Teaching Individuals to Conduct Paired-Stimulus Preference Assessments for Persons with Developmental Disabilities using Computer-Aided Instruction

by

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Abstract

Stimulus preference assessments are evidence-based methods for identifying preferred items and potential reinforcers for individuals with intellectual and developmental disabilities. In Experiment 1, the effectiveness of a Paired-Stimulus Self-Instructional Manual, delivered online using the Computer-Aided Personalized System of Instruction (CAPSI), with added videos, was evaluated. In a concurrent multiple-probe design across four groups of undergraduate university students, no participant met the mastery criterion (80%) on written knowledge tests or during simulated assessments, during baseline or after reading a method description adapted from the published literature. However, 11 of the 12 participants met mastery following the online self-instructional training package. Participants improved from a mean performance accuracy of 45.3% in baseline to a mean of 92.4% at post-CAPSI on written knowledge tests, and from a mean performance accuracy of 26.5% in baseline to 85.4% during post-CAPSI simulated assessments. Generalization assessments conducted 7 to 14 days post-CAPSI, showed that all participants performed above the mastery criterion (M = 93.3%). In Experiment 2, the online training package was implemented and managed by an Autism Consultant in a clinical setting for children with autism spectrum disorder, to teach Autism Tutors to carry out the procedure. In a concurrent multiple-probe design across three Autism Tutors, all met and exceeded the mastery criterion (80%) at post-CAPSI on both written knowledge tests and simulated assessments. Mean performance on written knowledge tests improved from 55.7% in baseline to 94.3% at post-CAPSI, and mean performance on simulated assessments improved from 31.8% in baseline to 90% at post-CAPSI. Generalization assessments conducted 7 to 14 days post-CAPSI showed that all Autism Tutors performed above the mastery criterion (M = 88.7%). The online training package was rated highly on social validity assessments in both experiments.

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Research has reported an increase in the prevalence of intellectual disabilities (ID), with approximately 0.62-1.58% of the global population affected (Lazoff, Zhong, Piperni, & Fombonne, 2010; McKenzie, Milton, Smith, & Ouellette-Kuntz, 2016). Moreover, it is estimated that at least 1-5% out of every 1000 of those affected fall within the severe range (Friedman, Parrish, & Fox, 2018). Reported prevalence estimates of individuals diagnosed with developmental disabilities (DD) are as high as 3.57% in the United States for children aged 3-17 years (Zablotsky & Black, 2015), and 5.1% for individuals 15 and over in Canada (Statistics Canada, 2017). Further, autism spectrum disorder (ASD) diagnoses range as high as 2.24% in the United States for children aged 3-17 years (Zablotsky & Black), and 15.2% of every 1000 youth aged 5-17 years old in Canada (Public Health Agency of Canada, 2018), with a reported observed annual percent increase of children receiving a diagnoses of ASD, from 9.7% to 14.6% (Ouellette-Kuntz et al., 2014). With increasing prevalence rates, research on improving the quality of life and care for these individuals is crucial.

For individuals with I/DD, including ASD, with limited or no communication skills, indicating preferences and choices may be difficult. However, there is ample evidence that the preferences of these individuals can be reliably identified through direct-stimulus preference assessments (Hagopian, Long, & Rush, 2004; Spevack, Yu, Lee, & Martin, 2006; Tullis et al., 2011). Research has shown that direct preference assessments are effective and efficient in identifying highly-preferred items which function as reinforcers and are considered rewarding to the individual (Hagopian et al.; Lee, Yu, Martin, & Martin, 2010). This finding is important, as the use of positive reinforcement to increase the likelihood of appropriate or desirable behaviors

is a crucial component in various behavioral programs (i.e., teaching skill acquisition and interventions for challenging behaviors) with individuals with I/DD (Tullis et al.). Therefore, assessing preferences using direct preference assessment procedures provides these individuals with the ability to communicate their wants and needs to caregivers, enhances on-task behaviors (Cole & Levinson, 2002), enriches their lives by providing opportunities to make choices, and promotes self-determination (Stancliffe, 2001).

In the following sections, the concept of preference, types of stimulus preference assessments, and relevant research on training individuals to conduct direct-stimulus preference assessment procedures are presented. This is followed by a statement of the problem, a description and report of the two experiments, and discussion of the results.

Concept of Preference

Preference can be defined as an individual's pattern of responding (e.g., frequency of selection) to certain stimuli when presented with opportunities to make choices (Martin, Yu, Martin, & Fazzio, 2006). Although individual preferences are variable, research has demonstrated that individuals with I/DD present with relatively stable preferences over time (Carr, Nicolson, & Higbee, 2000; Ciccone, Graff, & Ahearn, 2007). Variations in preference may be a result of regular changes in motivating operations, such as satiation and deprivation, regardless of factors such as age or disability (Cooper, Heron, & Heward, 2006; Hanley, Iwata, & Roscoe, 2006). Moreover, an individual's preference for a particular stimulus may be influenced by other stimuli which are simultaneously present during an assessment (e.g., edible versus leisure items, high versus low preference items, or varied versus constant access to reinforcing items; Bojak & Carr, 1999; Conine & Vollmer, 2018; Daly et al., 2009; DeLeon,

Iwata, & Roscoe, 1997; Fahmie, Iwata, & Jann, 2015; Hoffmann, Bogoev, Callard, & Sellers, 2018; Roscoe, Iwata, & Kahng, 1999).

Stimulus Preference Assessment

Stimulus preference assessments may be indirect or direct. Indirect approaches involve methods such as interviewing a primary caregiver or someone familiar with the individual about that individual's preferences. Research has shown that indirect methods are unable to reliably differentiate between preferences in order to establish a preference hierarchy, relative to the direct approach (Cote, Thompson, Hanley, & McKerchar, 2007; Fisher, Piazza, Bowman, & Amari, 1996). Thus, indirect methods are not as effective in identifying stimuli which can function as reinforcers for individuals with I/DD (Fisher et al., 1992; Green et al., 1988). Direct preference assessment procedures involve presenting choices (i.e., stimuli) to an individual and subsequently evaluating the individual's response patterns to those choices.

There are generally two types of direct preference assessments: free-operant and restricted-operant, or discrete-trials. During a free-operant preference assessment, stimuli are presented individually or in an array, and the individual is granted free access to the materials for a pre-determined period. To establish hierarchical preferences among stimuli, the total duration of interaction with each stimulus is assessed (Roane, Vollmer, Ringdahl, & Marcus, 1998). In contrast, during discrete-trial or restricted-operant preference assessment procedures, one or more stimuli are presented to an individual for a brief time interval. Each interval is considered as one trial, and the individual can only make a stimulus selection during that interval (Kodak, Fisher, Kelley, & Kisamore, 2009). Overall, discrete-trials preference assessment procedures are more frequently used in comparison to free-operant assessments and are more effective in identifying preference hierarchies for high and low preference items (DeLeon & Iwata, 1996;

Kodak et al.; Roane et al.). During discrete-trials preference assessment procedures, an individual's preference for a particular stimulus is measured based on the frequency with which it is selected (e.g., making physical contact or pointing to a stimulus) across a number of presentations (Davies, Chand, Yu, Martin, & Martin, 2013; Lee et al., 2010; Martin et al., 2006). The most preferred item(s) are those which have been approached or selected most often during an assessment (Davies et al.; Martin et al.). The most commonly researched discrete-trials stimulus preference assessment procedures include the single-stimulus (SS), paired-stimulus (PS), multiple-stimulus (MS), and the multiple-stimulus without replacement (MSWO) presentation procedures. These procedures are reviewed below.

Direct Preference Assessment Procedures

During the SS procedure (Pace, Ivancic, Edwards, Iwata, & Page, 1985), each stimulus is presented to an individual one at a time, and the individual is provided with the opportunity to approach and engage with (if assessing preferences for leisure items) or consume (if assessing preferences for edible items) each stimulus. Pace et al. conducted a study with six participants with DD using the SS procedure; results demonstrated that preferred stimuli were identified for all participants. In a subsequent reinforcer assessment, it was found that when the preferred stimulus was delivered immediately following a target response, the response increased in frequency. However, it was noted that a potential limitation of the SS procedure is that undifferentiated preference hierarchies may be observed, as an individual is permitted to approach each item that is presented on every trial regardless of the reinforcing value it holds for that individual.

In comparison, research has found that the PS procedure has predictive validity, in that it is more effective than the SS procedure when establishing distinct preference hierarchies among

stimuli (DeLeon & Iwata, 1996; Piazza, Fisher, Hagopian, Bowman, & Toole, 1996). In addition, it is important to note that the PS procedure has been reported to be the most frequently-used direct method of assessing preferences in applied settings by direct-care staff (Graff & Karsten, 2012a). The PS procedure (Fisher et al., 1992), involves the concurrent presentation of stimuli in pairs on each trial, with each stimulus being paired in an array with every other stimulus at least once. The individual is then permitted to select one stimulus from each pair that is presented across trials. Piazza et al. conducted a study with four individuals with DD to test the reinforcing value of top-, middle-, and low-ranked stimuli. The authors found that the top-ranked stimuli served as reinforcers, and that none of the stimuli which were ranked as low functioned as reinforcers across participants. Overall, the results demonstrated the ability of the PS procedure to effectively determine reliable reinforcers for individuals with DD.

Another variant of a direct preference assessment procedure is referred to as the MS procedure with replacement (Windsor, Piché, & Locke, 1994). During this procedure, the same six to eight stimuli are presented simultaneously on every trial, and the individual is asked to select one stimulus from the array. Windsor et al. reported that the MS procedure has been found to take less time to conduct in comparison with the PS procedure. However, the MS procedure is less likely to differentiate preferences well among the stimuli (Windsor et al.). This is primarily due to the fact that participants are permitted to select the same, or most preferred, item across trials.

A variation of the MS procedure, referred to as the MSWO procedure, was developed by DeLeon and Iwata (1996) in an attempt to improve the hierarchical differentiation in preference between stimuli. During this procedure, the selected item(s) are removed from the array on the following trials. Overall, the MSWO procedure improves upon the MS procedure in producing a

preference hierarchy and is more time-efficient than the PS procedure. However, it does require that the individual being assessed is able to attend to more than two items on each trial, and this skill could pose a challenge for individuals who have difficulties with visual discrimination and scanning a larger array (DeLeon & Iwata).

Teaching Mediators to Conduct Direct Preference Assessments: Face-to-Face Instruction

Considering the importance of stimulus preference assessments, instructional methods to train mediators (e.g., direct-care staff, legal guardians/parents, students, and teachers) to conduct these assessments have been a focus of behavioral research. Several methods have been shown to be effective in the literature.

Behavior skills training (BST). This method typically involves the use of a combination of training methods (e.g., instructions, modeling, and feedback) to teach mediators to implement various behavioral procedures. Instructions are often provided to mediators concerning the target response(s) they will be required to engage in, and may be accompanied by role-play (i.e., modeling) and feedback in the form of programmed consequences (i.e., praise or corrective feedback following responses). Repeated training opportunities are typically provided until performance meets a set performance accuracy or mastery criterion (Miltenberger, 2007). A number of studies have examined methods which use BST components, including modeling, rehearsal, and the provision of feedback (Lavie & Sturmey, 2002; Pence, St. Peter, & Tetreault, 2012; Roscoe, Fisher, Glover, & Volkert, 2006; Roscoe & Fisher, 2008).

Lavie and Sturmey (2002) trained three direct-care staff members to use the PS procedure, with various edible and leisure items, to assess the preferences of children diagnosed with ASD with whom they worked. During baseline sessions, participants were instructed to conduct a preference assessment with a child, and were provided with limited materials (i.e.,

paper, pen, and corresponding stimuli), and no other description of the procedure. The training package included a description of the targeted skills, a descriptive behavior checklist, video modeling, observation and feedback, and repetition of specified components as needed. A mastery criterion of 85% correct was specified, and participants' performance accuracy was assessed using a behavior checklist. After receiving approximately 80 minutes of training, results showed that all participants demonstrated near-100% accuracy when performing the PS procedure.

More recently, Pence et al. (2012) used a pyramidal training procedure to teach three staff members (i.e., special education and preschool teachers) to conduct PS, MSWO, and free-operant preference assessments to six trainees, in the first experiment. The training package included a written description, modeling, role-play, and feedback. It was found that all trainees implemented the preference assessment procedures to mastery level (i.e., minimum of 90% accuracy) following the training procedure. During the second experiment, five participants from the first experiment taught 18 preschool teachers to conduct the PS, MSWO, and free-operant preference assessments using the same training package. Results were consistent across both experiments.

Roscoe et al. (2006) evaluated the impact of two variables (i.e., feedback and contingent reinforcement) to improve the performance of four undergraduate students when conducting the PS and MSWO procedures with simulated clients (i.e., trained research assistants playing the role of children with DD) and actual clients, using a multi-element design. During the feedback condition, the experimenter observed a video recorded session of the participants conducting one of the assessments. Participants then received feedback from the experimenter on whether they performed the target behaviors correctly or incorrectly. In the contingent monetary reinforcement

condition, after the participant performed an assessment accurately, the experimenter provided the participant with $10. The results showed that the monetary contingency did not have a strong impact on participants' performance accuracy; however, feedback was found to be effective and resulted in all participants performing at a minimum of 90% accuracy when conducting preference assessments.

Roscoe and Fisher (2008) aimed to extend the findings of Roscoe et al. (2006) using a multi-element design across two conditions – feedback and role-play – to further examine the effects of feedback on training mediators to conduct preference assessments. Participants included eight behavioral technicians who were trained to implement the PS and MSWO preference assessment procedures. Results showed that performance accuracy increased to 80% for both the PS and MSWO assessments for all participants after training. In addition, for 14 of the 16 completed assessments, performance accuracy increased to 90%.

Overall, the findings of these studies lend support for the use of BST components (e.g., written instructions, modeling, role-play, and/or feedback) as effective methods to teach mediators to conduct various direct preference assessment procedures. However, a significant limitation of these methods is the requirement of face-to-face instruction (by an individual who is highly experienced). As a result, these interventions may be time- and cost-intensive, and likely require set schedules and/or locations for training to occur. Due to the vast number of mediators that require training, a dissemination system that is cost- and time-efficient, accessible, and effective would enhance the use of this knowledge in applied settings.

Teaching Mediators to Conduct Direct Preference Assessments: Self-Instructional Methods

Various self-instructional methods have shown to be effective in the literature to teach various behavioral principles and procedures. These methods have been used to successfully

teach mediators to evaluate adaptive behaviors (e.g., Yu, Martin, Hardy, Leader, & Quinn, 1985), assess discrimination skills (e.g., Boris et al., 2015; DeWiele, Martin, & Garinger, 2000; Hu, Pear, & Yu, 2012; Hu & Pear, 2016), conduct discrete-trials teaching (e.g., Arnal et al., 2007; de Oliveira et al., 2016; Fazzio, Martin, Arnal, & Yu, 2009; Pedreira & Pear, 2015; Pollard, Higbee, Akers, & Brodhead, 2014; Salem et al., 2009; Scherman et al., 2015; Severtson & Carr, 2012; Summers & Hall, 2008; Thiessen, Fazzio, Arnal, Martin, & Kielback, 2009; Thomson et al., 2012; Wightman et al., 2012; Young, Boris, Thomson, Martin & Yu, 2012), and apply behavioral principles and procedures (e.g., McCombe, 2017; Oliveira, Goyos, & Pear, 2012; Summers & Hall, 2008; Wirth, 2007; Yu et al., 1985). In addition, recent research has evaluated the effectiveness of various self-instructional methods such as enhanced written materials (e.g., diagrams and detailed data sheets; Graff & Karsten, 2012b; Shapiro, Kazemi, Pogosjana, Rios, & Mendoza, 2016); video training (Hansard & Kazemi, 2018; Weldy, Rapp, Capocasa, 2014); audio instructions with video modeling (Lipschultz, Vladescu, Reeve, Reeve, & Dipsey, 2015; Rosales, Gongola, & Homlitas, 2015); and telehealth training packages (Higgins, Luczynski, Carroll, Fisher, & Mudford, 2017) to teach mediators to conduct preference assessment procedures. Studies on teaching preference assessment using self-instructional methods are reviewed in more detail below.

Graff and Karsten (2012b), evaluated a self-instructional training package (i.e., instructions and supplementary visuals) to teach individuals to implement, record data, summarize, and interpret the outcomes of two types of preference assessments (i.e., PS and MSWO). They did so using a multiple-baseline design across the two assessments, with 11 teachers, using edible items. During baseline, participants reviewed a written description taken from the method sections of previously-conducted studies (Fisher et al. 1992; DeLeon & Iwata,

1996) on how to conduct each procedure. During the intervention, training consisted of several components dependent on group assignment: (a) a step-by-step written description using non-technical language, (b) identical instructions presented at baseline, and, (c) the detailed datasheet used in the first component. Results showed that no participants met the mastery criterion (i.e., 90% correct or higher) when conducting either preference assessment when they had only been provided with the written instructions. When the written instructions were accompanied by the detailed datasheet, performance accuracy increased to a mean of 98% when implementing the PS procedure, and a mean of 99% for the MSWO procedure. Further, participants' performance maintained during generalization probes conducted between one week and one month following mastery.

Shapiro et al. (2016) sought to replicate the procedures of Graff and Karsten (2012b) in their first experiment, to teach undergraduate students and direct-care staff to conduct PS preference assessments. The purpose of the second experiment was to implement a feedback procedure for mediators who did not meet mastery with the self-instructional package. Based on the results of the first experiment, the authors found that 75% of participants (i.e., five of seven students and four of five staff) met the mastery criterion (90% accuracy) following the training. The remaining participants' performance met the mastery criterion following additional modeling and feedback sessions (e.g., task clarification, feedback alone, and feedback and modeling). The findings from the second experiment indicated that the most effective component of the feedback intervention included the provision of brief feedback (consisting of a list of target responses and review of response accuracy).

The findings of these studies demonstrated that written descriptions of how to conduct a preference assessment, when presented singly, may not be sufficient to train mediators to

implement the procedures accurately. Overall, the results of these studies support the use of self-instructional training packages (e.g., enhanced written material, modeling, and feedback) as effective training methods.

Video modeling. An alternative self-instructional training method examined in the literature to teach mediators to conduct preference assessment procedures is the use of instructional videos. Instructional videos often depict a trained model, who is proficient in the skill(s) to be learned, demonstrating how to implement each step of a procedure. These demonstrations may include the use of simulated individual (e.g., individual playing the role of an individual with I/DD) or embedded voiceovers (i.e., supplemental vocal instructions) to provide explanations of the steps before or during implementation. Various studies have examined the effectiveness of video modeling for training mediators to implement behavioral procedures (Moore & Fisher, 2007; Vladescu, Carroll, Paden, & Kodak, 2012), and more specifically, preference assessment procedures (Deliperi, Vladescu, Reeve, Reeve & DeBar, 2015; Hansard & Kazemi, 2018; Higgins et al., 2017; Lipschultz et al., 2015; Miljkovic, Kaminski, Yu, & Wishnowski, 2015; Rosales et al., 2015; Weldy et al., 2014).

Deliperi et al. (2015) evaluated the effectiveness of video modeling with embedded instruction, in a multiple-baseline across participants design, to train three direct-care staff members to conduct a PS preference assessment; this involved teaching participants to identify which items to use during the assessment, implement the assessment with 90% accuracy, and score and interpret the results. Results demonstrated that the video-based training was effective in teaching all three staff participants to complete the targeted steps with at least 90% accuracy, and that performance on the acquired skills remained high during maintenance sessions, which occurred up to two months following training.

Hansard and Kazemi (2018) examined the effectiveness of a video self-instruction package (i.e., voice-over script, written instructions, video models to depict each step, and instructions for the mediator to review during the videos) to teach four undergraduate students to conduct a PS preference assessment procedure, using a non-concurrent multiple-baseline across participants design. The authors selected various components which were established as effective teaching methods based on recommendations from previously-conducted studies and combined these components to create a comprehensive video training package. During baseline, participants reviewed a brief written summary of the PS procedure from previous research (Fisher et al., 1992). Following the baseline phase, no participant met the pre-determined mastery criterion of 90% during simulated assessments; however, performance accuracy increased to mastery following video training for all four participants for a total mean accuracy of 95% (range 80-100%).

Higgins et al. (2017) examined a remote training package involving telehealth technologies (i.e., multimedia presentation, video feedback, and role-play) to teach three newly hired direct-care staff to implement a MSWO preference assessment procedure. They evaluated the effects of the self-instructional training package using a multiple-baseline across participants design. Although one of three participants required additional training to perform to mastery level (90%), results demonstrated an immediate improvement in performance accuracy for all staff members, which maintained at one to two-month follow-up sessions. It was reported that all participants rated the remote training favorably.

