistency with FBAs. As shown by previous research, a similar training program to ours can be used to train what categories of questions to ask (Iwata et al., 1982; Lenouvel et al., 2022; Miltenberger & Fuqua, 1985). With interview forms readily available to prompt interviewers in practice, additional research needed to focus on other interviewing skills, such as follow-up questioning. The current study showed a low-effort training procedure could be applied to teach this skill to six educators. As Table 3 reflected, improvements in most areas we targeted occurred (Consequences and Preference categories for Educator 5 being the exception). If accurate information about the problem behaviors and relevant antecedent/consequence conditions can be obtained, it is likely further assessment can be tailored to the child and be completed in a more efficient manner (e.g., Hanley et al., 2014). A limitation of the current study, though, is that behavioral treatment did not occur based on the results of the interview. Thus, future research should replicate and extend the current project to show that teaching educators these interviewing skills leads to effective behavioral treatment.

As discussed, we conducted this experiment via telehealth in schools. Since the onset of the COVID-19 pandemic, practitioners, including educators, largely transitioned to telehealth to maintain client care (Suran, 2021). Many practitioners reported not being prepared for this transition (Romani et al., 2021). Thus, studies understanding effective and efficient training procedures delivered via telehealth are essential (Neely et al., 2017; Neely et al., 2021; Tomlinson et al., 2018). Neely et al. (2017) conducted a literature review to identify evidence-based training methods that can be delivered via telehealth. Analysis following their systematic review of the literature showed verbal/written instructions and videoconferencing with feedback to be effective training strategies. The current study used a didactic presentation (including written example questions; see Appendix 1) with opportunities for modeling, rehearsal, and feedback to train educators successfully. The current study also extended previous investigations by showing maintenance of the skills learned to stakeholders of FBAs. Additional research will need to continue evaluating specific teaching procedures that result in maintenance of skills. It may also be important to understand what dose of telehealth-based versus in-vivo training is most effective and preferred by consumers (Romani et al., 2021).

While training services to educators may be helpful, there are still barriers to doing so. As discussed by Frieder et al. (2009), schools in rural or frontier areas of the United States may be difficult to serve. Thus, telehealth may be one important way to deliver these training services at reasonable costs. Frieder and colleagues discussed equipment and internet connectivity issues that adversely affected the video or sound quality during the telehealth sessions. This was not the case during the current study. The school teams all used a work laptop provided to them by their schools and connected wirelessly to a high-speed internet service. Despite the distance from the hospital to the schools, no technical problems occurred that disrupted telehealth visits. The main cost for the current study was time. Educators needed to carve out time from their schedules to be available for the once weekly telehealth visits.

While delivering these trainings for this population of educators and students, it is important to do so in a way that enhances care experiences (*i.e.*, satisfaction). The current study produced modest satisfaction ratings, which differed from data produced by other telehealth programs (Lindgren et al., 2016). One difference between the current study and other studies was that we were training educators to conduct interviews instead of training them to conduct treatment procedures for problem behavior. It could be the case that reflecting on the changes in problem behavior over the course of treatment positively influenced acceptability ratings. Almost all children enrolled in these studies showed behavioral improvement (Lindgren et al., 2016). Improvement like this may be less discriminable when training interviews. The social consequences of improving interviewing skills could probably be considered less important than improving problem behavior and functional communication. Regardless, additional studies should collect acceptability data from educators participating in telehealth training programs to monitor trends.

The current study is not without its limitations. We used a small sample of six educators to evaluate this training program delivered via telehealth. While all six educators showed improved interviewing skills, replication seems necessary to continue showing the benefit of delivering school-training services via telehealth. Because we used a multicomponent training program consisting of an open-ended interview form and training, it is unclear which component resulted in behavioral improvement. It is also possible that a less-skilled educator could have used their partner as a model for effective interviewing skills since dyads of educators were used in this project. Future research should conduct a component analysis of this treatment program to

determine the necessary and sufficient components. Similarly, since the same three vignettes were randomly selected for each session, the educators contacted each vignette more than once. It is possible that repeated exposure to this material affected responding. Future research should use novel vignettes for each session to avoid this possibility.

In conclusion, the current study evaluated a training program to improve rural educator implementation of open-ended interviews during the FBA process. The training consisting of instruction, modeling, rehearsal, and feedback delivered via telehealth resulted in educator improvement. These data validated a method for using telehealth as a way to conveniently contact rural educators to improve the quality of open-ended interviews as part of the FBA process. We believe that future research should replicate these findings with a larger group of educators and continue evaluating social acceptability of telehealth-based trainings for rural educators.

## Conflict of interest

The authors declare that there is no conflict of interest.

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## Ethical approval

All procedures performed in studies involving human educators were in accordance with the ethical standards of the institution and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. This article does not contain any studies with animals performed by any of the authors. This project was approved by the Colorado Multiple Institutional Review Board. Informed consent was obtained from educators and parents included in the study.

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## Appendix

### Antecedent – Behavior – Consequence Interview

What are the three most concerning problem behaviors and what do they look like?  
 What happens before the most concerning problem behaviors occur?

**Do the problem behaviors occur . . .**

- (1) At least once per hour;
- (2) At least once per day;
- (3) At least once per week;
- (4) At least once per month.

**Do episodes of problem behaviors usually last . . .**

- (1) Between 10 minutes to 30 minutes;
- (2) Between 30 minutes – 1 hour;
- (3) Between 1 hour and 4 hours;
- (4) Longer than 4 hours.

**Do problem behaviors . . .**

- (1) Leave no marks on either the student’s or another adult’s body;
- (2) Produce reddening of the skin or mild swelling;
- (3) Light scratches, small breaks to skin, or moderate to severe swelling;
- (4) Scratches that leave scars, breaks in skin that leave scars, or broken bones/physical disfigurement.

**Antecedents for problem behaviors**

Functional Context	Antecedent	Behavior	Consequence <i>(i.e., how do caregivers respond to problem behaviors)</i>
Attention	Parent cooking dinner. Parent on the phone. Parent playing with sibling.		
Tangible	Told “No” he cannot have a toy. Told, “No” he cannot have a snack. Told to share a toy.		
Escape	Told to complete homework. Told to take shower or brush teeth.		

**Latency to problem behavior occurrence:**

**Medical and Psychiatric Concerns:**

**Skill Deficits:**

- (1) Toy and Sensory Preferences:
- (2) Communication:
- (3) Social:
- (4) Motor and Activities of Daily Living:
- (5) Academic and Cognitive:

**Caregiver, Community, Other Environments:**