

In this Issue



THE EVERGREEN

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Report

An Assessment of an Interactive Computer Training Program to Teach Staff to Implement Preference Assessments

James Sherman,
M.Ed., BCBA, LABA

Joseph Vedora,
Ed.D., BCBA-D, LABA

Page 2

An Evaluation of a Blocked-Trial Procedure to Teach Receptive Labeling

James Sherman,
M.Ed., BCBA, LABA

Joseph Vedora,
Ed.D., BCBA-D, LABA

Page 6

The Evaluation and Treatment of Self-Injury

Rachel Schwartz,
MSW, LICSW, BCBA

John Ward-Horner,
Ph.D., BCBA-D, LABA

Page 8

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Evergreen’s standard for successful instruction is social competence and community participation. We believe children will develop to their maximum potential when instruction is woven through daily activities and living environments. Evergreen uses Applied Behavior Analysis as the cornerstone of its instruction.

THE EVERGREEN REPORT is an informational resource for special education professionals and behavior analysts that provides updates on empirically validated developments in the education and community living of children and adults with intellectual disabilities.



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An Assessment of an Interactive Computer Training Program to Teach Staff to Implement Preference Assessments

James Sherman, M.Ed., BCBA, LABA

Joseph Vedora, Ed.D., BCBA-D, LABA

ABSTRACT: Interactive Computer Training (ICT) has become increasingly popular in human service organizations due to the convenience and savings of resources (e.g., expert trainer time). While several studies suggest that ICT may be effective for teaching staff new skills, it is not clear if ICT can be used to effectively teach staff to complete multi-step tasks. The present study evaluated ICT and assessed if multiple exposures to ICT enhanced its effectiveness. The results indicated that ICT alone was not sufficient for most of the staff to learn the multi-step task. Despite the benefits of ICT, additional procedures such as modeling and feedback may be required when teaching staff more complex clinical skills.

Over the last ten years, improvements in technology have continued to drive learning and training models online. Previous studies indicated that online and in-person learning often demonstrate no statistical difference between groups (Root & Rehfeldt, 2021). Interactive Computer Training (ICT) applications are an improvement from video-based or text-based learning, with built-in methods to keep learners engaged throughout the training module (Geiger, 2018). ICT is a training model that incorporates interactive components, such as quizzes, matching activities, task simulation, and others, to keep learners engaged with the training content throughout the presentation. This active engagement helps provide some assurance that the learner attends to the content, which may not be the case in earlier computer-training models where participants must only click a button to advance the content (Higbee et al., 2016; Pollard, 2014; Johnson & Rubin, 2011).

At the Evergreen Center, the Professional Development department utilizes ICT through a Training-on-Demand (TOD) system that allows staff to access trainings remotely. The use of TOD has several advantages, such as permitting staff to access trainings remotely and complete them outside of their scheduled shift and reducing the resources (e.g., expert trainer time) needed when delivering trainings in-person. However, one potential limitation to the use of ICT is that it may be insufficient for establishing clinical skills that require staff to implement multi-step procedures with students. In other words, the knowledge acquired through the completed computer training may not transfer to the use of those new skills in the classroom or residence. While ICT has been demonstrated to be effective at teaching a variety of skills, several studies have incorporated trainer feedback to enhance the effectiveness of ICT. Thus, the purpose of the current study was to determine whether a) the TOD was effective at teaching newly hired staff to complete a preference assessment, b) performance was enhanced by completing the TOD twice, and c) feedback was required for staff to meet mastery criteria.

The current study used ICT to teach newly hired staff how to complete a

Continued on page 3

preference assessment. Preference assessments are commonly used with students to identify preferred items that might serve as effective reinforcers and enhance students' learning. A training was developed that depicted the steps for completing a preference assessment and recording data on the items selected. Six newly hired staff that were in the Evergreen orientation participated in the study. Prior to completing the training, a baseline assessment was conducted in which the staff were provided written instructions describing how to implement the preference assessment. After reviewing the instructions, staff demonstrated implementing the assessment with another adult serving as the student. Staff then completed the training and implemented the assessment again. If they did not meet mastery criterion, staff reviewed the training a second time and practiced implementing the assessment again. If they still did not achieve criterion, an expert trainer provided additional verbal feedback and modeling related to their performance.