Lipschultz et al. (2015) evaluated the effectiveness of video modeling with embedded vocal instructions using a concurrent multiple-baseline across participants design, to train four direct-care staff to conduct the SS, PS, and MSWO preference assessment procedures using the

same video to teach all procedures. Training sessions included the requirement of selecting the appropriate preference assessment procedure to conduct for the identified simulated individuals. Following completion of video training, all participants met or exceeded the pre-determined mastery criterion of 90% accuracy for implemented steps over two consecutive sessions. In addition, for those assessed, participants' performance accuracy maintained during generalization probes and follow-up sessions up to one week after training. Importantly, apart from one participant who required the provision of feedback to achieve mastery, all other sessions were completed without the requirement of the presence of a trainer.

Miljkovic et al. (2015) examined whether the use of video modeling would be an effective training method to teach six undergraduate university students to conduct a MSWO preference assessment procedure. A multiple-baseline across participants design was used to evaluate the effects of the intervention. In the video demonstration, an experimenter demonstrated how to implement the assessment procedure. Participants were permitted to view the video as many times as desired during the training phase. Following training, results showed an immediate improvement in performance accuracy from the baseline phase for all participants; however, no participants met the mastery criterion of 85%. As a second training component, a self-instructional manual (Ramon & Yu, 2010) was added to supplement the video modeling training. After receiving manual training, all six participants performed the MSWO preference assessment to mastery and maintained their performance during a maintenance assessment held one week later.

Weldy et al. (2014) evaluated video-modeling to teach nine staff members to implement MSWO and free-operant preference assessments with individuals diagnosed with autism. Staff members were randomly assigned to two groups, receiving training on either the MSWO or free-

operant procedure, initially. Performance during baseline for both groups was low (67% correct or lower). Following training (i.e., video modeling), participants conducted an assessment with a client within the following day. Performance accuracy increased for both groups. Participants who performed below 90% accuracy following the initial video training were exposed to a second video training session. All participants performed at 90% correct performance accuracy for both assessments after all training sessions were completed.

Rosales et al. (2015) sought to replicate the findings of Weldy et al. (2014) and examined the effects of video modeling with supplementary audio instructions to train teachers, working with children diagnosed with autism, to conduct free-operant, PS, and MSWO preference assessments. They evaluated these effects using a multiple-baseline design across participants. Results demonstrated that all three teachers' performance accuracy improved following the training package (i.e., above 90%); however, some participants required more training sessions than others (i.e., range 2-6 sessions) to achieve mastery. Further, two of the three teachers (who were available to be scheduled) maintained high levels of performance accuracy during a one-month follow-up session.

Overall, findings lend support for the effectiveness of video modeling with embedded vocal instructions as a self-instructional training method to teach preference assessment procedures, without the requirement of face-to-face contact. However, one study (Miljkovic et al., 2015) has suggested that video modeling when used singly as a training method, may be insufficient to teach mediators to conduct preference assessment procedures, and additional training of some form (e.g., self-instructional manuals) may be required to reach mastery level performance (Hu, 2017).

Self-instructional manuals. Self-instructional manuals (SIMs) are one type of teaching method that do not require a skilled trainer to be present when teaching target skills (Hu, 2017). These manuals incorporate features based on an instructional method referred to as programmed learning or programmed instruction (Skinner, 1954) and personalized system of instruction (PSI; Keller, 1968), and utilize behavioral principles of shaping, chaining, and differential reinforcement to teach mediators skills (Chand, 2015). More specifically, these features include breaking down a large amount of material into smaller units in which learners are required to master knowledge tests corresponding to each unit sequentially, prior to proceeding to the next (Arnal Wishnowski, Yu, Pear, Chand, & Saltel, 2017; Pear & Kinser, 1988; Pear, Schnerch, Silva, Svenningsen, & Lambert, 2011). These knowledge tests are usually intended to be self-administered and self-evaluated (Hu et al., 2012). If an error is made, the learner is prompted to restudy the unit material. Other benefits of the use of SIMs include that they are often written using non-technical language, offer a consistent training sequence for the specified skill, and provide flexibility in terms of when and where the learner can access the material (Chand, 2015).

There have been two SIMs developed and evaluated in the literature to teach individuals to conduct preference assessment procedures (i.e., MSWO [Ramon & Yu, 2010] and PS [Chand & Yu, 2010]), respectively. These manuals were designed and developed for use by direct-care staff members and caregivers. They are both written in user-friendly language and the information in each manual is broken down into smaller units with knowledge tests (e.g., short answer and/or fill-in-the blank questions) included at the end of each unit. The intended use of the manuals is for individuals to complete the included knowledge tests, until achieving 100% accuracy prior to moving onto the next unit.

Using an unbalanced crossover design, Ramon, Yu, Martin, and Martin (2015) compared the effectiveness of the MSWO SIM (Ramon & Yu, 2010) and a written description of the procedures taken and adapted from the method sections of published studies (DeLeon & Iwata, 1996; Roscoe et al., 2006) as a training tool to teach mediators to conduct the MSWO procedure. Participants included 18 university students who were randomly assigned to two groups/interventions. One group initially received the method description and was subsequently provided with the SIM if performance accuracy did not meet the pre-determined mastery criterion of 85%. The interventions were received in reverse order by the second group, if necessary. If participants did not perform to mastery level following both the method and manual training sessions, they received access to a live modeling procedure in which the experimenter demonstrated how to conduct the assessment with an actor. Simulated assessments were conducted before and after each intervention and performance accuracy was evaluated for each participant. Results showed that performance accuracy was significantly greater for the individuals who received the SIM than for the participants who received the method description. In addition, performance accuracy remained high during retention and generalization assessments with both simulated and actual clients. Post-intervention questionnaires showed that participants preferred the SIM, found it more user-friendly, and easily understood when compared to the method description.

Chand (2015) compared the PS SIM (Chand & Yu, 2010) and a written description of the PS procedures adapted from the method sections of published studies (DeLeon & Iwata, 1996; Fisher et al., 1992). Participants included four undergraduate university students and six direct-care staff who worked with individuals with DD. Results demonstrated that all participants who received the SIM training met the mastery criterion (80% correct). No participant who received

the method description training met the mastery criterion. Mean performance accuracy among staff members was higher than for students during post-manual, retention, and generalization assessments. Overall, results extended the findings of Ramon et al. (2015) in that the SIM was shown to be more effective than the method description when training individuals to conduct preference assessments. In addition, similarly, the manual was rated more favorably than the method description by participants during a post-intervention survey.

Both studies provided evidence that the developed SIMs (Chand & Yu, 2010; Ramon & Yu, 2010) were effective, efficient, and favorably rated self-instructional training methods when teaching mediators to conduct the PS and MSWO preference assessment procedures. However, the effectiveness of SIMs as a training method is based on the assumption that learners will utilize the manual according to their basic features and principles (i.e., learners must demonstrate mastery of each unit by evaluating their performance on each knowledge test against a provided answer key prior to proceeding to the next unit; Hu, 2017). This is especially important in applied settings, as there may not always be a trained professional or researcher available to facilitate progression through the materials. As a result, without contingencies in place to ensure that deviations from the intended use of SIMs are avoided, the effectiveness of SIMs as a self-instructional tool may be reduced (Hu).

Computer-aided personalized system of instruction (CAPSI). Technology-based learning systems (i.e., e-learning systems) are being used more frequently in educational settings (e.g., university courses; Wang, 2014). A subset of these learning systems includes Interactive Computer Training Systems (ICTs), which have incorporated a variety of teaching components (e.g., written instructions, video modeling, and competency assessments) to present training packages for specified skills such as behavior analytic interventions (e.g. Gerencser, Higbee,

Akers, & Contreras, 2017) and discrete trials teaching (e.g., Higbee et al., 2016) to learners. CAPSI (Pear & Kinsner, 1988; Pear & Martin, 2004) is an effective and socially valid ICT (Svenningsen, Bottomley, & Pear, 2018; Svenningsen & Pear, 2011; Pear & Novak, 1996) developed using learning principles from PSI (Keller, 1968). It is computer software that is web-based, with the benefit of online content that allows learning to be self-paced and not restricted by set schedules or locations (Hu, 2017; Lee & Choi, 2011). It has been used as a delivery platform for educational courses and to teach various behavioral procedures (e.g., DTT; Scherman et al., 2015). In addition, the SIMs (e.g., Chand & Yu, 2010; Ramon & Yu, 2010) described in the literature to teach behavioral procedures such as preference assessments have incorporated many of the underlying features found in the CAPSI online program, and are therefore compatible in format (McCombe, 2017). The CAPSI system requires the learner to show that they have mastered the material on a unit-by-unit basis, permits the use of corrective feedback for incorrect responses with an accompanying prompt to go back and review the study material, and reinforces correct responses with positive comments and permission to proceed to the next unit. The incorporation of these contingencies ensures that learning of specified skills progresses in the intended format and thus, increases the likelihood that effective training is received.

To date, only two studies (Arnal Wishnowski et al., 2017; Hu, 2017) have utilized CAPSI to teach preference assessment. Arnal Wishnowski et al. extended the findings of Ramon et al. (2015) and incorporated online delivery of the MSWO SIM (Ramon & Yu, 2010) and video-modeling in their training package. The online training program was delivered via a modified CAPSI program. During baseline, all participants were provided with a written description of the MSWO procedure, which was taken and adapted from the method sections of published articles

(DeLeon & Iwata, 1996; Roscoe et al., 2006). After the participants reviewed the material, they conducted an MSWO preference assessment with a simulated client. Results demonstrated that performance accuracy during baseline assessments was below mastery for all participants (mean score of 31.9% correct). Following the baseline phase, participants studied each unit of the manual and viewed video recordings demonstrating specified components included in the unit material. Following mastery of all units on the CAPSI system, participants were asked to again conduct a preference assessment with a simulated client. Following training, all participants performed above or just below 90% correct. During retention and generalization checks, conducted approximately one week after receiving training, five out of the six student participants performed at or above 90% correct. This study extended the findings of Ramon et al. by evaluating online delivery of the SIM and replicating the results with both students and staff members. The findings demonstrated that a modified CAPSI system has significant potential to teach preference assessment skills to various mediators (i.e., students and staff).

Hu (2017) evaluated the effectiveness of a self-instructional package to teach a total of 12 participants (i.e., four direct-care staff and eight parents) in China to implement discrete-trials teaching (DTT), and two preference assessment procedures (i.e., PS and MSWO), using a multiple-baseline design across the three behavioral techniques. The self-instructional training package consisted of a Chinese version of CAPSI, which was combined with Chinese translations (by the experimenter) of the SIMs for MSWO preference assessment procedures developed by Ramon and Yu (2010) and for PS preference assessment procedures developed by Chand and Yu (2010), as well as an added video modeling training component. Results demonstrated that following completion of one or both training components (i.e., combination of CAPSI with the SIMs and or demonstration videos), nine of 12 participants met the mastery

criterion of 85% for procedural implementation on all three behavioral techniques. Further, the findings did not demonstrate that either training component was more effective than the other. Moreover, all participants' performance accuracy remained high during the generalization phase when assessing a child diagnosed with ASD. Overall, the findings demonstrated that in combination, all training components were effective methods to teach staff and parents to conduct all behavioral techniques with accuracy.

Statement of the Problem

The literature described above suggests that: (a) preference assessment procedures can be used to effectively identify reinforcers for individuals with I/DD; (b) for that reason, teaching mediators to conduct preference assessment procedures is important because the success of various behavioral programs is dependent on the identification of effective reinforcers; and (c) despite the knowledge obtained from research and the benefits of preference assessments, adoption of these training procedures in practice has not been widespread (Graff & Karsten, 2012a). Arnal Wishnowski et al. (2017) was the first study to evaluate the effectiveness of online delivery of a self-instructional training package to teach mediators to conduct preference assessment procedures. Since that time, only two additional studies (Higgins et al., 2017; Hu, 2017) have incorporated an online component to their self-instructional training package, with only one study teaching mediators to conduct the PS procedure (Hu). Therefore, in Experiment 1, the effectiveness of a training package (i.e., PS SIM [Chand & Yu, 2010]) adapted for online delivery using CAPSI, with added video modeling, was evaluated with university students.

Moreover, considering the training needs for large numbers of direct-care staff, and the elevated rates of turnover across various direct-care positions supporting individuals with I/DD (Hewitt & Larson, 2007), there is a strong need to promote uptake in applied settings effectively

and efficiently (Arnal Wishnowski et al., 2017; Fazzio et al., 2009; DeWiele et al., 2000). In previous studies that evaluated the CAPSI system to teach preference assessments (Arnal Wishnowski et al.; Hu, 2017), the training package was delivered and managed by researchers. To the experimenter's knowledge, there have not been any studies which have evaluated the effectiveness of a self-instructional training package when it was delivered and managed by staff in a clinical setting. Ensuring that the online training package remains effective when it is delivered and managed by practitioners is an important step if the technology is to be adopted. This possibility was examined in Experiment 2 by field testing the online training program with staff members in a clinical setting. Approval was obtained from the University of Manitoba Psychology/Sociology Research Ethics Board and St.Amant Research Access Review Committee prior to the start of both experiments. Written informed consent was obtained from each participant before each experiment began.

Experiment 1: Online Training Effectiveness

In the first experiment, the effectiveness of a computerized manual with accompanying video files to teach undergraduate university students to conduct the PS preference assessment procedure was evaluated. Specifically, the effectiveness of the PS SIM (Chand & Yu, 2010) was examined relative to a brief written method description of the procedure adapted from the method sections of published literature on PS preference assessments (DeLeon & Iwata, 1996; Fisher et al., 1992).

Method

Participants and Settings

Twelve undergraduate university students, seven females and five males, were recruited from the University of Manitoba through a recruitment poster. The poster was displayed in

various locations across the Fort Garry campus at the university. Students who contacted the experimenter directly to indicate interest in participating were provided with a recruitment letter (see Appendix A) and project description and consent to participation form (see Appendix B). Participants ranged in age from 19-28 years, had completed between one and four years in their program of study, and had diverse academic backgrounds in the areas of Psychology, Science, Computer Science, Commerce, and Genetics. General demographic information was collected prior to commencing the study using a questionnaire (see Appendix C). According to the participants' self-report, they had not received any prior training on preference assessment procedures and were not familiar with CAPSI or similar online instructional methods. Prior to the start of the study, participants were randomly assigned to one of four groups (described later). Table 1 includes characteristics of and group assignment for all student participants.

Participants completed all research sessions (e.g., training, written knowledge tests, and simulated assessments) individually, in an assessment room located at either the University of Manitoba or at St.Amant Research Centre, depending on the phase of the study and/or each participant's preference and availability. Every assessment room contained a table and two chairs. Each participant received a $10 honorarium at the beginning of each session they attended up to a maximum of $40 regardless of their performance.

Materials

Participants were given access to written instructions (described later), and a computer with a connection to the internet to study the online self-instructional training package delivered via CAPSI. Participants were provided with the option of utilizing speakers or headphones while viewing the demonstration videos. When conducting all simulated assessments, participants were provided with a datasheet, timer, calculator, pen, and a variety of edible or leisure items. All

materials required to complete the research sessions were placed on a small table situated directly beside the participant. A video camera and tripod were used to record each session.

Research Design, Measures, and Analysis

Design. A concurrent multiple-probe design (Cooper et al., 2006) was used to evaluate the effectiveness of the two interventions (i.e., method description and online self-instructional training package) across four groups of three students each (i.e., Group 1 CAPSI-Method, Group 2 CAPSI-Method, Group 3 Method-CAPSI, and Group 4 Method-CAPSI). The multiple-probe design is similar to a multiple-baseline design, except that the frequency of data sampling is reduced if the behavior is likely to be stable (Horner & Baer, 1978), if repeated observations could be frustrating for the participant (Chand, 2015), and to minimize practice effects (Hu, 2017). The multiple-probe design has been used in many previous studies (e.g., Arnal Wishnowski et al.; 2017; Chand; Hu; Miljkovic et al., 2015; Ramon et al., 2015).

Participants 1 through 6 (CAPSI-Method groups) were exposed to the following phases in order: (a) baseline simulated assessment and written knowledge test; (b) online self-instructional training package delivered via CAPSI, post-CAPSI training simulated assessment, and post-CAPSI written knowledge test; and if they did not meet the mastery criterion of 80% or higher at post-CAPSI, (c) method description training, post-Method training simulated assessment, and post-Method written knowledge test. Participants 7 through 12 (Method-CAPSI groups) were exposed to the same phases, with the order of the two interventions reversed. All student participants conducted a generalization assessment following training.

Measures. The main dependent variables included: (a) declarative performance accuracy on written knowledge tests during baseline and post-intervention phases; and (b) procedural performance accuracy after each intervention (i.e., at post-Method and at post-CAPSI). The Final

Review Exercise (PS SIM, Chand & Yu, 2010, pp. 23-24) was used to measure participants' declarative performance accuracy. The Paired-Stimulus Evaluation Form (PSEF) from the PS SIM (Chand & Yu, pp. 22-23) was used to measure participants' procedural performance accuracy. This form contained a checklist of 24 target behaviors. Two target responses were added for this study for the participant to perform if a client rejected both items during a trial, for a total of 26 target behaviors. The checklist included preparing for an assessment session (4 responses), providing appropriate antecedents (4 responses), providing consequences for different client responses (17 responses), and calculating preference values (1 response; see Appendix D). Preparing for an assessment session, sampling items with the client, and calculating preference values were scored once during a session, whereas all other responses were scored on each trial. Each item on the checklist was recorded as correct, incorrect, or not applicable. The percentage of checklist items carried out correctly based on the number of applicable items was calculated for each assessment. The time used to study the materials during each intervention was also recorded. Finally, each participant's perception of the acceptability and satisfaction with the training and materials was evaluated using a questionnaire, administered following completion of each intervention.

Analysis. The behavior of interest (e.g., percent correct) for each participant was plotted across sessions and visually inspected in order to evaluate the internal validity of the experimental effect (Kazdin, 2011). To conclude that the observed results were due to the intervention and not some extraneous variables in a multiple-probe across participants design, the data should ideally have the following characteristics: (a) stability during baseline probes, (b) observation of immediate improvement in performance accuracy only after an intervention has

been introduced and not before, (c) little to no overlap in performance levels between baseline and intervention, and (d) replication of the behavior change across participants.

Procedure

Pre-intervention simulated assessment and written knowledge test. During the baseline phase, each participant was asked to conduct a PS preference assessment procedure with a simulated client (i.e., experimenter playing the role of an individual with I/DD, with no speech). Participants were provided with written instructions about the purpose of the research session and what they were asked to do; without receiving any instructions on how to conduct the assessment (see Appendix E). Participants were also provided with a Paired-Stimulus Preference Assessment Datasheet (see Appendix F; adapted from Chand & Yu, 2010), four containers of edible items (e.g., chips, chocolate, candy), a timer, a pen, and a calculator. The datasheet was modified to assess four items instead of six. Participants were not permitted to access any training materials during the simulated assessment. The simulated client's responses were scripted (described later) to ensure consistency across participants and to confirm that all target behaviors on the checklist were probed. Following completion of the baseline simulated assessment(s), participants were asked to complete a written knowledge test consisting of 10 fill-in-the blank questions (see Appendix G). The knowledge test was taken from the Final Review Exercise included in the PS SIM (Chand & Yu, p. 23). This exercise was used as the measure of declarative knowledge of the PS preference assessment procedure in this study, as it sampled questions that were representative of the PS preference assessment from start to completion. Participants were not provided with feedback on their responses during the simulated assessments or on the written knowledge tests.

Method description, post-Method training simulated assessment, and post-Method written knowledge test. The method description of the PS procedure was extracted and adapted from the method sections of published studies (DeLeon & Iwata, 1996; Fisher et al., 1992). This adapted method description was the same as the one used by Chand (2015; see Appendix H). Participants were provided with as much time as needed to study the method description. When participants indicated that they had finished studying, they were immediately asked to conduct a simulated assessment and complete a written knowledge test, identical to procedures and assessments during baseline.

Online self-instructional package, post-CAPSI training simulated assessment, and post-CAPSI written knowledge test. The online self-instructional package consisted of the presentation of the PS SIM (Chand & Yu, 2010) and video-modeling component delivered via the CAPSI system. Participants were given access to a computer, Internet connection, and brief instructions that indicated what was expected during the research session (see Appendix I). Upon signing into the CAPSI system with login information provided by the experimenter, participants were presented with a message on the home screen directing them to enter a valid email address, change their password, and access a message sent from the experimenter in their message box. Upon accessing the message, participants were directed to view links to locate contact information, study units and video clips, unit exercises, and results of the exercises after they had been graded by the experimenter. The SIM was presented on CAPSI in five study units. Each unit included one- to two-and-a-half pages of textual study material for a total of eight-and-a-half pages. Unit 1 included a brief introduction to preference, types of preference assessment procedures, and why it is important to conduct these procedures (1 page). Unit 2 described how to prepare for a PS preference assessment (i.e., choosing an area and setting up, gathering

materials, bringing the client to the assessment area, and allowing clients to sample items; 1.5 pages). Unit 3 explained how to present items during an assessment (1.5 pages). Unit 4 described how to provide consequences for specified responses (i.e., if the client selects one item, does not select either item, approaches both items, or rejects both items; 2.5 pages). Finally, Unit 5 explained how to calculate and determine preference values (2 pages). A total of 16 video files of the experimenter demonstrating each step of the assessment with both edible and leisure items (i.e., eight videos assessing edible items and eight videos assessing leisure items) accompanied the text material for Units 2 through 5 (see Appendix J for a description of the videos). The videos were filmed to include both a first-person point of view (e.g., when recording on datasheets), as well as views of the experimenter and/or simulated client (e.g., during trials of the PS preference assessment). In addition, brief vocal instructions were added to the beginning of each video to describe what the viewer would see. The demonstration videos assessing edible items totaled 6.1 min in duration, and the videos assessing leisure items totaled 7.1 min in duration. Participants were not required to watch both video types (i.e., edible and leisure), but they were asked to watch at least one type, and informed that the two types were available for viewing. After reviewing the text material for a unit, participants were able to view the corresponding video(s) online via the CAPSI system and were permitted to replay the videos as often as needed while studying the online self-instructional package. Unit exercises consisting of three to five (M = 4.8) questions were completed following review of material from each unit to assess participants' mastery of the content.

