An Examination of Behavior Analysts' Treatment Selection Behavior for Escape-Maintained Problem Behavior

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AN EXAMINATION OF BEHAVIOR ANALYSTS’ TREATMENT SELECTION BEHAVIOR FOR ESCAPE-MAINTAINED PROBLEM BEHAVIOR

by

Rebecca Eldridge

A dissertation submitted to the Graduate College in partial fulfillment of the requirements for the degree of Doctor of Philosophy Psychology
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I would like to thank my mentor, Dr. Stephanie Peterson, who accepted me into her lab four and a half years ago. She has provided me with more opportunities to learn and grow than I could have ever imagined. She is the best behavior analyst I know, and I will always marvel at her skills and abilities in treating youth with challenging behavior. Her compassion for the clients, their families, and the community we serve is apparent every day in her teaching and research. Thanks to her, I truly believe we can save the world with behavior analysis.

Secondly, I would like to thank the faculty and students in Western Michigan University’s behavior analysis program. I came here as a junior behavior analyst and they shaped me into a great behavior analyst with a strong conceptual foundation and a passion for applied research. In addition to Dr. Peterson, I am especially grateful for Dr. Jessica Frieder and Dr. Jon Baker, who both served on my committee and met with me several times to analyze my data and discuss the implications of the results. My past and present labmates and fellow students have also been instrumental in supporting me through this journey, especially Nate VanderWeele, Denice Rios, Becky Kolb, Cody Morris, Michael Kranak, Ian McElfish, Nicole Hollins, Kelsey Webster, Adam Bennett, and Kimberly Peck.

Finally, I would like to thank my family, without which I could not have done this. My mom and dad, Debi and Bruce Wiskirchen, always encouraged me to pursue my dreams even if the road was tough. I would also like to thank my husband, Chris, who has stood by my side through the good times and the bad, and always believed in me. Lastly, I would like to dedicate
this work to my late grandmother, Alice Wiskirchen, who was my cheerleader for so many years and who wanted so badly to see me graduate.

Rebecca Eldridge
The advent of functional analysis procedures has helped identify reinforcers for problem behavior; however, the behavior analyst is then faced with the task of selecting an appropriate treatment for problem behavior. When selecting treatments, in addition to behavioral function, behavior analysts also need to consider contextual variables, such as current client repertoires, setting conditions, time and resources of current caregivers, as well as client and caregiver goals (Benazzi, Horner, & Good, 2006). Board Certified Behavior Analysts (BCBAs) must consider these factors when developing treatment according to their ethical code (Behavior Analyst Certification Board [BACB]’s Professional and Ethical Compliance Code [PECC], 2015). However, it is unclear how behavior analysts approach selecting among these treatment variables when designing treatment plans. In recent years, researchers (Geiger, Carr, & LeBlanc, 2010) have developed tools, specifically decision trees, to guide practitioners in considering treatment variables (i.e., context) when designing function-based treatments. However, the effects of these decision trees on treatment selection are unknown. The present study examined how junior behavior analysts approach treatment selection for problem behavior through three separate but related studies. Specifically, this study evaluated the topography of “think-aloud” verbal behavior displayed by novice behavior analysts when designing a behavior intervention plan, as well as the effects of providing a decision tree on their verbal behavior and the appropriateness
of treatment selection behavior in novice behavior analysts. Results could not confirm a clear
effect of the decision tree on treatment selection behavior, although the content of the vignettes
and participant learning histories may have affected behavior more than the presence or absence
of the decision tree. Limitations and future implications are discussed.
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INTRODUCTION

Assessment and treatment of problem behavior is one of the many skills a behavior analyst should have in his or her repertoire. For behavior analysts working with individuals who display aberrant behavior, that assessment includes a functional behavior assessment (FBA), in which the reinforcing contingencies maintaining the problem behavior are identified. Following the assessment, a treatment plan is typically developed based on the function of the behavior. When selecting a treatment, behavior analysts are required to use empirically supported treatments in their intervention plan (Behavior Analyst Certification Board [BACB]’s Professional and Ethical Compliance Code [PECC], 2015, 2.09a-b). Applied research has shown function-based treatments to be more effective and efficient compared to non-function-based treatments (Ingram, Lewis-Palmer, & Sugai, 2005). Thus, treating problem behavior should involve first assessing and identifying its function, and then selecting a treatment that matches that function.

In 1982, Iwata, Dorsey, Slifer, Bauman, and Richman pioneered a technology for identifying function that relied on the systematic manipulation of environmental contingencies and measurement of behavior during each of those systematic manipulations. Today, this assessment technology is commonly referred to as functional analysis (FA). Iwata et al.’s original study involved several test conditions including escape from demands (i.e., negative reinforcement), access to attention (i.e., positive reinforcement), alone or ignore (i.e., automatic reinforcement), and free play (i.e., control). These test conditions can help isolate the maintaining variables for problem behavior, which can lead to reinforcement-based
interventions. That is, the stimulus reinforcing the problem behavior can be used as a reinforcer for more appropriate, alternative behavior.

In two epidemiological studies, Iwata and colleagues (1994) and Asmus and colleagues (2004) found that negative reinforcement was the most common function for problem behavior in the functional analyses (FAs) they examined. There is a plethora of empirically validated treatments to select from for escape maintained problem behavior. These treatments have been applied across a variety of individuals and populations, for a variety of behaviors, and in a variety of settings (Geiger, Carr, & LeBlanc, 2010). Treatments for escape-maintained problem behavior include (but are not limited to) altering the motivating operation through non-contingent reinforcement (NCR; Kodak, Miltenberger, & Romanuik, 2003; Lalli, Casey, & Kates, 1997; Vollmer, Marcus. & Ringdahl, 1995; Vollmer & Wright, 2003), altering the antecedent by initially removing aversive stimuli to decrease the motivation to engage in the target behavior (i.e., demand fading; Piazza, Moes, & Fisher, 1996; Zarcone, Iwata, Smith, Mazaleski, & Lerman, 1994), and/or altering the consequences by varying dimensions of reinforcement in a concurrent operants paradigm (Dyer, Dunlap, & Winterling, 1990; Peck et al., 1996), no longer providing reinforcement for previously reinforced behavior (i.e., extinction; Iwata, Pace, Kalsher, Cowdery, & Cataldo, 1990; Lerman & Iwata, 1996), teaching an alternative response using Differential Reinforcement of Alternative Behavior (DRA; Piazza et al., 1996; Zarcone et al., 1994), teaching a functionally equivalent replacement behavior through a specific type of DRA known as functional communication training (FCT; Durand & Merges, 2001; Tiger, Hanley, & Bruzek, 2008), or differentially reinforcing all other behaviors (DRO; Vollmer & Iwata, 1992). Given the wide range of evidence-based treatments from which
to choose, one question that will undoubtedly arise for the practitioner is, “What treatment should be selected at this given point in time for this individual?”

*Evidence-based practice* has become a buzzword in both educational and clinical settings. The term has been used both as a noun, referring to procedures and interventions that have a scientific literature base (Spencer, Detrich, & Slocum 2012), and as a verb, referring to the “professional decision making in which practitioners integrate the best available evidence with client values/context and clinical expertise in order to provide services for their clients” (Slocum et al., 2014, p. 41). When selecting treatments, researchers have urged practitioners to take into consideration both the best available evidence as well as the client and contextual factors that may affect the use and ultimate success of the treatment (Benazzi, Horner, & Good, 2006; Spencer et al., 2012). The BACB’s Professional and Ethical Compliance Code provides further clarification of these contextual variables, suggesting that the behavior analyst consider “efficiency and cost-effectiveness, risks and side-effects of the interventions, client preference, and practitioner experience and training” (BACB, 2015, 2.09c). Efficiency and cost effectiveness may include factors such as how quickly the treatment results in behavioral reduction in conjunction with the number and type of resources the treatment requires. For example, the number of caregivers available, the amount of funding available, and amount of time available from caregivers are resources that should be considered when selecting the most appropriate treatment. Risks and side effects could include the potential for temporary increases in target and other problem behavior when extinction is implemented (extinction burst; Iwata et al., 1990; Lerman & Iwata, 1996). Client preference should factor into treatment selection, which involves inviting input from the caregivers and those who will likely be implementing the treatment, or providing a choice of effective treatments to caregivers. Studies have shown that when
caregivers are involved with treatment selection, fidelity of implementation is higher than when caregivers are not involved (Benazzi et al., 2006). Finally, practitioner experience and training should be considered when selecting treatments. This will ensure that the practitioner has the experience needed to implement the treatment effectively and can train caregivers to implement the treatment with fidelity.

Given the number of factors and complexities of decision making that are involved when selecting evidence-based treatments, some researchers have created decision trees to help practitioners analyze these contextual variables when choosing treatments for problem behavior. For example, Geiger et al. (2010) proposed a decision tree for making treatment recommendations for escape-maintained problem behavior. These authors suggested several contextual variables should be considered and prioritized when making treatment decisions. Specifically, Geiger et al. suggested that practitioners should ask the following questions (in order of priority) when making treatment recommendations:

1. Is the curriculum appropriate and instruction optimal?
2. Can the environment tolerate any level of problem behavior?
3. Are there any demands to which the client already complies?
4. Is time away from instruction tolerable?
5. Which is the most important clinical/educational goal? (p. 29)

Depending on the answer to each of these questions, the decision tree leads the behavior analyst either to a treatment that fits the context specific to their clients or to consider additional variables before making a determination. The more complex or numerous the contextual variables, the further one must progress through the decision tree to obtain an optimal treatment recommendation.
Such decision trees are an attempt to make explicit the covert behavior displayed by experienced practitioners when making treatment decisions. Geiger et al. (2010) suggested that decision-making trees may be especially helpful to junior practitioners whose experience in treatment selection for problem behavior is likely limited to a smaller number of cases in comparison to the more experienced practitioner. However, Geiger and colleagues noted that their decision-making tree is based on only ethical guidelines and clinical experience and have not yet been experimentally validated. It is not clear whether decision-making trees actually help practitioner make better (i.e., functionally matched, evidence-based, and contextually relevant) treatment decisions based on the results of the FA.

In an attempt to address this question, Saini, Betz, Gregory, Leon, and Fernandez (2017) recently examined the effects of the decision tree proposed by Geiger et al. (2010) on optimal treatment selection in both experts and novices using a randomized group design. They hypothesized that those with expertise would be more likely to select optimal treatment whether or not they had access to the decision tree, whereas novice practitioners would be more likely to make optimal treatment selection only when provided access to the decision tree. As expected, their results showed no significant difference between the expert groups that received the decision tree and those that did not. Unexpectedly, however, novices showed significant improvement in optimal treatment selection for only one of three hypothetical scenarios when they received the decision tree. Upon further analysis of the hypothetical scenario on which the novices performed better with the decision tree, the authors noted that this particular scenario only required the behavior analyst to address the first question on the decision tree to identify the most optimal treatment. Addressing other contextual variables was not necessary to arrive at the optimal treatment. In contrast, for the other two hypothetical scenarios, participants had to
analyze multiple contextual variables and progress further through the decision tree to arrive at the optimal treatment. In other words, the complexity of the scenario could have controlled treatment selection behavior in conjunction with the aid of the decision tree. Saini et al. suggested that further research of the effects of decision trees on treatment selection in novice behavior analysts is warranted.

Currently, research on general clinical decision making in behavior analysts is generally limited to models, descriptive guidelines, and ethical codes (BACB, 2015; Geiger et al., 2010; Grow, Carr, & LeBlanc, 2009; Slocum et al., 2014; Spencer et al., 2012). Despite the detailed descriptions of decision-making models and the BACB’s guidelines for treatment selection outlined in the PECC, we know very little about how behavior analysts combine what they know about client context and the identified maintaining variables for problem behavior in order to select treatments. Given Saini et al.’s (2017) findings and our limited knowledge of how behavior analysts make treatment decisions following an FA, descriptive data regarding the covert behavior in which individuals engage when determining recommended treatments would provide helpful data for the field. Kazdin (2011) suggested that descriptive data can provide a richness of information that could contribute to the development of a theory that can later be tested in a controlled experiment. Qualitative research, such as collecting descriptive data, provides scientists with “descriptions of behavior under natural conditions that could subsequently lead to asking research questions, or testing research hypotheses, that employ more objective quantitative research approaches” (Gast, 2010, p. 13). Descriptive data on behavior analysts’ decision making may help determine what specific behaviors behavior analysts engage in during decision making and may better inform how treatment selection tools, such as decision trees, can be refined to more effectively guide this covert behavior.
“Protocol analysis” may be one effective way to analyze descriptive data obtained from individuals making treatment decisions. Protocol analysis involves asking participants to “think aloud” while they are working through a problem and subsequently analyzing it to determine patterns of behavior. This procedure dates back to 1920, when John Watson wrote about the utility of studying thought as a behavior rather than taking psychology’s traditional approach of introspection. In his writings, he described a “think aloud” process in which complex cognitive tasks could be studied by having subjects talk through the task as they were solving it (Watson 1913, 1920). These verbal reports prove more reliable than reports that involve recall (i.e., introspection) and do not seem to interrupt task completion like other methods of reporting (Ericsson & Simon, 1993).

Van Valey et al. (2015) used protocol analysis to obtain and analyze descriptive data on ethical decision making. After providing participants with hypothetical client scenarios, the researchers asked participants to “think aloud” while making treatment decisions. The researchers recorded participant’s overt verbalizations in response to the ethical dilemmas, transcribed the verbalizations, segmented them, and then coded them based on common themes (Austin & Delaney, 1998). They found that expert psychologists spent more time in the decision-making process and identified nearly twice as many concerns with regards to ethics, judgement, methods, and regulatory compliance, in comparison to novice psychologists. These results not only show a marked difference in decision making between experts and novices, but they also provided a framework for future research and training in decision making.

The purpose of the present study was to apply protocol analysis strategies to answer three primary research questions:
1. What topographies of vocal verbal behavior do novice behavior analysts display when selecting treatments for escape-maintained problem behavior, given a written hypothetical scenario (Vignette 1) but no decision-making tree?

2. What are the effects of providing a decision-making tree to guide treatment selection on appropriateness of treatment recommendations based on two written hypothetical scenarios (Vignettes 1 and 2), as measured by scores on a scoring rubric?

3. What topographies of vocal verbal behavior do novice behavior analysts, whose scores on treatment recommendations changed by 30 points or more from Vignette 1 to Vignette 2, display both in the presence and absence of the decision tree?
GENERAL METHOD

This research project consisted of three studies, which will be described in further detail below. Several of the study procedures (participant recruitment and selection, setting, materials, and data collection procedures) were the same for all three studies. Thus, they are described first. Dependent variables, independent and other variables of interest, data analysis, and inter-observer agreement (IOA) procedures varied by study and thus are described for each individual study, followed by results and a brief discussion for each individual study.

Participants

Because (a) the Geiger et al. (2010) decision tree was meant to guide junior practitioners who have a limited range of experience with diverse client contexts, and (b) Saini et al. (2017) suggested more study regarding how novice behavior analysts make treatment decisions is warranted, we recruited novice behavior analysts for participation in this study. Novice behavior analysts, defined as individuals who were eligible to sit for the BCBA exam or who had passed the Behavior Analyst Certification Board (BACB) exam within the past 5 years, were recruited for participation in this study. Eligibility to sit for the exam was defined as the individual having completed the BACB’s requirements: a master’s degree in education, psychology, or behavior analysis; academic coursework that met the BACB task list requirements; and supervised fieldwork hours (750-1500, depending on intensity). While the study focused on novice behavior analysts, it was important to ensure that participants had demonstrated a minimum level of mastery of behavior analytic content, which included baseline knowledge of behavioral function and ethical treatment of clients in a variety of contexts. Individuals who had completed all of the
above requirements or passed the BACB certification exam were included. Participation was limited to individuals who had been certified for 5 or fewer years in an attempt to maintain some level of consistency in experience.