Figures 1 and 2 depict staff members' performance during the study. None of the staff met criterion following their review of written instructions. Two staff demonstrated significant improvement following their initial completion of the ICT, increasing their performance by 60-70%. The remaining staff showed little improvement in their performance following their initial training; following their completion of the ICT a second time, three of the staff showed slight improvement but still were not at mastery. All six staff quickly met criterion once feedback or feedback and modeling was implemented.

The results are significant as they suggest that ICT alone may not be sufficient for training new staff to implement assessment or instructional procedures that have multiple steps. While staff showed some improvement, they did not meet the mastery criterion until feedback or feedback and modeling was provided. While ICT offers the benefit of convenience for staff and requires fewer hours of expert trainers' time, it is likely that new staff learning novel skills may require feedback along with the ICT. These results are consistent with current practices at Evergreen where staff complete an ICT using our TOD system and then meet with an expert trainer to ensure they've met the required competencies. While not as efficient as ICT alone, this model is still more efficient (for the trainer and trainees) than an expert trainer providing an in-person training on a topic. Staff can complete the TOD at time that is convenient for them and then schedule a time to meet with a trainer.

There are other considerations that might affect the efficacy of ICT. For example, it's possible that staff with more experience might learn effectively from the ICT alone. It's also possible that the type and complexity of the skill impacts the effectiveness of the ICT. For example, ICT might be effective for skills that have fewer steps or non-clinical skills, such as completing paperwork tasks. Overall, the results of the current study provide additional empirical support for the current Evergreen training model that combines ICT with feedback and modeling. •

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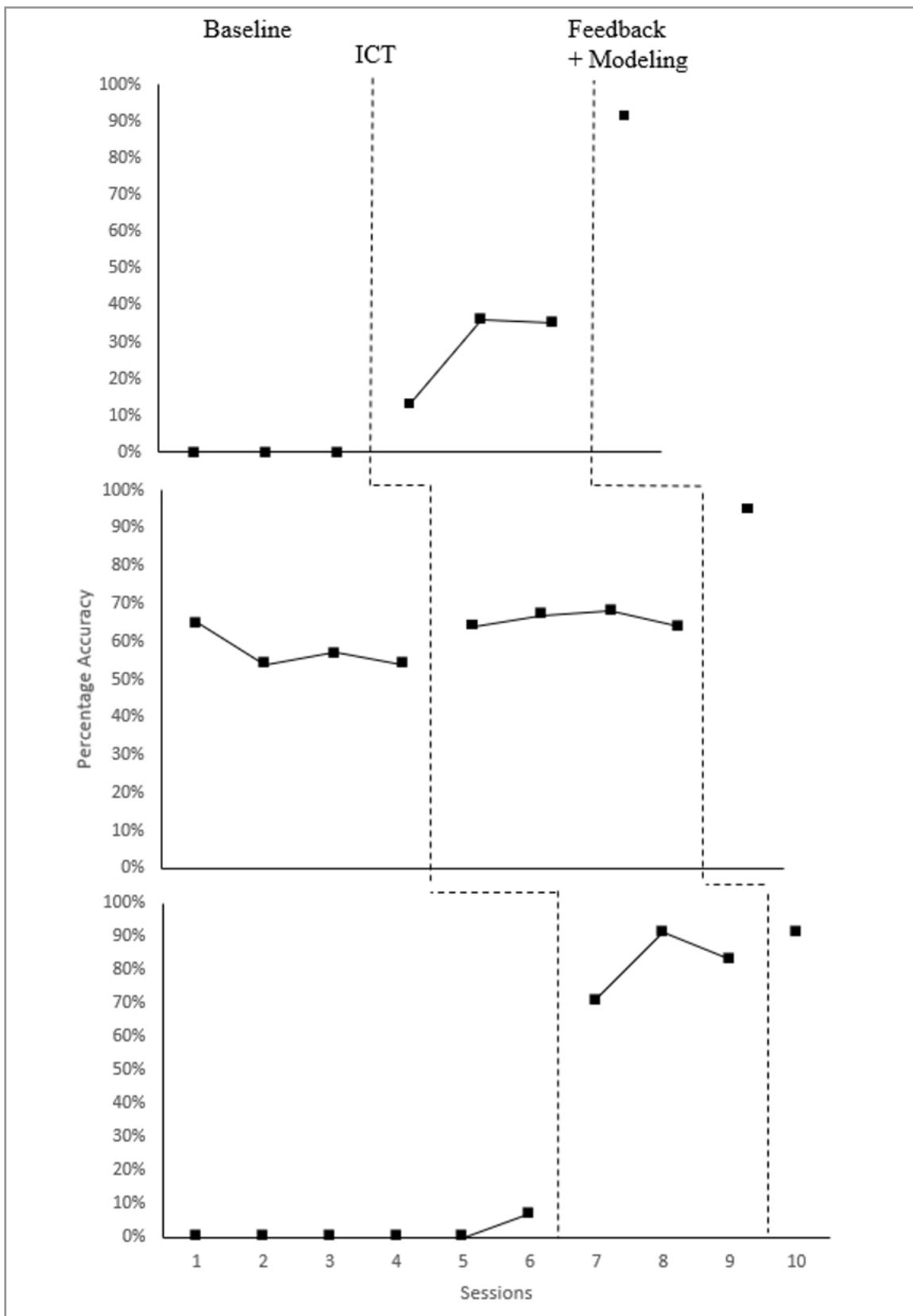