Participants were able to access each unit of the SIM by clicking the corresponding links to open text files and video files in the CAPSI system. When participants finished studying a particular unit, they were directed to click a link to complete the corresponding unit exercises,

and finally required to click another link to submit their answers. There were no time constraints placed on participants to complete the unit exercises. While participants were completing the unit exercises, they were not permitted access to the study materials for the corresponding units. The option to cancel a unit exercise and return to the study material without penalty was available if participants felt that they were not sufficiently prepared for the exercise. Prior to proceeding to the next unit, participants were required to complete all answers to questions from a given unit. The CAPSI system would not permit access to the next unit of the study material until mastery of the present unit content had been demonstrated. All answers were in the form of fill-in-the-blank, which required one- to three-word responses. Answers were scored by the experimenter immediately following submission, and feedback was provided to the participant via the CAPSI system after the experimenter had scored a given exercise. A "pass" was given if the participant answered every question in a unit exercise accurately (i.e., 100%). After receiving a "pass", the CAPSI system displayed a message to indicate the participant had completed the exercise (e.g., "Great job! You can proceed to study the material for the next unit!" or "Congratulations! You completed all unit exercises! Please let the experimenter know you have finished the study material."). The CAPSI system then either permitted them to click on a link to the next unit and proceed with the study materials for the next unit or directed them back to the home screen. A "restudy" was received if the participant answered one or more questions from the unit exercise incorrectly. The CAPSI system then prompted the participant to review the unit textual material and/or accompanying videos and complete the unit exercise again. All questions for each unit were re-presented each time the unit was accessed. If a participant was given a "restudy," they had the option to "appeal" the scoring directly to the experimenter. A post-training simulated assessment and post-written knowledge test, identical to the pre-intervention assessments, were

conducted immediately after the participant completed the training. The experimenter was available to the participants at all times while research sessions were being conducted.

Generalization simulated assessment. Any participant who scored 80% correct or higher (i.e., met the mastery criterion) during the post-training simulated assessment, after receiving either the method description or online self-instructional training package, conducted a preference assessment with a novel simulated client (i.e., a trained research assistant role-playing an individual with I/DD, with no speech). The instructions given to each participant at the beginning of the generalization assessment are shown in Appendix K. The generalization assessment occurred within two weeks following the post-training simulated assessment. Procedures were identical to those used in baseline, with the exceptions that the participants were provided with the behavior checklist for conducting PS assessments from the PS SIM (Chand & Yu, 2010; see Appendix L) to review prior to conducting the assessment, and were asked to assess the simulated client's preferences using four leisure items (e.g., toy car, ball, toy spring, and clay). No time constraints were placed on participants while they reviewed the checklist.

Observer Training, Interobserver Agreement, and Script Adherence

Observer training. Each participant's behaviors were independently scored by the experimenter and a trained research assistant (i.e., observer) using the PSEF (see Appendix D). Prior to scoring any assessments, the observer practiced scoring on videos prepared by the experimenter specifically for training purposes. Training included reviewing scoring criteria for each step of the PS preference assessment procedure, scoring practice videos, and discussing any scoring errors. An agreement was defined as the experimenter and observer both recording the same response on the checklist, and a disagreement was defined as the experimenter and observer recording different responses for the same checklist item. To determine the percent

agreement, the number of agreements between the experimenter and observer was divided by the sum of agreements and disagreements across checklist responses; and multiplied by 100 (Martin & Pear, 2015). This was completed for each session. Training continued until 100% agreement was attained for one session.

Interobserver agreement. Reliability checks were conducted for all simulated assessments via direct observation or video recorded sessions. Observers recorded the participant's behaviors using the PSEF (see Appendix D) during each assessment session. The definitions of agreements and disagreements and the calculation of percent agreement were the same as that described above. Across participants and sessions, the average agreement total was 96% (range 85% to 100%). Agreement tended to be lower during baseline sessions because participants often did not implement the target responses in a clear manner.

Simulated client script adherence. During all simulated assessments, a trained observer evaluated the simulated client's adherence to a pre-determined script. The scripts included the responses the simulated client performed on each trial of the assessment (see Appendix M for a sample script used in the study). Four different scripts were created for use during simulated assessments, and each script included the same number and type of client responses during a preference assessment, but were arranged in different orders (e.g., attending, selecting one item, approaching both items, not responding, and rejecting both items). Scripts were chosen randomly for each simulated assessment, without replacement, to ensure that each script was sampled per participant, across simulated assessments. The simulated client's response on each trial was scored as either correct (i.e., adhered to the script) or incorrect (i.e., did not adhere to the script). For each simulated assessment session, the total number of correct responses (i.e., steps

performed correctly by the simulated client) was divided by the total number of applicable responses. Script adherence averaged 98% across sessions (range 93% to 100%).

Social Validity

Social validity can be defined as the acceptability and feasibility of an intervention or treatment by the individuals either receiving or implementing it (Cooper et al., 2006, pp. 237-238). Each participant was asked to complete an eight-item questionnaire after studying the online self-instructional package and a seven-item questionnaire after receiving the method description, (see Appendices N and O, respectively). The questionnaires were adapted from those used in Arnal (2013), Chand (2015), and Ramon (2013). Participants were requested to respond to statements regarding the importance of the intervention's goal, the intervention's ease of use, effectiveness of the study materials on the desired outcomes, and whether they would recommend either intervention to others. Using a five-point scale (where 1 = strongly disagreed, and 5 = strongly agreed), participants were asked to indicate the extent to which they agreed with each statement.

Results

Figure 1 shows performance accuracy for Group 1 (CAPSI-Method), across simulated preference assessment sessions and written knowledge tests, during each phase, for Participants 1 through 3 (P1, P2, and P3). Baseline performance accuracy during simulated assessments ranged from 11% (P1) to 48% (P2), with an average of 31.2% correct responses across participants. Participants' baseline performance accuracy during written knowledge tests were 22% (P1), 56% (P2), and 61% (P3), with a mean accuracy of 46.3% across participants. Following the online self-instructional training package, all three participants exceeded the mastery criterion during post-CAPSI assessments, with an average of 95% accuracy during simulated assessments (range

90% [P2]-100% [P1]), and mean accuracy of 98% (range 94% [P1]-100% [P2 and P3]) across participants during written knowledge tests. All three participants conducted a follow-up generalization simulated assessment, 7 to 14 days post-CAPSI (*M* = 10.5 days). Performance accuracy during generalization simulated assessments remained above mastery level for all three participants, with an average performance accuracy of 94.3% (range 85% [P2]-100% [P3]). Since all participants achieved mastery at post-CAPSI, the method description was not provided.

Figure 2 shows performance accuracy for Group 2 (CAPSI-Method), across simulated preference assessment sessions and written knowledge tests, during each phase, for Participants 4 through 6 (P4, P5, and P6). Baseline performance accuracy during simulated assessments ranged from 11% (P5) to 59% (P6), with an average of 35.8% correct responses across participants. Participants' baseline performance accuracy during written knowledge tests were 50% (P4), 50% (P5), and 67% (P6), with a mean accuracy of 55.7% across participants. Following the online self-instructional training package, all three participants exceeded the mastery criterion during post-CAPSI assessments, with an average of 90% accuracy during simulated assessments (range 85% [P4 and P5]-100% [P6]), and mean accuracy of 94.3% (range 89% [P4]-100% [P6]) across participants during written knowledge tests. All three participants conducted a follow-up generalization simulated assessment, 7 to 14 days post-CAPSI (*M* = 9.3). Performance accuracy during generalization simulated assessments remained above mastery level for all three participants, with an average performance accuracy of 97.7% (range 96% [P5]-100% [P6]). Since all participants achieved mastery at post-CAPSI, the method description was not provided.

Figure 3 shows performance accuracy for Group 3 (Method-CAPSI), across simulated preference assessment sessions and written knowledge tests, during each phase, for Participants 7 through 9 (P7, P8, and P9). Baseline performance accuracy during simulated assessments ranged

from 9% (P7) to 38% (P8), with an average of 24.6% correct responses across participants. Participants' baseline performance accuracy during written knowledge tests were 22% (P7), 33% (P8), and 61% (P9), with a mean accuracy of 38.6% across participants. Following method description training, participants' accuracy during simulated assessments averaged 24.3% (range 13% [P7]-34% [P9]). At post-Method scores on written knowledge tests were 39% (P7), 50% (P8), and 61% (P9) respectively, with a mean accuracy of 50% across participants. As no participant met the mastery criterion at post-Method, all received the online self-instructional training package. At post-CAPSI, performance accuracy for Participants 8 and 9 exceeded the mastery criterion during simulated assessments (90% and 88%, respectively) and on written knowledge tests (94% and 94%, respectively). However, Participant 7 did not meet mastery level during the post-CAPSI stimulated assessment (32%) and on the written knowledge test (72%). All participants conducted a follow-up generalization simulated assessment, within 7 to 8 days post-CAPSI (M = 7.3). Performance accuracy during generalization simulated assessments exceeded the mastery criterion for all three participants, with a mean accuracy of 90.7% (range, 85% [P7]-98% [P9]). Of particular note was Participant 7's unexpected performance accuracy (85%), in which a large improvement was observed during the generalization simulated preference assessment.

Figure 4 shows performance accuracy for Group 4 (Method-CAPSI), across simulated preference assessment sessions and written knowledge tests, during each phase, for Participants 10 through 12 (P10, P11, and P12). Baseline performance accuracy during simulated assessments ranged from 11% (P10) to 21% (P11), with an average of 14.4% correct responses across participants. Participants' baseline performance accuracy during written knowledge tests were 28% (P10), 61% (P11), and 33% (P12), with a mean accuracy of 40.7% across participants.

Following method description training, participants' accuracy during simulated assessments averaged 26% (range 16% [P10]-31% [P11 and P12]). At post-Method scores on written knowledge tests were 50% (P10), 67% (P11), and 61% (P12) respectively, with a mean accuracy of 59.3% across participants. As no participant met the mastery criterion at post-Method, all received the online self-instructional training package delivered via CAPSI. Following training, performance accuracy for all three participants exceeded the mastery criterion during post-CAPSI simulated assessments (*M* = 86.6%, range 81% [P10]-94% [P12]), and written knowledge tests (*M* = 90.6%, range 83% [P12]-100% [P11]). All three participants conducted a follow-up generalization simulated assessment, within seven days post-CAPSI. Performance accuracy during generalization simulated assessments remained above mastery level for all three participants, with a mean accuracy of 90.3% (range 84% [P10]-94% [P12]).

In summary, participants in Groups 1 and 2 (CAPSI-Method; P1 through P6) showed low and relatively stable performance across baseline simulated assessments. Large and immediate improvements were observed and replicated across all six participants after receiving the online self-instructional training package delivered via CAPSI in the multiple-probe design (see Figures 1 and 2). There was no overlap observed in performance levels between baseline and post-CAPSI phases, and all participants met and exceeded the mastery criterion during post-CAPSI assessments. Moreover, all participants maintained their performance above the mastery criterion during generalization simulated assessments.

Participants in Groups 3 and 4 (Method-CAPSI; P7 through P12) also showed low and relatively stable performance across baseline simulated assessments. However, only small improvements during simulated assessments and small to moderate improvements on written knowledge tests were observed across participants at post-Method. Since none of the

participants' performance accuracy met mastery following the method description, all participants received the online self-instructional training package delivered via CAPSI. At post-CAPSI, five of six participants (P8 through P12) showed large and immediate improvements during both simulated assessments and written knowledge tests. There was no overlap in performance levels between post-CAPSI and preceding phases (see Figures 3 and 4), and all five of these participants met and exceeded the mastery criterion. Moreover, all five maintained their performance above the mastery criterion during generalization simulated assessments. Participant 7 was the exception. At post-CAPSI, Participant 7 showed a small improvement during the simulated assessment and a moderate improvement on the written knowledge test; however, performance accuracy did not meet mastery criterion. When Participant 7 returned eight days later for the generalization simulated assessment, performance improved to 85%.

Training Time

The average time spent studying the method description was 4.6 minutes (range 2-8 min) across Groups 1 and 2 (Method-CAPSI) participants (P1 through P6). The average amount of time spent studying the online self-instructional training package via CAPSI was 80.7 minutes (range 52-100 min) across all participants (P1 through P12). Further, the mean number of attempts to pass a unit exercise in CAPSI across participants was 1.1 (range 1-2). The average amount of time spent reviewing the behavioral checklist prior to generalization simulated assessments was 3.2 minutes (range 1-5 min) across all participants.

Error Analysis

The mean percentage of incorrect responses (i.e., errors) across all student participants, for each target response using PSEF (see Appendix D) during baseline, at post-Method, at post-CAPSI, and during generalization simulated assessments are shown in Table 2. For the purpose

of the error analysis, some target responses from the PSEF were combined for presenting items, for a total of 22 target responses. The error rate for each target response on the behavioral checklist was calculated by taking the total number of times the step was scored as incorrect across participants, dividing by the total number of applicable scoring opportunities across participants, and multiplying by 100. The mean percentage of incorrect responses was observed to be high during pre-intervention baseline simulated assessments across participants (i.e., 50% or higher on 15 of 22 target responses). The highest rates of error (i.e., mean error rates of 90% and above) occurred on the following target responses: sampling each item with the client, and gently blocking the client's attempts and removing items from the client and/or table after the client approached both items. During post-Method simulated assessments, error rates continued to remain high, with only slight reductions from baseline across 13 target responses (i.e., the mean percentage of incorrect responses continued to remain at 50% or higher on 16 of 22 target responses) across participants. Nine target responses were observed to have higher overall error rates than was observed in baseline. The highest rates of error (i.e., mean error rates of 90% and above) occurred on the following target responses: filling in the participant's name, client's name, and date on datasheet; holding up each item to ensure the client is attending; praising the client following a selection response; and calculating preference values accurately. Error rates during post-CAPSI simulated assessments decreased dramatically across 18 of 22 target responses relative to baseline and post-Method rates of error. Further, the mean percentage of incorrect responses was above 50% on only two of 22 target responses (i.e., sampling each item with the client and removing the unselected item following a selection response). During follow-up generalization simulated assessments, error rates remained low across all 22 target responses

and improved across 14 of 22 target behaviors in comparison to post-CAPSI rates of error. The highest error rates occurred on the target response for sampling each item with the client.

Social Validity

The average ratings for each statement on the social validity questionnaire across student participants at post-Method and at post-CAPSI are shown in Table 3. On average, post-CAPSI rating by participants were substantially higher than ratings observed at post-Method across the majority of items/statements. More specifically, following method description training, participants found the goal of the study to be important and felt the training material was easy to follow and understand. However, on average, they did not feel that they had successfully learned to conduct a PS preference assessment from studying the written material, were not confident or ready to conduct the assessment with an individual with I/DD, and would not recommend the written procedural description to others who wished to learn to implement a PS preference assessment procedure. In contrast, after receiving the online self-instructional training package, participants agreed that the goal of the study was important, felt that the training materials were easy to follow and understand, found that the training materials provided all the necessary information for them to conduct the assessment, felt the inclusion of the video clips helpful, found they felt they had successfully learned to conduct a PS preference assessment after studying the materials, felt confident and ready to implement the assessment with an individual with I/DD, would recommend the online self-instructional training package to others who wished to learn the procedure, and were more likely to indicate that if they were to work with individuals with I/DD, they would likely use the PS preference assessment.

Experiment 2: Field Testing

The purpose of Experiment 2 was to evaluate the effectiveness and feasibility for staff in a clinical setting to implement and manage the online self-instructional training package to teach other direct-care staff to conduct a preference assessment procedure. Specifically, the training package was implemented and managed by an Autism Consultant to teach Autism Tutors to conduct PS preference assessments. The Autism Tutors' performance was evaluated by the experimenter before and after training in a multiple probe across participants design.

Method

Participants and Setting

One Autism Consultant and three Autism Tutors participated. They were recruited from St.Amant Autism Programs, a community program providing early intensive behavioral intervention for children diagnosed with ASD. Administrative personnel designated by the Senior Manager of the program assisted with recruitment and distributed the recruitment letters (see Appendix P for Autism Tutors and Appendix Q for Autism Consultants), and project description and consent to participation forms (see Appendix R for Autism Tutors and Appendix S for Autism Consultants), to all eligible staff on the experimenter's behalf. Within the program, Autism Consultants are primarily responsible for working with each client's family and other designated professionals (e.g., teachers and therapists), within the client's support network, to design and implement a comprehensive behavioral intervention that meets the needs of the individual. Their duties include increasing client adaptive behavior and decreasing challenging interfering behavior by conducting behavioral assessments and then designing, implementing, and evaluating relevant treatment plans. In addition, Autism Consultants are required to provide training and supervision to each assigned intervention team member, including Autism Tutors.

Autism Tutors deliver the behavioral intervention directly to assigned clients and record data regarding the client's progress.

General demographic information was collected prior to commencing the study using a questionnaire (see Appendix T). Participants included three females and one male ranging in age from 23-33 years. Participants had been employed in their designated positions between six months to five years. All participants, apart from one, had reported they had prior experience working with individuals with I/DD outside of their current positions (e.g., support worker in a community setting, respite worker, and Special Education Assistant), and had worked in these positions between one to two years. Two participants (i.e., the Autism Consultant and one Autism Tutor) reported prior formal education and training on working with individuals with I/DD (i.e., six credit hours for undergraduate courses in ABA and an undergraduate degree in Psychology with a Master of Arts degree in progress). According to participants' self-report, the Autism Consultant had received prior training on how to conduct preference assessment procedures through courses in graduate school and in previous direct-care staff positions worked. However, none of the Autism Tutors reported receiving prior training on preference assessment procedures. In addition, none of the participants had previously used CAPSI or similar online instructional methods. Table 4 includes characteristics of all staff participants.

All research sessions (i.e., studying the online self-instructional training materials, during simulated assessments, and written knowledge tests) were conducted in assessment rooms located at St.Amant Research Centre, which included a table and two chairs. Although the Autism Tutors could have completed their online training program from any location (e.g., home), with a computer and Internet connection, all chose to complete their training at St.Amant, outside of their scheduled working hours. Autism Tutors completed all research sessions

individually (i.e., during each session the experimenter, Autism Consultant, and one Autism Tutor were present).

Each Autism Tutor received a maximum honorarium of $40 regardless of performance (i.e., a $10 honorarium was provided at the beginning of each session they attended, over a total of four sessions). In addition, the Autism Consultant received a $10 honorarium at the beginning of each session they implemented for each Autism Tutor.

Materials

Autism Tutors received all the materials for the online self-instructional training package as described in Experiment 1.

Research Design, Measures, and Analysis

Design and analysis. As in Experiment 1, a concurrent multiple-probe design (Cooper et al., 2006) was used to evaluate the effectiveness of the online self-instructional training package across three Autism Tutors. Each Autism Tutor was exposed to the following phases in order: (a) baseline simulated assessment and written knowledge test; (b) online self-instructional training package delivered via CAPSI, post-CAPSI training simulated assessment, post-CAPSI written knowledge test; and (c) generalization assessment with a simulated client (i.e., trained research assistant) playing the role of an individual with I/DD with no speech. As in Experiment 1, visual inspection of individual data was conducted to evaluate the effects of the intervention (Martin & Pear, 2015).

Measures. The primary measures for the Autism Tutors included performance accuracy on the written knowledge tests and during simulated assessments. These measures were defined and measured as in Experiment 1. The primary measures for the Autism Consultant included procedural fidelity for implementing the online self-instructional training package delivered via

CAPSI. A behavioral checklist was used to measure whether the Autism Consultant had implemented the online self-instructional training package correctly. The six target behaviors which were scored included: (a) providing instructions to the Autism Tutors to access the online self-instructional training package, (b) providing the Autism Tutors with all the necessary materials to conduct the simulated assessments, (c) issuing the instructions needed for the Autism Tutors to conduct the assessment, (d) being available to address Autism Tutors' questions or appeals throughout training, (e) scoring unit exercises correctly, and (f) providing appropriate feedback (i.e., verbal feedback following simulated assessments and written feedback on unit exercises) to the Autism Tutors. The experimenter scored each target behavior as correct, incorrect, or not applicable on the behavioral checklist, through live observations during each research session. Procedural fidelity for each assessment was calculated by dividing the number of correct responses by the Autism Consultant by the total number of applicable responses on the behavioral checklist and multiplying the result by 100. The Consultant implemented the training program with 100% accuracy for all Autism Tutors. In addition, the Autism Consultant and Autism Tutors were asked to complete a questionnaire to evaluate the social validity of the online self-instructional training package after the intervention.