Following approval from the Western Michigan University Human Subjects Institutional Review Board (WMU HSIRB; see Appendix A), individuals were invited to participate in the present study through an academic research email campaign through the Teaching Behavior Analysis ListServe (TBA-L), emails to Applied Behavior Analysis Program Directors and Coordinators at various universities, and a post on the Western Michigan University Psychology Department Facebook Page (see Appendix B). The BACB also sent a recruitment email to all behavior analysts (BCBA and BCBA-D level only) certified in the past 5 years (see Appendix B). These initial recruitment emails and posts included a brief description of the study, a description of the incentives for participating in the study, and a link to a survey (described below). Incentives for participation included a choice of either a free continuing education unit (CEU) activity or a $30 gift card (for the first 65 participants who selected it). For those who chose the free CEU activity, supplemental comprehension questions based the Geiger et al. (2010) study were provided, and upon correctly responding to them, a CEU certificate was delivered via email.

When participants clicked on the survey link, the first thing they did was complete a demographic questionnaire (see Appendix C). Participants were excluded from participation in the study if they reported any of the following: (a) they had been certified for more than 5 years; (b) they had not completed all of the coursework for the BCBA exam, had not earned their master’s degree in psychology, behavior analysis, or education, or had not completed their supervised experience for the BCBA exam; or (c) they reported having read and regularly
referenced (i.e., two or more times per year) the Geiger et al. (2010) article. Based on these inclusion criteria, 61 individuals out of 258 individuals who clicked on the link qualified for participation in the study. Of those 61 who qualified, 56 provided consent.

Of the 56 individuals who provided informed consent for participation, 17 participants completed the entire study. Three participants reported being 18 to 25 years old, 13 reported being 26 to 35 years old, and one participant reported being 36 to 45 years old. Professions included clinical supervisor, behavior specialist, case manager, behavioral consultant, administrator, faculty, autism consultant, graduate student, and behavior analyst. Four of the participants had both master’s and doctoral degrees, while the rest had obtained a master’s degree only. Degrees were obtained from several fields, including Behavior Analysis (8), Infant Family Practice (1), Social Work (2), Special Education (2), Speech Pathology (1), Physical Education (1), Human Services (1), Applied Developmental Psychology (1), Curriculum and Instruction (1), Evaluation, Measurement, & Research (1), and Psychology (2). Ten of the 17 participants obtained their ABA coursework from an in-person program, six obtained it online, and one completed a hybrid program. All but three of the 17 participants completed their coursework for their BCBA within their Master’s or doctoral programs. Eight of the 17 completed their supervised experience hours through their university, either in intensive or regular university practicum. Nine of the 17 completed Supervised Independent Fieldwork outside of university practicum. Thirteen of the participants had some of their supervised experience at a clinic setting, eight had experience hours in home settings, six had supervised experience in school settings, two in hospitals, and one in a residential treatment facility. At the time of the study, four participants worked at a university, while the rest worked in schools, homes, and clinics. Seven of the 14 non-university participants primarily worked with clients.
who needed skill acquisition, two participants worked primarily with clients who needed behavior reduction, and four participants worked with both skill acquisition and behavior reduction. Finally, when asked how much experience FBAs each participant had, five reported having conducted 1 to 5 FBAs, four reported having conducted 6 to 10 FBAs, four having conducted 11 to 20 FBAs, one having conducted 21 to 30 FBAs, and three having conducted 30 or more FBAs in their profession. Of these FBAs, participants reported conducting an FA as part of the FBA on average 35% of the time (ranging from none to every time). In their current practices, 12 of 17 participants had written treatment plans for escape-maintained problem behavior.

**Setting and Materials**

All sessions took place over the Internet using the participants’ computers. Qualtrics survey software was used to design the demographic survey to determine eligibility, obtain consent for participation, provide instructions and hypothetical scenarios, and record typed responses. Debut video capture software was used to audio record the participant’s “think aloud” responses as well to video capture their computer screens. This allowed the researcher to collect the descriptive data as well as measure treatment integrity.

Two vignettes were developed as the hypothetical scenarios for use in the study (see Appendices D & E). The vignettes were developed by the researcher, who was a BCBA with 10 years’ experience designing function-based treatment plans for home, clinic, and school settings. Each vignette described the results of a functional behavior assessment, including a formal FA that indicated an escape function for problem behavior. This functional relation was explicitly stated so that it was clear the treatment should focus on escape-maintained problem behavior (though the latter was not explicitly stated). Each vignette also included details about contextual
variables that were important to consider when selecting a treatment, such as client preference, skills and abilities of the behavior change agents, and setting limitations (BACB, 2015; Benazzi et al., 2006; Slocum et al., 2014). The contextual information provided in each vignette mapped onto the questions found in Geiger et al.’s (2010) decision-making tree described earlier, which was used as the independent variable.

**General Procedure**

When participants first clicked on the provided link, the participants were asked to respond to three questions to determine eligibility for participation in the study:

1. Have you been certified for more than 5 years?
   a. *If yes, person is excluded from study.*
   b. *If no, the survey proceeded to the second question.*

2. Have you ever read this article or participated in a training based on this article?
   a. *If yes, the survey proceeded to the third question.*
   b. *If no, the survey proceeded to the informed consent.*

3. If yes to the question above, how often do you refer to it in your practice?
   a. Never – *proceeded to informed consent*
   b. Rarely (Less than 1 time per year) – *proceeded to informed consent*
   c. Sometimes (2 times per year) - *Excluded from study*
   d. Often (3 or more times per year) – *Excluded from study*
If participants answered the questions such that they could be included in the study, they were presented with an informed consent document (see Appendix A). After reading and clicking the next button for each page of the consent form, participants could elect to give their consent by selecting “yes” and typing their names and email addresses into the survey. When consent and eligibility were confirmed, participants were assigned a random participant number via Qualtrics (ranging from 1000–9999). From this point forward, the random participant number was used to identify participants. Participants were then directed to the demographics questionnaire (see Appendix C), which asked them questions about their education, training, and experience in conducting FBAs and designing treatment plans.

After the initial questions, consent, and demographics questionnaire were completed, participants were given instructions on how to download and start Debut video capture software. During all sessions, participants were instructed to be in a private room, record their session using Debut, “talk-aloud” their thoughts as they read the vignette and typed the treatment plan directly into the Qualtrics survey, where their responses were collected and stored.
STUDY 1 PROCEDURES, RESULTS, AND DISCUSSION

Study 1 was designed to address the first research question: What topographies of vocal verbal behavior do novice behavior analysts display when selecting treatments for escape-maintained problem behavior, given a written hypothetical scenario but no decision-making tree? In this study, participants were provided with vignette of a sample client and were asked to “think aloud” to develop a treatment plan for that client. Descriptive data were then collected to analyze the participants’ vocal verbal behavior as they developed their treatment plans.

Procedures

Following the instructions on how to download and use Debut (see Appendix F), Qualtrics provided participants with Vignette 1 (see Appendix D). The instructions prompted participants to read the vignette aloud. Participants were told if they wished to make a comment about what they were reading as they read, they should do so. After reading Vignette 1, participants were instructed to “think aloud” while they designed and typed a function-based contextually relevant treatment plan for the client described in the vignette, again using the “think aloud” method. In other words, while they were thinking about the best treatment to use for the client in the vignette, they were to “think aloud” by talking through the possible treatments, ultimately selecting one to type as the treatment plan. Participants were told to rely on their conceptual knowledge of behavior analysis to design the treatment plan. They were asked to refrain from accessing any non-study related materials on the Internet, such as looking up treatments or additional resources. (Because Debut recorded everything that occurred on the participants’ computer screens, it was apparent to the researcher if participants did look up
something online.) Only one participant looked up information on her computer while participating in the study, which will be discussed in greater detail below when data on the fidelity of the independent variable is presented. Participants were allowed to take as much time as they needed to read the vignette and write a treatment plan. When participants completed their treatment plans for the first vignette, they were asked to submit them by pressing the next button in Qualtrics. Once submitted, their treatment plan was saved into Qualtrics, where the researcher could later download it. Screen recordings from Debut were not submitted until after Study 2. (See Study 2 procedures for details on how this was done.)

After the researcher downloaded each video, the recording was transcribed and segmented by dividing it into discrete statements. The researcher and research assistants transcribed the recordings by using Google docs voice typing tool in Google Chrome. When transcribing the recording, the transcriber watched as the voice-to-text was transmitted onto the Google document, ensuring that accurate transcriptions were typed. Corrections were made when the voice typing tool made an error. After the first run through, each transcription was checked by the researcher or research assistant by listening to the recording again while silently reading the transcription. Incomplete sentences were separated by an ellipsis (…). Segmenting involved the primary researcher breaking up the transcriptions by complete and incomplete sentences. Each sentence or fragment was then saved into a cell of an Excel spreadsheet for coding. Each statement was then coded for the dependent variables (see Table 1 for a summary of the dependent variables).
**Table 1**

*Content Coded in Protocol Analysis of “Think Aloud” Data*

<table>
<thead>
<tr>
<th>Discrete data measures</th>
<th>Other interventions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duration of recording</td>
<td>Concurrent operants</td>
</tr>
<tr>
<td>Words spoken during recording</td>
<td>Differential reinforcement of other behavior</td>
</tr>
<tr>
<td></td>
<td>Differential reinforcement of alternative behavior</td>
</tr>
<tr>
<td></td>
<td>Increase support staff</td>
</tr>
<tr>
<td></td>
<td>Add safety precautions/gear</td>
</tr>
<tr>
<td></td>
<td>Conduct staff/caregiver training</td>
</tr>
<tr>
<td></td>
<td>Interventions that address attention function</td>
</tr>
<tr>
<td></td>
<td>Interventions that address tangible function</td>
</tr>
<tr>
<td></td>
<td>Interventions that address automatic function</td>
</tr>
<tr>
<td></td>
<td>Other treatments</td>
</tr>
<tr>
<td>Topics from Geiger et al. (2010) decision tree</td>
<td>Assessment comments</td>
</tr>
<tr>
<td>Curriculum appropriateness</td>
<td>Additional assessment - general</td>
</tr>
<tr>
<td>Strength of instruction</td>
<td>Indirect assessment - record review</td>
</tr>
<tr>
<td>Environmental factors that tolerate problem behavior</td>
<td>Indirect assessment - interviews</td>
</tr>
<tr>
<td>Demands the client does well with</td>
<td>Indirect assessment - rating scales</td>
</tr>
<tr>
<td>Is time away ok?</td>
<td>Direct assessment - preference assessment</td>
</tr>
<tr>
<td>Communication goal</td>
<td>Direct assessment - ABC data</td>
</tr>
<tr>
<td>Tolerance of aversive events goal</td>
<td>Direct assessment - skills assessment</td>
</tr>
<tr>
<td>Other curricular goal</td>
<td>Direct assessment - reinforcer assessment</td>
</tr>
<tr>
<td></td>
<td>Direct assessment – functional analysis</td>
</tr>
<tr>
<td></td>
<td>Other assessments</td>
</tr>
<tr>
<td>Treatments from Geiger et al. (2010) decision tree</td>
<td>Other codes</td>
</tr>
<tr>
<td>Curricular revision</td>
<td>Client characteristics</td>
</tr>
<tr>
<td>Instructional revision</td>
<td>Topography of problem behavior</td>
</tr>
<tr>
<td>Demand fading</td>
<td>References to the literature</td>
</tr>
<tr>
<td>Non-contingent escape</td>
<td>References to past clients</td>
</tr>
<tr>
<td>Activity choice</td>
<td>References a function other than escape</td>
</tr>
<tr>
<td>Extinction</td>
<td>Labeled problem behavior as escape-maintained</td>
</tr>
<tr>
<td>Functional communication training</td>
<td>Other general</td>
</tr>
<tr>
<td>Differential negative reinforcement of alternative behavior</td>
<td></td>
</tr>
<tr>
<td>Differential negative reinforcement of other behavior</td>
<td></td>
</tr>
</tbody>
</table>
Dependent Variables

Two measures of discrete data were collected which included word count and duration. Word count was obtained by using the “word count” tool in Microsoft Word. After each recording was transcribed using Google docs, it was copied and pasted into Microsoft Word and saved. The entire text, including the read aloud portion, was highlighted. Then the researcher, selected “word count” from the “Tools” menu. The number of words identified was then entered into an Excel spreadsheet for each participant. Duration of the recording was measured by the taking the total time of the video recording that was submitted on Dropbox by each participant. Duration included the read aloud portion of the recording. This number was also entered into an Excel spreadsheet for each participant.

In addition to duration and word count, a list of 44 possible dependent variables were identified to code the participants’ vocal verbal behavior (see Table 1). These variables were selected based on the literature describing FBAs and how to design functionally matched and contextually relevant behavior intervention plans (BIPs) as well as the information provided in Geiger et al. (2010). Codes that are not supported by the literature were also selected in anticipation of participants potentially discussing these concerns. These non-supported codes were selected based on the researcher’s experience in reading treatment plans written by a variety of professionals. Since codes were selected prior to analyzing the content of the think-aloud data, some codes have a zero count in the results but were still listed to indicate that no one did address that content. Each statement was coded with at least one code. A statement could be coded with more than one code. For example, if a participant said, “I know DRA should work for this client, because I have used it with past clients who also display aggression,” the data collectors recorded three codes. “I know” was coded as a statement of certainty, “DRA should
work for the client” was coded as differential (positive) reinforcement of alternative behavior, and “because I have used it with past clients who also display aggression” was coded as references to past clients. The codes were organized in the following categories: topics from Geiger et al., treatments from Geiger et al., other interventions, assessment comments, and other codes.

**Topics from Geiger et al. (2010).** The researcher counted the number of statements participants made related to the questions identified in the Geiger et al. article that practitioners should address when making a treatment recommendation. Curriculum appropriateness was defined as any time a participant made a statement about the content of the instruction, the age appropriateness of the instruction, the relevance of the skills being taught to the client, or the degree to which the skills being taught were too difficult or too easy for the client. Strength of instruction was defined as any time a participant made a statement about how the skills were being taught to the client, the instructional strategies used to teach the skills to the client, the amount of reinforcement or praise given during the client’s instruction, the number of learning opportunities provided to the client, or the method used to teach the skills to the client. Environmental factors that tolerate problem behavior was defined as any time the participant made a statement about the environmental factors (including people, location, furniture, materials, etc.) that may influence the behavior change agent’s ability to tolerate problem behavior should certain treatments evoke greater levels of problem behavior. Demands the client does well with was defined as any time the participant made a statement about a demand with which the client currently complies, high probability (high-p) demands, skills that are already mastered, activities during which the client does not display problem behavior, or preferred activities in which the client engages. Is time away okay was defined as any time the participant
made a statement about whether time away from instruction or time away from the classroom setting would be feasible and accepted in the current environment, stakeholders’ opinions of time-out, or the feasibility of time-out in the present environment.

The Geiger et al. (2010) decision tree also listed three different clinical or educational goals, which were also coded. *Communication goal* was defined as any time the participant made a statement about making communication a goal for intervention or teaching, the client or stakeholders goals pertaining to communication, or the need to increase communication of any sort for the client. *Tolerance of an event as a goal* was defined as any time the participant made a statement about a goal involving the client learning to tolerate or accept a non-preferred activity. *Other curricular goal* was defined as any time the participant made a statement about a goal that involved the curriculum, future goals/skills the client would need to obtain, or other goals not related to communication or tolerance.

**Treatments from Geiger et al. (2010).** In this category, the researcher used treatment definitions directly from the article to code variables related to selected treatments. The researcher coded any statements the participant made regarding a recommended treatment. *Curricular revision* was defined as any time the participant made a statement recommending a change in the curriculum because it was either too easy, too hard, or not developmentally or age appropriate. *Instructional revision* was defined as any time the participant made a statement recommending a change in how instruction was delivered such as changing the setting, type, or pace of instruction. *Demand fading* was defined as any time a participant made a statement recommending the fading stimuli or instructions, removing all instructions, gradually re-introducing instructions, or simply said to use demand fading as an intervention. *Non-contingent escape* was defined as any time the participant made a statement recommending that caregivers
provide “breaks from work on a time-based schedule, irrespective of problem behavior” (Geiger et al., 2010, p. 27). This did not need to be a direct quote but could have been as simple as to say non-contingent escape or non-contingent reinforcement should be used as an intervention. 