Figure 1: Percentage of steps accurately completed by staff during baseline and following ICT and feedback plus modeling.

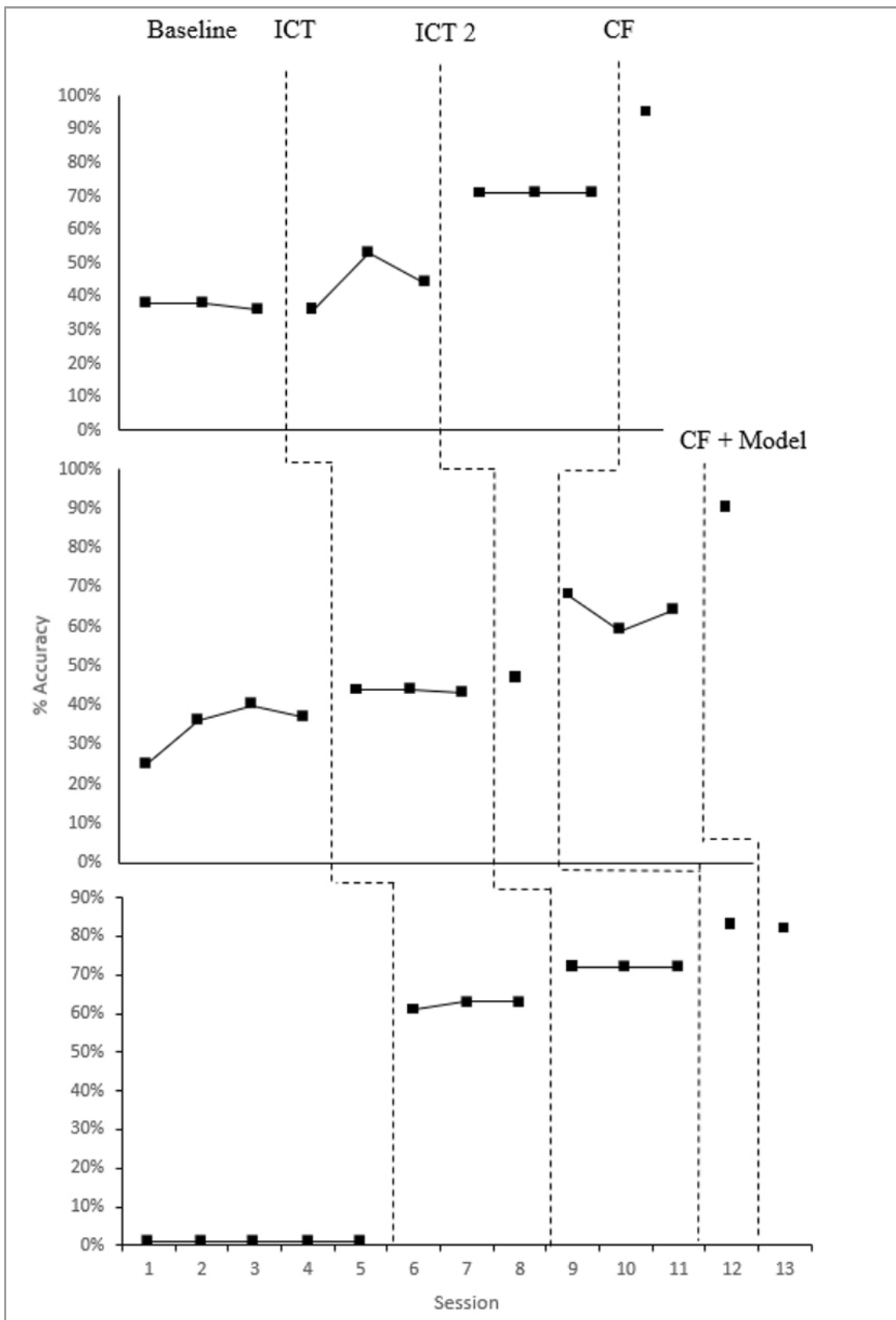


Figure 2: Percentage of steps accurately completed by staff during baseline, and following one ICT, a second ICT, constructive feedback, and constructive feedback plus modeling.



An Evaluation of a Blocked-Trial Procedure to Teach Receptive Labeling

James Sherman, M.Ed., BCBA, LABA

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ABSTRACT: Receptive labeling is an important skill for many learners with Autism Spectrum Disorders (ASD) or other developmental disabilities. It is generally recommended that teachers present pictures in groups of three and vary which picture they ask students to touch within an instructional session. Recent research suggest that presenting “blocks” of trials in which the teacher asks for the same picture across of a series of trials before switching to a second picture for a block of trials may also be an effective procedure. The purpose of this study was to compare a blocked-trial procedure to a mixed-trial procedure. The results indicated that the student learned more quickly in the blocked-trial procedure and maintained accurate responding when the pictures were presented in a mixed format. These findings suggest that some learners may learn more quickly using the blocked-trial procedure.

Receptive identification or labeling is a critical skill for many of our students. Receptive labeling may involve instruction following or hearing a word and selecting a corresponding picture or object that matches the spoken word. For example, while reading a story a teacher might say “where’s the bear?” and the student points to the picture of the bear. When teaching students to identify pictures receptively, a common recommendation is for the teacher to run “mixed trials” where the teacher rotates the target trial by trial. For example, the teacher might run 20 trials of identifying pictures of cat and dog, where the first trial is cat and the second trial is dog, and then continue to alternate these until