Procedure

The role of the Autism Consultant was to implement the online self-instructional training package with the Autism Tutors. More specifically, the Autism Consultant was responsible for managing the web-based CAPSI system, and the Autism Tutors were enrolled as trainees to learn to conduct the PS procedure. At the beginning of the experiment, the Autism Consultant received a one-hour training session on how to use and implement the online self-instructional package on the CAPSI system. Training included a review of setting up participant accounts on the CAPSI

system and the CAPSI web-interface, important links (e.g., changing passwords, message box, appeals, etc.), study materials, scoring unit exercises, and expectations during simulated assessments (e.g., issuing instructions, playing the role of a simulated client with I/DD with no speech, and following scripted responses).

Autism Tutors were notified that they could complete the online self-instructional training package at any location and time they chose. This was to ensure the setting and pace of training was determined entirely by the Autism Tutors, which was the intended format of the CAPSI system. They were also informed that the chosen setting needed to be equipped with a computer, Internet access, and speakers or headphones in order to access the study materials on the CAPSI system. The Autism Consultant and experimenter were available to the Autism Tutors while research sessions were being conducted.

Pre-intervention simulated assessment and written knowledge test. Each Autism Tutor was asked by the experimenter to conduct a simulated assessment and complete a written knowledge test before training began. The procedures for both measures were identical to those used in Experiment 1. The Autism Consultant played the role of a simulated client during simulated assessments.

Online self-instructional package, post-CAPSI simulated assessment, and post-CAPSI written knowledge test. The online self-instructional package was identical to that used in Experiment 1, as were the procedures for the post-CAPSI simulated assessment and written knowledge test. The Autism Consultant played the role of a simulated client during simulated assessments.

Generalization simulated assessment. The procedures for the generalization simulated assessment were the same as in Experiment 1. A trained research assistant played the role of a simulated client during simulated assessments.

Observer Training, Interobserver Agreement, and Procedural Integrity

Observer training. As in Experiment 1, each Autism Tutor's behaviors were independently scored by the experimenter and a trained research assistant using the PSEF (see Appendix D). Observer training procedures were identical to those used in Experiment 1.

Interobserver agreement. Reliability checks were conducted across all simulated assessments via observations or video recorded sessions as in Experiment 1. The mean agreement across Autism Tutors and sessions was 98% (range 96% to 100%).

Simulated client script adherence. The simulated clients' adherence to a pre-determined script during all simulated assessments conducted by the Autism Tutors were evaluated by a trained observer as described in Experiment 1. Script adherence during baseline and post-CAPSI simulated assessments averaged 98% (range 97% to 100%) and script adherence during generalization simulated assessments averaged 100% across sessions.

Social Validity

The Autism Consultant was asked to complete a 10-item questionnaire, and each Autism Tutor staff participant was asked to complete an 11-item questionnaire, at the end of Experiment 2 (see Appendices U and V, respectively). The questionnaires were adapted from those used in Arnal (2013), Chand (2015), and Ramon (2013). The purpose of the questionnaire for the Autism Consultant was to probe for feedback on the implementation and management of online self-instructional training package delivered via CAPSI. The purpose of the questionnaire for the Autism Tutors was the same as in Experiment 1 (i.e., to evaluate the goal of the study, the ease

of use of study materials, their perceived effectiveness of the training package, and whether they would recommend the online self-instructional training package to others). The rating scales of the questionnaires were identical to that of the surveys used in Experiment 1.

Results

Figure 5 shows performance accuracy across simulated preference assessment sessions and written knowledge tests, during each phase, for all three Autism Tutors (P13, P14, and P15). Baseline performance accuracy during simulated assessments ranged from 27% (P14) to 38% (P13), with an average of 31.8% correct across participants. Autism Tutors' baseline performance accuracy on written knowledge tests were 56% (P13), 44% (P14), and 67% (P15), with a mean accuracy of 55.7% across participants. Following the online self-instructional training package, all three Autism Tutors exceeded the mastery criterion during post-CAPSI simulated assessments, with an average of 90% correct (range 82% [P14]-95% [P13]). The mean accuracy across participants on written knowledge tests was 94.3% (range 89% [P14]-100% [P15]). All three Autism Tutors conducted a follow-up generalization simulated assessment, 7 to 14 days post-CAPSI (M = 9.7 days). Performance accuracy during generalization simulated assessments remained above mastery level for all three Autism Tutors, with a mean accuracy of 88.7% (range 81% [P14]-94% [P13]).

In summary, Autism Tutors showed low and relatively stable performance across baseline simulated assessments. Large and immediate improvements were observed and replicated across all three Autism Tutors after receiving the online self-instructional training package delivered via CAPSI in the multiple-probe design (see Figure 5). There was no overlap observed in performance levels between baseline and post-CAPSI measures, and all Autism Tutors met and exceeded the mastery criterion during post-CAPSI assessments. Moreover, all

Autism Tutors maintained their performance above the mastery criterion during generalization simulated assessments.

Training Time

Across Autism Tutors, the average time spent studying the online self-instructional training package (i.e., the PS SIM and watching videos) via CAPSI was 93.3 minutes (range 70-120 min). Further, the number of attempts to pass a unit exercise in CAPSI averaged 1.4 (range 1-3) across Autism Tutors. The average amount of time spent reviewing the behavioral checklist prior to generalization simulated assessments was 6 min (range 5-7) across Autism Tutors.

Error Analysis

The mean percentage of incorrect responses (i.e., errors), across all Autism Tutors, for each target response on the PSEF (see Appendix D) during baseline, post-CAPSI intervention, and follow-up generalization simulated assessments is shown in Table 5. The error rate for each target response on the behavioral checklist was calculated using the same method as in Experiment 1. The mean percentage of incorrect responses was observed to be high during baseline simulated assessments across Autism Tutors (i.e., 50% or higher on 13 of 22 target responses). The highest rates of error (i.e., mean error rates of 90% and above) occurred on two target responses: sampling each item with the client and waiting for 15 s for a response and then repeating the instruction after the client does not select either item. Error rates during post-CAPSI simulated assessments decreased substantially in comparison to baseline error rates. Further, the mean percentage of incorrect responses was above 50% on only 3 of 22 target responses (i.e., sampling each item with the client; waiting 15 s for a response and repeating the instruction after the client does not select either item; and waiting an additional 15 s). During follow-up generalization simulated assessments, error rates remained low across 20 of 22 target

responses and improved further across 11 of 22 target behaviors in comparison to post-CAPSI error rates. The highest rates of error occurred on the target responses for sampling each item with the client and removing unselected items after the client made a selection response.

Social Validity

Autism tutors. The average ratings for each statement on the social validity questionnaire across Autism Tutors at post-CAPSI are shown in Table 6. Overall, ratings across Autism Tutors were high across the majority of items/statements. All six statements were rated either 4 or 5 (i.e., agree or strongly agree). More specifically, Autism Tutors found the goal of the study to be important, felt that the training materials were easy to follow and understand, indicated that that the training materials provided all the necessary information for them to conduct the assessment, found the inclusion of the video clips helpful, and felt they had successfully learned to conduct a PS preference assessment after studying the materials. They indicated that they were confident and ready to implement the assessment with an individual with I/DD, would recommend the online self-instructional training package to others who wished to learn the procedure, and would likely use the preference assessment with clients they were supporting.

Autism consultant. The ratings for each statement on the social validity questionnaire for the Autism Consultant were high across all 10 items, ranging from 4 to 5 (i.e., agree or strongly agree, see Table 7). More specifically, the Autism Consultant felt that the goal of the study was important, the online self-instructional training program delivered via CAPSI was easy to manage, the SIM was easy to follow and understand, the amount of time it took to implement the online self-instructional training program was acceptable (M = 93.3 min per Autism Tutor), the amount of time it took to mark unit exercises and provide feedback was acceptable (between

2-5 min per unit exercise), and that they would likely continue to use this online self-instructional training package to teach direct-care staff to conduct preference assessments. Further, the Autism Consultant specifically commented that the "ease of marking unit exercises" and "the online accessibility of the training package" was what they liked most about the training. However, they noted challenges relating to the use of the CAPSI system, stating that, "future upgrades to the web-based program would be beneficial to ensure accessibility across a variety of platforms and to be more user friendly to parents of individuals with I/DD."

Discussion

The results of Experiment 1 demonstrated that the PS SIM, with the addition of video modeling delivered using the CAPSI system, successfully taught 11 of the 12 university students declarative and procedural knowledge to implement the PS preference assessment procedure. Further, all 12 students maintained or surpassed their performance accuracy during follow-up generalization simulated assessments. All students rated the online self-instructional training package favorably as a training method to learn to conduct these assessment procedures. In Experiment 2, a clinician obtaining their master's degree in ABA and with no prior experience with the online CAPSI program implemented the intervention with 100% procedural fidelity after a single one-hour training session provided by the experimenter. The results also demonstrated that the PS SIM, with the addition of video modeling delivered via CAPSI, successfully taught all three Autism Tutors (i.e., direct-care staff) declarative and procedural knowledge to conduct the PS preference assessment procedure, with all staff maintaining or surpassing their performance accuracy during follow-up generalization simulated assessments. Finally, the Autism Consultant and Autism Tutors all rated the online self-instructional training package favorably as a training method to be used in clinical settings.

Overall, while a more traditional research design with additional repeated measurement would have been preferred, both experiments showed strong internal validity in the concurrent multiple-probe design, suggesting that the results observed were due to the online self-instructional training package, despite small increases in performance accuracy observed across baseline simulated assessments for three students (i.e., P3, P8, and P11) and one Autism Tutor (i.e., P15). It is possible that the increases may have been a result of repeated practice. However, the sizeable increase in performance accuracy immediately following (and not before) the online self-instructional training package at different time points, relative to baseline, as well as the replications across multiple participants, provided strong support for the conclusion that the observed effects were due to the intervention, and not other factors. Moreover, no participant met the mastery criterion after studying the written method description, and all participants (with the exception of P7) showed large and immediate increases in performance accuracy during simulated assessments and on written knowledge tests after the online self-instructional package, regardless of whether it had been preceded by the written method description. This finding provides additional evidence to the internal validity of the online self-instructional training package. Lastly, the online training program also yielded a high level of generalization of the learned skills.

The performance of Participant 7 warrants discussion. This was the only participant who did not meet mastery criterion at post-CAPSI. Normally, a person who had not met the mastery criterion would not have been asked to assess a client. However, since the generalization assessment was simulated, P7 was asked to conduct the assessment and her performance during the assessment was unexpected (see Figure 3). A closer examination of Participant 7's simulated assessment session at post-CAPSI showed that she requested to discontinue the session after only

6 of the 12 preference assessment trials had been conducted (she did not indicate why she wanted to terminate the research session), which resulted in a performance of 32% correct. However, if Participant 7's performance accuracy was based only on the six trials that she had completed, accuracy would increase to 78.4%, although still just below the mastery criterion. In addition, Participant 7 did not include answers for the last five questions of the written knowledge test at post-CAPSI (she also did not indicate why she wanted to terminate the knowledge test). If the last five questions were excluded, Participant 7's performance accuracy on the written knowledge test would have increased to 84.6%. These findings suggest that either the online self-instructional training package was successful in teaching Participant 7 to implement the PS preference assessment procedure and her behaviors at post-CAPSI were due to other reasons (e.g., health); or that the observed results at post-CAPSI accurately represented her skills and knowledge, and her subsequent improvement may have been due to a practice effect. It is possible that opportunities for additional, tailored training sessions on the PS preference assessment procedure could have increased this student's performance to mastery prior to the generalization simulated assessment.

The results of Experiment 1 contribute to the literature in several ways. First, the outcomes extend Chand's (2015) study by utilizing an alternative delivery method of the PS SIM (i.e., adapting the manual to be presented on the CAPSI system). With the documented success of the existing SIMs to teach mediators to conduct preference assessment procedures (e.g., Arnal Wishnowski et al., 2017; Chand, 2015; Hu, 2017; Ramon & Yu, 2010), it is highly beneficial to know that a computerized SIM that is consistent with up-to-date technology is equally as effective to train mediators to conduct the PS preference assessment procedure. Second, this study is only the fourth study that has evaluated the effectiveness of delivering a self-

instructional training package online to teach mediators to implement a preference assessment procedure (Arnal Wishnowski et al.; Higgins et al., 2017; Hu), and only the second study to specifically teach mediators to implement the PS preference assessment procedure using online training methods. Synthesizing several previously validated training components into an online self-instructional package, increases exposure to the material to be learned in several ways (e.g., written, visual, and audio formats) to increase performance accuracy for mediators who would not quite master the target skill(s) with only a single training technique (e.g., video modeling).This extends previous research on the CAPSI system by delivering textual and video study materials online, as opposed to a paper format, which is the traditional delivery method (e.g., Hu et al., 2012). In addition, the CAPSI system has been used in previous research for teaching academic courses, and its potential for teaching the practical application of a procedure such as PS preference assessments is still relatively novel (e.g., Arnal Wishnowski et al.; Hu, 2017). Further, the demonstrated effectiveness of the online self-instructional training package via CAPSI for PS preference assessments replicates and extends the findings of Hu (2017), who administered a similar online training package successfully in China, in a different geographical location. Third, this is only the second study (Arnal Wishnowski et al.) to utilize embedded video files in CAPSI to teach preference assessment procedures; Hu (2017) administered the studying of video clips separately from online delivery. The results lend further support for replication and extension of the existing support for video modeling as a training component to teach mediators to conduct preference assessment procedures (e.g., Deliperi et al., 2015; Hansard & Kazemi, 2018; Lipschultz et al., 2015), specifically PS preference assessment procedures. Fourth, the average time participants spent studying the PS SIM and watching the video files was similar to that reported in previous research (Chand). When compared with the reported average training

times of previous studies involving the use of face-to-face instruction training (e.g., 80 min in Lavie & Sturmey, 2002; 60-90 min in Pence et al., 2012), the average training time across participants for online self-instructional training methods are similar (e.g., 80.7 min for students in Experiment 1 and 93.3 min for Autism Tutors in Experiment 2 in the current study). This is important, as online self-instructional training methods offer greater accessibility, enhanced flexibility, and require fewer human-based resources when compared to direct instructional training methods. Lastly, Experiment 2 was the first to evaluate an online self-instructional training package delivered via CAPSI to teach PS preference assessment procedures in a clinical setting, with staff implementing the online training methods directly with other staff members. Results of the social validity questionnaire completed by the Autism Consultant indicated that they would continue to use the online self-instructional package to train direct-care staff on this procedure. Further, the Autism Tutor staff participants indicated that they were likely to recommend the online training package to others and were likely to implement the acquired skills with clients they were supporting directly. This is important, as the results contribute to the knowledge translation literature not only on dissemination methodology, but also on methodology to facilitate uptake of research knowledge in applied settings (Graham et al., 2006). The use of effective and efficient online training tools allows for accessible training of mediators located in remote areas and is consistent with current technological advances and the increased use of technology in educational and applied settings. Further, these online methods can be made available for training purposes without being cost-intensive, and therefore benefit all potential knowledge users, and the clients they support. As a result of these benefits and favorable ratings, there may be an increased probability that direct-care service providers will utilize these training methods in applied settings.

The findings of the current study have a number of implications for future research studies. First, although the online self-instructional package was found to be effective at improving performance when implementing the PS preference assessment procedure, the post-hoc error analysis revealed several errors that were common across participants in both experiments. Of particular note was the high mean error rate in forgetting to allow the client to sample each item at the beginning of the assessment, which was above 50% at post-CAPSI and generalization. Chand (2015) also reported this as one of the common errors in their study. A possible reason for the number of errors made during sampling in the current study is that the training on how to conduct the sampling of each item with clients was provided early in the PS SIM (i.e., Unit 2 of 5), with a large amount of material (i.e., target responses) learned subsequently. Additional prompting could be added to the latter sections of the manual to remind the reader to perform this step. Interestingly, small decreases in mean error rates were observed from post-CAPSI to generalization simulated assessments on several target responses. These results suggest that the refresher behavioral checklist provided to all participants prior to conducting the generalization simulated assessment may have contributed to these observed improvements in performance. To investigate this possibility, a review of the checklist could also be implemented at post-CAPSI in future studies.

Second, with regard to adapting and refining online delivery of the PS SIM and video modeling, it may be beneficial for future research to examine the effects of the development and inclusion of a final unit of the PS SIM in CAPSI which could include a summarized overview of important or key points from each unit, with corresponding video clips to depict implementation of an entire PS preference assessment procedure from start to completion (i.e., total-task chain).

This may be particularly important, as the video clips were rated highly as a beneficial training component across all participants.

Third, future research may also want to evaluate the effects of making additions to the PS preference assessment datasheet to help guide participants further during simulated assessments, and ensure that the assessment provides valuable and functional information (e.g., creating a checklist for sampling each item above the assessment trials, and an area to write-in what item[s] are most and least preferred based on the collected data versus only resulting percentages calculated).

Fourth, one self-reported suggestion to improve performance accuracy in the comments section of the social validity questionnaire across four students and two Autism Tutors was the inclusion of additional opportunities to practice conducting the PS preference assessment procedure using the required materials (i.e., items to be assessed, datasheet, etc.) prior to conducting assessments (i.e., simulated or actual). Three of five unit exercises in CAPSI asked the participant to either imagine themselves conducting the target responses they had just learned or role-play the target skills. However, these opportunities for role-play and practice were only taken by one student (P6), with the experimenter as the simulated client (in Experiment 1), and one Autism Tutor (P13), with the Autism Consultant as the simulated client (in Experiment 2). Results showed that both participants who utilized these opportunities demonstrated higher levels of accuracy during post-CAPSI simulated assessments than other participants within the same groups (see Figures 2 and 5). Future research should examine the effects of role-play and repeated practice on performance accuracy as a training method.

Fifth, future research should also consider revising some of the questions in the unit exercises. In their social validity questionnaires, five student participants and one staff

participant commented that the wording of some questions were not clear, and this had resulted in unit exercise questions being scored as incorrect, resulting in appeals. There were a total of seven appeals made to the experimenter and/or Autism Consultant across both experiments. Importantly, five of the seven appeals on these questions were considered valid and met with a decision by the individual scoring the unit exercises to permit the participant to proceed (i.e., a 'pass' was issued following the appeal). Appeals were made most often for questions from Unit 1 (Introduction to Preference) and Unit 3 (Presenting Items during A PS Preference Assessment). Therefore, revising the specific study questions from both units in the SIM based on these appeals could improve the future effectiveness of the training program.

Sixth, two students suggested including editing tools for the textual material delivered via CAPSI in post-CAPSI social validity questionnaires, such as the ability to highlight or underline important sections of information to extract key pieces of information from the body of the text, as this most resembled their study practices. Therefore, it may be beneficial for future CAPSI programs to incorporate editing tools for use when reviewing the textual material.

Several limitations of the current study should be noted. First, although the outcomes of Experiment 2 are very encouraging, the experiment included only a small number of participants. Additional Autism Consultants and Autism Tutors were unable to be recruited, despite considerable efforts to do so. Given that the St.Amant Autism Programs are the sole program in Manitoba which offers the opportunity for recruitment in a clinical setting, options for recruitment from another agency were unfortunately limited. In addition, since the experimenter is employed as an Autism Consultant in the St.Amant Autism Programs, a number of Autism Consultants who are the experimenter's colleagues and Autism Tutors that the experimenter supervised were excluded from recruitment eligibility to avoid dual relationships. Examining the

effects of the online self-instructional training package with additional direct-care staff and from different applied settings should be a high priority in future research, as the utility and benefits observed in the current study may be applicable in other organizational settings and programs supporting individuals with I/DD.

Second, one of the advantageous features of the CAPSI system is that it permits individuals to study the materials and write unit exercises at their own pace (i.e., they are not restricted by set schedules or locations). This promotes convenience, flexibility, and accessibility of the online content as a training method. This self-pacing feature was in effect in Experiment 2; however, all Autism Tutors requested to complete their studying and subsequent simulated assessment sessions at St.Amant (their place of work). As a result, all Autism Tutors completed the online self-instructional training package in one sitting, during scheduled times, and the potential effects of the self-paced feature in CAPSI could not be examined. Future research should directly examine the self-pacing feature when utilizing similar online self-instructional training packages delivered via CAPSI in applied settings.

Third, the experimenter (in Experiment 1) and Autism Consultant (in Experiment 2) were available while the students and Autism Tutors were completing the CAPSI program to allow completed unit exercises to be scored immediately. This was done for the purpose of this study to reduce participation time. In a true CAPSI implementation, there would likely be a delay in scoring unit exercises. Therefore, future field testing of training packages delivered via the CAPSI system, could incorporate a more realistic delay component in providing feedback.