**Activity choice** was defined as any time the participant made a statement recommending that caregivers “offer a choice among selected tasks” (Geiger et al., 2010, p. 27) or some variation such as stating that activity choice should be used as an intervention. **Extinction** was defined as any time the participant made a statement recommending that caregivers “not provide a break from work contingent on problem behavior; (but rather) continue presenting the task regardless of problem behavior” (Geiger et al., 2010, p. 27). Again, participants could also say that extinction should be used as an intervention. **Functional communication training (FCT)** was defined as any time the participant made a statement recommending that caregivers “provide a break from work for a new communicative response and place the problem behavior on extinction” (Geiger et al., 2010, p. 27) or saying that functional communication training or FCT should be used as an intervention. **Differential negative reinforcement of alternative behavior** was defined as any time the participant made a statement recommending that caregivers “provide a break from work after a new, alternative behavior and place the problem behavior on extinction” (Geiger et al., 2010, p. 27). This was also counted if the participant said to use differential negative reinforcement of alternative behavior or DNRA as an intervention, or said DRA but used breaks from work as the reinforcement. **Differential negative reinforcement of other behavior** was defined as any time the participant made a statement recommending that caregivers “provide a break from work if the problem behavior has not occurred for a specified amount of time and place the problem behavior on extinction” (Geiger et al., 2010, p. 27), said to
use differential negative reinforcement of other behavior or DNRO, or said DRO but used breaks from work as the reinforcement.

**Other interventions.** The researcher also coded anytime the participants recommended an intervention not described in the Geiger et al. (2010) decision tree but was supported in the literature as effective for escape-maintained problem behavior, interventions not matched to the escape function of the problem behavior, or interventions that have no evidence base in the literature. *Concurrent operants* or choice intervention was defined as any time the participant made a statement about a treatment that involved choices between multiple target behaviors that resulted in varying reinforcement schedules. *Differential (positive) reinforcement of other behavior* was defined as any time the participant made a statement recommending that caregivers provide a tangible reward or attention contingent on the problem behavior not occurring for a specified amount of time or simply said to use differential reinforcement of other behavior or DRO. *Differential (positive) reinforcement of alternative behavior* was defined as any time the participant made a statement recommending that caregivers provide a tangible reward or attention contingent on the occurrence of an alternative replacement behavior or simply said to use differential reinforcement of alternative behavior or DRA. *Increasing support staff* was defined as any time the participant made a statement about adding additional staff or increasing ratios in order to implement treatment. Adding *safety precautions/gear* was defined as any time the participant made a statement about adding some safety measures that would reduce risk of harm such as additional safety gear or environmental protections such as padded furniture or walls. *Conduct staff/caregiver training* was defined as any time the participant made a statement recommending additional staff or caregiver training in order to implement the plan or increase treatment integrity. *Interventions that address the attention function* was defined as any time the
participant made a statement about increasing attention prior to behavior, providing attention during behavior, or providing additional attention following behavior. *Interventions that address the tangible function* was defined as any time the participant made a statement about increasing access to tangibles or preferred activities prior to behavior, providing access to tangibles or preferred activities during behavior, or providing access to tangibles or preferred activities following behavior. *Interventions that address the automatic function* was defined as any time the participant made a statement about increasing sensory input (e.g., sensory walks, getting energy out, sensory integration, use of fidget toys) prior to behavior, providing sensory input during behavior, or providing sensory input following behavior. *Other treatments* was defined as any other treatment that a participant mentioned that did not fit into one of the previously mentioned intervention codes.

**Assessments.** The researcher counted the number of times the participants referred to any assessment strategies that were described in the vignette, as well as any assessments the participants noted they wished they had access to, including functional behavior assessments, skills assessments, and preference assessments. *Additional assessments – general* was defined as any time the participant made a statement that additional assessments should have been conducted, but did not specify what kind of assessment should be conducted. *Indirect assessment – record review* was defined as any time the participant made a statement about reviewing the records of the client or questioning if records would be helpful to develop a treatment plan. *Indirect assessment – interviews* was defined as any time the participant made a statement about conducting interviews such as (but not limited to) the Functional Assessment Interview (FAI; O’Neill et al., 1997). *Indirect assessment – rating scales* was defined as any time the participant made a statement about using rating scales such as (but not limited to) the Questions About
Behavioral Function (QABF; Matson & Vollmer, 1995), Motivational Assessment Scale (MAS; Durand & Crimmins, 1988), or Functional Analysis Screening Tool (FAST; Iwata & DeLeon, 2005). Direct assessment – preference assessment was defined as any time the participant made a statement about measuring client preferences. Direct assessment – ABC data was defined as any time the participant made a statement about measuring the patterns in antecedents and consequences through observation. Direct assessment – skills assessment was defined as any time the participant made a statement about measuring the current skills or repertoire of the client. Direct assessment – reinforcer assessment was defined as any time the participant made a statement about measuring the reinforce effectiveness of a particular stimuli. Direct assessment – functional analysis was defined as any time the participant made a statement about manipulating antecedents and consequences and measuring the effects on behavior. Other assessment was defined as any time the participant made a statement about any other assessments that were not previously mentioned in the codes above, and that were not requests to collect additional assessment data, which would have been coded as “additional assessments – general.”

Other codes. The researcher counted any statements in which the participants referred to characteristics of the clients or themselves as a clinician. Client characteristics were defined as any time the participant made a statement about the setting, age, gender, family, health, or skills of the client. Topography of problem behavior was defined as any time the participant made a statement about the way the behavior looked or any permanent products the behavior produced. References to the literature were defined as any time the participant made a statement about something he or she had read about in a research article or book chapter or had heard about at a research conference. References to past clients were defined as any time the participant made a comment about a similarity between the hypothetical scenario and a past client’s behavior or
treatment plan. *Other general* was defined as any time the participant made a comment that did not fit into any of the above categories or codes. *References to a function other than escape* was defined as anytime the participant made a comment about the function of the behavior being something other than escape. *Labeled the problem behavior as escape-maintained* was defined as anytime the participant stated that the function of the behavior was escape.

**Interobserver Agreement (IOA)**

The researcher served as the primary data collector and scored 100% of the transcripts for the dependent variables. IOA data were collected by a research assistant, who had recently graduated from a graduate training program in behavior analysis. This research assistant independently scored 30% (N = 6) of the transcripts. Prior to scoring IOA data, the data collectors together read the definitions for each code. They then discussed examples and non-examples for each code and practiced coding with a sample transcription of “think aloud” data. The sample transcription was one of the study transcriptions that the researcher had previously scored. The codes were then compared by segment. For the sample transcription, any disagreements were discussed and definitions were clarified. A second sample transcription was then scored by both the primary researcher and the research assistant. The codes were again compared by segment and any disagreements were discussed and definitions clarified. This process continued until a practice IOA score of at least 80% was obtained on a sample transcription. The data coders reached the 80% goal by the third practice round, scoring 82% IOA. At that point, IOA data collectors began collecting IOA on one of the remaining transcriptions. (None of the sample IOA data are included in IOA measures; they were only used for training purposes.) IOA data were calculated using a point-by-point agreement ratio. Each time both coders recorded the same code for a segment, an agreement was recorded. Anytime
one coder recorded a code that was different from the other observer, a disagreement was coded. If multiple codes were recorded for one segment, any codes that matched were counted as agreements and any codes that did not match were counted as disagreements. For example, if one observer coded “curriculum appropriateness” and “non-contingent reinforcement” and the other observer coded “curriculum appropriateness” and “DNRA,” one agreement (“curriculum appropriateness”) was counted and one disagreement (“non-contingent reinforcement” vs. “DNRA”) was counted. IOA was calculated by the number of codes that were in agreement divided by the number of codes in agreement plus disagreement. IOA for Study 1 was 77%, with a range from 74% to 82%. Due to the number of codes (44 total) and the overlap of many of the interventions coded (e.g., FCT is a type of DRA which often includes a demand fading component), it is not surprising that IOA is this low. The IOA for this study is slightly higher, in comparison, than other studies which utilized protocol analysis (e.g., Van Valey et al. [2015] obtained an IOA of 73% with only 12 codes).

**Results**

Figures 1 through 7 show the distribution of responses within each category. The first two measures from the “think aloud data” were the discrete measures that were collected on duration and word-count. Figure 1 shows the number of words each participant spoke during the protocol analysis. On average participants spoke 1,544 words, which included the 627 words from reading Vignette 1 aloud. The range of word count was from 623 (from participants who skipped reading aloud some words) to 3,875. Figure 2 shows the duration of the protocol analysis from the time they began reading the vignette, any comments they made, while they were typing their treatment plan, until they submitted the treatment plan and stopped the
recording. For duration, on average, participants spent 31 minutes reading the vignette, “thinking aloud,” and typing their treatment plan. The range for duration was 8 minutes to 56 minutes.

**Figure 1.** Total word count per participant.

**Figure 2.** Total minutes spent in the protocol analysis per participant.
Figure 3 shows the number of times participants made statements corresponding to topics that addressed in the Geiger et al. (2010) decision tree. Participants most often talked about environmental factors that could tolerate problem behavior, curriculum appropriateness, and strength of instruction. However, while participants discussed the curriculum appropriateness and strength of instruction, they did not often discuss interventions to address concerns in those areas (see Figure 4). Topics from Geiger et al. that were not discussed at all were demands the client does well with, communication as a goal, or other curricular goals.

![Figure 3](image-url)

**Figure 3.** Topics covered from Geiger et al. (2010) article.

Figure 4 shows the frequency of vocal responses about the nine treatments from Geiger et al. (2010). FCT was mentioned most often (77 times), followed by demand fading (36 times), DNRA (33 times), and extinction (31 times). It is important to note for this category, while a participant may have mentioned a particular treatment, it could have been in support of or against
the use of that treatment. For example, some participants said that they would have recommended certain treatments, like extinction for home settings where there is a 1:1 staff to student ratio, but not classrooms settings.

![Bar chart showing total count per item for different treatments](image.png)

**Figure 4.** Treatments from the Geiger et al. (2010) decision tree.

In addition to the treatments recommended in the Geiger et al. (2010) article, several additional treatments were coded. These are shown in Figure 5. Of the additional treatments, participants most discussed the need to increase support staff and implement interventions that addressed an attention function, in spite of the fact that the scenario clearly indicated the problem behavior was maintained by escape from task demands. In addition to these treatments, the participants talked about other treatments that were not provided for in the dependent variables, including punishment, making the math work fun, using self-management strategies, providing feedback, providing $S^D$ and S-delta signal cards, behavioral momentum, high-probability task
sequence, DRL, work schedules, seating arrangements, proactive antecedent strategies, shaping interventions, pairing, first-then boards, and reminders of contingencies.

Figure 5. Additional treatments not listed in the Geiger et al. (2010) decision tree.

Some participants expressed a desire for additional assessments, as shown in Figure 6. Participants who requested additional assessments were specifically recommending preference assessments, additional observational assessments, or some skills assessments. Three of the 17 participants talked about other specific assessments in addition to the assessments we coded for. The additional specific assessments included a demand assessment or demand analysis, motivational assessment, and an assessment of baseline number of requests completed before problem behavior occurred.
Client and participant characteristics discussed are displayed in Figure 7. Client characteristics was a variable that almost all participants discussed at least once (14 out of 17 participants). Out of 892 total coded statements, client characteristics were mentioned a total of 104 times. All participants discussed the topography and function of the problem behavior. More than half of the participants (9 of 17) also made references to a potential function other than escape, which was usually attention. When they discussed other functions, it was either they posited the behavior could be multiply-maintained or they doubted the results of the FBA altogether. Participants also made “other comments” that did not fit into any previous code. This occurred 248 times out of 958 coded remarks, or 26% of remarks. Some of these remarks were mumbles, groans, pauses, unintelligible statements, ums, or comments directed toward someone else in the room during the study.
Results from this study show that, overall, participants were talking about function-based treatments for the individual’s behavior intervention plan. Most treatments that participants discussed were those supported by Geiger et al. (2010) and other literature on escape-maintained problem behavior, even though participants did not have access to the decision tree. Participants also discussed several other treatments that were not identified in Geiger et al. Many of these treatments have been shown to be effective for reducing escape-maintained problem behavior. Thus, although some of the treatments identified did not correspond to Geiger et al., they appeared to be reasonable recommendations for the target behavior (at least based on the function of the problem behavior).
On the other hand, participants made a number of statements about other functions of the problem behavior, even though the results of the FA were clearly stated. Many participants implied uncertainty (e.g., “I am not sure if it is escape,” or “Are we sure this isn’t attention?”) regarding the conclusions of the FBA in the vignette, despite the fact that it was explicitly stated that the client’s behavior was maintained by negative reinforcement and that the results of the FA showed a clear escape function. Many participants questioned the results of the FA and FBA and wanted more observations conducted. Nine of the 17 participants made a total of 18 comments about a potential function other than escape. It is unclear why the participants had so many doubts about the validity of the FA and FBA results. It could be that lack of confidence in the FA/FBA was due to a lack of training and experience with FAs. It would be interesting to see if more experienced behavior analysts would have had more confidence in the FA results. Alternatively, perhaps the simulated conditions under which participants were asked to design an intervention plan had an effect on their confidence in the assessment outcomes. No raw data or graphs from the FA were presented in the vignettes. Rather, a narrative and summary statement of the assessments was provided. In a field that relies heavily on the actual observation of behavior and visual inspection of data, the lack of data and graphs for the FA could have caused doubt about the presented FBA results. Future studies should investigate variables that affect behavior analyst’s confidence in FA results and the extent to which that confidence drives treatment planning.

Despite not providing participants with graphic results of the FBA and FA, there were key pieces of information that should have evoked certain treatment selection behavior. For example, the vignette detailed the client-to-staff ratios which should have provided some guidance on what interventions may be feasible (e.g., if there are 23 students and only 1 teacher,
then DRO or extinction might be hard to implement). The vignettes also included details about the client’s current communication abilities, which would have guided FCT interventions should those have been chosen. If curriculum appropriateness was a concern to be addressed, the vignette would have indicated that the client was not making gains or something similar.

Vignette 1 (see Table 2 and Appendix D) included specific statements that should have evoked some “think aloud” behavior about specific contextual variables discussed in Geiger et al. (2010). It is interesting that some of the specific phrases included in the scenarios did not set the occasion for vocal verbal behavior related to it on the participants’ part. Future research should address what makes specific information salient, or not, to participants.

Study 1 examined the “think aloud” vocal verbal behavior of the participants, but did not examine the treatment plans developed by the participants and whether these treatment plans were appropriate and contextually relevant. Also, because a decision-making tool was not made available, it is still unclear what the effects of a decision-making tool, like the one found in Geiger et al. (2010), would be on participants’ treatment selection behavior. Study 2 addressed these questions.
<table>
<thead>
<tr>
<th>Statement from Vignette</th>
<th>Question from Geiger et al. (2010)</th>
<th>Hypothesized Discussion</th>
</tr>
</thead>
<tbody>
<tr>
<td>...is currently meeting all of his first grade academic benchmarks in the current curriculum ...</td>
<td>Is the curriculum appropriate and instruction optimal?</td>
<td>He is on grade level and meeting current benchmarks - This means he can do the work.</td>
</tr>
<tr>
<td>The school utilizes an evidence-based curriculum approved by the school district...</td>
<td>Is the curriculum appropriate and instruction optimal?</td>
<td>Okay, they are using something that has been field tested.</td>
</tr>
<tr>
<td>Charlie seems to really like art class, gym, and computer class, and doesn't have any issues during those subjects...</td>
<td>Are there demands to which the client already complies?</td>
<td>Yes, he complies with other class instructions.</td>
</tr>
<tr>
<td>However, when she is the only adult in the room, she does not press him or make him do his work because she is afraid of him destroying the classroom.</td>
<td>Can the environment tolerate any level of problem behavior?</td>
<td>No, the teacher is worried about Charlie destroying the classroom. She is the only one in the room and cannot manage his behavior.</td>
</tr>
<tr>
<td>You ask the teacher if you can see her lesson plan, to which she responds that she doesn't use one since all of the lessons in the curriculum are scripted. You watch her teaching math and reading to the class. You see very few opportunities to respond and the teacher praise rates are about one every five minutes. Most of her attention is presented to the one or two students who raise their hands to answer her questions.</td>
<td>Is the curriculum appropriate and instruction optimal?</td>
<td>Not really optimal, she is only giving 1-2 students the opportunities to respond. No lesson plans - how does she know if the students’ have retained last week’s lessons? Is she following the curriculum guides for instruction?</td>
</tr>
<tr>
<td>You continue your observation, and complete the functional behavior assessment, including a functional analysis. The results from the functional behavior assessment show a clear escape function. In other words, when a math or reading assignment is presented, property destruction is negatively reinforced by the removal or delay of the assignment.</td>
<td></td>
<td>Function is clear escape.</td>
</tr>
</tbody>
</table>
STUDY 2 PROCEDURES, RESULTS, AND DISCUSSION

Study 2 was designed to address the second research question: What are the effects of providing a decision-making tree to guide treatment selection on appropriateness of treatment recommendations, as measured by scores on a scoring rubric? In this study, the appropriateness of the treatment recommendation provided by each participant from Vignette 1 in Study 1 was scored using a rubric, which provided a quantitative score for the recommended treatment. Then, all participants completed a second vignette. For this second vignette, some participants were provided with the decision tree from Geiger et al. (2010) to assist them and some did not. The researcher used a similar scoring rubric to score responses to Vignette 2 to obtain a second quantitative score. The scores were then compared to identify whether the decision tree resulted in improved performance.

