Experimental Evaluation of Self-directed Versus Instructor-assisted Online Applied

Behavior Analysis Training:

Examination of Post-Knowledge and Application Assessments with

Minority Students

by

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Abstract

Given the growing demand for applied behavioral analysis (ABA) training, self-instructional online programs could be useful to teach strategies to various individuals who are minority-ethnic and may need training (e.g., therapists, college students, parents). Although self-directed online training has been shown to be an effective learning method, little research has been done examining the best methods of online training with ethnic minority students. Past research suggests that instructor-assisted training may help minority-ethnic students overcome difficulties (low satisfaction, engagement, motivation, and understanding) with online training material. Participants reported issues based on possible cultural factors (i.e., miscommunication, negative perceptions from instructors, misunderstandings) and feelings of isolation negatively affecting their performance. In this study, a mixed subjects cross over experimental research design was used to evaluate the instructional effectiveness of learning ABA material by minority-ethnic college students in two online conditions (self-directed versus instructor-assisted). Post knowledge and application assessments measured participants' acquisition of ABA material in each online training condition. Subjective evaluation assessments measured participants' perceptions of the two online training conditions. The present study showed no statistically significant difference in participants' mean post-knowledge and application assessment scores and no difference in online training preference. However, participants' perceived that learning was greater in the instructor-assisted training condition in comparison to the self-directed training condition. Further research is needed for empirically informed decisions concerning the best way to provide online ABA training with minority-ethnic groups.

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`   Applied behavior analysis (ABA) refers to empirically verified procedures based

on learning principles and techniques used to assess and treat individuals' problem

behaviors and increase socially significant desirable behaviors (Cooper, Heron, &

Heward, 2020). Many populations have benefited from use of ABA, including parents,

teachers, students, as well as individuals with autism spectrum disorder (ASD) (Cooper et

al., 2020). The instructional content of an ABA program can include ways to change the

environment to increase the individual's desirable behaviors (e.g., providing reinforcers

or stimuli given to the individual immediately after a desired behavior) and decrease their

problem behaviors (e.g., extinction or no longer providing the reinforcer that maintains

the problem behavior, providing that specific reinforcer for a more appropriate behavior)

(Cooper et al., 2020).

        A cost effective method to teach ABA that can be delivered individually (alone)

with the use of a computer at a distance is online self-directed training (Suppo & Mayton,

2014). Given the growing demand for ABA training (e.g., rising prevalence of ASD

diagnoses), self-instructional online programs may be useful to teach ABA strategies to a

large number of individuals (practitioners, parents, and college students) who need

training (de Oliveira et al., 2016). Specific ABA strategies such as discrete trial training

knowledge and applied performances have shown to be effectively learned through a self-

directed online course with college students (de Oliveira et al., 2016). Flexibility in usage

and a wide deployment of these ABA educational techniques for non-traditional and working students is inherent with an online training format (Serna, Lobo, & Fleming, 2015).

Although online, self-directed training has shown some success at teaching ABA knowledge to various populations (Suppo & Mayton, 2014; Vismara et al., 2009), there may be disadvantages with this form of instruction. Some problems may include: (a) low student engagement with the learning modules; (b) lack of motivation to complete the training; and (c) difficulty understanding the material and no immediate way of clarifying the information (Ingersoll, Shannon, Berger, Pickard, & Holtz, 2017).

Instructor-assisted online training may overcome some of the disadvantages of online, self-directed training. This method of training entails participants' access to the online material and additional instructor assistance delivered via in person or online (skype/phone calls) in various forms such as: (a) feedback on what was done correctly and incorrectly; (b) answering the learner's questions to clarify the material; (c) check-ins for engagement with material to ensure completion of online material; and (d) positive comments to increase positive perceptions of the training (Ingersoll, Wainer, Berger, Pickard, & Bonter, 2016).

Possible benefits of utilizing instructor-assisted training can entail students having greater: (a) engagement with the material; (b) motivation level due to encouragement from the therapist; (c) clarity with material; (d) self-confidence; and (e) completion and satisfaction rates than with online self-directed training (Ingersoll et al., 2017). Also, when comparing student perceptions of online courses to face-to-face courses, online course students report preferring traditional learning (face-to-face) due to a lack of social

interaction with peers and the course instructor (Tichavsky, Hunt, Driscoll, & Jicha, 2015). Specifically, Ma et al. (2015) examined the impact that the instructor's role has on students' engagement in the online learning environment. Participants were students from 900 courses from various disciplines at the university in southeast China. A structural equation model analysis was utilized to evaluate correlations between pairwise variables. Providing guidance, encouragement, and assistance may enhance students' learning as well as lead to higher levels of student satisfaction with the online learning experience. Ma et al.'s study highlights the significance that the instructor's role (instructor's course preparation, guidance, and assistance with learning material) has on student engagement in online learning.

Researchers have compared instructor-assisted instruction (in person) versus online self-directed instruction (Vismara, Young, Stahmer, Griffith, & Rogers, 2009). Vismara et al. (2009) conducted a study with therapists learning ABA skills to promote positive changes in parents' ability to enhance their child's social communication. A quasi-experimental design with a baseline phase was used. There were ten therapists from four early intervention community sites, with five therapists in the self-directed condition and the other five in the live therapist-assisted condition, along with two children for both phases of interventions. Therapists increased learning and performance of parent coaching skills in both online self-directed training and live instructor-assisted conditions compared to baseline. The researchers found that there was no difference between therapists' and parents' knowledge levels. It was noted that although therapists were successful with training, they reported minimal comfort with the online self-directed compared to those who were trained via live, face-to-face format. The researchers

recognized limitations in detecting aspects of the training curriculum that were necessary to develop the most beneficial skills. It could be possible that adding the presence of a therapist to the online condition may increase participants' positive perceptions of that approach. Also, the sample involved volunteers from those receiving intervention such that generalization of the results to other populations could be questioned. Since a quasi-experimental research design (no random assignment leading to the possibility of uncontrolled variables) was used, the conclusions are limited. Additional research is necessary to clarify which approach—live versus online--would be most effective to achieve knowledge acquisition.

Instructor-assisted instruction may also benefit underprivileged students. These students were identified by the researchers to be from a harsh family environment or living in areas lacking access to satisfactory education. Kim and Lee (2001) conducted a survey to identify the type of assistance necessary to increase online learning satisfaction with underprivileged students. Participants in this study were 1,043 students and 915 underprivileged elementary and secondary students who were using online instruction through 16 local schools. In this survey, students' satisfaction levels were rated along a seven-point Likert scale. Kim and Lee found that instructor assistance, defined in this study as instructor's administering attendance, providing academic counseling, delivering task assistance and leading discussions, was associated with high level of satisfaction with online instruction by underprivileged students. However, satisfaction levels may not reflect student learning and so further research is needed to experimentally determine the method of instruction most beneficial for students utilizing these online programs.

Learner satisfaction with online instruction may be a contributing factor to engagement with the learning material for a variety of populations (parents, students, therapists). Kuo and Belland (2016) administered an online survey with minority students. The researchers found that engagement with the course material and interactions with the instructor were important predictors of minority student satisfaction. The addition of teacher presence and interaction may alleviate the issues with student lack of engagement with material and poor motivation to complete online learning (Tichavsky et al., 2015).

Supplementing online instruction with instructor assistance may lead to better student engagement with the learning material compared to only online self-directed learning. Ingersoll and Berger (2015) conducted an experiment with 27 parents of children with ASD to evaluate parent engagement and satisfaction between two online learning groups (self-directed versus instructor-assisted). Ingersoll and Berger's study, like Ma et al.'s (2015), found parent reports of engagement, as measured by a questionnaire, were significantly greater when therapist assistance was provided compared to when learning was self-directed.