the instructional session is completed. An alternative method is to run “blocked” trials or several consecutive trials of the same target. For example, if teaching a student to identify pictures of cat and dog the teacher might present 10 trials of identifying the cat followed by 10 trials of identifying the dog. However, some researchers have suggested that the blocked trials may be less preferred because students may begin to anticipate the trial and guess correctly, making it appear as the picture is learned when in fact it is not.

A recent study by Bentham, Walker, Pluym, and Tejada (2019) indicated that the blocked-trial procedure might be effective for some learners. Specifically, the researchers taught two adults with development disabilities to receptively identify Greek symbols. Their results suggested that the blocked-trial procedure was equally effective and, in some cases, more efficient than the mixed-trial procedure. Moreover, when the researchers implemented mixed-trial probes, the learners continued to respond accurately, suggesting that they were not simply anticipating the correct response, but rather they had learned to identify the target stimuli. The purpose of the current project was to replicate the work of Bentham et al. by comparing acquisition of receptive labels taught in the mixed-trial format and the blocked-trial format with younger students (teenagers) rather than adults.

To evaluate the two procedures, one set of pictures was assigned to the mixed-trial condition and another set was assigned to the blocked-trial condition. Pictures

Continued on page 7

were selected based on the goals in the student's IEP with two pictures in each set. The pictures were semi-randomly alternated in mixed-trial sessions with the same picture never occurring on more than two consecutive trials across a total of 32 trials. The blocked-trial sessions consisted of 16 trials of one picture followed by 16 trials of another. A point prompt was used in both conditions along with a prompt delay to remove the prompt. Correct selections resulted in the delivery of praise and a small edible.