Procedures

After participants completed their think aloud for Vignette 1, they were prompted to type a treatment plan and submit their treatment plan via Qualtrics. Upon submitting their plan, participants were then assigned randomly to one of two groups: No Decision Tree or Decision Tree. Group assignments were made based on the randomly assigned number given to each participant in Study 1. If a participant’s number was between 1000–5449, he/she was assigned to the No Decision Tree group and continued to Vignette 2 (see Appendix E) immediately. Participants in the No Decision Tree group were not provided with the decision tree. Instructions for the second vignette were identical to the first, and participants followed the same procedures.
as described in Study 1. They read the vignette out loud and then typed a function-based intervention plan while engaging in “think aloud” behavior.

If a participant’s number was between 5450 and 9999, he or she was assigned to the Decision Tree group, which received the decision tree from Geiger et al. (2010). Participants in this group were provided with an image of the decision tree and asked to read each question on the tree aloud to ensure they attended to the information on the tree. The Debut screen recording software recorded this so the researcher could verify this had been completed. After the first reading, participants were asked to read the tree questions a second time. Next, participants in this group were given Vignette 2, while the decision tree remained available. Participants were instructed to read Vignette 2 aloud. They were also prompted to “think aloud” as they developed a function-based, contextually relevant treatment. Instructions included telling participants to answer all questions in the decision tree before designing their treatment plan, “thinking aloud” as they did so. Participants then typed their responses and completed their treatment plan for the second vignette.

Following the completion of the second intervention plan, participants were asked to stop the recording. The last part of the Qualtrics survey provided participants with a task analysis, including screen shots, of how to stop, save, and upload their Debut screen recording to Dropbox using a temporary link (see Appendix F). The link provided allowed each individual to submit files but not see any other participant files. After videos were uploaded onto Dropbox, the researcher removed them and saved them onto an encrypted hard-drive and cloud storage, per HSIRB approvals (see Appendix A). Once a completed treatment plan and corresponding video was obtained by the researcher, each participant received an email with an option to either complete the CEU activity or select the Amazon gift card. Those who chose the Amazon gift
card received it through their email, and those who chose to complete the CEU activity were directed to a second Qualtrics survey, which provided them the opportunity to read the Geiger et al. (2010) article and answer 23 comprehension questions (see Appendix G). Upon completion of this activity, the participant received a CEU certificate via email, approved by the local Approved Continuing Education contact (but sent by the researcher).

**Materials, Dependent Variable, and Measurement**

Behaviorally anchored scoring rubrics (see Appendix H) were developed for purposes of this study to measure and quantify participant performance in designing a function-based contextually relevant treatment plan for both Vignettes 1 and 2. The rubric was divided into two sections. The first section evaluated whether the recommended treatment matched the escape function identified in the FA. The second section evaluated whether the participant identified the relevant contextual variables provided in the vignette. The rubrics yielded an individual score for each of these sections. The two individual scores were combined to derive a total score, with each individual score contributing equal weight to the final score.

The matched function score was a 0 to 2 Likert scale. A score of 0 was given if the participant selected a treatment that was not based on negative reinforcement. A score of 1 was given if the treatment selected addressed some form of negative reinforcement, but didn’t specifically use any of the recommended treatments from the Geiger et al. (2010) Decision Tree. A score of 2 was given if the participant labeled NCR, Activity Choice, FCT, DRA (negative reinforcement), DRO (negative reinforcement), Demand Fading, or Escape Extinction and/or described any of these procedures.

For the contextual variables, there were several questions that were rated on a 0 to 2 Likert scale. These contextual variables were related to the questions provided in the Geiger
et al. (2010) decision tree. Behavioral anchors were provided for each numerical value, similar to the functional score described above (see Appendix H). Each of the contextual scores was specific to the vignette, because the contextual variables that participants should attend to were unique to each vignette. For example, the first contextual question on the scoring rubric is “If curriculum is inadequate, does the treatment address curriculum?” For the first vignette, the participants received a referral for a client named Charlie, who was meeting all of his first-grade academic benchmarks in the current evidence-based curriculum. For this first question, participants should not make recommendations to change the curriculum since Charlie was meeting all of his benchmarks and the curriculum was evidence-based. Thus, for the first vignette, if a participant made a suggestion to revise the curriculum, this was scored as a 0. If a participant did not make any suggestions to revise the curriculum, this was scored as a 2. However, in the second vignette, the client was Alice, a 15-year-old who had been working on educational programs derived from a VB-MAPP assessment for the past 8 years. She had made little progress and was currently working on listener responses when given the names of colors. In this case, curriculum revision was considered appropriate and should have been addressed by the participants. Thus, if a participant made a suggestion to revise the curriculum to a more functional or adaptive skill curriculum, this would be scored as a 2. If the participant made no suggestions about revising the curriculum, this was scored as a 0. There was a total of 22 possible points in the contextual category.

The author served as the primary data collector. She read the written treatment recommendations for Vignettes 1 and 2 provided by each participant, and scored them using the rubrics described above. After independently scoring each treatment recommendation, the author obtained a final score for each treatment plan. Fifty percent of the final score came from the
function-based treatment rating. The other 50% came from the contextual variables ratings. Finally, both scores were added together to get a total score. For example, if a participant scored a 1 out of 2 points on the functional category (.5 multiplied by 50% equals .25) and 18 out 22 points on the contextual category (.82 multiplied by 50% equals .41), he or she would have a total score of 0.66 (0.25 + 0.41 = 0.66).

The research assistant who scored IOA data for Study 1 also scored IOA data for Study 2. In order to train the second observer how to score the treatment plans, the researcher reviewed the rubric and scored a sample treatment plan with him. Then, the data collectors scored additional sample treatment plans independent of each other and compared their scores. Discussions regarding differences in scoring occurred after each practice scoring. If it was determined that the differences occurred due to unclear operational definitions in the scoring rubric, further details to the operational definition were added to the rubric. Following the discussion and any changes in the scoring rubric, data collectors scored additional sample treatment plans until they reach 90% agreement on two sample treatment plans.

After training, the research assistant independently scored 35% of the treatment plans, equally distributed across Vignettes 1 and 2 and across the two groups of participants. IOA was measured by calculating agreement between two independent scorers on each question on the scoring rubric. Observers scored each of the 12 questions in the scoring rubric as a 0, 1, or 2. If both scorers selected the same point value for a question, that was marked as an agreement. Then the total number of agreements for each treatment plan were divided by 12 (the total number of items scored) to get a percent agreement. IOA for Vignette 1 treatment plan scores was 86.1%, with a range of 75% to 100%. IOA for Vignette 1 treatment plan scores was 91.6%, with a range of 83% to 100%.
Fidelity of the Independent Variable

Fidelity of the independent variable was measured for 30% of sessions by viewing the randomly selected recordings that participants returned to the researcher with their treatment plans. Fidelity of the independent variable was defined as the participant using the decision tree (for participants in the group that received it) and no other resource, such as the Internet during sessions (both groups). Using a 30-s partial interval recording procedure, the researcher watched the Debut video and recorded what stimuli were present on the participant’s desktop screen. A minus (−) was scored on the data sheet for an interval if the participant had any non-study related material open and in view on the screen or if the participant clicked on and/or typed into non-study material for more than 5 consecutive seconds during each 30-second interval. A plus (+) was scored on the data sheet if the participant had only the research study materials open and in view on the screen or clicked on and/or typed into provided research study materials for the entire 30-second interval, with no more than 4 consecutive seconds of non-study materials. The 4-second interval was chosen somewhat arbitrarily as participants were using their own laptops, and pop-up windows or notifications sometimes appeared on their screens while participating in the study. However, these notifications often disappeared quickly, and 4 seconds was enough time for the participant to read and close the notification but did not allow enough time for a participant to look up treatments or search for sample treatment plans on their hard drives, which could compromise the fidelity of the independent variable. Fidelity of the independent variable was 100%. Anecdotally, one participant did use the Internet to research articles while forming her treatment recommendations, despite the fact that she was instructed not to. Articles she researched were ones she already referenced; however, she was looking up specific procedures
for a demand analysis. This was the only participant out of the 17 who did this. This particular participant’s video was not randomly selected for the fidelity check, however.

**Results**

The results are shown in Figures 8 through 10. Figure 8 shows the mean scores and standard error for Group 1 (no decision tree on either vignette) and Group 2 (decision tree on second vignette). Interestingly and unexpectedly, both groups performed more poorly on Vignette 2, despite the fact that Group 2 received the decision tree to assist them on Vignette 2.

*Figure 8. Mean scores on intervention plan scoring rubric from Vignette 1 to Vignette 2 for Group 1 and Group 2.*
Figure 9 shows the mean difference in scores from Vignette 1 to Vignette 2 for each group. On the whole, Group 2, which received the decision tree before Vignette 2, had a smaller change in means from Vignette 1 to Vignette 2.

Since there was such great variability in the mean change for both groups, the researcher decided to inspect the individual differences for each participant from Vignette 1 to Vignette 2. Figure 10 shows each of the individual scores for both vignettes. Open data points indicate that no decision tree was provided prior to reading the vignette or designing the treatment plan. Closed data points indicate that the decision tree from Geiger et al. (2010) was provided prior to reading the vignette and while designing the treatment plan. Triangles represent participants in Group 1, who never received the decision tree. Circles represent participants from Group 2, who only received the decision tree for Vignette 2. Light gray data points and data paths represent those participants whose scores changed by less than 30 points from Vignette 1 to Vignette 2.
Black data points and data paths represent those participants whose scores changed by 30 points or more from Vignette 1 to Vignette 2. Four out of 17 participants had a 30-point change or greater. Two of these were from Group 1 and two were from Group 2. Three of these four participants’ scores decreased, and one increased. The participant whose score increased by 30 points or more was in Group 2, and was given the decision tree.

Figure 10. Individual participant scores from the intervention plan scoring rubric for Vignette 1 and Vignette 2. Triangles represent Group 1, circles represent Group 2, closed data points indicate that participants were given the decision tree, and open data points indicate no decision tree was given. Black lines indicate a 30-point or greater change from Vignette 1 to Vignette 2.
Discussion

Overall, results showed participants performed worse on Vignette 2 than on Vignette 1, regardless of whether or not they were provided with the decision tree with Vignette 2. This was surprising, because the decision tree was designed to help novice behavior analysts make better treatment recommendations. It is unclear what variables were influencing these participants’ performance. It was not clear whether something in the vignette was influencing their treatment recommendations or whether there was some other variable impacting their behavior. Closer analysis of their vocal verbal behavior might yield some important information with respect to these questions. In analyzing individual participant data, many of the participants’ scores did not change much from the first to the second vignette. However, four participants’ scores changed by 30 or more points. It was hypothesized that closer analysis of these four participants may provide insights into what variables were controlling their decision making regarding treatment recommendations. Study 3 attempted to analyze whether specific variables could be affecting the participants’ vocal verbal behavior when designing a contextually relevant and function-based treatment. Furthermore, individual participant characteristics were examined to see if any of these could account for these large changes in scores for their treatment recommendations.
STUDY 3 PROCEDURES, RESULTS, AND DISCUSSION

Study 3 was designed to address the third research question: What topographies of vocal verbal behavior do novice behavior analysts, whose scores on treatment recommendations changed by 30 points or more from Vignette 1 to Vignette 2, display? How do these interact with the presence or absence of the decision tree? In this study, data from a selected subset of participants from Study 2 were further analyzed. The vocal verbal behavior of participants whose scores on the treatment selection rubric changed by 30 points or more from Vignette 1 to Vignette 2 was analyzed in order to determine whether and how it changed across the two vignettes.

Procedures

Four participants’ scores changed by 30 points or more from Vignette 1 to Vignette 2 in Study 2 (see Figure 11). Three (Pearl, Ann, and Larry) of the four participants’ scores decreased by more than 30 points. Two of these participants (Ann and Larry) did not receive the decision tree, and one (Pearl) did. One (Russell) of the four participants improved by more than 30 points, and he was given the decision tree. Below are the individual self-reported demographic data for each of the four participants as well as their scores on each vignette, as previously presented in Study 2 results.
Figure 11. Individual participant scores from the intervention plan scoring rubric for Vignette 1 and Vignette 2 for those whose scores changed more than 30 points. Russell and Pearl were in Group 2, and received the decision tree between Vignette 1 and Vignette 2, while Larry and Ann did not.

Participants

Pearl was a behavior specialist, between 26 and 35 years old. She had a master’s degree in social work, and completed an in-person program for her BCBA coursework, which was part of her master’s program. She completed her experience hours through a university practicum site, which was located in schools and clinics. She worked primarily as a clinician for skill acquisition in homes, although she had conducted more than 30 FBAs in schools, homes, and clinics. Of those FBAs, only one had included an FA. In addition, she reported having experience writing behavior plans for escape-maintained problem behavior. Pearl scored 84%
(100% on function and 68% on context) on Vignette 1 and was provided the decision tree prior to completing Vignette 2, on which she scored 25% (0% on function, and 50% on context).

Ann was also a behavior specialist, aged 26 and 35 years. She held a master’s degree in special education and applied behavior analysis and completed an in-person program for her BCBA coursework, which was part of her master’s program. She completed her experience hours through a university practicum site which was located at a clinic setting. She worked primarily as a clinician for skill acquisition in homes, although she had conducted between 11 and 20 FBAs in schools, homes, and clinics. Of those FBAs, most had reportedly included an FA. In addition, she reported having experience writing behavior plans for escape-maintained problem behavior. Ann scored 85% (100% on function and 72% on context) on Vignette 1, and 27% (0% on function, and 50% on context) on Vignette 2. Ann was not provided the decision tree at any point during the study.

Larry was a behavior specialist, as well as an autism consultant, aged 26 to 35 years. He held a master’s degree in social work, which included an online program for his BCBA coursework and was part of his master’s program. He completed his experience hours through supervised independent fieldwork in schools and clinics. He worked as a clinician for both skill acquisition and problem behavior reduction in homes. He had conducted between 11 and 20 FBAs in schools, and of those five had included an FA. In addition, he reported having experience writing behavior plans for escape-maintained problem behavior. Larry scored 86% (100% on function and 72% on context) on Vignette 1, and 33% (50% on function and 16% on function) on Vignette 2. Larry was not provided with the decision tree at any point during the study.
Russell was a clinical supervisor aged 26 to 35 years. He held a master’s degree in applied behavior analysis, and his BCBA coursework was part of a hybrid approach (online and in person courses). He completed his experience hours through university practicum in homes, schools, and clinics. He worked primarily as a clinician for skill acquisition in homes, schools, and clinics. He had conducted more than 30 FBAs in homes, schools, and clinics. Of those FBAs, five had included an FA. In addition, he reported having experience writing behavior plans for escape-maintained problem behavior. Russell scored 43% (50% on function and 32% on context) on Vignette 1 and was provided the decision tree prior to completing Vignette 2, on which he scored 82% (100% on function and 64% on context).

**Dependent Variables**

The “think aloud” behavior in which each participant engaged during Vignette 2 was transcribed, segmented, and scored in the same fashion as in Study 1. Transcripts for Vignette 2 were coded for all the same dependent variables as in Study 1. The data from transcripts in Study 1 (Vignette 1) were compared to the data obtained from the transcripts in Study 3 (Vignette 2).