A later experiment by Ingersoll et al. (2016) compared self-directed versus instructor-assisted online training of ABA strategies by parents with their child. The sample consisted of 28 families with children (ages 19-73 months) who were selected from organizations that served children with ASD. The parent-child dyads were randomly assigned to one of the two conditions. The experimenters measured parents' ABA knowledge and skill levels, and also their child's communication skills. It was found that there was better child social communication and parents held a greater positive

perception of their child for those in the instructor-assisted group compared to those in the self-directed group.

Although much research has been conducted with parents with children with ASD and college/university students (Guðmundsdóttir et al., 2017; Ingersoll & Berger, 2015; Ingersoll et al., 2017; Kim & Lee, 2001; Ma et al., 2015; Suppo & Mayton, 2014; Tichavsky et al., 2015), evaluation of the effectiveness of online instruction to teach ABA strategies to minority-ethnic groups is lacking (Berger, 2015; Ingersoll & Berger, 2015; Ingersoll et al., 2016; Suppo & Mayton 2014). In one of the few studies involving African Americans receiving ABA training, Robertson (2016) conducted a multiple baseline experimental research design across three parent child dyads. The findings from this experiment indicated that ABA training, along with therapist coaching, was effective in teaching those parents to implement a visual support program along with differential reinforcement to decrease problem behaviors with their child with ASD.

The possible benefits that instructor-assisted training may have for African American parents may also be applicable for students with a minority-ethnic background. Minority students may experience difficulties with online instruction that may be due to possible cultural issues (i.e., miscommunication, negative perceptions from instructors, misunderstandings) (Yeboah & Smith, 2016). Yeboah and Smith (2016) conducted a study using a mixed-methods approach, combining both qualitative and quantitative forms of research. A total of 149 minority college students (86 males, 63 females) enrolled in online courses in the Southeastern United States were given an online survey via email, which allowed participants' access for completion within a one-month period. It was found that the majority of students reported issues based on possible cultural

factors negatively affecting their performance. Online instruction may need to include cultural diversity practices (e.g., linguistic accommodations) by providing appropriate instructor support to students to promote greater student learning, performance, and satisfaction with online learning environments.

When teaching minority-ethnic populations in an online collaborative setting, instructors should tailor instruction by including cultural considerations (Kumi-Yeboah, Guangji Yuan1, & Dogbey, 2017). Specifically, Kelch-Oliver and Smith (2015) suggest some psychological, cultural, social, and economical factors that may be relevant for African American online parent training. These factors include: (a) adapting interventions to the specific learner populations to improve clinical utility (delivery style, wording changes, and audiovisual materials); (b) avoiding personal beliefs/practices around spanking and, instead, encouraging the use of positive alternatives; (c) involving instructors who are culturally competent, knowledgeable, and/or representative of the race/ethnicity of the population served; and (d) seeking feedback from group members on how to improve the group's cultural relevance, and utilizing this feedback for improving instruction.

Regarding online learning, specifically with minority populations, Athens (2018) conducted a survey to identify effective ways to engage learners in online courses. This evaluation was an effort to identify perceptions of learning community and engagement in relation to success for underrepresented populations of online learners. The results indicated that although the minority students engaged with the course work, they received lower grades than the non-minority students and eventually withdrew from the online course. Athens suggests that the minority students may have experienced greater

difficulty to effectively learn and remain engaged when using a self-directed online method and recommends further research concerning learner support. Furthermore, the online learning community may be enhanced by incorporating various methods (e.g., instructor interactions with minority students, interactive technology-based learning prompts, and providing guidance with learning material) to aid in learning engagement with minority populations. An experiment needs to be conducted to determine if these methods would be effective during online learning for minority students.

Similarly, Arbelo and Frigerio (2019) conducted a web-based survey to assess students' attitudes towards online learning. The survey results from 104 Hispanic students showed that these students were aware of the need to be self-motivated when completing online courses. The students also preferred an online community that involves support and guidance from their instructor as well as virtual interactive learning models (virtual engagements tools embedded into the online learning framework used to enhance social interaction and decrease feelings of isolation) in the online technology.

Comparing these two instructional approaches (self-directed and instructor-assisted) may identify the most effective instructional methods for minority students. Online training has been shown to be effective to teach parents, therapists, and students ABA training material (de Oliveira et al., 2016; Serna et al., 2015; Suppo & Mayton, 2014). Whereas, an instructor-assisted online instructional method has been shown to aid in engagement and completion of the learning material, provide helpful feedback, clarity with the material, and encouragement for students (Ingersoll et al., 2017; Ingersoll et al., 2016; Suppo & Mayton, 2014; Vismara et al., 2009). An instructor-assisted method could also enhance learning satisfaction with an underprivileged student population compared

to a self-directed learning method (Kim & Lee, 2001; Ma, et al., 2015). With the proper cultural considerations (e.g., culturally appropriate therapist, tailoring instructional delivery specific to this population and their learning needs), an instructor-assisted method may also aid in effectively training minority-ethnic populations.

Current Study

In this study, the instructional effectiveness of the presence of an instructor when learning online ABA material by minority-ethnic college students was evaluated. Students' knowledge, application, and satisfaction levels in self-directed versus instructor-assisted conditions was measured and compared. The findings from this study may apply to instruction delivered to a variety of populations, such as parents with children with ASD from various minority groups including African Americans.

Including minority participants in ABA research is needed to identify effective online learning environments with this under-studied population (Ingersoll & Berger, 2015; Ingersoll et al., 2016; Kim & Lee, 2001; Suppo & Mayton, 2014; Yeboah & Smith, 2016). Face-to-face support (guidance, encouragement, feedback) from instructors during online instruction may increase minority students' engagement with the material, satisfaction, and knowledge levels (Kim & Lee, 2001; Yeboah & Smith, 2016).

In this current study, it was hypothesized that minority students' ABA post knowledge and application assessment scores would be greater in the instructor-assisted condition compared to that in the self-directed learning condition. It was also hypothesized that minority students' would show higher positive ratings, on a subjective evaluation assessment in the instructor-assisted condition compared to the self-directed learning condition.

Method

Participants

The participants in this study included 45 minority-ethnic students (8 males and 37 females; 28 Black/African American, 13 Latino or Hispanic, 1 Native American or Alaska Native, 3 Asian) enrolled in Principles of Psychology and Psychology and Law courses at a medium sized public college in upstate New York. Students' mean age was 19.4 years old. See Table 1 for additional participant demographics.

Institutional Review Board approval for the study was obtained. To recruit participants for this study an announcement briefly describing the study was posted through the SONA automated participant pool system. Also, a pre-screening questionnaire was utilized to recruit eligible students from the Psychology & Law class. The researcher obtained informed consent from each voluntary participant prior to the study (see Appendix A).

Materials

The items needed to conduct the study included demographic question sheets, subjective evaluation sheets, knowledge and application post-assessments, headphones, and training tutorials. The demographic sheet was given to the participants at the start of the experiment and included questions about the participant's age, gender, year in college, racial/ethnic background, experience with working with children, previous contact with individuals with an intellectual disability or other developmental disability, and the form of contact with these individuals (see Appendix B). The subjective evaluation sheet contained questions concerning the participant's perceptions of their experiences with the instructional conditions (see Appendix C). Desktop computers (IBM

compatible) and laboratory headphones were utilized to access the online modules with

learning content about increasing behavior through positive reinforcement and decreasing

problem behavior through extinction

(http://www.acs.brockport.edu/~mdesroch/QuestionIncreasing Behavior Modules Thesis

(Web)/; http://www.acs.brockport.edu/~mdesroch/QuestionDecreasing problem behavior

thesis module (Web)/). The online modules delivered were PowerPoint® slides

incorporating the use of iSpring® software to create an interactive instructional

environment. Each of the two learning content modules consisted of approximately 16

slides including 8 content explanation and example slides, and 5 question exercises.