Fourth, the compatibility of CAPSI with various web browsers should be addressed in future research. In the current study, the embedded videos were best viewed with Internet

Explorer®. They were not able to be viewed on Google Chrome®, Firefox®, or Safari® web-browsers.

Fifth, generalization was measured with simulated clients, instead of an individual with I/DD. Four potential client participants were recruited from St.Amant. However, two were excluded due to parent report that their child engaged in problem behavior that posed a risk to themselves (e.g., self-injury) or others (e.g., physical aggression), and the remaining two were unavailable due to scheduling difficulties. However, one previous evaluation of the PS SIM (Chand, 2015) and one evaluation of a PS online self-instructional training package (Hu, 2017) did demonstrate strong generalization of similar or identical training components to the assessment of clients diagnosed with I/DD following training. Although the generalization assessment in this study was not conducted with a client, the conditions were carefully programmed to probe for the full range of target behaviors. First, participants were exposed to a wide variety of stimuli to use during simulated assessments (e.g., a variety of edible items were used during pre- and post-intervention simulated assessments, and a variety of leisure items were used during follow-up generalization simulated assessments). This is especially important as the majority of textual and role-play examples in the unit material consisted of references to edible items. Next, participants were required to assess a novel research assistant (i.e., confederate) in, as often as possible, a different setting (i.e., different assessment room) for each simulated assessment. Lastly, by scripting the simulated client's behaviors to cover the full range of commonly-encountered client responses (e.g., not attending, not responding, selecting both items, etc.), participants were assessed on all aspects/responses of the procedure during simulated assessments, which may or may not occur when assessing a client. It would be

desirable for future research to include generalization assessments with individuals diagnosed with I/DD as well as with a confederate.

Lastly, due to the position of employment the experimenter holds at St.Amant, it is important that the potential for bias in Experiment 2 with regard to social validity measures is recognized (i.e., participants may have provided a more favorable rating because of the existing relationships). However, all staff participants were informed that their participation would not affect their employment or services that they receive from St.Amant in any capacity and participation in the study took place outside of normal working hours. In addition, the experimenter took steps to ensure that throughout the study duration, a specified procedure was followed when discussing any and all information regarding the study with staff members when asked (e.g., avoiding casual discussions and answering questions directly according to a script). Importantly, the social validity scores obtained at post-CAPSI were very similar across experiments, which lends support for the social significance ratings obtained independent of these existing employment relationships. This is important, as training methods that are deemed acceptable and favorable by direct-care staff, may be more likely to be adopted by organizations supporting individuals with I/DD. However, the current study only reported on post-intervention social validity measures. Future research should conduct both pre- and post-treatment social validity assessments, which would have further enhanced the comparison and results. Pre-treatment social validity assessments could be administered in the baseline phase and could be adapted to only include statements regarding the goal(s) of the study and whether participants feel it is important to learn to conduct preference assessment procedures for a comparison with post-treatment ratings.

Despite the limitations, the findings of this study have important implications. Overall, the cost, availability, accessibility, acceptability, efficiency, and effectiveness of the online self-instructional package may increase the probability that direct-care service providers will utilize this method of delivery to train direct-care staff in applied settings.

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Table 1

Demographic Information of Student Participants

Participant	Gender	Age	Area of Study	Years of University	Random Group Assignment
1	F	19	Psychology	2	1 CAPSI-Method
2	M	20	Science	3	1 CAPSI-Method
3	M	23	Computer Science	1	1 CAPSI-Method
4	F	21	Psychology	2	2 CAPSI-Method
5	F	19	Psychology	2	2 CAPSI-Method
6	M	23	Psychology	3	2 CAPSI-Method
7	F	21	Science	4	3 Method-CAPSI
8	M	19	Computer Science	1	3 Method-CAPSI
9	M	22	Science	2	3 Method-CAPSI
10	F	28	Commerce	4	4 Method-CAPSI
11	F	19	Psychology	2	4 Method-CAPSI
12	F	21	Genetics	4	4 Method-CAPSI

Note. Groups 1 and 2 CAPSI-Method received the online self-instructional training package followed by the written method description training. Groups 3 and 4 Method-CAPSI received the training in reverse order. Students in all groups only received the second intervention if they failed to meet the pre-determined mastery criterion after the first intervention.

Table 2

Mean Error Rates (%) at Baseline, Post-Method, Post-CAPSI, and During Generalization for Student Participants

Target Responses	Baseline (*n* = 12)	Post-Method (*n* = 6)	Post-CAPSI (*n* = 12)	Generalization (*n* = 12)
Preparing to Conduct an Assessment				
1. Fills-in name, client name, and date on the datasheet	85.0	100.0	8.3	8.3
2. Fills-in items to be assessed on the datasheet	15.0	33.3	8.3	0.0
3. Items to be assessed are located on the side table	30.0	0.0	0.0	0.0
4. Samples each item with the client	100.0	66.7	75.0	50.0
Presenting Items to a Client				
5. Holds up each item and ensures client is attending to items	87.1	95.8	0.3	0.0
6. Presents items one at time in front of the client	62.9	76.4	9.0	8.3
7. Presents items in the correct position	45.8	47.2	11.8	2.1
8. Presents correct instruction and waits 15 s for a response	87.9	66.7	1.4	0.0
After A Client Selects One Item				
9. Praises the client	85.0	91.7	30.6	20.8
10. Provides the client with the item and allows time to consume or interact with item	33.3	0.0	0.0	0.0
11. Removes unselected item	88.3	63.4	70.8	23.6
12. Records client's response	39.2	47.2	11.1	1.4
After a Client Does Not Select Either Item				
13. Waits 15 s for a response, then repeats the instruction	87.5	75.0	33.3	33.3
14. Waits an additional 15 s	87.5	75.0	41.7	20.8
15. Removes both items and records client's response	67.5	50.0	4.2	4.2
After a Client Approaches Both Items				
16. Gently blocks client's attempt	92.5	75.0	33.3	37.5
17. Removes any items from client and table	90.0	50.0	25.0	20.8
18. Re-presents the same trial	85.0	75.0	8.3	0.0
19. Once client selects one or neither item, records client's response	67.5	66.7	8.3	0.0
After a Client Rejects Both Items				
20. Removes both items	35.0	33.3	0.0	4.2
21. Records a "0" as client's response	27.5	58.3	4.2	8.3
Determining Preference Values				
22. Preference values correctly calculated for items	95.0	100.0	25.0	16.7

Note. Four items/target responses from the behavioral checklist were scored as "not applicable" across students for the purposes of this study, and as a result are not included in the error analysis.

Table 3

Student Participants' Mean Ratings for Each Item on the Social Validity Questionnaire

Item	Statement	Post-Method (n = 6)	Post-CAPSI (n = 12)
1	It is important for staff and/or parents working with individuals with DD to learn to conduct preference assessments.	4.5 (range 4-5)	4.8 (range 4-5)
2	The material was easy to follow and understand.	3.8 (range 3-4)	4.5 (range 4-5)
3	The material provided all the necessary information for me to do the assessment.	2.5 (range 2-3)	4.8 (range 4-5)
4	I found the video clips to be helpful.	–	4.9 (range 4-5)
5	I believe I have successfully learned how to conduct the PS preference assessment from studying the materials provided.	2.7 (range 2-3)	4.5 (range 4-5)
6	I feel confident and ready to conduct the PS preference assessment with clients after studying the materials provided.	2.5 (range 2-3)	4.1 (range 3-5)
7	I would recommend this training procedure to others who wish to learn how to conduct PS preference assessments.	2.7 (range 2-3)	4.3 (range 4-5)
8	If I were to work with individuals with DD, I will likely use this assessment.	3.7 (range 3-4)	4.5 (range 4-5)

Note. Groups 1 and 2 (CAPSI-Method) were included in the post-CAPSI ratings only. Groups 3 and 4 (Method-CAPSI) were included in both post-Method and post-CAPSI ratings. A rating of 1 indicated that the participant strongly disagreed with the statement. A rating of 5 indicated that the participant strongly agreed with the statement. The "–" indicates a non-applicable question.

Table 4

Demographic Information of Staff Participants

Participant	Gender	Age	Position	Years in Position	Prior Work Experience	Education
1	F	33	Autism Consultant	2.0	Direct Support Worker	B.A. Psychology, M.A. in progress
2	F	20	Autism Tutor	5.0	Direct Support Worker	–
3	M	23	Autism Tutor	0.5	Respite Worker, Educ. Assistant	2 undergraduate ABA courses
4	F	21	Autism Tutor	0.5	–	–

Note. A "–" indicates a lack of noted prior work experience before the current position and/or secondary education.

Table 5

Mean Error Rates (%) at Baseline, post-CAPSI, and During Generalization for Autism Tutor Participants

Target Responses	Baseline (n = 3)	Post-CAPSI (n = 3)	Generalization (n = 3)
Preparing to Conduct an Assessment			
1. Fills-in name, client name, and date on the datasheet	60.0	33.3	0.0
2. Fills-in items to be assessed on the datasheet	0.0	0.0	0.0
3. Items to be assessed are located on the side table	40.0	0.0	0.0
4. Samples each item with the client	100.0	100.0	66.7
Presenting Items to a Client			
5. Holds up each item and ensure client is attending	73.3	11.1	11.1
6. Presents items one at a time	75.0	2.8	0.0
7. Presents items in the correct position	31.7	11.1	2.8
8. Presents correct instruction and waits 15 s for a response	83.3	0.0	0.0
After A Client Selects One Item			
9. Praises the client	86.7	22.2	38.9
10. Provides the client with the item and allows time to consume or interact with item	0.0	0.0	0.0
11. Removes unselected item	73.3	44.4	66.7
12. Records client's response	0.0	5.6	0.0
After a Client Does Not Select Either Item			
13. Waits 15 s for a response, then repeats the instruction	90.0	50.0	33.3
14. Waits an additional 15 s	80.0	50.0	33.3
15. Removes both items and records client's response	30.0	0.0	0.0
After a Client Approaches Both Items			
16. Gently blocks client's attempt	60.0	0.0	33.3
17. Removes any items from client and table	70.0	16.7	16.7
18. Re-presents the same trial	40.0	16.7	0.0
19. Once client selects one or neither item, records client's response	60.0	16.7	0.0
After a Client Rejects Both Items			
20. Removes both items	0.0	16.7	0.0
21. Records a "0" as client's response	0.0	0.0	0.0
Determining Preference Values			
22. Preference values correctly calculated for each item	80.0	33.3	0.0

Note. Four items/target responses from the behavioral checklist were scored as "not applicable" across Autism Tutors for the purposes of this study, and as a result were not included in the error analysis.

Table 6

Autism Tutor Participants' Mean Ratings for Each Item on the Social Validity Questionnaire

Item	Statement	Post-CAPSI (n = 3)
1	It is important for staff and/or parents working with individuals with DD to learn to conduct preference assessments.	5.0
2	The material was easy to follow and understand.	4.7 (range 4 – 5)
3	The material provided all the necessary information for me to do the assessment.	4.7 (range 4 – 5)
4	I found the video clips to be helpful.	5.0
5	I believe I have successfully learned how to conduct the PS preference assessment from studying the materials provided.	4.3 (range 4 – 5)
6	I feel confident and ready to conduct the PS preference assessment with clients after studying the materials provided.	4.3 (range 4 – 5)
7	I would recommend this training procedure to others who wish to learn how to conduct PS preference assessments.	4.7 (range 4 – 5)
8	I will likely use this assessment with my clients at work.	4.7 (range 4 – 5)

Note. For scoring purposes, a rating of 1 indicated that the participant strongly disagreed with the statement. A rating of 5 indicated that the participant strongly agreed with the statement.

Table 7

Autism Consultant Participant's Ratings for Each Item on the Social Validity Questionnaire

Item	Statement	Rating
1	It is important for staff and/or parents working with individuals with DD to learn to conduct preference assessments.	5.0
2	The online training program was easy to manage.	4.0
3	The manual for the online training program was easy to follow and understand.	4.0
4	The amount of time it took to implement the online training program, identified above, was acceptable.	4.0
5	The amount of time it took to mark study exercises and provide feedback, identified above, was acceptable.	4.0
6	I will likely continue to use this online training package to teach staff to conduct preference assessments.	4.0

Note. A rating of 1 indicated that the participant strongly disagreed with the statement. A rating of 5 indicated that the participant strongly agreed with the statement. Only statements with the above-mentioned rating scale (i.e., does not include self-report format), from the questionnaire, are included.

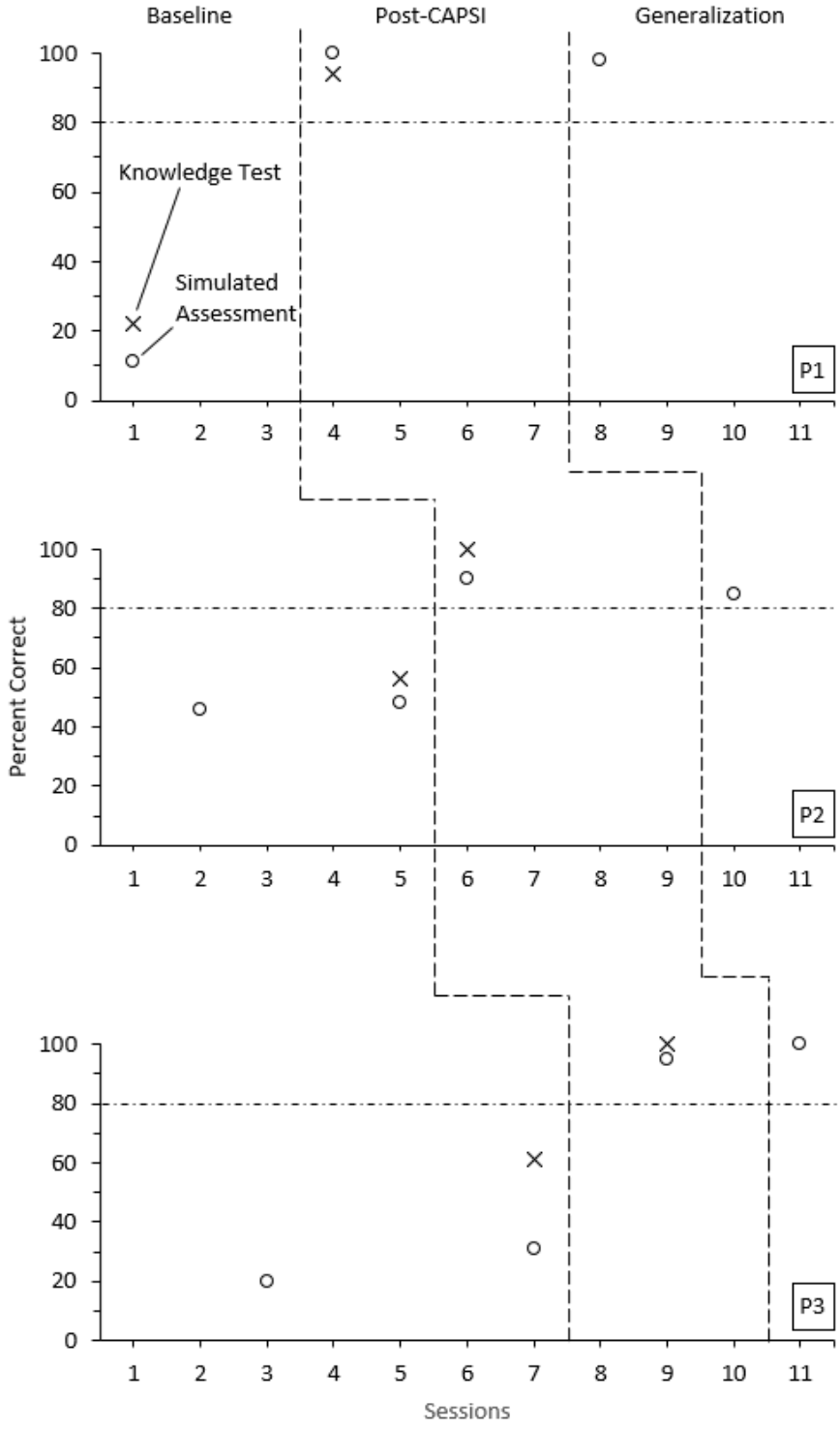

Figure 1. Percentage of correct responses during simulated assessments and written knowledge tests for Participants 1 through 3 (P1, P2, P3) in Group 1 (CAPSI-Method) in baseline, at post-CAPSI, and during generalization. Horizontal dash-dotted lines indicate the mastery criterion of 80% correct.

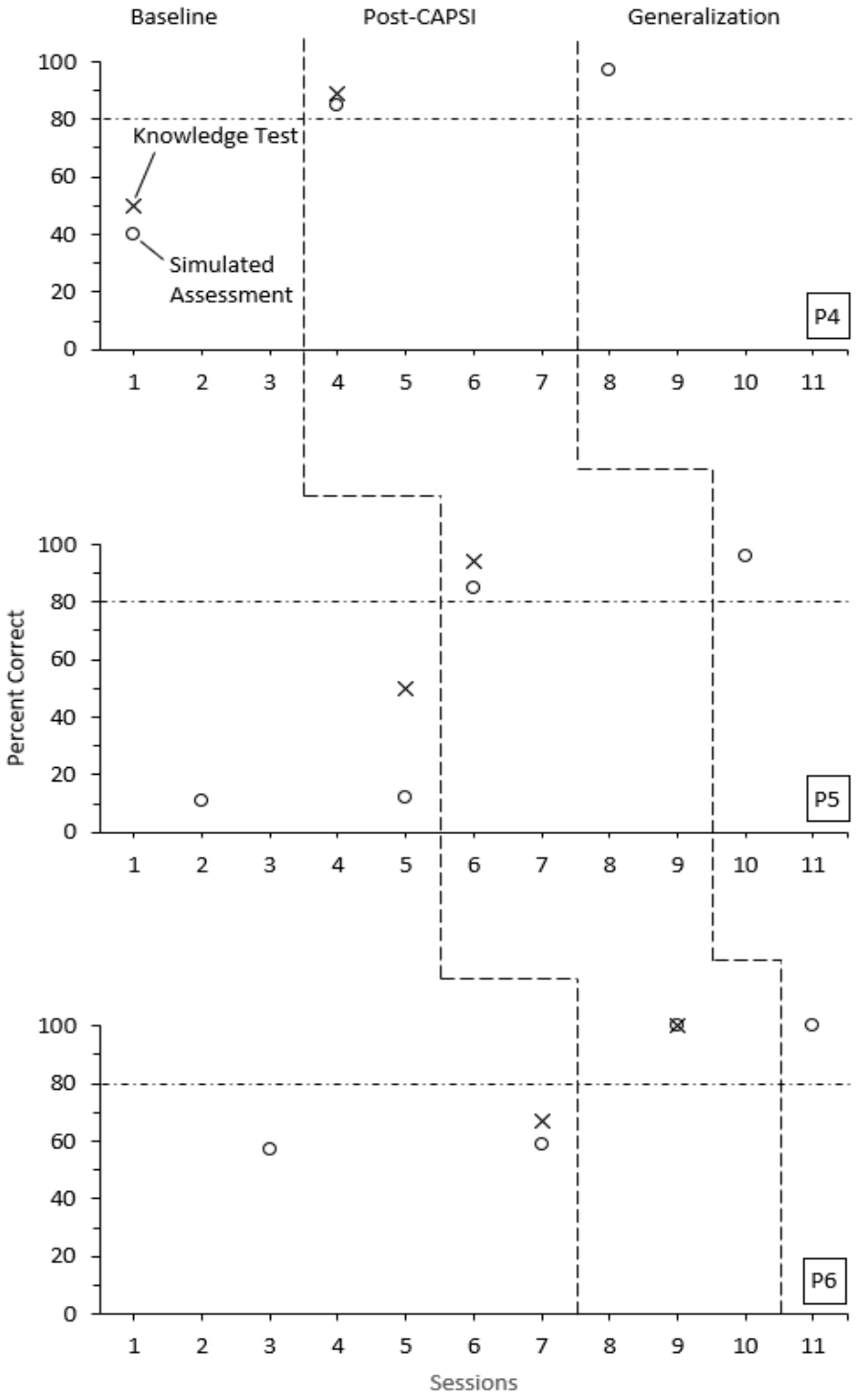

Figure 2. Percentage of correct responses during simulated assessments and written knowledge tests for Participants 4 through 6 (P4, P5, P6) in Group 2 (CAPSI-Method) in baseline, at post-CAPSI, and during generalization. Horizontal dash-dotted lines indicate the mastery criterion of 80% correct.