The results indicated that the participant learned more quickly in the blocked-trial condition. He met the mastery criterion in 26 sessions in the blocked trial condition but after 35 sessions in the mixed-trial condition he had not met criterion and responding averaged approximately 60% correct. The blocked-trial procedure was then applied to the pictures assigned to the mixed-trial condition. Unfortunately,

training was stopped after two sessions due to the pandemic so we were not able to assess whether the blocked trial procedure would have brought performance to mastery levels. Nonetheless, these findings suggest that for some students, learning to identify pictures might occur more quickly when using the blocked-trial procedure. The results are promising because the participant demonstrated high levels of correct responding when the pictures learned in the blocked-trials were probed in a mixed-trial format. This suggests that the student learned the words and was not merely touching the picture that was correct on the previous trial. While some researchers have suggested that the blocked-trial procedure is best used to remediate learning difficulties, the present findings support the assertion of Bentham et al. (2019) that the blocked-trial procedure may be appropriate as an initial instructional procedure and not just to remediate learning issues. •

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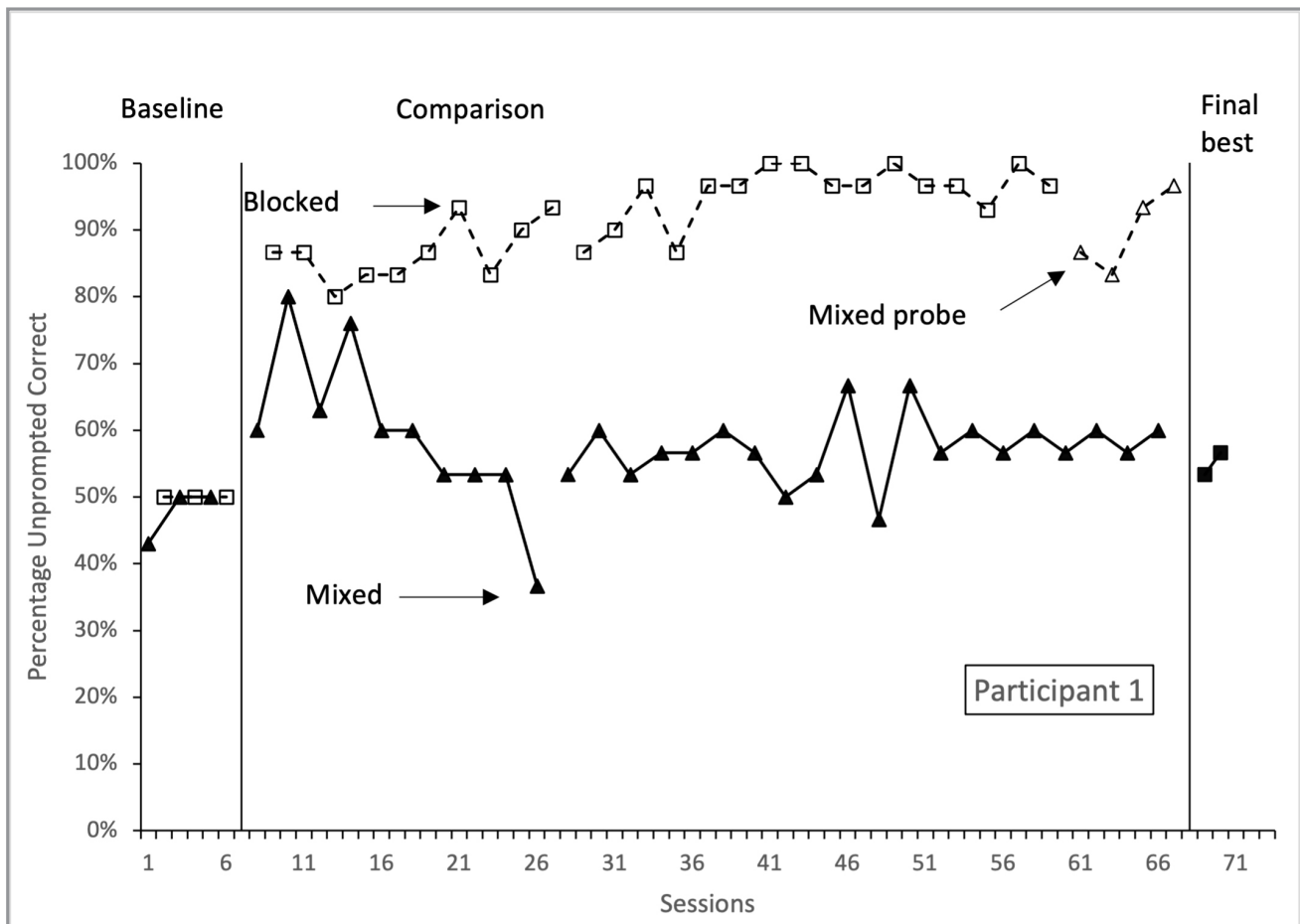