Only the question exercises either produced audio recording (self-directed condition) or

no audio recording (instructor-assisted condition) depending on the condition. Cultural

considerations were made throughout the online instruction (e.g., pictures of minority-

ethnic children, wording changes to match names participants' may be familiar with, and

inclusion of a minority-ethnic instructor) to fit the population demographic.

Participants were given two types of post knowledge assessments involving 17

ABA content multiple-choice questions per content area (increasing behavior and

decreasing problem behavior) (see Appendix D). Additionally, a video clip presenting a

child scenario and questions asking about possible methods to increase a desired behavior

or decrease a problem behavior was used. The video clip (23 seconds) illustrated a boy

engaging in noncompliant behavior in an instructional situation. In the video clip a

female teacher was kneeling next to the young boy's table, giving him a task (paper and

crayons) and asking the boy to practice coloring circles while staying in the lines. The

boy responded by aggressively banging on the desk and refusing ("uh-uh!"). The teacher

replied, "Come on, you can do it." Cultural considerations were also made when selecting

a video for the application assessment in that the figures in the video represented minority

group members.

Setting. The study took place in four individual approximately 24.4 m X 24.4 m

lab rooms at The College at Brockport, State University of New York. Each lab cubicle

contained a desk, two chairs, computer equipment (computer, monitor, and mouse), and a

light switch.

Procedure

Research Design. A within subjects (repeated measures) cross over experimental

research design was utilized for this study as diagrammed in Figure 1. The order of ABA

training content (increasing behavior versus decreasing behavior modules) was

counterbalanced across four training sequences. Following informed consent, a group of

four participants were randomly assigned to one of four training sequences, two in

instructor-assisted and two in self-directed. All sequences occurred at the same time with

the same group of participants.

Independent variable

Self-directed condition (SD). In the SD sequence, participants individually

reviewed the training module on a computer and, any content instructions given, were

embedded (audibly) into the learning materials. The researcher only gave general

instructions to all participants (e.g., "Please carefully read the information in training

module the notes section and answer the five questions. Let me know when you have

completed the tutorial."). During the training module, the participants' correct and

incorrect responses to the five multiple-choice questions in each module resulted in

immediate voice automated feedback by the same researcher's voice (e.g., "Good Job! –
Yes, that's correct, this problem behavior is occurring because Jim wants attention. When
he hears his grandma say "No, don't do that!" when he is stepping on the wet paint, she is
rewarding this problem behavior."). The same SD method was conducted for both forms
of training modules (increasing desired behavior vs. decreasing problem behaviors).
When the participants were in the SD condition, they were asked by the researcher to
wear headphones to avoid hearing instruction differences delivered in the other condition.

       Instructor-assisted condition (IA). In the IA condition, participants had access
to the same training modules and feedback delivered for participants' responses to the
multiple-choice questions as that in the SD condition. However, instead of audio recorded
feedback, the question feedback was delivered live by the researcher who was within 2
meters of the participant (see Appendix E). The only difference was that the two
participants in the IA condition were able to hear the researcher and did not wear
headphones and did not receive immediate audio-recorded feedback as in the SD
condition. To duplicate the automated verbal feedback delivered in the SD condition, in
the IA condition, the instructor used a script to deliver verbal encouragement (e.g.,
"You're doing great!" "Good answers!"), and feedback (e.g., if a wrong answer is chosen
then the researcher gave an explanation--"No, that is not correct – the other choices
sound beneficial but the best answer is that extinction works best when you combine it
with rewarding a replacement behavior that results in the same reinforcer"). The same IA
method was conducted for both forms of the training modules (increasing desired
behavior and decreasing problem behaviors). The same feedback delivered by the same
researcher's voice occurred in both the IA and SD condition. This procedure helped to

rule out confounds and, if differences were found, infer that they were due to the presence or absence of an instructor.

Dependent variables

To evaluate the instructional effectiveness of learning ABA material using SD or IA methods by minority-ethnic college students, post-knowledge assessments, application assessments, and subjective evaluations were used.

Post knowledge assessment. Following completion of each training module (increasing desired behaviors or decreasing problem behaviors), each participant was asked to complete a post-knowledge assessment (See Appendix D) that was directly related to the material taught in the online training modules.

Application assessment. An application assessment was conducted after the last post-knowledge assessment. Participants were orally asked by the researcher to use the information they learned from the training module and apply it to a video scenario depicting a child with ASD ("Please watch this video clip, and using what you learned, best answer each question") (See Appendix F). The video shown was identical for each of the four order sequences. The participants were given a worksheet with two questions, "How would you decrease/increase the problem behavior for the child displayed in the video clip?" The researcher scored the participants' responses utilizing the answer key developed from the Application Assessment Validation as described below.

Application assessment validation. A pilot test was conducted before the experiment began to validate the scoring of participants' responses on the application assessment. Individuals (three total) with ABA training and a minimum of four years of experience working in the field were shown the same video that was used during the study and asked to answer the same questions that were presented to the study participants. The researcher recorded the answers to an open-answer question ("How would you decrease/increase the problem behavior for the child displayed in the video clip based on the content modules?"). The similar answers given by two or more of the experts to each question provided the basis for the answer key used to evaluate each participant's responses (see Appendix I).

Subjective evaluation and debriefing. Upon completion of all phases, participants were given the subjective evaluation survey and asked to complete it (see Appendix C). The questions in the survey were composed of various close-ended questions where participants' selected the best fitting response based on their experience with the training (e.g., Q.- "Did you learn anything new when you were in the instructor-assisted learning condition?" Answer choices- *A lot, A moderate amount, A little, Not at all*). Survey questions #15-19 were open-ended questions and based on the most frequent responses (more than 50% of participants), the researcher categorized each participant's written response by grouping all the participants' similar responses (see Appendix J). Participants were then given a debriefing statement and asked to read it (see Appendix G) to further disclose the purpose of the study and research credit was added to their SONA account. The above procedure was repeated with all 45 participants in groups of four.

Interrater and Procedural Reliability Procedures

An interrater reliability score (IRR) was utilized to generate a numerical estimate to measure one rater's and one researcher's agreement in scoring the post-knowledge and application assessments. IRR score was calculated by dividing the number of agreements between raters' evaluations of the dependent variable by the number of agreements plus disagreements and multiplying that value by 100 (post- knowledge IOR score = 306 +0/306 *100; application assessment IOR score = 18+0/18*100). The IRR score for both the post-knowledge and application assessments equaled 100%; which indicates that the rater and researcher were in agreement for the scoring of the post-knowledge and application assessments.

Procedural reliability checks were conducted to determine whether the procedures were implemented as described in the methods section. Sessions (19 total) were audio recorded. Another experimenter via in person or online (Skype/ phone calls) reviewed the audio recordings using a checklist (see Appendix H) to identify the number of items correctly or incorrectly executed during the experimental sessions. The procedure reliability score was calculated by the number of correct steps divided by the total number of steps and multiplying that value by 100. The procedure reliability score calculated (19/19 * 100) was 100% suggesting the procedures were implemented as described in the methods section.