**IOA**

IOA data for the transcripts from Vignette 2 were collected in the same fashion as for Vignette 1 in Study 1. IOA for Study 3 was 77%.

**Results**

Results from the protocol analysis are described in detail for each of the four participants. Data for each participant are summarized in Table 3. For Vignette 1, the ideal treatment and variables to consider are boxed, while the ideal treatments and variables to consider are shaded for Vignette 2. The bolded text indicates variables that were mentioned most frequently across participants. Italicized data with a single asterisk (*) represents variables or treatments that
Table 3

Comments Made by Participant for Vignettes 1 & 2

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**Pearl and Russell received the decision tree between Vignette 1 & 2.

Note. The data above that are in bold indicate popular measures discussed by most participants. The data that are boxed indicate the interventions the participants should have selected for Vignette 1. The data that are shaded indicate the interventions the participants should have selected for Vignette 2. Italicized data with a single asterisk (*) denote inappropriate interventions for context or function.
participants discussed that would have been inappropriate given the context or function of the behavior.

**Pearl**

For Vignette 1, Pearl matched the function to the treatment (2 points out of 2 points possible) as well as selected a treatment that fit the contextual variables (15 points earned out of 22 possible points). This yielded a score of 84% for Pearl on her treatment plan for Vignette 1. Before she was given access to Vignette 2, she was exposed to the Geiger et al. (2010) decision tree. For Vignette 2, Pearl’s score dropped dramatically to a 25%. She did not design a treatment which addressed the escape function (0 out of 2 possible points) and she did not address several contextual variables in her treatment (9 points out of a possible 18) for Vignette 2. Since the treatment she selected for her treatment plan did not evoke problem behavior (e.g., it did not include an extinction procedure), she did not need to respond about whether the current environment could manage an increase in problem behavior, nor did she need to put in additional safety precautions for extinction, so these 4 points were removed from the 22 possible points, making her contextual score out of 18 instead (see Appendix H, Vignette 2, Questions 8 & 9).

During Vignette 1, Pearl was engaged in reading the vignette, thinking aloud, and typing the treatment plan for just over 21 minutes. She said 1,036 words, 627 of which were Pearl reading the vignette. Her comments were primarily in the category of treatments, specifically for FCT and DRA, as well as discussing the client characteristics.

During Vignette 2, Pearl was engaged in reading the vignette, thinking aloud, and typing the treatment plan for just over 30 minutes, and said aloud 1,617 words. Thus, she spent more time on Vignette 2 and said more words during the vignette. She made 4 references to the topics from the Geiger et al. (2010) article, and discussed several treatments from the Geiger et al.
including demand fading, extinction, and FCT. She also mentioned other treatments outside of those recommended by the Geiger articles such as DRO and a few interventions for that addressed the attention function (i.e., increased praise rates) and the tangible function (i.e., earning access to preferred items). She also talked about adding visual reminders, such as visual schedules and timers, several times. In Vignette 2, she also discussed client characteristics such as age and ability, about twice as much as she did in Vignette 1. Interestingly, although she spoke more about the interventions that were matched to function and context during the “think aloud” portion of the activity, she did not select and write these interventions in her treatment plan. Instead, she typed a treatment plan that involved positive reinforcement procedures (which are not matched to the function of the problem behavior) and visual schedules. She also did not address the curriculum in her treatment plan (and she should have, according to the decision tree), although she spoke about it a few times during the “think-aloud.”

Since Pearl did get the decision tree for Vignette 2, we expected Pearl to talk about the questions raised in the tree and to identify specific variables in the vignette that related to these questions both during her “think aloud” and when she wrote the treatment plan. The data shown in the open boxes in Table 3 indicate the interventions she should have discussed and ultimately selected as per the Geiger et al. (2010) decision tree for Vignette 1. Despite not having the tree for Vignette 1, Pearl did discuss adding a communication goal for Charlie using FCT and demand fading. The data shown in the shaded boxes on Table 3 indicate the interventions Pearl should have talked about and selected for Vignette 2. Despite being given the decision tree to guide her during Vignette 2, she did not recommend revising the curriculum on her treatment plan, although she did talk about the appropriateness of the curriculum in her vocal verbal behavior, the primary issue in this case. In summary, Pearl’s vocal verbal behavior and written
treatment plan addressed the key elements of the case more appropriately in Vignette 1, when she did not have access to the decision tree. When she did have access to the decision tree, although she talked about some of the key elements of the case, this did not translate into writing a treatment plan that addressed these elements.

**Ann**

Ann never received the decision tree for either vignette. For Vignette 1, Ann scored 86% on the scoring rubric for her treatment plan. She matched the function to the treatment (2 points out of 2 points possible) as well as selected a treatment that fit the contextual variables (13 points earned out of 18 possible points). Similar to Pearl’s treatment plan for Vignette 2, the treatment that Ann selected in her treatment plan also did not evoke problem behavior, so she did not need to respond about whether the current environment could manage it, nor did she need to put in additional safety precautions. Thus, these 4 points were removed from the 22 possible points, making her contextual score out of 18 instead (see Appendix H, Vignette 2, Questions 8 & 9). For Vignette 2, Ann’s score dropped dramatically to 25%. She did not design a treatment that addressed the escape function (0 out of 2 possible points), and she did not address several contextual variables in her treatment (9 points out of a possible 18). While she did address the curriculum changes that needed to be made, she also suggested additional staff be placed in the home, which was not needed for the treatment plan implementation.

During Vignette 1, Ann was engaged in reading the vignette, thinking aloud, and typing the treatment plan for about 42 minutes. She said 1,703 words, 627 of which were her reading the vignette. Her comments focused mostly on contextual considerations and treatments from the Geiger et al. (2010) article, and she spent a lot of time discussing client characteristics (boxed and bolded text in Table 3). Unlike Pearl, Ann made several conditional statements of
uncertainty and statements of doubt that the behavior was escape-maintained (see Table 3, *References to function other than escape*). Additionally, she questioned the appropriateness of the curriculum, which did not fit the contextual variables provided to her, since Charlie was meeting all of his benchmarks in the current curriculum.

For Vignette 2, Ann engaged in reading the vignette, thinking aloud, and typing the treatment plan for considerably less time (13 minutes) than Vignette 1. She spoke about the same number of words, 1,559, but had fewer pauses or times of silence. For Vignette 2, she spoke about curricular revisions 8 times (Table 3, shaded box), which was more than any of the other participants. However, she also spoke about treatments that she did not use in her plan, such as extinction, 5 times (italicized with asterisk). She mentioned positive reinforcement strategies such as DRA and DRO 8 times (italicized with asterisk), and ultimately included those in her typed treatment plan instead of a negative reinforcement contingency, which would have been more appropriate for a function-based treatment plan. She discussed the client characteristics (bolded text) as well, and most of those references were in conjunction with the comments on curricular revision.

**Larry**

Larry did not receive the decision tree for either vignette. For Vignette 1, Larry’s treatment plan received a score of 86% according to the rubric. He matched the function to the treatment (2 points out of 2 points possible) as well as selected a treatment that fit the contextual variables (13 points earned out of 18 possible points), but since his treatment was complex and he did not include components of staff training and improving teacher instruction, he missed those points in his score. For Vignette 2, much like Pearl and Ann, Larry’s score also dropped dramatically to 33%. While he included a treatment that addressed the escape function, he did
not use one of the treatments from the Geiger et al. (2010) recommendations (1 out of 2 possible points). He also did not address most of the contextual considerations for treatment (3 points out of a possible 18), the biggest one being the curricular revision.

During Vignette 1, Larry was engaged in reading the vignette, thinking aloud, and typing the treatment plan for about 17 minutes. He said 1,689 words, 627 of which were him reading the vignette. His comments focused mostly on incorporating FCT and demand fading, which were boxed on Table 3 as the appropriate interventions given the Geiger et al. (2010) decision tree. He also included additional DNRA components into his treatment plan. He also made several comments about client characteristics and defining the target behavior (bolded text). Like Ann, Larry also questioned escape as the sole function of Charlie’s problem behavior and included treatments that addressed a potential tangible function (see italicized text with an asterisk in Table 3).

For Vignette 2, Larry was engaged in reading the vignette, thinking aloud, and typing the treatment plan for almost 20 minutes, even though he spoke fewer words than Vignette 1 (1,369 words, 780 which were reading the vignette). He spoke mostly about treatments involving FCT (shaded text) and demand fading, as well as using differential reinforcement of incompatible behavior (DRI) and errorless learning. However, he did not talk about the curricular revisions needed (shaded text), nor did he specify what type of FCT response should be taught based on the client’s current skill level. Similar to Vignette 1, Larry added in treatment that would address a tangible function (italicized with an asterisk), but did not engage in any specific vocal verbal behavior about doubting the escape function.
Russell

In contrast to the previous three participants, Russell scored very poorly on the first treatment plan, and increased by nearly 40 points on the second treatment plan, when he had access to the decision tree. For Vignette 1, Russell’s treatment plan received a score of 43% according to the rubric. He matched the function to the treatment but did not specify one of the treatments from Geiger et al. (2010) (1 point out of 2 points possible). He scored 8 points out of 22 on contextual variables because he suggested several procedures that were not conducive to the limitations of the classroom setting, such as placing the desired behavior on a continuous reinforcement schedule, using response blocking, and environmental manipulations with no additional support staff. For Vignette 2, Russell’s treatment plan was scored at 82%, since he matched treatment to function and used one of the recommended treatments for escape-maintained problem behavior. He also identified several of the contextual variables in his treatment plan for Vignette 2, such as revising the curriculum and addressing the caregiver’s goals for treatment. He also incorporated an appropriate FCT response for the client’s level of skill, and included some safety precautions for extinction procedures. Overall, on the contextual variables, he scored 14 out of a possible 22 points.

For Vignettes 1 and 2, Russell read the vignettes aloud, but did not engage in “think aloud” behavior during his treatment plan development. Thus, it was not possible to analyze any of this “think aloud” data. It is unclear what variables Russell was attending to as a result. He spent 46 minutes on Vignette 1, and almost 33 minutes on Vignette 2. From the treatment plan Russell wrote, it appears that the decision tree was very helpful in formulating his treatment recommendations.
Discussion

There were very few similarities or patterns in demographics and vocal verbal behavior across the four participants for whose scores on the treatment plans changed dramatically from Vignette 1 to Vignette 2. However, within each participant, their descriptive data provide some interesting information. For example, it is interesting that when Pearl was provided with the decision tree, she appeared to attend to limitations of the curriculum described in Vignette 2, as indicated by her “think aloud” behavior. This was a key element to be considered in the vignette, and something we expected several of the participants to discuss (see Table 4). However, despite vocalizing this information, she did not then address it in her treatment plan. She also discussed several treatments matched to escape maintained behavior, but did not select one of them in her final treatment plan. Similarly, Larry described a DRI procedure in great detail in his vocal verbal behavior during Vignette 2 but then wrote little about it in the treatment plan. Data for both of these participants suggest that while issues may be addressed when analyzing the case, they may not translate into intervention recommendations.

Pearl and Russell both received the decision tree for Vignette 2. It was hypothesized that these participants would have talked about key pieces of information provided in the vignette that were matched to the questions identified in the decision tree (see Table 4). Specifically, the numbers in the shaded boxes on Table 3 should have been higher for Pearl and Russell, yet they were not. Moreover, it was hypothesized that anything the participants did talk about relative to the questions provided in the decision tree would then be addressed in the treatment plan written, yet they were not. This begs the question whether decision trees set the occasion for relatively junior practitioners to consider relevant information with respect to treatment planning and, even
if they do, whether such consideration translates into a well-designed treatment plan that both matches the function of the target behaviors and is contextually relevant.

Table 4

*Key Information from Vignette 1 and Corresponding Questions*

<table>
<thead>
<tr>
<th>Statement from Vignette</th>
<th>Question from Geiger et al. (2010)</th>
<th>Hypothesized Discussion</th>
</tr>
</thead>
<tbody>
<tr>
<td>15-year-old...currently functioning at an 18-24-month level. She has been receiving intensive ABA services for the past 8 years, working through programs designed by her BCBA that are based on the VB-MAPP assessment…</td>
<td>Is the curriculum appropriate and instruction optimal?</td>
<td>Programs may not be appropriate? Do we do VB-MAPP for 15-year-olds? Intensive ABA and still only 18-24-month level? Should consider switching to functional daily living curriculum.</td>
</tr>
<tr>
<td>She has vocal verbal mands of more, stop, and please in her repertoire, but does not use them consistently…</td>
<td></td>
<td>Need more communication skills.</td>
</tr>
<tr>
<td>...after Alice escalated to the point where she had slapped herself continuously for 5 minutes and made her hand bleed, Alice’s mother stepped in and let Alice have a break.</td>
<td>Can the environment tolerate any level of problem behavior?</td>
<td>Not too much since the behavior is severe and the mom will step in.</td>
</tr>
<tr>
<td>Alice’s mother reports that she or the respite staff do most of Alice’s daily living activities for her. She is worried about the amount of support Alice needs and with no siblings, she doesn’t know who will take care of Alice when she and her husband are too old to do so.</td>
<td>What is the most important clinical/educational goal?</td>
<td>Probably communication and other curricular targets? Daily living and adaptive curriculum should be added.</td>
</tr>
<tr>
<td>Over the next few weeks you continue your assessment, and conduct a functional analysis. Upon completion of the functional behavior assessment, your results show a clear escape function. In other words, when a demand to transition to another area is presented, self-injury is negatively reinforced by the removal or delay of the task.</td>
<td></td>
<td>Function is clear escape.</td>
</tr>
</tbody>
</table>
GENERAL DISCUSSION

Little is known about how behavior analysts make treatment decisions based on the results of a functional analysis, in part because few studies analyzing behavior analyst decision making have been conducted. One study (Saini et al., 2017) has examined the utility of providing decision trees in assisting behavior analysts in making treatment decisions. This study showed that decision trees had no effect for expert behavior analysts and minimal effect for novice behavior analysts. The present series of studies was an attempt to further analyze the covert behaviors in which novice behavior analysts engage while making treatment decisions based on functional behavior assessments. The first study attempted to answer the question, “What topographies of vocal verbal behavior do novice behavior analysts display when selecting treatments for escape-maintained problem behavior, given a written hypothetical scenario (Vignette 1) but no decision-making tree?” To answer this, the researcher analyzed the “think-aloud” behavior of novice behavior analysts when designing treatment plans and in the absence of any tools to set the occasion for them to attend to relevant stimuli in a hypothetical scenario. Generally speaking, participants attended to several important elements of the case, despite not having access to the decision tree. Oddly, however, they also attended to several irrelevant variables, such as implementing treatments based on positive reinforcement when the problem behavior was maintained by escape and making curricular changes when the curriculum was clearly identified as appropriate in the scenario.

The second question asked, “What are the effects of providing a decision-making tree to guide treatment selection on appropriateness of treatment recommendations based on two written
hypothetical scenarios (Vignettes 1 and 2), as measured by scores on a scoring rubric?” The researcher examined whether participant performance in designing an effective treatment plan improved when participants were provided with a decision tree. Somewhat surprisingly, but consistent with Saini et al. (2017), most participants’ scores did not improve from the first to second vignette, regardless of whether a decision tree was provided. In fact, overall, scores decreased slightly for Vignette 2, even when participants were provided with the decision tree.