Figure 1: Percentage of unprompted correct response during baseline, training, and the final best treatment phase.



The Evaluation and Treatment of Self-Injury

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John Ward-Horner, Ph.D., BCBA-D, LABA

ABSTRACT: A functional analysis is an assessment that seeks to identify the reason an individual engages in challenging behavior. Once the reason is identified, the information obtained from the functional analysis can be used to develop an effective treatment plan. The current study describes a functional analysis conducted for self-injurious behavior, which indicated that the self-injury was maintained (reinforced) by access to tangible items. A treatment was then developed that resulted in a reduction of self-injury.

Some individuals with disabilities engage in challenging behavior, such as aggression, property destruction, and self-injury. Challenging behavior may be more likely for individuals with limited communication repertoires or those who have not yet learned an effective means of communicating (e.g., requesting). When it is difficult to discern the purpose of challenging behavior (i.e., the outcome it produces), a functional analysis may be warranted to understand the reason why it occurs, so that an effective intervention can be developed. The following case presentation provides an example of the evaluation and treatment of self-injury.

Jack was a 20-year-old student who used an iPad application to communicate. Jack had a history of engaging in head-directed self-injury, which persisted across a variety of contexts and required protective equipment to maintain safety. Anecdotal reports and informal observations suggested that self-injury may be related to access to staff attention or tangible items, but the extent to which these outcomes were related to self-injury was unclear, so a brief functional analysis was conducted to better understand why self-injury occurred.

Several safeguards were put into place while conducting the functional analysis. First, Jack wore a karate style helmet with a face shield so that his hand could not contact his head. Second, rather than reinforce actual instances of self-injury, any instance of Jack bringing his hand within proximity of his head was recorded as an occurrence of self-injury and produced the outcomes described below in the functional analysis conditions.

The functional analysis consisted of evaluating rates of self-injury across three conditions. The control condition was designed to simulate an enriched environment, such that staff remained in proximity to Jack and provided frequent attention and free access to preferred items and food. In the first and third phases of the functional analysis, the control condition was contrasted with a tangible condition to evaluate whether self-injury was more likely when it produced access to items that were freely available in the control condition. Accordingly, in the tangible-test condition, each occurrence of self-injury resulted in 15 seconds of access to preferred items. In the second phase of the functional analysis, the control condition was contrasted with an attention-test condition in which instances of self-injury were followed by 15-s of attention (e.g., Don't hit yourself! Please have safe hands. Can you please put your hands down?).

Continued on page 9

Figure 1 displays the frequency of self-injury (i.e., any instance of Jack raising his hand within 3 inches of his head or making contact the face shield) across conditions and phases. As can be seen, self-injury occurred most often in the tangible-test condition when it was followed by access to preferred items. This outcome suggested that self-injury was, at least in part, due to the availability of preferred items. Based on this information, the effectiveness of two interventions were evaluated. One intervention (differential reinforcement of other behavior or DRO) consisted of access to preferred items following the absence of self-injury, and the second intervention (functional communication training, or FCT) consisted of teaching a functional communication response (i.e., pressing a button on the iPad to request access to items). Figure

2 displays the frequency of self-injury during the two intervention conditions compared to a no intervention condition. Both interventions resulted in a reduction in self-injury relative to the no intervention condition. Following the functional analysis and treatment evaluations Jack was provided a choice of intervention (not depicted in Figures) and he chose each intervention a similar number of times (13 times for one intervention and 15 times for the other), suggesting indifference. The clinical team later decided to combine the interventions into a treatment package, such that Jack could request and receive some items while other items were only available for the absence of self-injury. The intervention package led to a significant reduction in self-injury, and Jack demonstrated tremendous improvement in using his iPad to make requests with limited staff support. •