Results

Participants' mean scores for the post-knowledge and application assessments completed in the SD online training versus the IA online training conditions were compared. A two-way mixed-measures analysis of variance (ANOVA) with two independent variable levels for training instruction type (within) and order of training material (between) was used. This analysis indicated that there was no statistically significant interaction effect for the post-knowledge scores (F (1, 45) = 0.61, p = ns, η2 = 0.14) with content order nor difference in the participants' mean post-knowledge scores (F (1, 45) = 0.34, p = ns, η2 = 0.008) between training conditions nor any difference shown based on content order of training material for post-knowledge scores (F (1, 45) = 0.02, p = ns, η2 = 0.00). Similarly, there was no statistically significant interaction effect for application assessment scores (F (1, 45) = 0.021, p = ns, η2 = 0.00) with content order nor difference in the participants' mean application assessment (F (1, 45) = 1.14 p = ns, η2 = 0.03) scores between training conditions nor any difference shown based on content order of training material for application assessment scores (F (1, 45) = 0.36, p = ns, η2 = 0.008). Overall, participants' mean post-knowledge assessment scores and application scores in the SD and IA online training conditions were similar (see Table 2).

 A two-way mixed-measures analysis of variance (ANOVA) with previous ABA knowledge as covariate found no significant difference. Lastly, a two-way mixed-measures analysis of variance (ANOVA) as also utilized to evaluate if there were significant differences in post-knowledge and application scores between Black/ African American and Latino/Hispanic participants; there was no significant difference in scores based on race/ethnicity.

An individual analysis of participants' post-knowledge scores was also conducted to assess individual differences in the participants' scores based on the online learning condition (see Figure 2). The differences in post-knowledge scores was determined by the participant's IA knowledge score subtracted from the SD knowledge score to compare the performance in the two conditions. The analysis showed that the participant assessment scores varied with some doing worse (e.g., 19/45, 42%), better (e.g., 17/45, 38%), or the same (9/45, 20%) in the IA over the SD conditions.

Subjective evaluation surveys were administered to evaluate participants' perception of and satisfaction with the online ABA training methods. As seen in Table 3, many (IA- 79%; SD- 69%) participants rated their experience in a positive manner towards both online training conditions, as reflected by their responses to subjective evaluation questions 5 and 6 (*What did you like least about the learning condition?*), and questions 15 and 17 (*What would you improve about the instructional method of delivery?*). Most (IA- 82%; SD-64%) participants selected nothing or liked it all as evidenced from the response selections to the close-ended questions. Also the frequency of participants' selections of conditions for question 13 (*Which training session did you prefer the most?*) were similar; with IA online training selected most (36%), then both training equally (33%), and finally SD online training (29%). Overall, the requirements to complete the SD or IA online training condition was perceived as easy by most participants, as reflected by answers to questions 7 and 8 (*How easy/difficult...?*) in the subjective evaluation survey

A chi-square test for goodness-of-fit was utilized, specifically, for subjective evaluation item 13, to determine which online training condition participants preferred

the most (see Table 4). The results from this analysis revealed no statistical difference in preference for online training method, $X^2(1, N = 29) = 0.31$, $p = $ .ns.

A Wilcoxon signed- rank non-parametric statistical hypothesis test was conducted to compare two related samples to evaluate whether the mean ranks differ for subjective evaluation items 2 and 3 (*Did you learn anything new in the self-directed/instructor-assisted learning condition?*). This analysis revealed that participants' perceived learning in the IA condition was statistically significantly higher than that in the SD condition ($Z = $ - 2.00, $p < 0.05$).

Discussion

The present study showed that there was no statistically significant interaction effect or main effect for participants' mean post-knowledge and application assessment scores in IA versus SD training conditions nor any difference based on content order of training material. Participants' responses to the subjective evaluation survey also indicated no statistical difference in preferences for online training method. These findings are similar to previous research. Vismara et al. (2009) found that the participants in their study increased in post-knowledge in both conditions (online SD vs. in person) although there was no difference between knowledge levels for the participants. In contrast, the current study's results of no difference in online preference differ from Arbelo and Frigerio's (2019) survey found that students preferred an instructor-assisted online environment to a self-directed online environment.

Although there was no difference in post-knowledge assessment scores, participants perceived that they learned more in the IA training condition than in the SD training condition. These findings are similar to those in Eom, Wen, and Ashill (2006)

study where they also found that instructor-assisted online learning (specifically

instructor feedback) affected participants' perceived learning outcomes. Perceived

learning could be influenced by students' perception of the learning environment

(Levenberg & Caspi, 2010). It could be possible that the participants in the current study

had positive perceptions of the instructional approach and learning in the IA online

learning method, which could have impacted their perceived learning. When asked about

the IA condition, *"What would you improve about the instructional content?* and *"What*

was beneficial about the instructional method of delivery?" participants frequently wrote

no recommendations for improvement. Participants also reported that feedback and

guidance from an actual person (the instructor) provided deeper understanding and

encouragement to complete training. Participants on the other hand, also had positive

perceptions of the SD online learning method but comments centered on other aspects of

the situation rather than learning per se (e.g., own pace, less pressure/anxiety). The

difference in perceived learning between the SD and IA methods could be based on

participants' perception of the learning environment (positive perceptions of learning

based on positive perceptions of the situation). On the other hand, the perceived learning

found in the current study could be due to the situation, instructor, or it might also be due

to other instructions; the reason of the result of the perceived learning being greater in the

IA condition is still unclear.

Alternatively, participants' perceived learning could have been affected by

demand characteristics. The participants may have formed an assumption of the

researcher's hypothesis of greater performance in the instructor-assisted condition and, in

return, gave positive views of learning in that condition. Demand characteristics could

threaten internal and external validity if participants' perceived learning was impacted by their assumptions of the hypothesis. Future research should ensure that participants are not aware of anticipated outcomes by participating in a blind study.

There could be various reasons as to why there was no significant difference in participants' mean scores for the post-knowledge and application assessments. The small sample size could be a possible reason no statistically significant difference in the participants' mean post-knowledge and application assessment scores between training conditions occurred. A power analysis conducted prior to the study determined the necessary number of participants needed to attain power at the 0.05 significance level was 60. Only 45 participants attended the training sessions, lowering the statistical power of the study. Following the study observed power was .07 for the type of training.

Another possible reason for the lack of difference between conditions could be the inclusion of participants who had prior knowledge of ABA strategies. Due to this previous exposure, the content material provided could have been familiar concepts and not difficult for the participants to learn and apply. Individuals who had prior ABA knowledge (participants who selected *some knowledge* mean = 14; *a good amount* =14.7; *quite a lot* = 12.3) had higher knowledge scores than those who did not (participants who selected *nothing* mean = 11.75) but this did not result in a ceiling effect where participants score high at the top range and cannot improve. Participant mean percentage for the post-knowledge content was approximately 80%. Only two individuals from the IA condition, out of the 45 participants scored 100% (most scores were not above 90%) on the post-knowledge assessment. Additionally, an analysis of individual participants' scores showed scattered results (some did worse, better, or the same) in regards to

differences of post-knowledge scores between conditions. It is still unclear which online condition would have produced higher post-knowledge scores. Future research is necessary with participants' with no previous knowledge to clarify these possibilities.

Also, it could be possible that no differences were found between conditions because sufficient cultural factors were not considered. There were many participants with different cultural backgrounds in the study (e.g., Asian American, Hispanic/Latino, etc.), and the relevant cultural factors may not have been included in the tailoring of instruction. On the other hand, the participant sample of the current study was comprised of mostly African American students (62.2%) and the cultural adaptations made were specifically tailored to this minority-ethnic group, which may have been appropriate to promote instructional satisfaction with this group.

Lastly, the lack of difference between online training conditions may be due to the online SD training condition being very similar in format to the IA condition except for the presence of an instructor. Participants had access to the same training modules as that in the SD condition. The only difference was, instead of audio-recorded feedback as was delivered in the SD condition, the researcher delivered the question feedback live in the IA condition. Including more instructional features (instructor guiding student through content, instructor questions prompts, instructor answering questions, etc.) in the IA condition might have impacted participants' learning to a greater degree.