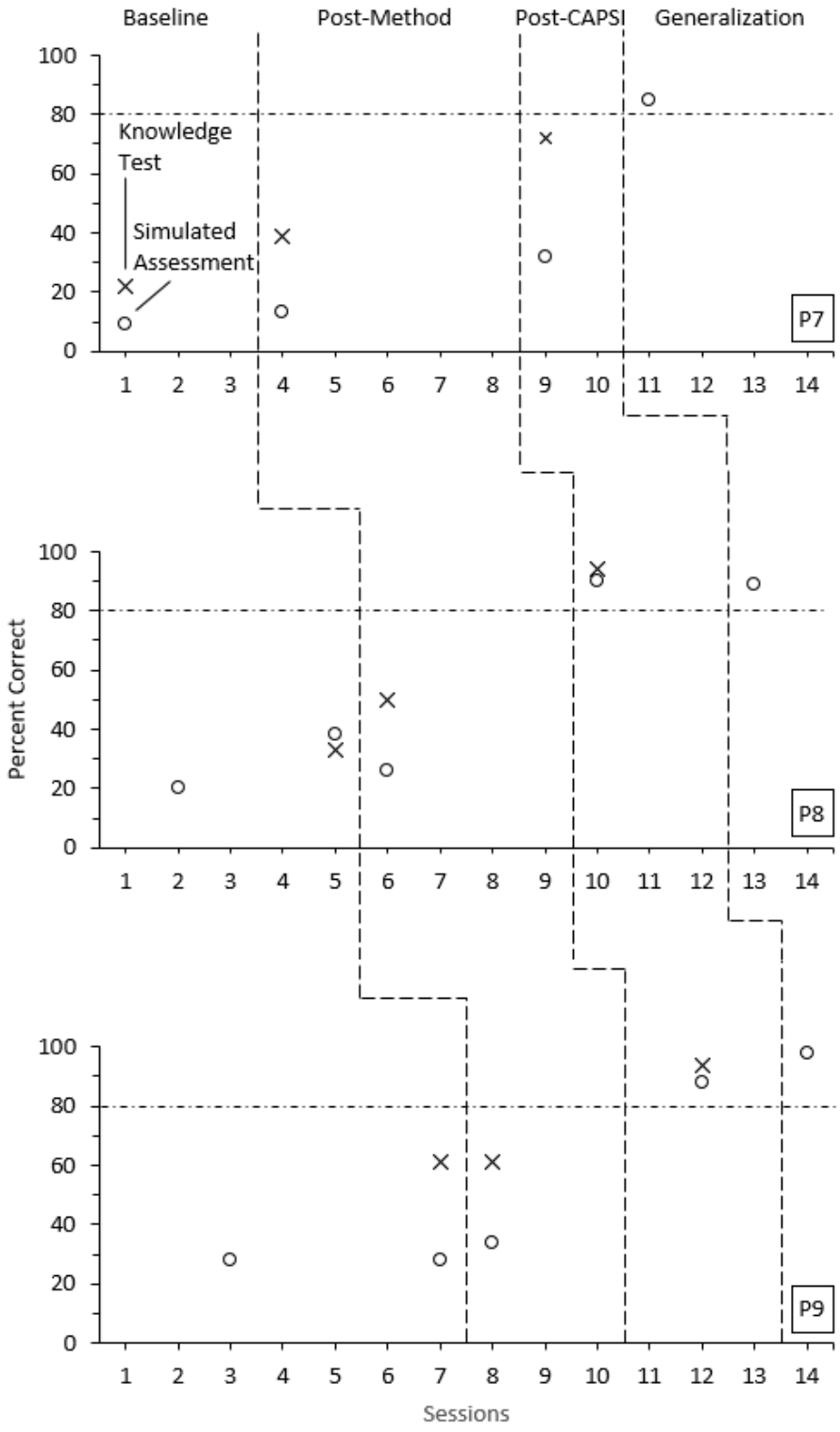

Figure 3. Percentage of correct responses during simulated assessments and written knowledge tests for Participants 7 through 9 (P7, P8, P9) in Group 3 (Method-CAPSI) in baseline, at post-Method, at post-CAPSI, and during generalization. Horizontal dash-dotted lines indicate the mastery criterion of 80% correct.

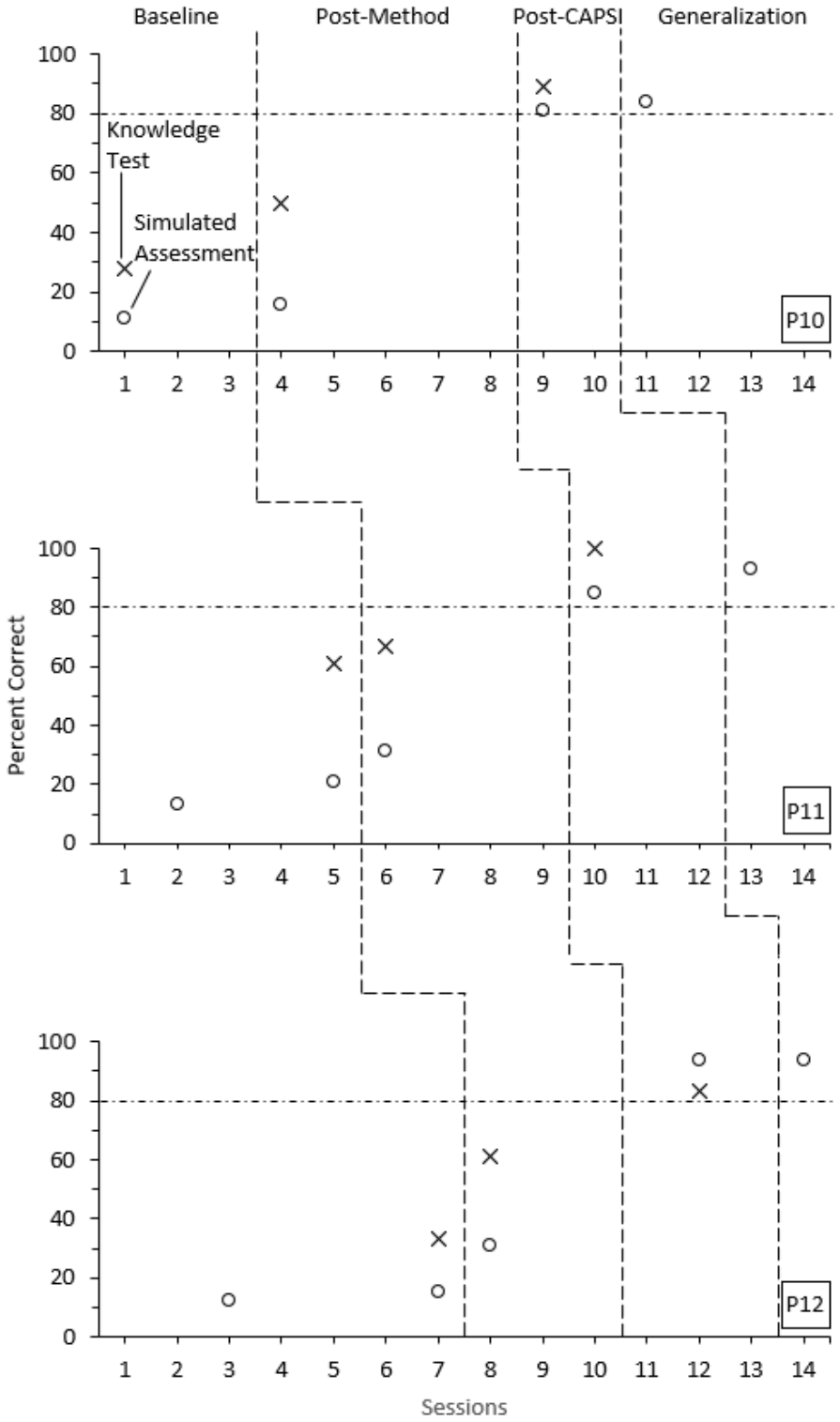

Figure 4. Percentage of correct responses during simulated assessments and written knowledge tests for Participants 10 through 12 (P10, P11, P12) in Group 4 (Method-CAPSI) in baseline, at post-Method, at post-CAPSI, and during generalization. Horizontal dash-dotted lines indicate the mastery criterion of 80% correct.

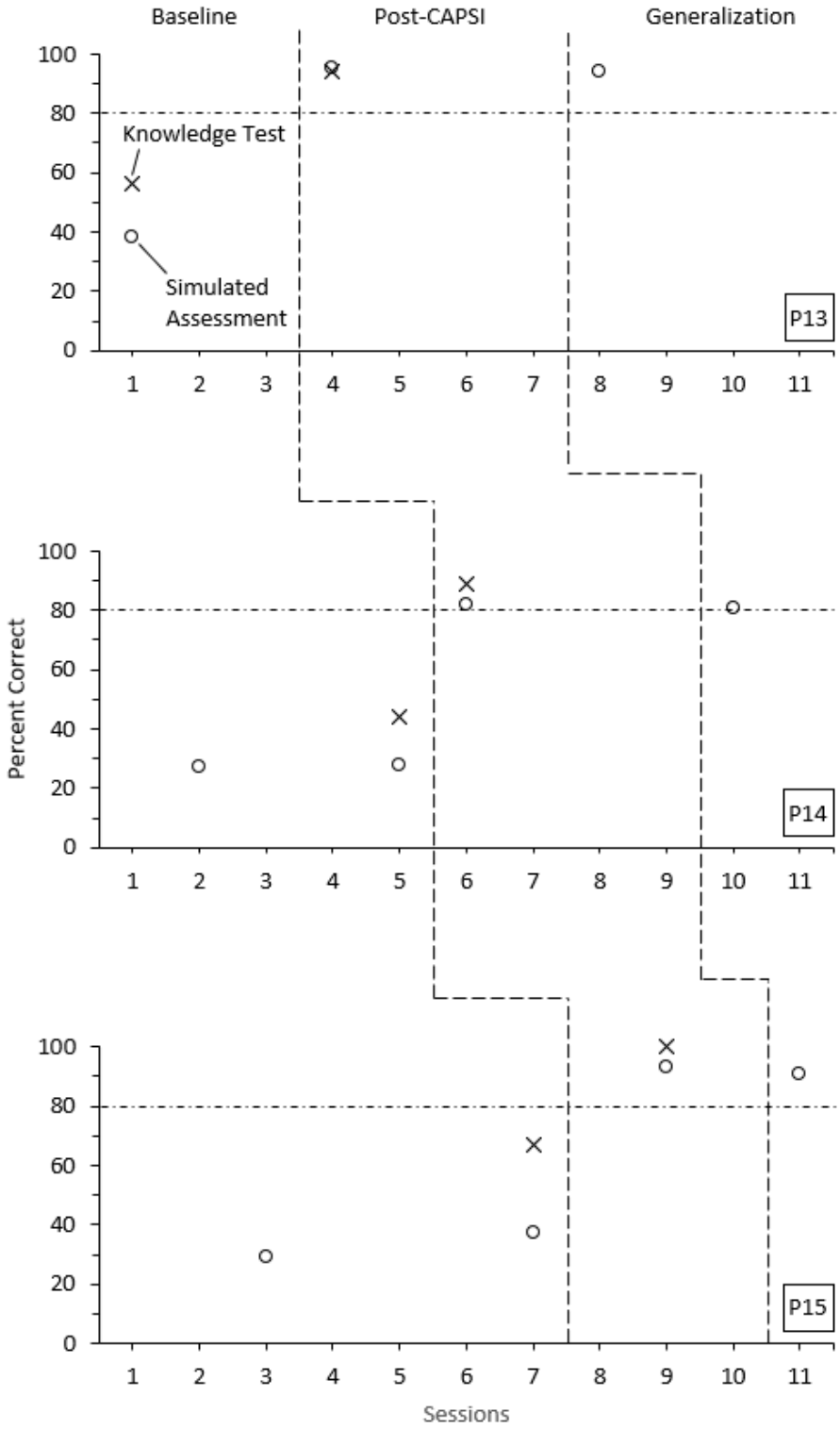

Figure 5. Percentage of correct responses during simulated assessments and written knowledge tests for Autism Tutor Participants 13 through 15 (P13, P14, P15) in baseline, at post-CAPSI, and during generalization. Horizontal dash-dotted lines indicate the mastery criterion of 80% correct.

Appendix A
Recruitment Letter for Student Participants

UNIVERSITY OF MANITOBA
Department of Psychology

190 Dysart Road
Winnipeg, Manitoba
Canada R3T 2N2
Phone (204) 474-9338

June 2018

Dear Student:

My name is Chelsey Michalyshyn and I am a graduate student in the Department of Psychology at the University of Manitoba. You are receiving this letter and the accompanying Project Description and Consent to Participation Form because you have responded to my recruitment poster for the project entitled, *Teaching Individuals to Conduct Paired-Stimulus Preference Assessment Procedures for Persons with Developmental Disabilities using Computer-Aided Instruction.*

I will be conducting this study for my Doctoral thesis, supervised by Dr. C.T. Yu, Professor of Psychology. I hope that you will review this letter and the project information and consider participating in this research.

The purpose of this study will be to evaluate the effectiveness of an online training program to teach people how to carry out a procedure, called paired-item preference assessment. This procedure is used to identify preferred and non-preferred food and leisure activities of individuals who may not be able to express their preference using words.

To be included in the study, you must be an undergraduate student and must not have received any prior training on using the paired-item preference assessment procedure. Although English does not have to be your first language, you should be proficient and comfortable in reading fairly lengthy materials and completing written exercises in English.

Total duration of participation will be approximately 3.5 hours, spread out over four sessions, to be held and scheduled at mutually convenient times. All sessions will be conducted at the University of Manitoba (Fort Garry Campus) or at St.Amant Research Centre (440 River Road). You will receive an honorarium of $10 at the start of each session for a maximum of $40 for participating in this study, regardless of how you perform.

Participants will be selected on a “first-come-first-serve” basis, in the order with which I receive the signed consent forms. Should I require additional participants for the study, those individuals who volunteered but were not included will be contacted in the order with which the consent forms were received.

Participation is voluntary and you may stop at any time and for any reason even after you have given consent. Your decision will not influence any course(s) you are taking or services you are/may be receiving now or in the future from the University of Manitoba or from St.Amant.

To provide consent, please complete and return the attached *Project Description and Consent to Participation Form* to me using the enclosed envelope. Thank you for considering this request and please contact me if you require more information.

Sincerely,

Chelsey Michalyshyn, M.A., PhD Candidate

Dr. C.T. Yu, Research Supervisor
University of Manitoba, Psychology

Appendix B
Project Description and Consent to Participation Form for Student Participants

190 Dysart Road
Winnipeg, Manitoba
Canada R3T 2N2
Phone (204) 474-9338

UNIVERSITY OF MANITOBA | Department of Psychology

Research Project Title:	Teaching Individuals to Conduct Paired-Stimulus Preference Assessments for Persons with Developmental Disabilities using Computer-Aided Instruction
Principal Investigator:	Chelsey Michalyshyn, PhD Candidate, Psychology Department, University of Manitoba
Supervisor:	Dr. C.T. Yu, Professor of Psychology, University of Manitoba,

This study is being conducted by Chelsey Michalyshyn as her PhD thesis, supervised by Dr. C.T. Yu. This description, a copy of which will be left with you for your records and reference, is only part of the process of informed consent. It should give you the basic idea of what the research is about and what participation will involve. If you would like more detail about something mentioned here, or information not included here, please feel free to ask using the contact information above. Please take the time to read this document carefully and to understand any accompanying information.

What is the purpose of the project?
The purpose of the study is to evaluate whether we can teach individuals to conduct a direct preference assessment procedure with persons with developmental disabilities using an online program. Preference assessment procedures are methods that can be used to find out the likes and dislikes of a person who may not be able to communicate with you verbally. The assessment method we are studying is called "paired-stimulus" or PS.

What are the project procedures and how long will the project take?
You will be asked to study written materials about the PS procedure, complete written exercises, watch some videos demonstrating the procedure, and conduct assessments live with a simulated client (i.e., someone playing the role of a person with developmental disabilities). You may also be asked to conduct an assessment live with a real client depending on your performance.

It will take four sessions to complete the study:

- Session 1: Review a brief set of instructions (approximately 5 minutes), conduct an assessment with a simulated client (approximately 15 minutes), and complete a brief written knowledge test (approximately 5 minutes).
- Session 2: Study a brief written description of the PS procedure (approximately 15 minutes), conduct an assessment with a simulated client (approximately 15 minutes), complete a brief written knowledge test (approximately 5 minutes) and answer a brief feedback questionnaire (approximately 5 minutes).
- Session 3: Study the PS procedure online (approximately 1 hour), conduct an assessment with a simulated client (approximately 15 minutes), complete a brief written knowledge test (approximately 5 minutes), and answer a brief feedback questionnaire (approximately 5 minutes).

- Session 4: Conduct an assessment with a real client (approximately 15 minutes). Whether you assess a simulated client or a real client will depend on your assessment results in Sessions 1, 2, or 3.
- The 4 sessions (totaling approximately 3 hours) will be scheduled at mutually convenient times.

Will your personal information be kept confidential?
We will be asking you to provide demographic information including age, gender, years in your university program, psychology courses taken, and experience with persons with developmental disabilities. Your name will be coded so that no one can link the information to you. All information obtained will be kept confidential and stored in a locked office. Only the research staff will have access. Any public presentations, reports, or publications resulting from the project will not contain any identifying information. The ability to link your name to the above information and the results of the study will be destroyed within 6 months after we finish the study (by approximately June 2019).

Video Recording
With your consent, sessions will be recorded to facilitate our observation. Participation in the study will not, however, be affected if you choose not to consent to the video recording of sessions. If you do not provide consent to record sessions, a trained research assistant will be present during sessions to facilitate in ensuring the accuracy with which the procedures are being carried out. Recorded data will be stored in a password protected network at the St.Amant Research Centre and the data will be erased securely by June 2019.

What if abuse is discovered during the course of this project?
All researchers and assistants working on this project have a legal responsibility to immediately report any instance of abuse to the Manitoba Child and Family Services (CFS) authority, as specified by The Vulnerable Persons Living with a Mental Disability Act of Manitoba and the Child Protection Act. We would report abuse even if doing so conflicted with our confidentiality obligations.

What are the risks and benefits in taking part in the project?
The procedures of this project present no risks to the participant beyond what he/she might encounter in everyday activities. Learning how to conduct a direct preference assessment is a useful skill when working with young children or individuals with developmental disabilities who are not verbal. We will attempt to teach you to do so in this study.

Will I receive the results of the project?
If you wish to be informed of the summary results of the study, please check YES in the appropriate box at the end of this form and we will send you a summary of the findings by approximately June 2019. We will not provide you with your individual results.

Is there any payment or cost for participating?
There will be no cost for participating in this study. We will reimburse you for parking at St.Amant if needed. In addition, students who participate in training will receive an honorarium of $10 at the beginning of each session (for up to a maximum of $40). The honorarium that you have received is yours to keep even if you decide to withdraw from the study later.

Is participation voluntary?
Participation is voluntary. Whether you give consent to take part in the project will not affect any educational or other services that you are receiving at the University of Manitoba or St.Amant now or in the future. Moreover, even after you give consent, you can stop any time and for any reason by simply

contacting the principal investigator. Again, your decision to stop will not affect your status in courses at the University of Manitoba now or in the future.

Signing the Consent Forms

Your signature on this form indicates that you have understood to your satisfaction the information regarding participation in the research project and agree to participate as a subject. In no way does this waive your legal rights nor release the researchers, sponsors, or involved institutions from their legal and professional responsibilities. You are free to withdraw from the study at any time, and/or refrain from answering any questions you prefer to omit, without prejudice or consequence. Your continued participation should be as informed as your initial consent, so you should feel free to ask for clarification or new information throughout your participation.

The University of Manitoba Research Ethics office may also require access to your research records for safety and quality assurance purposes. This research has been approved by the Psychology/Sociology Research Ethics Board. If you have any concerns or complaints about this project you may contact the Principal Investigator, the Research Supervisor, or the Human Ethics Coordinator (HEC) at 474-7122.

A copy of this *Project Description and Consent to Participation Form* has been given to you to keep for your records and reference.

Chelsey Michalyshyn, M.A., Ph.D. Candidate, Principal Investigator

Dr. C.T. Yu, Research Supervisor

Pinar Eskicioglu, B.Kin, M.Sc., Human Ethics Coordinator

Signatures

I, _____ here by consent to participate in the project titled "To Conduct Paired-Stimulus Preference Assessment for Persons with Developmental Disabilities Using Computer Aided Instruction."

(*please print your full name*)

I understand that I can revoke or amend this consent at any time and for any reason.

Please check YES or NO for the following items:	**YES**	**NO**
• I would like to receive the results of this project.		
If you responded Yes to the above, please write your email or mailing address here:		
• I allow the researchers to make confidential video records of sessions to improve the reliability of their observations.		

Signature of Consenting Individual **Date**

Name of Researcher/Delegate **Signature of Researcher** **Date**

Please return all pages of this *Project Description and Consent to Participation Form* in the enclosed stamped envelope to the principal investigator. An extra copy has been enclosed for your records. Thank you.

Appendix C
Demographics Questionnaire for Student Participants

Participant Code:

Instructions: Please fill-out the information in the form below. If you prefer not to answer a question for any reason, then you may leave it blank. Please do NOT put your name or any identifiable information anywhere on this form. Please let me know if you have any questions.