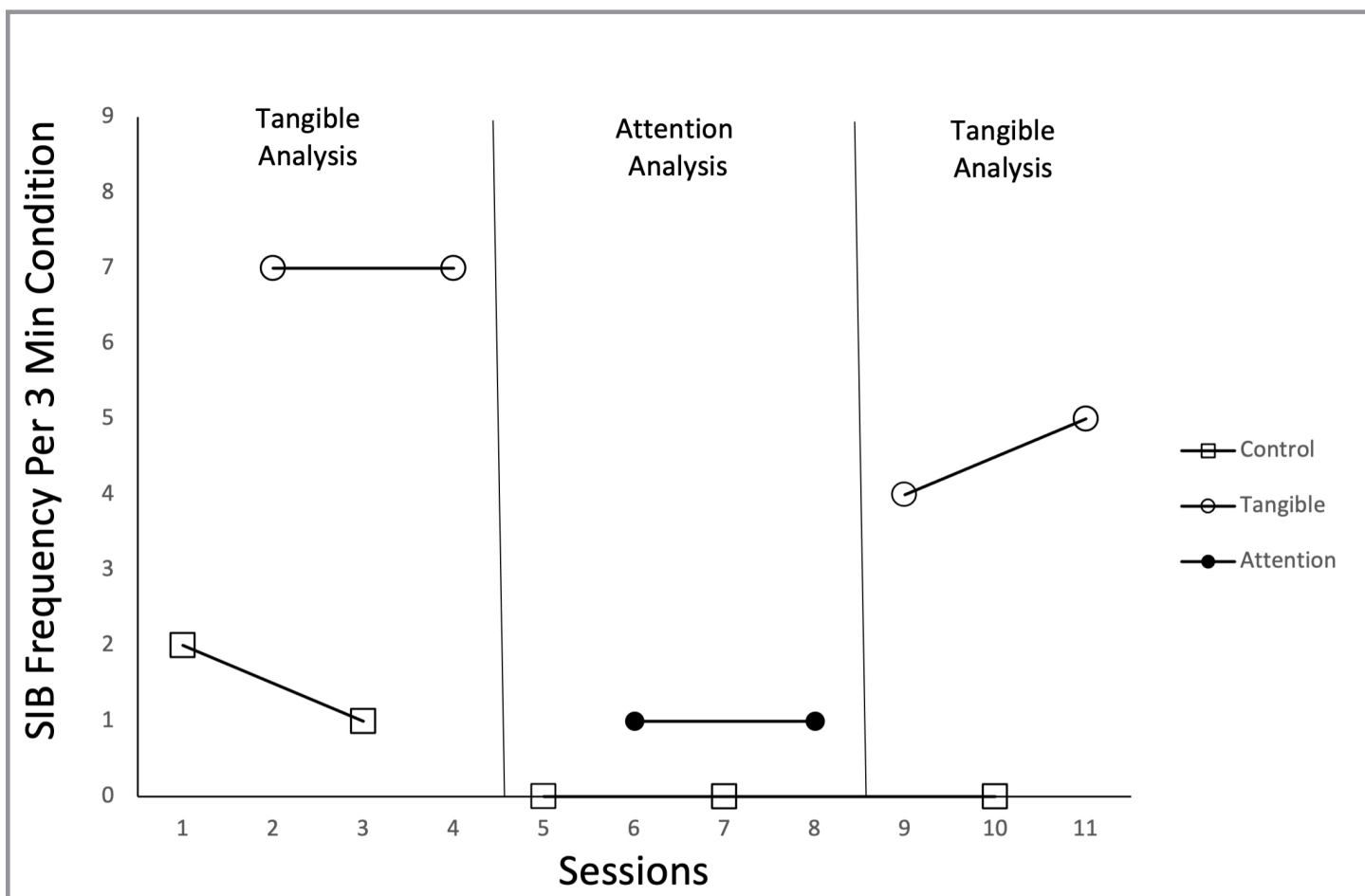


Figure 1: Frequency of self-injurious behavior during the tangible and attention analyses and the control condition.