Addition to Current Literature

Despite the lack of significant differences between conditions, this present study may add to current literature by using a within-subjects experimental design to sequentially present two online training conditions to participants in a counterbalanced

order. The use of within-subjects experimental design with counterbalancing reduced the possibility of order effects as potential confounds. Also, a within subject design is more sensitive to differences across levels of the independent variable, since there is not any participant variability. Limited previous research has evaluated the effectiveness of online training using cross-over design and instead has used a variety of other designs such as quasi-experimental designs with a baseline phase (Vismara, et al., 2009), correlational research (Ma, Han, Yang, & Cheng, 2015), surveys (Kim & Lee 2001), and between research designs (Ingersoll, Wainer, Berger, Pickard, & Bonter 2016). Despite its advantages, a potential flaw with the use of a within-subjects experimental design is that participants could have effectively completed the online training conditions simply due to repetition (exposure to the previous conditions made online training and exercises easier to complete). However in this study, a significant difference in participants' scores between conditions due to an order effect was not detected.

Future Research Recommendations

There are several modifications to this study that could be included in future research. A pre-test knowledge assessment would be useful to include in future research to clarify participants' previous knowledge on the topic. The benefit of a pre-test knowledge assessment is evident based on a previous study conducted by Blackman, A., Jimenez-Gomez, C., & Shvarts, S. (2019). The results showed parents' increased knowledge scores in both training conditions (in vivo versus self-directed); the authors were able to attribute the knowledge increase to the training conditions based on the inclusion of a pre-test knowledge assessment. In the current study, it could be possible that the SD online condition was just as beneficial or just as poor as the IA condition. A

greater number of participants would also be useful to detect significant differences in knowledge level gains if they exist. Lastly, perhaps differences would have been found in post-knowledge and application assessment scores if the IA condition were actually face-to-face without any online component. Future research could add a live, face-to-face versus IA versus SD conditions, to determine if the instructor's teaching improves the participant's learning.

Future research is also necessary to determine the best cultural approaches for instructional satisfaction with minority-ethnic populations. Cultural differences between instructors and their students can create important challenges that could affect the quality and efficacy of online teaching and learning (Heitner & Jennings, 2016). The cultural considerations made in this study (e.g., pictures of minority-ethnic children, wording changes to match names participants' may be familiar with, and inclusion of a minority-ethnic instructor) to fit the participants' demographics needs to be studied further. The participants in the current study expressed positive feedback toward both online training module conditions as evidenced by survey responses, which may have been due to tailoring training materials to a minority-ethnic population. Future research could be conducted to determine if these cultural changes are influential and whether certain features are more or less beneficial. For instance, the presence of an instructor may not be as important in an interactive online training as adapting the terms, pictures, and application examples. A future study could implement these cultural and instructor interactive recommendations to identify the most effective approach to teach online ABA procedures to minority-ethnic groups. It also may have been beneficial prior to the study to have the online tutorials reviewed and evaluated by an ethnic minority panel to obtain

a consensus of what cultural features to include (Kelch-Oliver & Smith, 2015). Further research should seek feedback from group members on how to improve the group's cultural relevance and utilize this feedback for improving instruction.

The identification of effective online training approach with minority-ethnic populations is necessary for learning satisfaction with this population (de Oliveira et al., 2016; Serna et al., 2015; Suppo & Mayton, 2014). Although the most effective and preferred approach to online training (SD or IA) seems unclear or may depend on individual preference (some participants did better in one condition than another), the current study provides empirical support for greater student perceived learning with the IA over SD online training approach. Further research comparisons evaluating the presence versus absence of the instructor may clarify the results and allow instructors and therapists to make empirically informed decisions on the best way to provide online ABA training with minority-ethnic groups. Once effective instruction is identified then it can be delivered to many populations including parents with children with ASD from various minority groups including African Americans such that instruction may be easier to receive and able to be delivered at a distance.

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Table 1. *Descriptive Statistics of Demographic Survey*

| | Descriptive Statistics | |
Participants' Demographic Information	Frequency	Percent
Age		
18	18	40
19	9	20
20	10	22.2
21	4	8.9
22	1	2.2
23	1	2.2
24	1	2.2
25	1	2.2
Gender		
Male	8	17.8
Female	37	82.2
Race/Ethnicity		
White	0	0
Black/African American	28	62.2
Latino or Hispanic	13	28.9
Native American or Alaska Native	1	2.2
Asian	3	6.7
Native Hawaiian or Pacific Islander	0	0
Biracial or other	0	0
Year in College		
Freshman	26	57.8
Sophomore	12	26.7
Junior	4	8.9
Senior	3	6.7
Major		
Social Work	2	4.4
Biology	4	8.9
Athletic training	2	4.4
Journalism	1	2.2
Political Science	1	2.2
Accounting	1	2.2
Business Administration	1	2.2
Teaching with history	1	2.2
Sports Management and Psychology	1	2.2
Kinesiology, dance intent	1	2.2
Nursing	9	20

Criminal Justice	3	6.7
Psychology	5	11.1
Public Health	4	8.9
Health Care Administration	2	4.4
Nursing intent	3	6.7
Undeclared	3	6.7
Physical Education	1	2.2
Minor		
N/A	28	62.2
Coaching	1	2.2
Media Productions	1	2.2
Forensic Science	2	4.4
Pre-professional Health	6	13.3
Psychology	1	2.2
African American Studies	1	2.2
Communications	1	2.2
Computer Science	1	2.2
Biology	2	4.4
International Relations	1	2.2
Cumulative GPA		
First semester, no cumulative GPA	0	0
< 2.0	2	4.4
2.0-2.5	7	15.6
2.6-3.0	18	40.0
3.1-3.5	12	26.7
3.6-4.0	6	13.3
Experience working with children with developmental disabilities other than Autism Spectrum Disorder		
1 year or more	7	15.6
7-11 months	4	8.9
6 months or less	0	0
No experience	34	75.6
Experience working with children with Autism Spectrum Disorder		
1 year or more	10	22.2
7-11 months	1	2.2
6 months or less	1	2.2
No experience	33	73.3
Experience working with children		
1 year or more	28	62.2

7-11 months	2	4.4
6 months or less	2	4.4
No experience	13	28.9
What type of contact with individuals with intellectual disability or Autism Spectrum Disorder		
Work	6	13.3
Family/Friends	16	35.6
Volunteering	3	6.7
Other	1	2.2
No contact	18	40.0
Individual or Family Income Class		
$7,000 or less	6	13.3
$7,000-$15,000	4	8.9
$16,000-$25,000	`4	8.9
$26,000-$32,000	5	11.1
$33,000-$50,000	9	20.0
$51,000-$74,000	5	11.1
$75,000- $100,000	4	8.9
Prefer not to answer	8	17.8

Note. $N = 45$

Table 2. *Descriptive Statistics for Participants' Scores on Post Knowledge and*

Application Assessments for Each Online Training Method

	Test Measure					
	Post Knowledge			Application Assessment		
Training Type	*M*	*(SD)*	*SE*	*M*	*(SD)*	*SE*
Instructor-assisted	13.69	(2.95)	.44	1.07	.54	.80
Self-directed	13.47	(2.90)	.43	.96	.47	.07

Note. M = mean, *SD* = Standard deviation, *SE* = Standard error, *N* = 45, *p* = ns

Table 3. *Participants' Subjective Evaluation Responses (Percentages) concerning their*

Perception of Instructor-assisted Versus Self-directed Online Instructional Method