1. Are you proficient with the English language (both reading and writing)? Yes or No. Please circle. (*You must be proficient in reading and writing English to participate in this study. If you do not consider yourself proficient in English, you do not need to continue. You should let the researcher know now.)*

2. How old are you (years, months)? _____

3. What is your gender? _____

4. What degree/program are you currently working on?

_____
_____

5. What year of your program are you in? _____

6. Do you have any formal education or training on working with individuals with intellectual or developmental disabilities (e.g., autism spectrum disorder, Down syndrome, etc.)? If so, please describe below.

_____
_____
_____
_____

7. Have you received any prior training on how to conduct preference assessments (i.e., procedures to find out the likes and dislikes of a person with developmental disabilities)? If so, please describe below.

_____
_____
_____
_____

8. Have you ever come into contact with computer-aided personalized system of instruction (CAPSI) in any of your educational courses or any other capacity (e.g., participating in research studies)? If so, please describe below.

_____
_____

Thank you

Note. Adapted and used with permission from, "Evaluation of a Self-Instructional Manual for Conducting Paired-Stimulus Preference Assessment with Individuals with Developmental Disabilities," by Chand,(2015) p. 75.

Appendix D
Paired-Stimulus Evaluation Form (PSEF)

Date: _____ Observer: _____
Participant Name: _____ Client/Actor: _____

Please record a "✓" for correct responses, a "X" for incorrect responses, and an N/A for not applicable.

Before an Assessment:

1. Fill out name, client name, and date on datasheet	
2. Label items to be assessed	
3. Items to be assessed are available on side table	
4. Samples item with the client (for each of 4 items)	

Presenting Trials	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
ANTECEDENTS												
5. Hold up each item and ensure client is attending to items												
6. Present items one at a time in front of the client												
7. Present items in the correct positions												
8. Say "Pick one" and wait 15 s for a response												
CONSEQUENCES												
Client Selects One Item												
9. Praise the client												
10. Provide client with the item and allow time to consume or interact (15 to 30 s)												
11. Remove unselected item												
12. Record client's response												
Client Does Not Select Either Item												
13. Wait 15 s for a response, then repeat "Pick one"												
14. Wait additional 15 s												
If client does not respond:												
15. Remove all items and record response												
If client selects item:												
16. Praise the client												
17. Provide client with the item and allow time to consume or interact (15 to 30 s)												
18. Remove unselected item												
19. Record client's response												
Client Selects Both Items												
20. Gently block the attempt												
21. Remove any items from client and table												
22. Re-present the trial												
23. Once client selects one or neither item, record client's response												
Client Rejects Both Items												
24. Remove both items from the table												
25. Record the client's response as "0"												

Determining Preference Values:

26. Preference values correctly calculated (for each of 4 items)	

Note. Adapted and used with permission from, "Evaluation of a Self-Instructional Manual for Conducting Paired-Stimulus Preference Assessment with Individuals with Developmental Disabilities," by Chand (2015), p. 74.

Appendix E
Instructions for Assessments with A Simulated Client for Student and Staff Participants

For this session you are going to be asked to assess the preferences of a client with no speech by conducting a preference assessment with four items.

This is a simulated assessment in that a graduate student will play the role of the client. For the items provided, please just try your best to find out what the client likes and what they don't like.

You have been provided with everything you need to assess the client's preferences: A datasheet, writing utensil, calculator, and the four items. Feel free to take a couple of minutes to look over everything provided.

There is a video camera set up to record the session for data collection and scoring purposes. You will have up to 15 minutes to conduct the assessment; however, the assessment may not take the entire time. I have provided a timer for reference, if needed. If at any time you feel you are finished and would like to stop the assessment before the 15 minutes is up, you can let me know. I am unable to answer any questions or provide any additional information about the assessment.

Please let me know when you are ready, and you can begin.

Note. Adapted and used with permission from, "Evaluation of a Self-Instructional Manual to Teach Multiple-Stimulus without Replacement Preference Assessment Procedure," by Ramon et al. (2015).

Appendix F
Paired-Stimulus Preference Assessment Datasheet

Date: _____ Tester:_____ Client:_____

Session #:
Items to be Assessed:

A		C	
B		D	

Trial	Items		Choice	**Trial**	Items		Choice
	Left	Right			Left	Right	
1	D	B		**7**	B	C	
2	D	C		**8**	B	D	
3	A	C		**9**	C	B	
4	C	A		**10**	A	B	
5	A	D		**11**	B	A	
6	C	D		**12**	D	A	

Preference Values

A: /6 = _____x 100 = _____% **C**: /6 = _____ x 100 = _____%

B: /6 = _____ x 100 = _____% **D**: /6 = _____ x 100 = _____%

Note. Used with permission from, "Evaluation of a Self-Instructional Manual for Conducting Paired-Stimulus Preference Assessment with Individuals with Developmental Disabilities," by Chand (2015).

Appendix G
Pre-and Post-Written Knowledge Test for Student and Staff Participants

Instructions: Please complete the following sheet by filling-in the blanks. If you are unsure of the answers, feel free to try your best and take a guess. If you would prefer not to write an answer, feel free to leave it blank. Take your time and let me know when you are finished.

1. In order to complete a PS assessment with 4 food items, you need to have at least _____ pieces of food.

2. When you are presenting items for the client to sample, present the items _____ at a time on the table.

3. Before each trial, check the _____ to see which two items you will be presenting. Hold each item at eye level in front of the client and say _____ before placing it on the table.

4. Once the two items are on the table, say _____ and wait for _____ seconds for a response.

5. If a client selects one item on a trial, _____ them (e.g., "good job"), give them the item, and _____ the other item from the table. If the item is a non-food item, allow the client _____ seconds to interact with the item.

6. If a client does not select either item on a trial, repeat the instruction _____ and wait an additional _____ for a response. If the client still does not respond, _____ both items and begin the next trial.

7. If a client approaches both items on a trial, gently _____ the client, remove the items from the table, and _____ the trial.

8. If a client rejects both items on a trial, _____ both items from the table, and mark a _____ on the datasheet.

9. Suppose that you are doing a preference assessment with Liam. On trial 9, a carrot stick, and a candy are presented. Liam first touches the carrot stick, but then touches the candy. Which item would you give to Liam and record as the choice for that trial?
_____

10. After you have completed a PS assessment, you will want to calculate preference values for each item. In order to calculate a preference value, divide the number of times an item was _____ by the number of times it was _____. Then, multiply this number by _____ to get the preference value.

Note. Adapted and used with permission from, "Evaluation of a Self-Instructional Manual for Conducting Paired-Stimulus Preference Assessment with Individuals with Developmental Disabilities," by Chand (2015).

Appendix H
Written Method Description and Instructions for Student Participants

Today you are going to read and learn how to do a preference assessment. Take as much time as you would like to go over the written procedures below. Once you are finished, I will ask you to do a preference assessment with a graduate student who will play the role of a person with no speech. The written procedures will not be available to you during the assessment. Please let me know when you are done studying.

Procedures

Prior to the beginning of the session, clients are given a sample of each of the edible items and are given 30s access to each of the leisure items.

In this assessment, items are presented to the client in pairs. Pair each item with every other item in a randomized order, for a total of 12 item-pair presentations. Items are randomly positioned (left or right) on each trial.

On each trial, place two items 0.7 m apart and approximately 0.7 m in front of the client. When the client is seated at the table, you will instruct the client to select one item. A selection response is recorded when the client makes physical contact with one of the presented items. If the client makes contact with more than one item, the first item contacted will be recorded as the selection.

If the client approaches one of the stimuli, allow them access to that item for 5s and remove the other stimuli. If the client approaches both items simultaneously, block their attempt. If the client does not approach either item within 5s, place the two items in front of the client for another 5s. If the client now approaches an item, allow them to access to that item for 5s and remove the other item. If the client does not approach either item within 5s, remove both items and begin the next trial.

Note. Adapted from, "A Comparison of Two Approaches for Identifying Reinforcers for Persons with Severe and Profound Disabilities," by W. Fisher et al., 1992, *Journal of Applied Behavior Analysis, 2,* p. 493, and "Evaluation of a Multiple-Stimulus Presentation Format for Assessing Reinforcer Preferences," by I. DeLeon and B. Iwata, 1996, *Journal of Applied Behavior Analysis, 29,* p. 522. Used with permission from, "Evaluation of a Self-Instructional Manual for Conducting Paired-Stimulus Preference Assessment with Individuals with Developmental Disabilities," by Chand (2015), p. 78.

Appendix I

Instructions for Student and Staff Participants for Online Self-Instructional Training Package

You will now complete an online training program on how to conduct a preference assessment.

You will need login and password to access the materials which has been provided by the experimenter. You will also be provided with all the materials you will need: a computer with an internet connection, a calculator, datasheet, and a writing utensil.

You can begin whenever you are ready by logging in with your user name and password. After you log in, please go to your message box and follow the instructions provided to complete the training program.

The experimenter will be present while you are completing the manual online if you have any questions. Depending on your question, I may or may not be able to answer. When you are done all units, I will ask you to again conduct a simulated assessment.

Note. Adapted and used with permission from, "Teaching Individuals to Conduct A Preference Assessment Procedure using Computer-Aided Personalized System of Instruction," by Arnal (2013).

Appendix J
Description of Video Clips Included in Online Self-Instructional Training Package

The following video clips were presented via the online training system (i.e., CAPSI). The clips showed the experimenter demonstrating each target response of the assessment procedure with a simulated client playing the part of an individual with no speech.

Video #1: How to Prepare the Datasheet

This video showed the tester filling in all required information on the datasheet (i.e., tester's name, client's name, date, and the items to be assessed). It also showed the tester placing all items to be assessed on the small table beside them.

Video #2: How to Present Items for Sampling

This video showed the tester presenting each item, one at a time, to the client and allowing the client to consume it (when assessing edible items) or interact with it (when assessing leisure items) for approximately 30 s.

Video #3: How to Present Items during an Assessment

This video showed the tester presenting the items to the client in pairs in the correct positions (i.e., left and right positions according to the datasheet) and allowing the client to consume or interact with the chosen item for approximately 30 s.

Videos #4, 5, 6, & 7: Providing Consequences for Client Responses

- **#4** – This video demonstrated steps for the tester when the client selects one item (i.e., providing praise, allowing the client to interact with it for approximately 30s, removing the other items on the table, and recording the client's response).

- **#5** – This video demonstrated steps for the tester when the client does not select either item (i.e., repeating the instruction if after 15s the client does not select one, waiting an additional 15s, removing the items from the table if the client has not yet responded, and recording a "zero").

- **#6** – This video demonstrated steps for the tester when the client approaches both items (i.e., gently blocking the client's response, removing any items in the client's possession or on the table, re-presenting the same trial, and recording the client's response).

- **#7 –** This video demonstrated steps for the tester when the client rejects both items (i.e., removing both items from the table and recording a "zero").

Video #8: Calculating Preference Values

This video showed the tester determining preference values and resulting potential preferred items for the client, after completing an assessment with the client.

Appendix K
Instructions for Simulated Generalization Assessment for Student and Staff Participants

For this session you are going to assess a client's preferences, with no speech, by conducting a preference assessment using four leisure items.

This is a simulated assessment in that a graduate student will play the role of the client. For the items provided, please just try your best to find out what the client likes and what they don't like.

You have been provided with everything you need to assess the client's preferences: A datasheet, writing utensil, calculator, and the four items. In addition, you have been provided with the behavioral checklist for conducting paired-stimulus preference assessment procedures. This checklist includes a summary of all the steps learned during online training. Please take as much time as you need to look over everything provided and let the experimenter know when you are ready to begin.

I can't answer any additional questions or provide any additional information about the assessment procedures at this time. There is a video camera set up to record the session for data collection and scoring purposes. You will have up to 15 minutes to conduct the assessment; however, the assessment may not take the entire time. I have provided a timer for reference, if needed. If at any time you feel you are finished and would like to stop the assessment before the 15 minutes is up, you can let me know.

Note. Adapted and used with permission from, "Evaluation of a Self-Instructional Manual to Teach Multiple-Stimulus without Replacement Preference Assessment Procedure," by Ramon et al. (2015).

Appendix L
Behavior Checklist for Conducting Paired-Stimulus Assessments

Choosing an Area and Setting Up
• Choose a room or area that is quiet and free of distractions • Set up a table and two chairs so that you will be seated across from the client • Place a small table beside your chair, and out of reach of the client
Gathering Your Materials
• Gather six food or non-food items to assess • If you are using food items, break food into small pieces and make sure that you have at least 11 pieces of each food item, placed on the small table
Bringing Your Client to the Room
• You and your client will be seated opposite each other at the table
Allowing the Client to Sample Items
• Present an item on the table in front of the client • Ask the client to look at the item ("Look") and then ask them to take the item ("Take it") • Allow the client enough time to consume a food item, or 15-30 seconds with a non-food item • If the client does not take an item, gently prompt them. If they still do not take the item, remove the item • Repeat the above steps with each item you are assessing
Presenting Items
• Check the data sheet to see which two items you should present • Hold one item in front of the client and say "Look" • Once the client has looked at the item, place it on the table in the correct position • Repeat the above two steps with the second item • Say to the client, "Pick one", and wait up to 15 seconds for a response
After a Client Selects One Item
• Praise the client • Provide the client with the item selected and allow time for the client to consume (food) or 15-30 seconds to interact (non-food) • Remove other item from the table • Record the client's response by writing the appropriate letter in the "Choice" column
After a Client Does Not Select Either Item
• After waiting 15 seconds for a response, repeat the instruction "Pick one" • Wait an additional 15 seconds. If the client has still not responded, remove both items from the table • Record the client's response by marking a zero in the "Choice" column
After a Client Approaches Both Items
• Gently block the client • Remove any items in the client's possession or on the table • Re-present the same trial • Once the client selects one item or does not select either item, record the client's response as described above
Determining Preference Values
• Count how many times each item was chosen across all trials • Divide the number of times an item was chosen by the number of times it was presented • Multiply the above number by 100 to get a preference value for each item

Note. Used with permission from, "How to Conduct Direct Preference Assessments for Persons with Developmental Disabilities using A Paired-Stimulus Procedure: A Self-Instructional Manual," by Chand & Yu (2010).

Appendix M
Example of Simulated Client Script for Simulated Assessments

Trial	Attending (A) / Not Attending (NA)	Response 1	Response 2
1	A	Pick one item	
2	A	Approach two items	Pick one item
3	NA	Pick one item	
4	A	Do not select either item	Do not select either item
5	NA	Touch one item, then pick the second quickly	
6	NA	Reject both items	
7	A	Pick one item	
8	A	Approach two items	Pick one item
9	A	Pick one item	
10	NA	Do not select either item	Pick one item only
11	A	Pick one item	
12	A	Reject both items	

Note. Adapted and used with permission from, "Evaluation of a Self-Instructional Manual for Conducting Paired-Stimulus Preference Assessment with Individuals with Developmental Disabilities," by Chand (2015).

Appendix N
Feedback Questionnaire for Student Participants post-CAPSI

Thank you for participating in this study. Please complete this questionnaire to provide information regarding what you thought of this study and materials you have used. Your feedback is greatly appreciated. Your identity has been coded. Please do not provide your name or other identifiable information on this form.

Participant Code: **Date**: _____

Please indicate how strongly you agree or disagree with each statement by circling the number after each statement.

1. It is important for staff and/or parents working with individuals with developmental disabilities to learn to conduct preference assessments.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

2. The material was easy to follow and understand.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

3. The material provided all the necessary information for me to do the assessment.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

4. I found the video clips to be helpful.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

5. I believe I have successfully learned how to conduct the paired-stimulus preference assessment from studying the materials provided.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

6. I feel confident and ready to conduct the paired-stimulus preference assessment with clients after studying the written material provided.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

7. I would recommend this online training package to others who wish to learn how to conduct paired-stimulus preference assessment.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

8. If I were to work with individuals with developmental disabilities, I will likely use this assessment.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

Other Comments:

_____

_____

_____

_____

_____

Note. Survey adapted and used with permission from, "Evaluation of a Training Manual to Teach Multiple-Stimulus Preference Assessment" by Ramon (2013); "Evaluation of a Self-Instructional Manual for Conducting Paired-Stimulus Preference Assessment with Individuals with Developmental Disabilities," by Chand (2015); and "Teaching Individuals to Conduct a Preference Assessment Procedure using Computer-Aided Personalized System of Instruction", by Arnal (2013).

Appendix O
Feedback Questionnaire for Student Participants post-Method

Thank you for participating in this study. Please complete this questionnaire to provide information regarding what you thought of this study and materials you have used. Your feedback is greatly appreciated. Your identity has been coded. Please do not provide your name or other identifiable information on this form.

Participant Code: **Date**: _____

Please indicate how strongly you agree or disagree with each statement by circling the number after each statement.

1. It is important for staff and/or parents working with individuals with developmental disabilities to learn to conduct preference assessments.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

2. The material was easy to follow and understand.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

3. The material provided all the necessary information for me to do the assessment.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

4. I believe I have successfully learned how to conduct the paired-stimulus preference assessment from studying the materials provided.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

5. I feel confident and ready to conduct the paired-stimulus preference assessment with clients after studying the written material provided.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

6. I would recommend this procedural description to others who wish to learn how to conduct paired-stimulus preference assessment.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

7. If I were to work with individuals with developmental disabilities, I will likely use this assessment.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

Other Comments:

_____
_____
_____
_____
_____
_____

Note. Survey adapted and used with permission from, "Evaluation of a Training Manual to Teach Multiple-Stimulus Preference Assessment" by Ramon (2013); "Evaluation of a Self-Instructional Manual for Conducting Paired-Stimulus Preference Assessment with Individuals with Developmental Disabilities," by Chand (2015); and "Teaching Individuals to Conduct a Preference Assessment Procedure using Computer-Aided Personalized System of Instruction", by Arnal (2013).

Appendix P

Recruitment Letter for Autism Tutor Staff Participants

190 Dysart Road
Winnipeg, Manitoba
Canada R3T 2N2
Phone (204) 474-9338

UNIVERSITY OF MANITOBA | Department of Psychology

October 2018

Dear Autism Tutor:

My name is Chelsey Michalyshyn and I am a graduate student in the Department of Psychology at the University of Manitoba. The St.Amant Autism Programs Senior Manager has sent you this letter and a Project Description and Consent to Participation Form for a research study on my behalf. I have not received any personal information about you.

The title of the research project is *Teaching Individuals to Conduct Paired-Stimulus Preference Assessment Procedures for Persons with Developmental Disabilities using Computer-Aided Instruction.* I will be conducting this study as a part of my Doctoral thesis degree requirement, supervised by Dr. C.T. Yu, Professor of Psychology.

In the first study of my thesis, I have already shown that the online training program is effective in teaching university students to conduct paired-stimulus preference assessment. In the second (current) study, I will be evaluating whether the online training program can be implemented and managed successfully by staff members (Autism Consultants) to teach others (Autism Tutors) to carry out the procedure. If you participate in this study, you will be asked to complete a training program online. You may access the training program from any location with Internet access. You may complete the training program at your own pace, but for practical purposes the program must be completed within one month. You will also be asked to conduct a simulated assessment and a generalization assessment after training.

Since the preference assessment procedure is very useful for identifying reinforcers when working with children with autism spectrum disorder, it is highly beneficial for Tutors to learn this procedure. I hope that you will review this letter and the project information and consider participating in this research.

At least 6 participants will be recruited for this study. To be included in the study, you must be an Autism Tutor and have not received prior training on conducting preference assessment procedures.

You will receive an honorarium of $10 at the start of each session for a maximum of $40 for participating in this study, regardless of how you perform. Participation is voluntary and you may stop at any time and for any reason even after you have given consent. Your decision will not influence any course(s) you are taking, your employment, or services you are/may be receiving now or in the future from the University of Manitoba or from St.Amant.

To provide consent, please complete and return the attached *Project Description and Consent to Participation Form* to me using the enclosed envelope. Thank you for considering this request and please contact me if you require more information.

Sincerely,

Chelsey Michalyshyn, M.A., PhD Candidate

Dr. C.T. Yu, Research Supervisor
University of Manitoba, Psychology

UNIVERSITY OF MANITOBA
Department of Psychology
190 Dysart Road
Winnipeg, Manitoba
Canada R3T 2N2
Phone (204) 474-9338

Appendix Q

Recruitment Letter for Autism Consultant Staff Participants

October 2018

Dear Autism Consultant:

My name is Chelsey Michalyshyn and I am a graduate student in the Department of Psychology at the University of Manitoba. The St.Amant Autism Programs has sent you this letter and a Project Description and Consent to Participation Form for a research study on my behalf. I have not received any personal information about you.

The title of the research project is *Teaching Individuals to Conduct Paired-Stimulus Preference Assessment Procedures for Persons with Developmental Disabilities using Computer-Aided Instruction.* I will be conducting this study as a part of my Doctoral thesis, supervised by Dr. C.T. Yu, Professor of Psychology.