The third study attempted to answer the question, “What topographies of vocal verbal behavior do novice behavior analysts, whose scores on treatment recommendations changed by 30 points or more from Vignette 1 to Vignette 2, display both in the presence and absence of the decision tree?” In order to address this question, the researcher analyzed the vocal verbal “think aloud” behavior of the few participants whose scores changed markedly from Vignettes 1 and 2. These participants’ data were analyzed in an attempt to better understand why their scores changed so dramatically. Results of this analysis yielded few, if any, clear patterns across participants. One participant from this group, Russell, was an outlier in that he was the only participant to demonstrate a dramatic improvement on his behavior plan score when provided with the decision tree. An analysis of his vocal verbal behavior would have been very interesting to analyze across scenarios. Unfortunately, Russell did not speak much during his “think aloud,” so it is still unclear what he was thinking while making his treatment decisions. Russell was the only one of two participants to vocalize so little during the sessions. Perhaps by not vocalizing his covert verbal behavior, Russell was able to write a better treatment plan. Almost all other participants vocalized more and performed more poorly on their treatment decision making, especially on the second vignette. It is possible that vocalizing covert behavior interfered with the desired end result—an effective written treatment plan that was a functional match to the
results of the functional behavior assessment and matched contextual variables. Researchers in verbal behavior have questioned whether the “think aloud” requirement affects task performance (Alvero & Austin, 2006; Hayes, 1986; Hayes, White, & Bissett, 1998). However, results from recent studies that have examined the effects of “think alouds” on task performance show that they do not appear to affect performance on complex tasks, (Banks, Stanton, & Harvey, 2014; Cabello Luque & O’Hora, 2016; Salmon et al., 2017). Though, this research has widely been conducted in the area of traffic safety. It is still unclear if “thinking aloud” impacts treatment selection behavior in the types of tasks used in this study. Future research should continue to examine this question for complex behaviors such as treatment selection.

The fact that almost all participants performed more poorly on the second vignette, regardless of whether they had access to the decision tree, suggests specific variables within the scenarios may have been controlling the participants’ behavior rather than the decision tree. In other words, the vignettes themselves may have been functioning as independent variables in addition to the presence of the decision tree. It is possible that the content and structure of the vignettes affected decision making. When the vignettes were designed for this study, the researcher was careful to include information that pertained to all of the questions presented in the Geiger et al. (2010) decision tree. The same number and type of client characteristics were given in both vignettes. The sequence and structure of the scenarios were the same for both participants and included narratives from observation sessions and results from interviews. Both scenarios concluded with FBA summary statements which included the same wording, just replacing names and target behavior labels. The only things that differed across vignettes were the client characteristics (e.g., age, skill level), the topographies of the problem behavior (e.g., self-injury vs. property destruction), and the settings in which the behavior was occurring (e.g.,
school vs. home). However, despite this attempt to control for content across cases, it is possible that difficulty varied across the two scenarios. The researcher considered Vignette 2 to be an “easier” scenario because to arrive at the most appropriate intervention, the behavior analyst only had to answer the first question presented in the Geiger et al. decision tree. This is because the vignette included information about how the skills being taught to the client were not age appropriate, and the first question on the Geiger et al. decision tree pertained to appropriateness of the client’s curriculum. On the other hand, to arrive at the best treatment for Vignette 1, the behavior analyst had to address multiple issues and questions on the Geiger et al. decision tree. If participants went through the Geiger et al. decision tree, they would have answered that the curriculum was appropriate, that the environment can handle some problem behavior, there are demands to which the client already complies, that time away from instruction is tolerable, and that communication may be the most important goal. This would have taken the practitioner to a combination treatment of demand fading and FCT. Despite the fact that the researcher considered Vignette 2 to be easier, the participants, as a group, performed more poorly on Vignette 2. This suggests other variables in Vignettes 1 and 2 were controlling behavior more than the decision tree. It is unclear what those variables were. In other studies involving clinical decision making, researchers have utilized a variety of formats for vignettes ranging from single paragraph scenarios (Van Valey et al., 2015) to multi-page interviews (Saini et al., 2017). To date, there is very limited research examining the effects of vignette content on decision making in behavior analysts. Future researchers may want to analyze and manipulate specific variables in the scenario (e.g., client characteristics, topography of behavior), setting limitations (e.g., classrooms vs. homes, physical safety precautions in place), instructional delivery and content (e.g., pace of instruction, opportunities to respond, appropriateness of curriculum) and vignette
structure (e.g., inclusion of graphs, interviews, narratives) to determine how they impact decision making in behavior analysts.

It is also unclear how participant characteristics might interact with vignette variables to control decision making. For example, what effect does a participant’s learning history and current (as well as past) clinical practice setting have on decision making? Pearl, Ann, and Larry received their formal training in clinics and/or school settings, and all three performed better on Vignette 1, in which the setting was a classroom. All three of these participants performed poorly on Vignette 2, which involved the home setting for treatment, even though one of them (Pearl) was provided with the decision tree. That is, participants performed better when the setting in the vignette more closely matched their own training setting. It is possible that novice behavior analysts have difficulty generalizing their skills from the training setting to a different setting. Their apparent lack of training in home settings could have impacted how Pearl, Ann, and Larry responded stimulus cues in Vignette 2 that should have occasioned a response to recommend curricular revision in that setting.

Other specific variables related to training might also explain these participants’ poor performance with Vignette 2. For example, perhaps the client age groups with whom participants received training matters, relative to the vignettes. The demographics questionnaire utilized in this study did not ask participants about their experience and training with different client age groups. It would be interesting to gather this information in future research to see if the participants’ training history impacts their response to similar or different aged clients in the scenario. In the present study, Vignette 1 involved a 1st-grader, who was working on grade-level academics. In contrast, Vignette 2 was about a 15-year-old, who had experienced little success with verbal behavior programming and whose mother expressed a desire for the therapist to work
on functional daily living skills. This information should have occasioned participants identifying that the curriculum was appropriate for the first vignette but was not appropriate for the second vignette. However, it could be possible that the participants were more likely to have experience with younger clients than older clients. Only 5 of the 14 established treatments in the National Standards Project (NSP; National Autism Center, 2015) are aimed at treating children over the age of 14 with autism. Thus, while the NSP is specific to autism treatment, if research populations reflect practice populations, it would be reasonable to suggest that most novice practitioners haven’t had experiences working with older children similar to this scenario, which may have negatively impacted their performance on this vignette. In short, it may be important to analyze several aspects of the scenarios that are presented to participants to better understand the relation between learning history and present cases.

Another variable to consider might be the participants’ reinforcement histories with certain treatments. Charlie, the client in Vignette 1, displayed property destruction in a 1st-grade classroom. He was only 6 years old and was functioning at a developmentally appropriate level. The appropriate intervention for Charlie, according to the Geiger et al. (2010) decision tree, was FCT. FCT was the most frequently mentioned treatment by participants for Vignette 1. However, it was also the most frequently mentioned treatment for Vignette 2, when it was less appropriate. It could be that the participants had a greater exposure to and history of reinforcement with FCT in their own practice than with other interventions. This may have controlled their behavior more than other contextual variables within the vignette. Future research should include demographics questions about the types of treatments participants have implemented.

Similarly, Alice, the client in Vignette 2, displayed severe self-injury in the home, and was functioning at an 18- to 24-month level, despite being 15 years old. Given that her
curriculum was focused on early verbal behavior instruction and not functional daily living skills, curricular revision was the most appropriate intervention for Alice. While curricular revision was among the most common treatment talked about by participants in Vignette 2; FCT, demand fading, and extinction were all selected by the participants in their treatment plans. It is possible that the participants did not have a robust reinforcement history with implementing curricular revisions. It is noteworthy that only 3 of the 17 participants received their master’s degree in an education field, which could suggest less familiarity with educational and curricular issues. While there exists some research on experience and decision making in fields such as nursing and clinical psychology (Banning, 2008; Van Valey et al., 2015), future researchers in behavior analysis may want to evaluate participant training histories with specific curricula and types of assessments and how these histories may relate to future treatment selection.

Finally, participants could have been experiencing fatigue by the time they got to Vignette 2. Participants spent anywhere from 8 to 55 minutes on each vignette and subsequent treatment plan, with a mean duration of 30 minutes spent on each Vignette. The study was completed in one session in order to retain participants between Study 1 and Study 2; however, this could have negatively affected participant scores in Vignette 2 if they felt fatigued. Further analysis could include examining the relation between participant scores and time spent in the vignettes. In addition, content of think aloud data could be analyzed and coded for statements of fatigue and the temporal location of these statements during the think aloud session. Future research should consider fatigue when designing studies which involve performance measures and protocol analysis.

This study also had several limitations. First, in Study 1 and Study 3, IOA was only 77% for the coding of the segments. This is below the 80% convention set forth as an industry
standard (Cooper, Heward, & Heron, 2007). However, it is actually higher than other studies involving coding of protocol analyses data (Van Valey et al., 2015). Protocol analysis can be challenging, because the data collector needs to be able to categorize vocal verbal behavior. The researcher attempted to write operational definitions for all of these categories. However, the vocal verbal utterances made by participants were highly variable, and the broad definitions could not always encapsulate all the subtle nuances across an almost endless number of possible verbal utterances. Thus, subjective judgement was sometimes required.

One limitation of Study 2 was the small N size. Originally, the researcher hoped to conduct a group design evaluation of the effects of the decision tree on treatment selection, as well as a descriptive study on participants’ vocal verbal behavior during treatment selection. The researcher had planned to use a pre-test/post-test group design. A power analysis was conducted prior to beginning the study. According to the power analysis, 54 participants were needed for this design. However, after 7 months of active recruitment, increases in incentives for participation, and numerous advertisements, only 17 participants completed the study. In comparison, Saini and colleagues (2017) were able to recruit 445 participants with a similar study. In that study, the response effort for participation was much lower because participants were able to select treatments from a bank of choices, and no screen capture was required for responding. However, that study was limited because the vocal verbal behavior of participants could not be collected, and this was something the present study attempted to analyze. It is likely this high response effort limited participation in the present study dramatically. Future researchers should find ways to decrease response effort while still gathering “think aloud” data.

A second potential limitation of Study 2 was the way in which participant treatment plans were scored. Initially we wanted to weight functionally matched treatments equally to
contextually relevant treatments. However, in doing so, we may have inadvertently lessened the weight of context. For example, there was only one question on the scoring rubric for function, which meant that participants could get 0%, 50% or 100% correct for function. In terms of point values, this meant that participants would earn 0, 25, or 50 points for function. However, there were 11 questions on the scoring rubric related to context, which meant that missing one contextual variable would have decreased a participant’s score by 4.5 points. In Study 3, the participants whose scores changed by more than 30 points were examined, which means that only those who missed the function question (50 points) or at least 7 out of the 11 contextual variables on one Vignette but not the other were considered. Further analysis of the component scores (function and context separated) would help researchers to identify what which variables are more problematic for participants. Additionally, Study 3 only examined the 4 participants whose scores changed by 30 points or more. Examination of all 17 participants vocal verbal behavior from Vignette 1 to Vignette 2 may be warranted due to the potential bias of the scoring rubric.

Lastly, two of the participants in the present study did not engage in “think aloud” behavior as instructed, which made coding vocalizations of covert behavior impossible. Other researchers in protocol analysis recommend training participants on how to “think aloud” prior to engaging in the study activities (Austin & Delaney, 1998; Ericsson & Simon, 1993; Potter, Huber, & Michael, 1997; Van Valey et al., 2015; Wulfurt, Dougher, & Greenway, 1991). While this may have increased “think aloud” behavior for the participants, it likely would have further increased response effort and decreased participation in the study.

Finally, the scope of this project was to examine novice behavior analysts’ treatment selection behavior. Taken together with the results of Saini et al. (2017) these results seem to
yield far more questions than answers. It seems clear that we understand little about how behavioral practitioners make treatment decisions and, furthermore, how decision making can be improved. Perhaps instead of analyzing novice decision making, it would be very beneficial to examine expert behavior analysts’ vocal verbal behavior during treatment planning. Understanding the covert vocal verbal behavior, decision rules, discrimination of relevant variables, and decision processes used by experts could help to identify rules and specific steps involved in making treatment recommendations based on the results of functional behavior assessments. This would allow faculty in training programs the opportunity to clearly identify what decision-making skills to teach. For example, what is the content of expert “think aloud” behavior when designing function-based and contextually relevant treatment plans? Do all experts use a similar decision-making process? Can experts even tact what they do when making treatment decisions? If so, perhaps it is possible to task analyze these skills and train them. How are such decision-making processes best taught? Are decision-making skills rule governed or contingency shaped? What implications does this have for training these skills? Are decision trees enough to control behavior, or are additional teaching strategies, such as behavioral skills training (BST) (i.e., instructions plus modeling, rehearsal, and feedback) required? These topics should continue to be studied, and protocol analysis, although effortful to administer, could provide a wealth of information to researchers, practitioners, teachers, and students of behavior analysis. While we can observe and measure the permanent products of thinking, “a good deal more can be learned about the psychology of thinking by making subjects think aloud of definite problems” (Watson, 1920, p. 91).
REFERENCES


Appendix A

Human Subjects Institutional Review Board
Approval and Consent
Date: February 7, 2017

To: Stephanie Peterson, Principal Investigator
    Rebecca Wiskirchen, Student Investigator for dissertation

From: Amy Naugle, Ph.D., Chair

Re: HSRB Project Number 17-02-03

This letter will serve as confirmation that your research project titled “The Effects of a Decision-Making Tool on Treatment Selection for Escape Maintained Problem Behavior” has been approved under the expedited category of review by the Human Subjects Institutional Review Board. The conditions and duration of this approval are specified in the Policies of Western Michigan University. You may now begin to implement the research as described in the application.

Please note: This research may only be conducted exactly in the form it was approved. You must seek specific board approval for any changes in this project (e.g., you must request a post approval change to enroll subjects beyond the number stated in your application under “Number of subjects you want to complete the study”). Failure to obtain approval for changes will result in a protocol deviation. In addition, if there are any unanticipated adverse reactions or unanticipated events associated with the conduct of this research, you should immediately suspend the project and contact the Chair of the HSRIB for consultation.

Reapproval of the project is required if it extends beyond the termination date stated below.

The Board wishes you success in the pursuit of your research goals.

Approval Termination: February 6, 2018
Western Michigan University
Department of Psychology

Principal Investigator: Stephanie Peterson, Ph.D., BCBA-D
Co-Investigators: Rebecca R. Wiskirchen, MA, BCBA
Nathan VanderWeele, BS

Title of Study: The Effects of a Treatment Selection Tool on Decision Making for Escape Maintained Problem Behavior

You are invited to participate in a research project entitled The Effects of a Treatment Selection Tool on Decision Making for Escape Maintained Problem Behavior. This consent document will explain the purpose of this research project and will go over all of the time commitments, the procedures used in the study, and the risks and benefits of participating in this research project. Please read this consent form carefully and completely and please ask any questions if you need more clarification.

What are we trying to find out in this study?
This study designed to assess the effects of decision trees on decision making and behavioral treatment design by newly certified behavior analysts.

Who can participate in this study?
The study is focusing on behavior analysts who have been board certified by the BACB in the last five years, who have access to a computer with internet connection and Microsoft Word, and additionally do not reference Geiger, Carr, & LeBlanc (2010) in their practices.

Where will this study take place?
This study will take place in any location where the participant has full privacy, and has access to a computer with internet connection and the ability to download Debut software (a free screen capture and audio recording software). Your computer will also need to have a built in microphone. You should pick a location that is quiet, will have no interruptions, and that you can read sample cases and design behavior treatments plans. Because this study involves recording your computer screen, it is highly recommended that you have all other programs closed on your computer are in a location where there is no audible discussion of your clients.

What is the time commitment for participating in this study?
Each participant will be asked to spend 2-3 hours total, across two sessions.

What will you be asked to do if you choose to participate in this study?
This study requires participants to read a vignette of sample client who engages in problem behavior, complete with results from a functional behavior assessment. Participants will then be asked to design a function-based and contextually relevant treatment plan. Participants will be asked to do this task twice. During the second session, half of participants will be provided with an additional tool for treatment selection.
In order to maintain integrity and ensure you are only engaging with the research study materials, you will be asked to download Debut® video capture recording software, which is free at http://www.nchsoftware.com/capture/. Once downloaded, you will be able to record your screen while you are reading and designing the treatment plans. This software will only record your screen and any audio in the environment you are in. You will control when it starts and stops recording, as well as with whom you choose to share your recordings with outside of this study. While participating in the study and recording your screen, we ask that you close all other applications and only have open the study related materials.

After providing consent, you will be receive an email with instructions, a link to Qualtrics, and given a participant code in order to keep all of your replies confidential. In Qualtrics, you will be be given a file request link that you can use to upload your video recordings. Your files will be linked only to your participation code and will be temporarily stored on Dropbox®. Only the researchers have access to view files on this Dropbox®. The file request link only allows participants to upload recordings, but will not allow them to view any files. Responses will be removed from Dropbox® at least every 72 hours and saved on an encrypted hard-drive, and locked in a filing cabinet in Wood Hall, at Western Michigan University. Following your submission, your treatment plan will be reviewed and you will be randomly assigned to either the control or experimental group and emailed with a second link to the second portion of the study.