Subjective Evaluation Question	Response Options	Instructor-assisted	Self-directed
Q. 2-3) Did you learn anything new when you were in the learning condition?	A lot	13 (29%)	5 (11%)
	Moderate	22 (49%)	28 (62%)
	Little	10 (22%)	12 (27%)
	Not at all	0 (0%)	0 (0%)
Q. 5-6) What did you like least about the learning condition?	Format	4 (9%)	4 (9%)
	Instructor	0 (0%)	1 (2%)
	Training alone	1 (2%)	5 (11%)
	Information content	2 (4%)	6 (13%)
	Nothing (liked it all)	37 (82%)	29 (64%)
Q. 7-8) How easy or difficult was it to complete the requirements during the learning condition?	Very difficult	0 (0%)	0 (0%)
	Moderately difficult	3 (7%)	4 (9%)
	Neither easy nor difficult	14 (31%)	19 (42%)
	Moderately easy	11 (24%)	8 (18%)
	Very easy	17 (38%)	14 (31%)
Q. 13) Which training session did you	Training instructor present	16 (36%)	

prefer the most?	Both training equally	15 (33%)	15 (33%)
	Training session alone		13 (29%)
Q. 15 & 17) What would you improve about the instructional content?	Nothing, it was great	34 (76%)	33 (73%)
	Have instructor present throughout the entire training	9 (20%)	
	Instructor give more examples	1 (2%)	
	More outside information that is not in the content	1 (2%)	
	Equipment/materials related		5 (11%)
	Go over post assessment answers		1 (2%)
	More detailed scenarios		7 (16%)
Q. 16 & 18) What was beneficial about the instructional method of delivery?	Deeper understanding of the material/feedback from an actual person made it easier to understand	29 (64%)	
	Guidance/easier/encouraging	14 (31%)	
	Nothing	2 (4%)	
	Able to go at my own pace		18 (40%)
	I prefer the instructor		2 (4%)
	Less pressure/anxiety when doing the exercises		5 (11%)

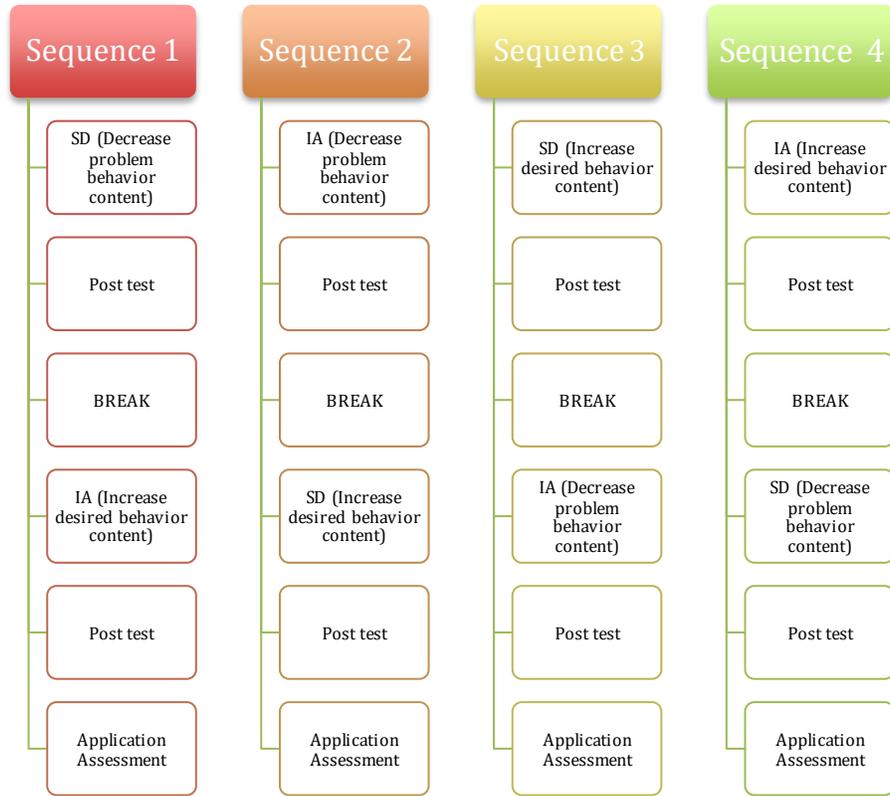|	Information was detailed and useful		20 (44%)

Table 4. *Chi Square Table for Participants' Online Training Preference* When Asked

"Which training session did you prefer the most?"

Preferred Online Training Method

	Observed N	Expected N	Residual
Self-directed	16	14.5	1.5
Instructor-assisted	13	14.5	-1.5
Total	29		

Note. $N = 45$, $p = ns$

Figure 1. Cross over research design for current study

Sequence 1	Sequence 2	Sequence 3	Sequence 4
SD (Decrease problem behavior content)	IA (Decrease problem behavior content)	SD (Increase desired behavior content)	IA (Increase desired behavior content)
Post test	Post test	Post test	Post test
BREAK	BREAK	BREAK	BREAK
IA (Increase desired behavior content)	SD (Increase desired behavior content)	IA (Decrease problem behavior content)	SD (Decrease problem behavior content)
Post test	Post test	Post test	Post test
Application Assessment	Application Assessment	Application Assessment	Application Assessment

*IA = Instructor Assisted

* SD = Self Directed

Figure 2. *Each participant's SD-IA Knowledge Differences Scores*
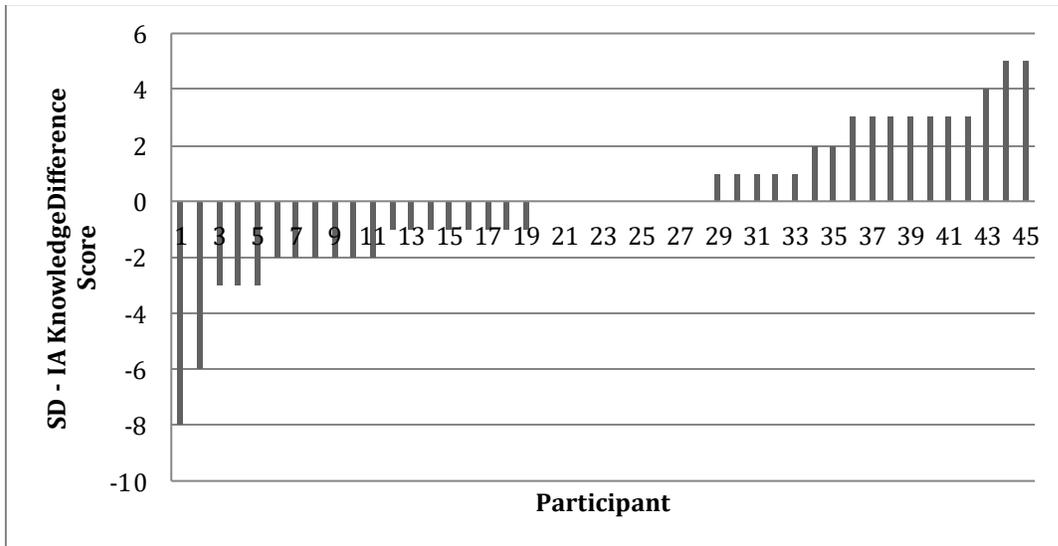
Appendix A

Institutional Review Board

Form A—Statement of Informed Consent For Adult Participants

[Experimental Evaluation of Self-directed versus Therapist-assisted Online Applied Behavioral Analysis Training: Examination of Knowledge Acquisition and Application with Minority Students]

KEY INFORMATION:

- You are being asked to be in a research study of Applied Behavior Analysis (ABA) online training. As with all research studies, participation is voluntary.
- The purpose of this study is evaluating therapist-assisted online training compared to self-directed online training to identify effective online technology for minority populations.
- A maximum of sixty people will take part in this study. The results will be used for a Master's in Clinical Psychology thesis.
- If you agree to take part in this study, you will be involved in this study for an evening session that will involve two online training sequences that will approximately last two hours.
- If you decide to participate, you will be randomly assigned to each training sequence that will take place in Holmes Hall psychology lab (Room…). During these training sessions you will be asked to complete training modules involving ABA training content. You will also need to complete the assessments and provide background and demographic information. Total completion of both training modules will approximately take two hours, and you will only be asked to complete these online training courses once.
- We believe there are no known risks associated with this research. Although there is an estimated time for training completion, these will not be timed sessions. You will be asked to complete the training modules and then given an allotted break between the two sessions.
- You may not directly benefit from this research; however, we hope that your participation in this study may aid in providing effective online technology for

minority populations. You may also learn about methods to increase desired behavior and decrease problem behaviors of children.