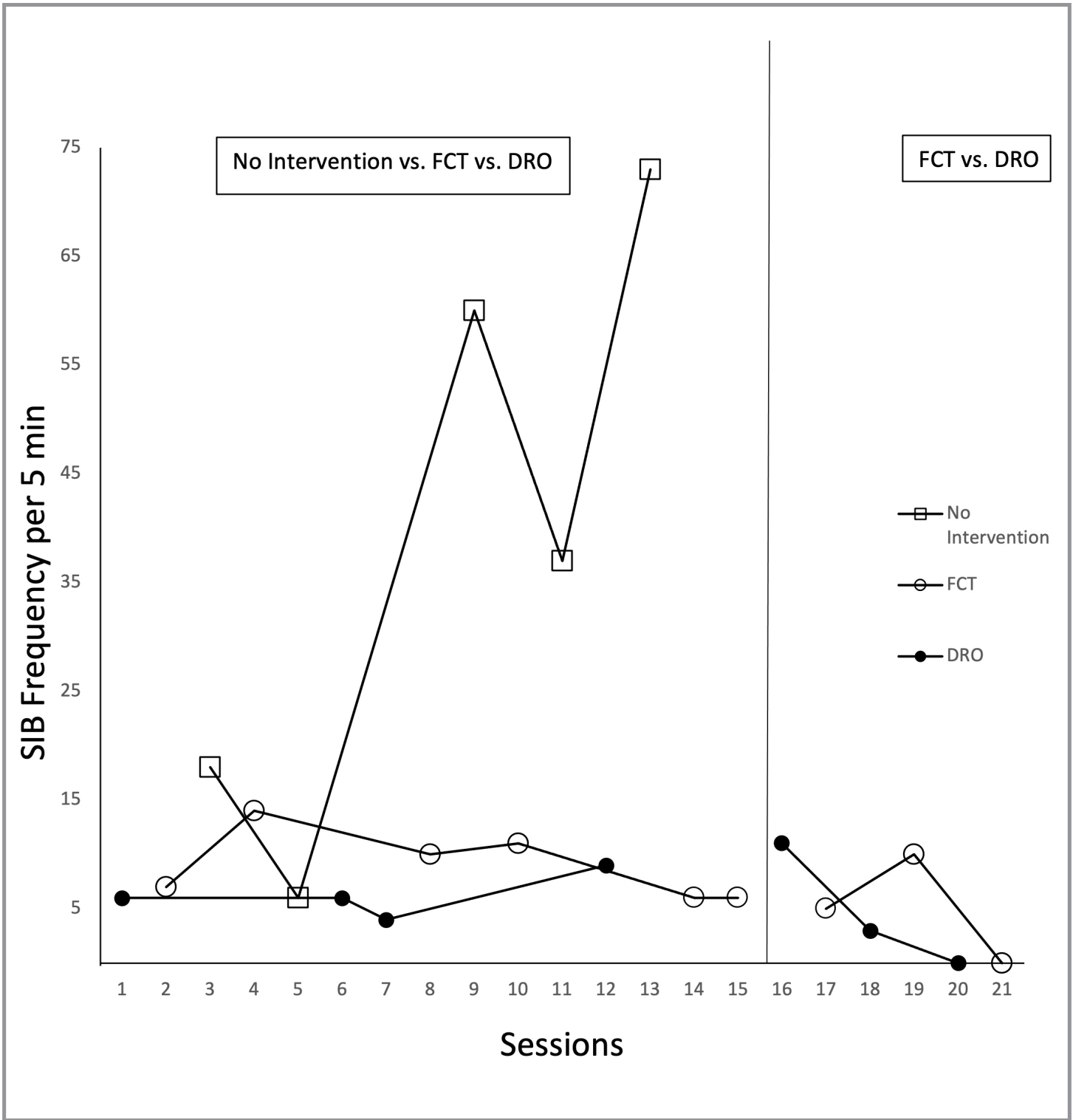


Figure 2: Frequency of self-injurious behavior during treatment analysis consisting of FCT, DRO, and no intervention conditions.



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RESIDENTIAL SCHOOL *Program*

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The Evergreen Center improves the quality of life for children and adults with disabilities by providing collaborative, compassionate, and evidence-based services to individuals and their families.