**What information is being measured during the study?**
Integrity data will be gathered by watching the screen-capture recordings to ensure participants stayed engaged with research materials and do not engage with non-research materials during their sessions. Treatment plans developed by participants will be scored by measuring the inclusion or consideration of various components.

**What are the risks of participating in this study and how will these risks be minimized?**
Potential for risk exists if Dropbox® is hacked during the 72-hour period after you upload your responses. But, since you will not have any identifiable information on your responses, the risk is minimal. However, please do not have any other windows or applications open on your computer during the study. All notifications that could contain confidential information about clients should be closed during the study since your screen is being recorded. Failure to protect client confidentiality during the study would constitute a HIPAA violation, which would be a reportable action.

**What are the benefits of participating in this study?**
Following the study, all participants will be provided with access to the treatment selection tool for their own use.

In addition to personal benefits of having access to a treatment selection tool that may improve your practice, this study contributes to the field at large by providing data that may teach scientists more about how behavior analysts make decisions as well as shedding light on some previously covert decision-making behaviors of clinicians.
Who will have access to the information collected during this study?
The only people who will know that you are a research participant are members of the research
team. Most of the data analysis will group design statistical analysis, thus aggregating your data
with those from your randomly assigned group. Individual data may be presented in a table or
graph, but will contain no identifiable information.

Treatment plans and video recordings will be temporarily stored on Dropbox® for the first 72
hours after you upload them. For long-term storage, the word files and video files will be
transferred to an encrypted password protected hard drive, which is locked in a filing cabinet in a
locked office in Wood Hall, at Western Michigan University, which only project staff members
have keys to. Seven years after the completion of the study, all data will be shredded and
securely deleted from hard-drives, unless the data are submitted for publication to a scholarly
journal. If data are published in a journal, we will maintain the records for 7 years after
publication for verification purposes. After 7 years, the data and CD-ROMs will be shredded.
When the results of the research are published or discussed in conferences, no information will
be included that would reveal your identity.

What if you want to stop participating in this study?
Your consent for participation in this research is VOLUNTARY. If you choose not to participate,
that will not affect your relationship with Western Michigan University. If you decide to
participate, you are free to withdraw your consent and discontinue participation at any time
without prejudice to your future at Western Michigan University. Simply call Rebecca
Wiskirchen or send her an e-mail indicating so. You may also choose to not give permission to
enroll in the study. The investigator can also decide to stop your participation in the study
without your consent.

Should you have any questions prior to or during the study, you can contact the co-principle
investigator, Rebecca Wiskirchen at 480-540-9669 or rebecca.r.wiskirchen@wmich.edu. You
may also contact the Chair, Human Subjects Institutional Review Board at 269-387-8293 or the
Vice President for Research at 269-387-8298 if questions arise during the course of the study.

I have read this informed consent document. The risks and benefits have been explained to me. I
agree to take part in this study.

Please Print Your Name
..................................................................................  Date:____________________

Electronic Signature of Participant
Your consent to participate in this study will be implied by completing and submitting this survey. Once consent is obtained, you will receive an anonymous participant number to use on subsequent survey responses.

*This consent document has been approved for use for one year by the Human Subjects Institutional Review Board as indicated by the stamped date and signature of the board chair in the upper right corner. Do not participate in this study if the stamped date is older than one year.*
Appendix B

Recruitment Emails and Facebook Posts
Hello BCBAs and those training to sit for the exam!

Becky Wiskirchen, a doctoral student at WMU under the supervision of Dr. Stephanie Peterson, is in need help with her dissertation. Participants who complete the study can choose between a $30 Amazon gift card (first 60 participants) or an opportunity to earn 1 free Type 2 CEU. If you or anyone you know is a newly certified BCBA (5 years or less) or if you are eligible to sit for the BCBA exam (i.e., have a master’s degree, completed required coursework, and completed supervised fieldwork hours), you can participate in this study.

As you know, function-based treatments for problem behavior have been shown to be more effective than treatments that are not based on function. In addition, the BACB's Professional and Ethical Compliance code urges us to consider contextual variables when selecting treatment. For her dissertation, Becky is interested in examining the effects of a decision tree on treatment selection behavior in newly certified BCBAs and examination-eligible individuals. The study can take place online or in person (if travel to WMU is preferable), and will require 1-3 hours of a participant’s time. The study will be open until 6/16/2017. Questions concerning this research may be addressed to rebecca.r.wiskirchen@wmich.edu.

Survey Link: https://wmichcas.qualtrics.com/jfe/form/SV_cNQ7H9bQ7AXeRWB

THANK YOU!

BACB Academic Research Campaign:

Hello BACB Certificant,

As we know, function-based treatments for problem behavior have been shown to be more effective than treatments that are not based on function. In addition, our Professional and Ethical Compliance code urges us to consider contextual variables when selecting treatment. For my dissertation, I am interested in examining the effects of a decision tree on treatment selection behavior in certified BCBAs. If you have been certified for five years or less, and are interested in participating, please click the link below. The study will take place over 2 sessions and will take 1-3 hours to complete. Following your participation, you will be offered a choice of incentives including an opportunity to earn 1 free Type 2 CEU, or a $30 Amazon Gift card (for the first 85 respondents). Questions concerning this research may be addressed to rebecca.r.wiskirchen@wmich.edu.

Survey Link: https://wmichcas.qualtrics.com/jfe/form/SV_3F4qtiMXzv66xyR

Thank you in advance for considering this research.

Best,
Becky Wiskirchen
Facebook recruitment:

One of our doctoral students, Becky Wiskirchen, is completing her dissertation. She is looking for participants. Please consider participating if you are a BCBA, and please share widely on Facebook. (WMU’s HSIRB has reviewed and approved this project and its dissemination on Facebook.)

As we know, function-based treatments for problem behavior have been shown to be more effective than treatments that are not based on function. In addition, our Professional and Ethical Compliance code urges us to consider contextual variables when selecting treatment. For my dissertation, I am interested in examining the effects of a decision tree on treatment selection behavior in certified BCBA's. If you have been certified for five years or less, and are interested in participating, please click the link below. The study will take place over 2 sessions and will take 1-3 hours to complete. Following your participation, you will be offered a choice of incentives including an opportunity to earn 1 free Type 2 CEU, or a $30 Amazon Gift card (for the first 85 respondents). Questions concerning this research may be addressed to rebecca.r.wiskirchen@wmich.edu.

Survey Link: https://wmichcas.qualtrics.com/jfe/form/SV_3F4qtiMXzv66xyR

Thank you in advance for considering this research.

Letter to Directors:

Subject: Dissertation Study: Effects of Selection Tools on BCBA's Decision Making Behavior

Dear Dr. __________.

I am writing to you today to request your assistance with recruiting participants for my dissertation study, under the supervision of Dr. Stephanie Peterson at Western Michigan University (WMU). I am looking for participants who are either eligible to sit for the BCBA exam (i.e., have a master’s degree, completed required coursework, and completed supervised fieldwork hours), or who have been certified as a BCBA or BCBA-D in the last five years. Participants who complete the study will be offered an incentive of either a $30 Amazon gift card (first 60 participants) or an opportunity to earn 1 free Type 2 CEU. (WMU’s HSIRB has reviewed and approved this project and its dissemination through ABA Program Directors and Coordinators.)

As we know, function-based treatments for problem behavior have been shown to be more effective than treatments that are not based on function. In addition, the BACB’s Professional and Ethical Compliance code urges us to consider contextual variables when selecting treatment. For my dissertation, I am interested in examining the effects of a decision tree on treatment
selection behavior in newly certified BCBA and examination-eligible individuals. The study can take place online or in person (if travel to WMU is preferable), and will require 1-3 hours of a participant’s time. The study will be open until 6/16/2017. Questions concerning this research may be addressed to rebecca.r.wiskirchen@wmich.edu.

Survey Link: https://wmichcas.qualtrics.com/jfe/form/SV_cNQ7H9bQ7AXeRWB

If you are able and willing, I would appreciate your assistance with disseminating this study to individuals within your program who may qualify. Thank you in advance for considering this research.

Sincerely,
Becky Wiskirchen
Appendix C

Demographics Questionnaire
Demographics Questionnaire

Profession
- Teacher
- Social Worker
- Case Manager
- Clinical Supervisor
- Administrator
- Faculty
- Behavior Specialist
- Other ___________________

Age
- 18-25 years old
- 26-35 years old
- 36-45 years old
- 46-55 years old
- 56-65 years old
- 66-75 years old
- 76-85 years old
- 86-95 years old

Highest degree
- Master’s degree
- Doctoral degree

Field of graduate degree (may check more than one)
- Psychology
- Education
- Social Work
- Medicine
- Other ________________

In what setting did you complete your supervised field experience? (may check more than one)
- Home
- School
- Clinic
- Hospital
- Other ________________
What type of program did you complete your coursework for your BCBA?
   ☐ In person
   ☐ Online
   ☐ Hybrid

Was your BCBA coursework obtained outside of your graduate degree program?
   ☐ Yes
   ☐ No

What type of supervised field experience did you receive? (may check more than one)
   ☐ Intensive University Practicum
   ☐ University Practicum
   ☐ Supervised Independent Fieldwork

How many FBAs have you conducted?
   ☐ 0
   ☐ 1-5
   ☐ 6-10
   ☐ 11-20
   ☐ 21-30
   ☐ more than 30

Of those FBAs, how many have included FAs?
   _______________

As part of your practice, do you write behavior intervention plans?
   ☐ Yes
   ☐ No

If yes, do you write behavior intervention plans for escape maintained problem behavior?
   ☐ Yes
   ☐ No
Appendix D

Vignette 1
You have received a referral from the IEP team to conduct a Functional Behavior Assessment and from that, design a behavior support plan for Charlie. Charlie is a 6-year-old child, in the first grade, who is vocal verbal and displays severe property destruction at school. He has an educational diagnosis of emotional impairment (EI) and is currently meeting all of his first grade academic benchmarks in the current curriculum. The school utilizes an evidence-based curriculum approved by the school district. Charlie is in a general education classroom for the entire day, with 23 other students, and one general education teacher. The special education teacher provides assistance in math, but is struggling to get Charlie to complete his work in class. Charlie seems to really like art class, gym, and computer class, and doesn't have any issues during those subjects. When he is given an independent assignment in math or reading, he typically begins by whining that it is too hard, and then he crumples up his paper. If the special education teacher is present, she will straighten out his paper, and then he often tears it up or breaks his pencil. If she continues to present demands, he will tip his desk over and hide behind it. After multiple times knocking his desk over, he has actually broken two desks, which have resulted in an in-school suspension in the principal’s office. Last week he tipped his desk over and it landed on another student’s foot, breaking the student’s foot. He was sent home for a two-day suspension for aggression towards peers. The general education teacher reports that when the special education teacher is in the room, she feels better because there is someone to help. However, when she is the only adult in the room, she does not press him or make him do his work because she is afraid of him destroying the classroom. The general education teacher does not have consistent access to paraprofessional support, is concerned that Charlie’s behavior is affecting the learning of the other students, and would like some strategies to make the behavior to stop.

You begin your assessment by observing in the classroom. You ask the teacher if you can see her lesson plan, to which she responds that she doesn’t use one since all of the lessons in the
curriculum are scripted. You watch her teaching math and reading to the class. You see very few opportunities to respond and the teacher praise rates are about one every five minutes. Most of her attention is presented to the one or two students who raise their hands to answer her questions. When Charlie begins to act out, she reminds him that he needs to try his best. During independent work, Charlie gets up to ask the teacher a question, and she tells him he needs to raise his hand and wait at his desk. He goes back to his seat and raises his hand, but before the teacher can get to him, another student raises her hand and the teacher goes to that student to help. After your observation, the teacher tells you that she doesn't know what to do. She knows he should raise his hand, but she states that she struggles managing Charlie and all of the other students who also need help. When the special education teacher comes into assist for math, Charlie has already ripped up three papers and broken two pencils. You continue your observation, and complete the functional behavior assessment, including a functional analysis. The results from the functional behavior assessment show a clear escape function. In other words, when a math or reading assignment is presented, property destruction is negatively reinforced by the removal or delay of the assignment.

Design and type a function-based and contextually relevant treatment plan below. Be sure to detail why the principles of behavior that are being applied should work in your intervention. Please “think aloud” and make vocal statements about any of the treatments you are considering or using in your plan, and if there are multiple treatments you are considering, why you are choosing one over another. When you are finished and your plan is complete, be sure stop the Debut® recording and save it somewhere, and then follow the instructions to upload it to Dropbox.
Appendix E

Vignette 2
You have received a referral for a fifteen-year-old name Alice, who is receiving home services from a local ABA company. Alice has Down syndrome with a severe cognitive impairment, and is currently functioning at an 18-24-month level. She has been receiving intensive ABA services for the past 8 years, working through programs designed by her BCBA that are based on the VB-MAPP assessment. She is currently learning some listener responding and visual discrimination skills. Her BCBA is new to her case and has little experience with problem behavior, so they have asked you to help her conduct a functional behavior assessment with a functional analysis. Alice displays self-injurious behavior where she bites her hand and slaps her face enough to leave a red mark on her cheek. Her thumb area is calloused from biting, and if she gets really upset, she will bite so hard her knuckles bleed. One time she slapped herself hard enough on her face to leave a bruise on her cheek. Her mom reports being worried that she is going to eventually punch herself in the face and break her nose or get a concussion. She has also had to go to the doctor and get antibiotics because if she breaks the skin on her hand and continues to bite it throughout the day, the skin gets infected. The new BCBA thinks the behavior is escape maintained because it only happens when someone asks Alice to do a task that she does not like. Alice hates it when she her ABA therapists come and make her do DTT at the table. Her BCBA is only familiar with escape extinction, and tried it once, blocking Alice at the DTT table, but after Alice escalated to the point where she had slapped herself continuously for 5 minutes and made her hand bleed, Alice’s mother stepped in and let Alice have a break. Her BCBA is hesitant to try another intervention, and concerned that Alice’s mother doesn't trust her.

You begin your functional behavior assessment by conducting an observation of a DTT sessions with the ABA therapist and BCBA present. The session begins with the ABA therapist asking Alice to come sit at the table. Alice immediately begins biting her hand and the therapist says, “Nice hands Alice,” while physically prompting her hands down. Alice puts her hands down with the physical guidance and therapist delivers praise and bubbles for having nice hands.
This sequence continues until the BCBA directs the therapist to just work on the couch. The therapist comes over to the couch with her data sheet and flashcards, and places three color cards on the couch in front of Alice and says, “touch blue.” Alice touches red, and the therapist continues to deliver the touch blue $S^{1b}$ with more restrictive prompts until Alice gets it correct with a prompt. After that, she delivers a command to “Clap hands.” Alice claps her hands and the therapist praises, and goes back to Touch Blue. Alice touches blue and the therapist delivers enthusiastic praise and the bubbles. She continues for the next 10 minutes conducting discrete trials from the couch. After that she says, “Alice, let’s go play, and they move to the floor to play Hungry Hungry Hippos.” When the therapist tries to get Alice back to the couch, she again starts biting her hands and slaps her face. The therapist says, “Nice hands Alice,” while physically prompting her hands down. Again, Alice puts her hands down with the physical guidance and therapist delivers praise and bubbles for having nice hands. This time, the BCBA immediately says, we can work on the floor. The therapist delivers more listener responding, motor imitation, and visual perceptual programs from on the floor.

You continue your observations, and then interview the mother. Alice’s mother reports that her main goals are to decrease Alice’s self-injury and to help teach her to become more self-sufficient, as she is not yet toilet trained, and has very few self-help skills. Alice’s mother reports doing most of her daily living activities for her, and she has had to quit her job in order to take care of Alice. She is worried about the amount of support Alice needs and with no siblings, she doesn't know who will take care of Alice when she and her husband are too old to do so. Over the next few weeks you continue your assessment, and conduct a functional analysis. Upon completion of the functional behavior assessment, your results show a clear escape function. In other words, when a demand to transition to another area is presented, self-injury is negatively reinforced by the removal or delay of the task.