You are being asked to be in a research study involving Applied Behavioral Analysis (ABA) online training. This study is being conducted at [study location]. This study is being conducted by: La'ker KwaMogi in the Psychology department at The College at Brockport.

Please read this consent form and ask any questions you have before agreeing to be in the study.

PROCEDURES:

If you agree to be in this study, you will be asked to do the following:

We will flip a coin and you will be randomly assigned to a training demonstration. Once you are randomly assigned, you will be given access to a laboratory computer in Holmes Hall, Room () and headphones will be utilized to access the online modules.

After the first training session, you will be instructed to complete a post assessment to test your knowledge of the ABA content to which you were previously exposed. A break will be allowed after the first posttest (10 minutes). When you return from the break you will begin the second training session. A second post assessment will be given to test you on the ABA content that you have completed, and a video clip and assessment will follow.

You will also be asked to complete a demographic and subjective evaluation survey.

The entire study may take approximately two hours for completion, and you will only be asked to complete these training sessions once.

Audio recording will be required during the training sessions to ensure that the procedure is conducted as described.

COMPENSATION/INCENTIVES:

There will not be any costs other than the time necessary to participate in this experiment. You will be given two research credits upon completion of this study.

CONFIDENTIALITY:

The records of this study will be kept private and your confidentiality will be protected. In any sort of report the researcher(s) might publish, no identifying information will be included. Click or tap here to enter text.

Research records will be stored securely and only the researcher(s) will have access to the records. All data will be kept in a locked filing cabinet in the researcher's office or on a password-protected laptop by the investigator(s). All study records, including approved IRB documents, tapes, transcripts, and consent forms, will be destroyed by shredding and/or deleting after 3 or more years. Audio-recordings will be erased as soon as they are transcribed. Only the researcher(s) will have access to these recordings to ensure that the study procedures are conducted as described.

VOLUNTARY NATURE OF THE STUDY:
Participation in this study is voluntary and requires your informed consent. Your decision whether or not to participate will not affect your current or future relations with The College at Brockport. If you decide to participate, you are free to skip any question that is asked. You may also withdraw from this study at any time without penalty.

CONTACTS AND QUESTIONS:
The researchers(s) conducting this study: graduate student, La'ker KwaMogi and Dr. Marcie Desrochers. If you have questions, **you are encouraged** to contact me at via email at Lkwam1@brockport.edu or Dr. Desrochers via email at mdesrochers@brockport.edu.

If you would like to talk to someone other than the researchers, please contact The College at Brockport IRB compliance officer at (585) 395-2779 or IRB@brockport.edu.

STATEMENT OF CONSENT:
I am 18 years of age or older. I have read and understood the above information. I consent to participate in the study.

Signature:_____ Date: _____

I agree to be audiotaped _____ *Yes* _____*No* . *[No alternative]*

Signature of Investigator:_____ Date: _____
Please keep the second copy of this informed consent for your records.

Appendix B

Demographic Sheet

Code #:
DATE:

1. Age:

2. What is your gender? (Please circle):

    Male

    Female

    Transgender Female

    Transgender Male

    Gender Queer/Gender-fluid

    Questioning or Unsure

    Other

    Prefer Not to Answer

3. Race/Ethnicity (please circle):

    White

    Black or African American

    Latino/Hispanic

    Native American or Alaska Native

    Asian

    Native Hawaiian or Pacific Islander

    Biracial or Other (Please describe):

4. Year in college (please circle):
    a) Freshman
    b) Sophomore

     c) Junior
     d) Senior

5. Major(s):

6. Minor(s):

7. GPA (please circle):

     a) First semester, no cumulative GPA
     b) < 2.0
     c) 2.0 – 2.5
     d) 2.6 – 3.0
     e) 3.1 – 3.5
     f) 3.6 – 4.0

8. Experience working with children with developmental disabilities other than Autism Spectrum disorder (please circle):
     a. 1 year or more
     b. 7-11 months
     c. 6 months or less
     d. No experience

9. Experience working with children with Autism Spectrum Disorder(please circle):
     a. 1 year or more
     b. 7-11 months
     c. 6 months or less
     d. No experience

10. Experience working with children (please circle):
     a. 1 year or more
     b. 7-11 months
     c. 6 months or less
     d. No experience

11. What type of contact with individuals with intellectual disability or Autism Spectrum Disorder (please circle):

   a. Work
   b. Family/Friends
   c. Volunteering
   d. Other (please specify)
   e. No contact

12. Individual or Family Income Class (please circle):

   a) $7,000 or less
   b) $7,000 - $15,000
   c) $16,000-$25,000
   d) $26,000- $32,000
   e) $33,000- $50,000
   f) $ 51,000-$74,000
   g) $75,000-$100,000
   h) Prefer Not to Answer

[Taken from
https://www2.census.gov/library/publications/decennial/2020/operations/planned-questions-2020-acs.pdf]

Appendix C

Subjective Evaluation Sheet

CODE #
Please evaluate your experience during the training course by filling out this form

1) How much did you know about applied behavioral analysis before this training course?

   a) Nothing
   b) Some knowledge
   c) A good amount
   d) Quite a lot
   e) Expert level

2) Did you learn anything new when you were in the self-directed learning condition?
   a) A lot
   b) A moderate amount
   c) A little
   d) Not at all

3) Did you learn anything new when you were in the instructor-assisted learning condition?
   e) A lot
   f) A moderate amount
   g) A little
   h) Not at all

4) How much do you think you learned about the material in this training course?
   a) Nothing
   b) A small amount
   c) A moderate amount
   d) A large amount
   e) Expert amount

5) What did you like least about the self-directed learning condition?
   a) Format
   b) Instructor
   c) Training alone
   d) Information content
   e) Nothing (liked it all)
   f) I didn't like it at all
   g) Other: _____

6) What did you like least about the instructor-assisted learning condition?
   h) Format
   i) Instructor
   j) Training alone
   k) Information content
   l) Nothing (liked it all)
   m) I didn't like it at all
   n) Other: _____

7) How easy/difficult was it to complete the requirements during the self-directed learning condition?
   a) Very difficult
   b) Moderately difficult
   c) Neither easy nor difficult
   d) Moderately easy
   e) Very easy

8) How easy/difficult was it to complete the requirements during instructor-assisted learning condition?
   f) Very difficult
   g) Moderately difficult
   h) Neither easy nor difficult
   i) Moderately easy
   j) Very easy

9) How helpful was the instructor during this training course?
    a) Extremely helpful
    b) Very helpful
    c) Moderately helpful
    d) A little helpful
    e) Not helpful at all

10) Which training modules was more difficult to complete?
    a) Decreasing problem behavior content
    b) Increasing problem behavior content
    c) Both training content were difficult
    d) Neither training content was difficult
    e) The training content was easy

11) I usually do not perform well on quizzes or tests, even if I study
    a) Disagree completely
    b) Somewhat disagree
    c) Neither agree nor disagree
    d) Somewhat agree
    e) Agree completely

12) When taking online courses, which of the following do you like (select as many as is applicable)
    a) Instructor's guidance
    b) Working independently
    c) Feedback and encouragement
    d) I don't like taking online courses

13) Which training session did you prefer the most?
    a) Training session with instructor present
    b) Training session self-directed/alone
    c) I didn't like either training session
    d) I liked both training sessions equally

14) Did you use any of your previous knowledge or experience before this training to consider the problems posed in the training course?
    a) Yes a little
    b) Not at all
    c) I don't have any previous knowledge/experiences
    d) I often used previous knowledge/experiences
    e) Sometimes I used previous knowledge/experiences

15) What would you improve about the self-directed instructional method of delivery?