In the first study of my thesis, I have already shown that the online training program is effective in teaching university students to conduct paired-stimulus preference assessments. In the second (current) study, I will be evaluating whether the online training program can be implemented and managed successfully by staff members (Autism Consultants) to teach others (Autism Tutors) to carry out the procedure. Since the preference assessment procedure is very useful for identifying reinforcers when working with children with autism spectrum disorder, and since Autism Consultants are responsible for teaching Tutors to carry out a variety of behavioral procedures, this recruitment letter is sent to all eligible Autism Consultants. I hope that you will review this letter and the project information and consider participating in this research.

All instructions for managing the online training program and the specific procedures will be provided before the study begins, so experience with the program is not required for participation. The training time is estimated to be 1-1.5 hours.

All sessions will be conducted at St.Amant Research Centre. The amount of time it takes to manage the program is as follows: Marking exercises completed by Tutors is estimated to take approximately 5 minutes per exercise (there are 5 exercises in the program) and conducting simulated assessments and generalization assessments is estimated to take approximately 15 min each. The total amount of time, however, will depend on the number of times a tutor needs to complete an exercise, the number of tutors enrolled in the program, and whether tutors' performance accuracy meets a pre-determined mastery criterion to conduct generalization assessments with a real client. I plan to recruit one to three Autism Consultants for this study.

There is no cost for participating in this study. You will be provided with an honorarium for participating in the study of $40, which will be provided to you during the initial training session. Participation is voluntary and you may stop at any time and for any reason even after you have given consent. Even if you choose to withdraw consent, the honorarium is yours to keep. Your decision will not influence any course(s) you are taking, your employment, or services you are/may be receiving now or in the future from the University of Manitoba or from St.Amant.

To provide consent, please complete and return the attached *Project Description and Consent to Participation Form* to me using the enclosed envelope. Thank you for considering this request and please contact me if you require more information.

Sincerely,

Chelsey Michalyshyn, M.A., PhD Candidate

Dr. C.T. Yu, Research Supervisor
University of Manitoba, Psychology

Appendix R

Project Description and Consent to Participation Form for Autism Tutor Staff Participants

190 Dysart Road
Winnipeg, Manitoba
Canada R3T 2N2
Phone (204) 474-9338

UNIVERSITY OF MANITOBA | Department of Psychology

Research Project Title:	Teaching Individuals to Conduct Paired-Stimulus Preference Assessments for Persons with Developmental Disabilities using Computer-Aided Instruction
Principal Investigator:	Chelsey Michalyshyn, PhD Candidate, Psychology Department, University of Manitoba
Supervisor:	Dr. C.T. Yu, Professor of Psychology, University of Manitoba

This study is being conducted by Chelsey Michalyshyn as part of her PhD thesis, supervised by Dr. C.T. Yu. This description, a copy of which will be left with you for your records and reference, is only part of the process of informed consent. It should give you the basic idea of what the research is about and what participation will involve. If you would like more detail about something mentioned here, or information not included here, please feel free to ask using the contact information above. Please take the time to read this document carefully and to understand any accompanying information.

What is the purpose of the project?

This project has two studies and the first study has been completed. In that study, I evaluated the effectiveness of the online training program in teaching university students to conduct paired-stimulus (PS) preference assessment. The purpose of the second (current) study is to evaluate whether the online training program can be implemented and managed successfully by staff members (Autism Consultants) to teach others (Autism Tutors) to carry out the procedure.

What are the project procedures and how long will the project take?

You will be asked to study written materials about the PS procedure, complete written exercises, watch some videos demonstrating the procedure, and conduct assessments live with a simulated client (i.e., someone playing the role of a person with developmental disabilities). You may also be asked to conduct an assessment live with a real client depending on your performance.

These procedures will take place over several sessions as follows:

- Session 1: Complete a written pre-test (approximately 5 minutes), review a brief set of instructions (approximately 5 minutes), and conduct an assessment with a simulated client (approximately 15 minutes).

Please note that between Sessions 1 and 2, you will be asked to study the PS procedure online, at your own pace. The procedure will be presented in five units, with each unit ranging from one to three pages of text. Each unit ends with a short quiz and you must score 100% correct on the quiz before proceeding to the next unit. Each completed quiz will be submitted online and marked by an Autism Consultant. In previous studies using a paper version of the manual, participants took approximately 1 hour to read the entire manual. Since you will be studying the manual at your own pace, for practical purposes, we have set a maximum of one month for you to complete all units. However, if preferred all units can be completed within one day (or approximately 1-2 hours).

- Session 2: Complete a written post-test (approximately 5 minutes) and conduct an assessment with a simulated client (approximately 15 minutes).

- Session 3: Repeat the assessment with a simulated client *or* conduct an assessment with a real client (approximately 15 minutes). Whether you assess a simulated client or a real client will depend on your assessment results in Sessions 1 and 2. Answer a brief feedback questionnaire (approximately 5 minutes).

Will your personal information be kept confidential?
We will be asking you to provide demographic information including: age, gender, psychology courses taken, and experience with persons with developmental disabilities. Your name will be coded so that no one can link the information to you. However, your identity will not be anonymous to the principal researcher, Autism Consultant, and potentially clients in that you will be conducting direct assessments (i.e., simulated and/or generalization with them). All information obtained will be kept confidential and stored in a locked office. Only the research staff will have access. Any public presentations, reports, or publications resulting from the project will not contain any identifying information. The ability to link your name to the above information and the results of the study will be destroyed within 6 months after we finish the study (by approximately June 2019).

Video Recording
To participate in this part of the study, sessions will need to be recorded to facilitate our observation during all simulated assessments. During some generalization assessments, a trained research assistant may be present during sessions to conduct live scoring to ensure the accuracy with which the procedures are being carried out and the reliability of the recorded data. Please note that consent for video recording is required to participate. Recorded videos will be stored in a password protected network at the St.Amant Research Centre and the data will be erased securely by June 2019.

What if abuse is discovered during the course of this project?
All researchers and assistants working on this project have a legal responsibility to immediately report any instance of abuse to the Manitoba Child and Family Services (CFS) authority, as specified by The Vulnerable Persons Living with a Mental Disability Act of Manitoba and the Child Protection Act. We would report abuse even if doing so conflicted with our confidentiality obligations.

What are the risks and benefits in taking part in the project?
The procedures of this project present no risks to you beyond what you might encounter in everyday activities. Learning how to conduct a direct preference assessment is a useful skill when working with young children or individuals with developmental disabilities who are not verbal. We will attempt to teach you to do so in this study.

Will I receive the results of the project?
If you wish to be informed of the results, please check YES in the appropriate box at the end of this form and we will send you a summary of the findings by approximately June 2019. Individual results (regarding your performance accuracy during simulated and generalization assessments) will not be provided.

Is there any payment or cost for participating?
There will be no cost for participating in this study. You will receive up to a maximum of $40 (honorarium) for participating in the training sessions. The honorarium that you receive is yours to keep even if you decide to withdraw from the study later.

Is participation voluntary?
Participation is voluntary. Whether you give consent to take part in the project will not affect your employment at St.Amant now or in the future. All sessions will be conducted outside of regular working

hours and will not impact service delivery to the clients on your respective caseloads. Moreover, even after you give consent, you can stop any time and for any reason by simply calling the principal investigator. Again, your decision to stop will not affect your employment at St.Amant now or in the future.

Signing the Consent Forms

Your signature on this form indicates that you have understood to your satisfaction the information regarding participation in the research project and agree to participate as a subject. In no way does this waive your legal rights nor release the researchers, sponsors, or involved institutions from their legal and professional responsibilities. You are free to withdraw from the study at any time, and/or refrain from answering any questions you prefer to omit, without prejudice or consequence. Your continued participation should be as informed as your initial consent, so you should feel free to ask for clarification or new information throughout your participation.

The University of Manitoba Research Ethics Board(s) and a representative(s) of the University of Manitoba Research Quality Management/Assurance office may also require access to your research records for safety and quality assurance purposes. This research has been approved by the Psychology/Sociology Research Ethics Board. If you have any concerns or complaints about this project you may contact any of the above-named Principal Investigator or Research Supervisor, or the Human Ethics Coordinator at 474-7122 or by email at humanethics@umanitoba.ca.

Chelsey Michalyshyn, M.A., Ph.D. Candidate, Principal Investigator

Dr. C.T. Yu, Research Supervisor

Pinar Eskicioglu, B.Kin, M.Sc., Human Ethics Coordinator

A copy of this *Project Description and Consent to Participation Form* has been given to you to keep for your records and reference.

Signatures

I, _____ here by consent to participate in the project titled
(*please print your full name*) "To Conduct Paired-Stimulus Preference Assessment for Persons with Developmental Disabilities Using Computer Aided Instruction."

I understand that I can revoke or amend this consent at any time and for any reason.

Please check YES or NO for the following items:	**YES**	**NO**
• I would like to receive the results of this project.		
If you responded Yes to the above, please write your email or mailing address here:		
• I allow the researchers to make confidential video records of sessions to improve the reliability of their observations.		

Signature of Consenting Individual **Date**

Name of Researcher/Delegate **Signature of Researcher** **Date**

Please return the signed *Project Description and Consent to Participation Form* in the enclosed stamped envelope to the principal investigator. Thank you.

Appendix S
Project Description and Consent to Participation Form for Autism Consultant Staff Participants

UNIVERSITY OF MANITOBA

190 Dysart Road
Winnipeg, Manitoba
Canada R3T 2N2
Phone (204) 474-9338

Department of Psychology

Research Project Title: Teaching Individuals to Conduct Paired-Stimulus Preference Assessments for Persons with Developmental Disabilities using Computer-Aided Instruction

Principal Investigator: Chelsey Michalyshyn, PhD Candidate, Psychology Department, University of Manitoba

Supervisor: Dr. C.T. Yu, Professor of Psychology, University of Manitoba,

This study is being conducted by Chelsey Michalyshyn as part of her PhD thesis, supervised by Dr. C.T. Yu. This description, a copy of which will be left with you for your records and reference, is only part of the process of informed consent. It should give you the basic idea of what the research is about and what participation will involve. If you would like more detail about something mentioned here, or information not included here, please feel free to ask using the contact information above. Please take the time to read this document carefully and to understand any accompanying information.

What is the purpose of this study?
This project has two studies and the first study has been completed. In that study, I have shown that the online training program is effective in teaching university students to conduct paired-stimulus preference assessment. The purpose of the second (current) study is to evaluate whether the online training program can be implemented and managed successfully by staff members (Autism Consultants) to teach others (Autism Tutors) to carry out the procedure.

What are the project procedures and how long will the project take?
You will be asked to implement, manage, and provide feedback for an online training program to teach other staff members (Autism Tutors) to conduct paired-stimulus (PS) preference assessment. If you participate in the study, you will first receive instructions on how to manage the online training program. This will take approximately 1-1.5 hours. Training will be completed through a hands-on tutorial with the researcher at St.Amant.

Autism Tutors who enroll in the online training program will be asked to study written materials about the PS procedure, complete written exercises, watch some videos demonstrating the procedure, and conduct assessments live with a simulated client (i.e., a trained research assistant playing the role of a person with developmental disabilities). One of the roles of the Autism Consultant will be to score each exercise and give feedback to the Tutor. Each exercise should take 5 minutes to mark. In addition, the Autism Consultant will be asked to set-up and conduct simulated assessments and, if the tutor achieves mastery of the procedure during simulated assessments, a generalization assessment for the Autism Tutor to assess a client with developmental disabilities. Each assessment should take approximately 15 minutes to complete.

More specifically, procedures will generally take place as follows:

- Session 1: Receive training on management of the online training program by principal researcher (1-1.5 hours)

- Session 2: Provide Autism Tutor with a brief set of instructions and ask them to conduct an assessment with a simulated client (approximately 15 min). Provide the Autism Tutor with information for studying the online training materials online at their own pace (maximum time provided is one month per participant but if preferred can be completed within one day approx.. 1-2 hours) and be available throughout this period to provide feedback on their answers. All written exercises should be marked and returned to the Autism Tutors within 24 hours of receipt (each exercise should take no longer than 5 minutes to mark).
- Session 3: Provide Autism Tutor with a brief set of instructions (allow for approximately 5 minutes for review) and ask them to conduct another assessment with a simulated client (approximately 15 min).
- Session 4: If the Autism Tutor's performance meets a pre-determined mastery criterion, provide them with instructions and ask them to conduct a generalization assessment with a client with developmental disabilities (approximately 15 min) and answer a brief feedback questionnaire (approximately 5 minutes).

Will your personal information be kept confidential?
We will be asking you to provide demographic information including: age, gender, psychology courses taken, experience with training and preference assessment procedures, and experience with persons with developmental disabilities.

Your participation in the study will not be anonymous to the Tutors because you will be communicating with them through the online training program and conducting assessments with them. However, your personal information (e.g., age, duration at your position, educational background) will be kept in a locked office at the University of Manitoba, accessible only to my research supervisor. Any public presentations, reports, or publications resulting from the project will not contain any identifying information. Your personal information will be destroyed within 6 months after we finish the study (by approximately June 2019).

Video Recording
To participate in this study, sessions will need to be recorded to facilitate our observation during all simulated assessments. During some generalization assessments, a trained research assistant may be present during sessions to conduct live scoring to ensure the accuracy with which the procedures are being carried out and the reliability of the recorded data. Please note that consent for video recording is required for participation. Recorded data will be stored in a password protected network at the St.Amant Research Centre and the data will be erased securely by June 2019.

What are the risks and benefits in taking part in the project?
The procedures of this project present no risks to you beyond what you might encounter in everyday activities. Since the preference assessment procedure is very useful for identifying reinforcers when working with children with autism spectrum disorder, and since Autism Consultants are responsible for teaching Tutors to carry out a variety of behavioral procedures, the online training program, if successful, could offer tremendous benefits for Autism Consultants and Tutors. The training program may also benefit the Autism Program if it is adopted.

Will I receive the results of the project?
If you wish to be informed of the results, please check YES in the appropriate box at the end of this form and we will send you a summary of the findings by approximately June 2019.

Is there any payment or cost for participating?
There will be no cost for participating in this study. You will receive a $40 honorarium for participating at the initial training session. The honorarium that you have received is yours to keep even if you decide to withdraw from the study later.

Is participation voluntary?
Participation is voluntary. Whether you give consent to take part in the project will not affect your employment at St.Amant or educational services at University of Manitoba now or in the future. All sessions will be conducted outside of regular working hours and participation will not impact service delivery to the clients on your respective caseloads.

Moreover, even after you give consent, you can stop any time and for any reason by simply calling the principal investigator. Again, your decision to stop will not affect your employment at St.Amant or educational services at University of Manitoba now or in the future.

Signing the Consent Forms
Your signature on this form indicates that you have understood to your satisfaction the information regarding participation in the research project and agree to participate as a subject. In no way does this waive your legal rights nor release the researchers, sponsors, or involved institutions from their legal and professional responsibilities. You are free to withdraw from the study at any time, and/or refrain from answering any questions you prefer to omit, without prejudice or consequence. Your continued participation should be as informed as your initial consent, so you should feel free to ask for clarification or new information throughout your participation.

The University of Manitoba Research Ethics Board(s) and a representative(s) of the University of Manitoba Research Quality Management/Assurance office may also require access to your research records for safety and quality assurance purposes. This research has been approved by the Psychology/Sociology Research Ethics Board. If you have any concerns or complaints about this project you may contact the above-named Principal Investigator or Research Supervisor, or the Human Ethics Coordinator at 474-7122 or by email at humanethics@umanitoba.ca.

Chelsey Michalyshyn, M.A., Ph.D. Candidate, Principal Investigator

Dr. C.T. Yu, Research Supervisor

Pinar Eskicioglu, B.Kin, M.Sc., Human Ethics Coordinator

A copy of this *Project Description and Consent to Participation Form* has been given to you to keep for your records and reference.

Signatures

I, _____ here by consent to participate in the project titled "To Conduct Paired-Stimulus Preference Assessment for Persons with Developmental Disabilities Using Computer Aided Instruction."
(*please print your full name*)

I understand that I can revoke or amend this consent at any time and for any reason.

Please check YES or NO for the following items:	**YES**	**NO**
• I would like to receive the results of this project.		
If you responded Yes to the above, please write your email or mailing address here:		
• I allow the researchers to make confidential video records of sessions to improve the reliability of their observations.		

Signature of Consenting Individual **Date**

Name of Researcher/Delegate **Signature of Researcher** **Date**

Please return the signed *Project Description and Consent to Participation Form* in the enclosed envelope to the principal investigator. Thank you.

Appendix T
Demographics Questionnaire for Staff Participants

Participant Code:

Instructions: Please fill-out the information in this form below. If you prefer not to answer a question for any reason you may leave it blank. Please do NOT put your name anywhere on this form.

1. How old are you (years, months)? _____

2. What is your gender? _____

3. What is your position, and how long have you been in this position (years, months)?

_____
_____
_____

4. Other than your current position, do you have other experience working with people with developmental disabilities (e.g., intellectual disability, autism spectrum disorder, Down syndrome, etc.)? Please describe.

_____
_____
_____

5. Describe any formal education or training you have received on working with individuals with developmental disabilities.

_____
_____
_____

6. Describe any prior training (if any) you have received on how to conduct preference assessments.

_____
_____
_____

7. Have you ever come into contact with computer-aided personalized system of instruction (CAPSI) in any of your educational courses or any other capacity (e.g., participating in research studies)? If so, please describe below.

_____
_____
_____

Thank you

Note. Survey adapted and used with permission from, "Evaluation of a Training Manual to Teach Multiple-Stimulus Preference Assessment" by Ramon (2013); "Evaluation of a Self-Instructional Manual for Conducting Paired-Stimulus Preference Assessment with Individuals with Developmental Disabilities," by Chand (2015); and "Teaching Individuals to Conduct a Preference Assessment Procedure using Computer-Aided Personalized System of Instruction", by Arnal (2013).

Appendix U
Feedback Questionnaire for Autism Consultant Staff Participants

Thank you for participating in this study. Please complete this questionnaire to provide information regarding what you thought of this study and materials you have used. Your feedback is greatly appreciated. Your identity has been coded. Please do not provide your name or other identifiable information on this form.

Participant Code: **Date**: _____

Please indicate how strongly you agree or disagree with each statement by circling the number after each statement.

1. It is important for staff and/or parents working with individuals with developmental disabilities to learn to conduct preference assessments.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

2. The online training program was easy to manage.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

3. The manual for the online training program was easy to follow and understand.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

4. How much time did you spend to implement the online training program (i.e., to get the program up and running)?

_____

5. The amount of time it took to implement the online training program, identified above, was acceptable.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

6. How much time did you spend to mark unit exercises and provide feedback for all units? Provide the average time for one tutor.

_____

7. The amount of time it took to mark study exercises and provide feedback, identified above, was acceptable.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

8. Please describe what you liked most about the online training program and why.

_____
_____

9. Please describe what you liked least about the online training program and why.

_____

_____

10. I will likely continue to use this online training package to teach staff to conduct preference assessment.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

Other Comments:

_____

_____

_____

_____

_____

Note. Survey adapted and used with permission from, "Evaluation of a Training Manual to Teach Multiple-Stimulus Preference Assessment" by Ramon (2013); "Evaluation of a Self-Instructional Manual for Conducting Paired-Stimulus Preference Assessment with Individuals with Developmental Disabilities," by Chand (2015); and, "Teaching Individuals to Conduct a Preference Assessment Procedure using Computer-Aided Personalized System of Instruction", by Arnal (2015).

Appendix V
Feedback Questionnaire for Autism Tutor Staff Participants

Thank you for participating in this study. Please complete this questionnaire to provide information regarding what you thought of this study and materials used. Your feedback is greatly appreciated. Your identity has been coded. Please do not provide your name or other identifiable information on this form.

Participant Code: **Date**: _____

Please indicate how strongly you agree or disagree with each statement by circling the number after each statement.

1. It is important for staff and/or parents working with individuals with developmental disabilities to learn to conduct preference assessments.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

2. The material was easy to follow and understand.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

3. The material provided all the necessary information for me to do the assessment.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

4. I found the video clips to be helpful.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

5. I believe I have successfully learned how to conduct the paired-stimulus preference assessment from studying the materials provided.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

6. I felt confident and ready to conduct the paired-stimulus preference assessment with clients after studying the written material provided.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

7. I would recommend this online training package to others who wish to learn how to conduct paired-stimulus preference assessment.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

8. I will likely use this assessment with clients in my work.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree/Disagree	Agree	Strongly Agree

9. Describe the typical location(s) you used to complete your training program (e.g., work, home, etc.).

10. Describe what you liked most about the online training program.

11. Describe what you liked least about the online training program.

Other Comments:

_____

_____

_____

_____

_____

Note. Survey adapted and used with permission from, "Evaluation of a Training Manual to Teach Multiple-Stimulus Preference Assessment" by Ramon (2013); "Evaluation of a Self-Instructional Manual for Conducting Paired-Stimulus Preference Assessment with Individuals with Developmental Disabilities," by Chand (2015); and, "Teaching Individuals to Conduct a Preference Assessment Procedure using Computer-Aided Personalized System of Instruction", by Arnal (2015).