**Design and type a function-based and contextually relevant treatment plan below. Be sure to detail why the principles of behavior that are being applied should work in your intervention. Please “think aloud” and make vocal statements about any of the treatments you are considering or using in your plan. When you are finished and your plan is complete, be sure stop the Debut® recording and save it somewhere, and then follow the instructions to upload it to Dropbox.**
Appendix F

Debut Video Capture Instructions and Task Analysis
Debut Video Capture Instructions and Task Analysis

1. In order to make this easiest for you, we are asking that you download Debut screen capture software (http://www.nchsoftware.com/capture/) by clicking the link. This is free, safe software that allows you to record your computer screen as well as your audio. It takes about a minute to download and install. Once you open the application, it should look like this:

![Debut software interface]

2. Also, as seen above in the red oval, make sure that you select .mp4 as the recording type.
3. Then, open the attached vignette, and begin recording by hitting the record button in Debut (red circle).
   a. While you are reading the vignette, we ask that you “think aloud” by vocally tacting your thoughts and reactions to the vignettes as well as what treatments you are thinking about.
   b. When you are developing your treatment plan, as much information as you can give vocally about why you selected the treatment you are using would be helpful. As much as possible, try to “think aloud” by vocally speaking your thought process.
4. Once you have completed the reading the vignette and typed your treatment plan, please hit the black square stop button on Debut.
5. Then, go to the recordings tab (5th from the left on the top) in the Debut program and save your recording to your desktop or other place on your computer that you can easily find it.
6. Finally, if you could upload it to my dropbox using the following link https://www.dropbox.com/request/bQOLDLnNghmkuRM21nxJ, you will see this screen:

7. Select choose files and select the video file you just recorded.
8. If you are not logged into dropbox, it will ask you for your name and email. You can either put your real name and email, or just type anything into the name boxes and use my email rebecca.r.wiskirchen@wmich.edu.
   a. If you are logged into dropbox, your screen will look slightly different, like this:
You can either submit the file through your dropbox account or you can log out and start with step 6 again to submit it anonymously.
Appendix G

Comprehension Questionnaire for Supplemental CEU Activity
Based on Geiger, Carr, & LeBlanc, 2010
Comprehension Questionnaire for Supplemental CEU Activity
Based on Geiger, Carr, & LeBlanc, 2010

1. According to the article, what is one of the most, if not the most common function for problem behavior in individuals with developmental disabilities:
   a. Attention
   b. Escape
   c. Tangible
   d. Sensory/Automatic

2. Current treatments for problem behavior should be based on results of what?

3. In what ways do treatments address the function of the problem behavior? (Select all that apply)
   a. Weakening the motivating operation
   b. Eliminating the contingency through extinction
   c. Prompting the individual to take control of their behavior
   d. Teaching a more appropriate way to access the reinforcer
   e. Talking about why the alternative response will obtain the reinforcer

4. What types of behavior do the authors focus on treating?
   a. PICA
   b. Automatically reinforced problem behavior
   c. Escape maintained problem behavior
   d. Severe self-injury
   e. Maladaptive behavior

5. What are some of the treatments that the authors suggest for escape-maintained problem behavior?

6. Why do the authors choose not to include punishment procedures in their overview of effective treatments?
   a. Because they are not function-based
   b. Because they are illegal in most states
   c. Because they wanted to explore the full range of function based treatments before considering explicit punishment procedures
   d. Because punishment procedures require additional explanations and considerations that are outside the scope of this paper

7. Activity choice is best described as
   a. Offering a choice among selected tasks
   b. Offering a choice about whether or not to complete tasks
   c. Offering a choice of preferred activities after a task is completed
   d. Offering a choice of gross motor activities
8. One strength of activity choice interventions is
   a. Actively targets new skills or increases existing ones
   b. Provides a contingency for problem behavior
   c. Requires an appropriate curriculum be in place
   d. No lost instructional time

9. One limitation of activity choice intervention is
   a. Might prevent problem behavior
   b. Requires learners who can tolerate some instruction
   c. Actively targets new skills or increases existing ones
   d. Provides a contingency for problem behavior

10. Demand fading is best described as
    a. Begin with most intrusive prompt and slowly fade prompts over time until the client does the task independently
    b. Remove all demands, then gradually reintroduce them over time, include escape extinction
    c. Provide a break from work if the problem behavior has not occurred
    d. Continue presenting the task regardless of the problem behavior

11. One limitation of demand fading is
    a. Periods of no instruction could be too disruptive to classroom activities
    b. Doesn't reduce problem behavior immediately
    c. Might increase tolerance of instruction
    d. Hard to use with large clients or dangerous behavior

12. Functional Communication Training is best described as
    a. Providing prompts or facilitated guidance to spell out words
    b. Changing curricular targets to language acquisition
    c. Removing all demands, and gradually reintroducing them
    d. Provide a break from work for a new, communicative response and place the problem behavior on extinction

13. What are two major concerns with implementing an extinction procedure? (select two)
    a. May result in high rates of the communicative response
    b. High response effort of implementation
    c. No programmed consequence for problem behavior
    d. Cannot be combined with other treatments
    e. Might make behavior more resistant to extinction without strong treatment integrity
14. What is one limitation of Non-contingent escape?
   a. May produce adventitious reinforcement of problem behavior
   b. Might make behavior more resistant to extinction without strong treatment integrity
   c. Doesn’t reduce problem behavior immediately
   d. Can’t be used without extinction

15. What is one added benefit of curricular and instructional revision?
   a. No programmed consequences for problem behavior
   b. Results in improvements in teaching which could benefit other learners
   c. May produce more reinforcement for replacement behaviors
   d. Easy to change

16. Why do we need a clinical model for treatment selection?
   a. To validate clinicians’ treatment selection
   b. To ensure clinicians are selecting function based treatments
   c. There are too many environmental contingencies and client variables that should be considered when selecting treatment, and they may be difficult to prioritize
   d. To decrease risk of potential harm to clients

17. Why do the authors present the appropriateness of the curriculum and instructional procedures as their first question? (select all that apply)
   a. Before proceeding to teach clients to tolerate an ineffective learning environment, the behavior analyst must promote an effective learning environment.
   b. The learning environment may be aversive, thus eliciting an escape response, because it is too hard or above the client’s current capabilities.
   c. The learning environment should allow the client to make their own choices about activities.
   d. It is the least effortful change in the hierarchy, and thus the least intrusive.

18. According to the authors, what types of situations/environments not tolerate a single instance of problem behavior, as described in the second question?
   a. The client is too big to physically manage
   b. The behavior would produce a safety risk to the client
   c. The environment doesn’t have enough support staff
   d. All of the above
   e. A & B only

19. According to the authors, what is the third consideration practitioners should make when selecting treatments for escape maintained problem behavior?
   a. Is time away from instruction tolerable?
   b. Are there any demands to which the client currently complies?
   c. Can the caregiver implement multi-component treatments?
   d. What is the most important clinical/educational goal?
20. When thinking about treatments to use when time away from instruction isn’t tolerable, what are some of the common concerns with using extinction?
   a. Requires additional preparation for materials
   b. Requires high response effort
   c. Supervision of the learner when away from the learning group
   d. Loss of instructional opportunities

21. What is one example of tolerance to an aversive event that the authors suggest?
   a. Necessary medical procedures
   b. School environments
   c. Sensory input
   d. Non-preferred work demands

22. According to the model, how many treatments should be implemented at once?
   a. One at a time
   b. Two – an antecedent intervention and a consequence intervention
   c. As many as are appropriate
   d. Component Packages are most effective

23. Referring to question 22, what are the authors’ rationales for recommending that?
   a. Some treatments enhance the effects of another treatment
   b. Some treatments may interfere with each other
   c. Single interventions have higher treatment fidelity
   d. All of the above
   e. B & C
Appendix H

Scoring Rubrics for Vignettes 1 & 2
## Treatment Design Scoring Rubric: Charlie Vignette #1

### Participant Code: ________  
### Group: ________

<table>
<thead>
<tr>
<th>Question</th>
<th>Score Options</th>
</tr>
</thead>
</table>
| **1** Is this an empirically supported treatment for escape maintained  | 0 – If the treatment chosen is not based on negative reinforcement  
| problem behavior?                                                      | 1 – treatment addresses some form of negative reinforcement  
|                                                                        | 2 – Labels NCR, Choice, FCT, DRA (negative reinforcement), DRO (negative reinforcement), Demand Fading, or Escape Extinction or describes any of these procedures   |
|                                                                        | Multiply by 0.25 = ________                                                                                                                    |
| **2** If curriculum is inadequate, does the treatment address         | 0 – Suggests the curriculum needs to change  
| curriculum?                                                            | 2 – does not suggest a change in the curriculum or suggests and additional assessment                                                                 |
| **3** If the delivery of instruction is poor, does the treatment       | 0 – No suggestions for delivery of instructions  
| address improving the instruction?                                      | 1 – Makes 1 suggestion such as increasing opportunities to respond or increasing praise rates or adding a lesson plan  
|                                                                        | 2 – suggests adding in at least 2/3 of the following components: lesson plan, increasing opportunities to respond for all students during learning trials, suggests an increase in reinforcement and praise for appropriate behaviors |
| **4** Does the treatment address the current repertoires of caregivers  | 0 – No suggestions of teacher training  
| or support staff?                                                      | 2 – Makes suggestion of teacher training for classroom management positive behavior supports                                                                 |
| **5** Were staff/caregiver ratios addressed?                           | 0 – No suggestions for teacher/staff ratios  
|                                                                        | 2 – suggestion for an increase in teacher ratio                                                                                               |
| **6** Does the treatment address the staff or caregiver's goals for    | 0 – Does not address prevention goal  
<p>| intervention?                                                          | 2 – Does address prevention goal (NCR) and/or addresses additional teaching goals of adding in a communicative replacement behavior                  |</p>
<table>
<thead>
<tr>
<th>Question</th>
<th>Scoring Criteria</th>
<th>Response Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>Can the current caregivers or staff adequately administer the treatment?</td>
<td>0 – If treatment is complex (choice, DRO, DRA + Demand Fading) or adds safety risk (escape extinction) and no additional staff are recommended</td>
</tr>
<tr>
<td>8</td>
<td>If the treatment evokes problem behavior, can the current environment manage it?</td>
<td>0 – If escape extinction is used in the general education classroom</td>
</tr>
<tr>
<td>9</td>
<td>If extinction is used, are necessary safety precautions in place depending on the topography of behavior?</td>
<td>0 – Escape extinction in general education classroom with no additional staff or safety precautions</td>
</tr>
<tr>
<td>10</td>
<td>Does the treatment address current setting expectations (ex: follow through on demands)?</td>
<td>0 – Treatment does not focus on increasing appropriate classroom behavior</td>
</tr>
<tr>
<td>11</td>
<td>Does the treatment consider the client's current skill repertoire?</td>
<td>0 – Replacement behavior is either too hard or too easy (not appropriate for a child who talks) for the student to engage in</td>
</tr>
<tr>
<td>12</td>
<td>Does the treatment address motivational variables for the client</td>
<td>0 – Negative reinforcement is not used as a consequence for appropriate behavior, or is used as a consequence for inappropriate behavior</td>
</tr>
</tbody>
</table>

Add scores for questions 2-12, then divide by 22, then multiply by 0.5: \((\text{____}/\text{22}) \times 0.5 = \) __________

Add Total from Question #1, to number listed above: \(\text{____} + \text{____} = \) ____
## Treatment Design Scoring Rubric: Alice Vignette #2

**Participant Code: __________**

**Group: __________**

<table>
<thead>
<tr>
<th>Question</th>
<th>0 – If the treatment chosen is not based on negative reinforcement</th>
<th>1 – treatment addresses some form of negative reinforcement</th>
<th>2 – NCR, Choice, FCT, DRA (negative reinforcement), DRO (negative reinforcement), Demand Fading, or Escape Extinction</th>
<th>Multiply by 0.25 =________</th>
</tr>
</thead>
<tbody>
<tr>
<td>1  Is this an empirically supported treatment for escape maintained problem behavior?</td>
<td>0 – Does not suggest the curriculum needs to change</td>
<td>2 – Suggests a change in the curriculum or suggests and additional assessment related to functional skills</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2  If curriculum is inadequate, does the treatment address curriculum?</td>
<td>0 – No suggestions for delivery of instructions</td>
<td>1 – Makes at least 1 suggestion to improve instruction such as delivering more Natural Environment Training (NET)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3  If the delivery of instruction is poor, does the treatment address improving the instruction?</td>
<td>0 – No suggestions of parent training or respite care worker training</td>
<td>1 – Makes suggestion of parent training OR respite care worker training</td>
<td>2 – Makes suggestion of parent training AND respite care worker training</td>
<td></td>
</tr>
<tr>
<td>4  Does the treatment address the current repertoires of caregivers or support staff?</td>
<td>0 – No suggestions of parent training or respite care worker training</td>
<td>1 – Makes suggestion of parent training OR respite care worker training</td>
<td>2 – Makes suggestion of parent training AND respite care worker training</td>
<td></td>
</tr>
<tr>
<td>5  Were staff/caregiver ratios addressed?</td>
<td>0 – Suggestion for caregiver ratio</td>
<td>2 – No suggestion for an increase in caregiver ratio</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6  Does the treatment address the staff or caregiver's goals for intervention?</td>
<td>0 – Does not address mom’s goal for teaching independent skills</td>
<td>1 – Addresses the communication goal or the tolerance goal, or the teaching goal</td>
<td>2 - Addresses at least 2/3 goals for communication, tolerance, and teaching independent skills</td>
<td></td>
</tr>
<tr>
<td>Question</td>
<td>Description</td>
<td>Yes</td>
<td>No</td>
<td>Score</td>
</tr>
<tr>
<td>----------</td>
<td>-------------</td>
<td>-----</td>
<td>----</td>
<td>-------</td>
</tr>
<tr>
<td>7</td>
<td>Can the current caregivers or staff adequately administer the treatment?</td>
<td>0 – If treatment is complex (choice, DRO, DRA + Demand Fading) or adds safety risk (escape extinction) and no caregiver training or respite care training is recommended</td>
<td>1 – If treatment suggests NCR with no additional training</td>
<td>2 – If treatment is complex (choice, DRO, DRA + Demand Fading) or adds safety risk (escape extinction) and caregiver training or respite care training is recommended</td>
</tr>
<tr>
<td>8</td>
<td>If the treatment evokes problem behavior, can the current environment manage it?</td>
<td>0 – If escape extinction is used with no explanation to mom</td>
<td>1 – If escape extinction is used with an explanation of extinction bursts</td>
<td>2 – If escape extinction is used with mom’s approval and additional training for mom and other caregivers</td>
</tr>
<tr>
<td>9</td>
<td>If extinction is used, are necessary safety precautions in place depending on the topography of behavior?</td>
<td>0 – Escape extinction with no additional safety precautions</td>
<td>1 – Escape extinction with additional safety precautions</td>
<td>2 – Escape extinction with additional safety precautions and BCBA present to provide training and support to caregivers</td>
</tr>
<tr>
<td>10</td>
<td>Does the treatment address current setting expectations (ex: follow through on demands)?</td>
<td>0 – Treatment does not focus on increasing functional daily living skills or communication skills.</td>
<td>1 – Treatment focuses on functional skills or communication.</td>
<td>2 – Treatment suggests a functional approach along with mand training.</td>
</tr>
<tr>
<td>11</td>
<td>Does the treatment consider the client’s current skill repertoire?</td>
<td>0 – Replacement behavior is either too hard or too easy for the student to engage in</td>
<td>2 – Replacement behavior includes at least 2/3 of the following: simple mand training, learning to wait for the break, and demand fading</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Does the treatment address motivational variables for the client</td>
<td>0 – Negative reinforcement is not used as a consequence for appropriate behavior or non-contingently, or is used as a consequence for inappropriate behavior</td>
<td>1 – Negative reinforcement is used as a contingency for appropriate behavior or non-contingently</td>
<td>2 - Negative reinforcement is used as a contingency for appropriate behavior or non-contingently, and is thinned as behavior improves</td>
</tr>
</tbody>
</table>

Add scores for questions 2-12, then divide by 22, then multiply by 0.5

$$\frac{\text{____}}{22} \times 0.5 = \text{____}$$

Add Total from Question #1, to number listed above.

$$\text{____} + \text{____} = \text{____}$$