16) What was beneficial about the self-directed instructional method of delivery?

18) What would you improve about the instructor-assisted instructional content?

19) What was beneficial about the instructor-assisted instructional content?

Adapted from: Cann, A. J. (1999). Approaches to the evaluation of online learning materials. Innovations in Education & Training International, 36(1), 44.

Appendix D

Increasing Desired Behaviors Assessment Test
         Knowledge of Applied Behavior Analysis Test A

Code: _____   Date: _____
Instructions: Please complete this assessment and then return it to the researcher,
Thank you!

Circle the best answer for each question.

1. What is an example of implementing the principle of positive reinforcement?
    a. Praising the child's desired behavior
    b. Providing preferred toys to the child when s/he does good
    c. Providing a preferred item immediately after the behavior you want to increase
    d. All of the above

2. Which of the following are benefits of using positive reinforcement?
    a. Well researched and effective
    b. Helps you to understand the child's feelings
    c. Increases that behavior in future similar situations
    d. Answers a & c

3. Which of the following is the best example of an effective praise statement to increase a child's cleaning up behavior?
    a. Honey, thank you for doing that
    b. Excellent job!
    c. Edna, you really picked up all the garbage on the floor and put it in the can well!
    d. Thanks for being so good.

4. A good rule to remember is:
    a. Do not reward with money if possible
    b. Catch a child doing something right
    c. Reward good behavior and always punish bad behavior
    d. Punishment is always unnecessary

5. Which of the following is probably most important in helping a child behave in desirable ways?
    a. Teach him the importance of self-discipline
    b. Help the child understand right and wrong

    c. Provide consistent consequences for the child's behavior

    d. Understand the child's moods and feelings as a unique person

6. Mr. Jones agreed to pay his son, Mike, $0.25 each day if he carries out the trash. Mr. Jones forgets to give Mike the money immediately after he carries out the trash and delays giving him the money for a few days. Mike then begins to ask Mr. Jones for the money and this behavior is reinforced and increases instead of reinforcing Mike carries out the trash. Now, Mike is constantly asking Mr. Jones for money and taking out the trash less and less. What is the problem in this situation?

    a. There was a delay of the reinforcer and some other behavior was reinforced

    b. Mike is angry that he didn't get the money promised and starts to misbehave

    c. The reinforcer wasn't strong enough and Mike got bored taking out the trash

    d. There is no problem with this situation

7. What are common myths regarding positive reinforcement?

    a. It is a reward

    b. It is a form of bribery

    c. It does not decrease intrinsic motivations

    d. All of the above

8. What are effective methods to teach a child new desirable behaviors (select all that apply)?

    a. Modeling

    b. Giving instructions each day and reviewing learned behavior at the end of the week

    c. Prompting and fading

    d. Making a written guide for extra assistance

9. Prompts to teach a child new desirable behaviors can be?

    a. Gestures

    b. Verbal instructions

    c. Physical assistance

    d. All of the above

10. The principle of positive reinforcement to increase desired behavior is?
    a. Always have a stern voice to show authority
    b. Provide preferred item immediately after the behavior you want to increase
    c. Always have a smile when interacting with the individual
    d. Make sure the reinforcer is approved by parents

11. Does a positive reinforcer ALWAYS works every time it is utilized?
    a. No, what is a positive reinforcer for one person, may not be so for another
    b. Yes, positive reinforcement never fails
    c. No, what works one time, may not another time (motivation can change)
    d. Both answers a & c

12. Prompting and fading involves
    a. Getting the individual's attention with a stern voice, and then gradually lowering your tone, or fading, as the individual progresses
    b. Praising the individual once they acquire desired skill, then gradually decreasing praise, or fading when the skill is not accomplished
    c. Providing assistance to perform the desired behavior, as little or as much as needed and then removing that assistance, or fading, as the individual acquires the skill.
    d. Making a demand for the individual to complete a task, while decreasing the frequency (fading) at which a reinforcer is delivered after each task.

13. When should you provide a prompt during training
    a. Immediately following a correct behavior by the child to increase it
    b. When the child is acting up so that s/he calms down
    c. When the child makes an incorrect response or needs assistance when learning a new behavior
    d. All of the above

14. Which of the following is an example of effective use of prompts to teach a child to write his name?
    a. Have the child write the first letter in her name to keep it simple at first
    b. Ask the child to write her name
    c. Provide assistance to the child to write her name by guiding her hand through the motion of doing so or writing her name on a piece of paper
    d. Provide ample praise when she writes her name correctly

15. Which of the following is the act of demonstrating the desired behavior to be performed?
    a. Modeling
    b. Improvisation
    c. Prompting
    d. Follow the Leader

16. Which of the following would be most effective in getting a child to do schoolwork?
    a. "When you finish your schoolwork you can have free time."
    b. "You can watch this movie, if you promise to do your schoolwork when the show is over."
    c. "If you don't do your schoolwork tonight, you can't watch a movie at all tomorrow."
    d. Explain the importance of schoolwork and the dangers of putting things off.

17. If you want to make a behavior a long-lasting habit, you should:
    a. Reward it every time
    b. First reward it every time and then, once it is learned, reward it occasionally
    c. Promise something the child wants very much
    d. Give several reasons why it is important and remind the child of those reasons often

Decreasing Problem Behaviors Assessment Test

Knowledge of Applied Behavior Analysis Test B

Code: _____   Date: _____

Instructions: Please complete this assessment and then return it to the researcher, Thank you!

Circle the best answer for each question.

1. A child often cries over any small matter that bothers her. How should you react to reduce her crying?
    a. Provide a reward when she reacts without crying
    b. Use a mild punishment when she cries
    c. Try to find out what is really troubling the child and deal with that
    d. Provide her with something interesting so she will stop crying

2. How can you prevent problem behavior by creating an enriched environment for the child?
    e. Comment on the child's successful desired behavior
    f. Provide preferred toys
    g. Deliver enthusiastic praise
    h. All of the above

3. To effectively use extinction, the motivator for the problem behavior must be identified. Choose the BEST possible reasons for a problem behavior.
    a. Tangible (getting things)
    b. Getting Attention
    c. Escaping or avoiding an unpleasant task, situation, or person
    d. These are all possible reasons for problem behavior

4. Jimmy sometimes says obscene words, but only in front of his mother. His mother has been shocked at Jimmy's behavior and makes her feelings clear to him. This approach has not decreased Jimmy's behavior. How should his mother react when Jimmy uses obscene words?
    a. Wash his mouth out with soap
    b. Ignore him when he uses obscene words
    c. Tell him how bad he is and how she doesn't like him when he uses those words
    d. Explain to him the reason such words are not used

5. When decreasing a problem behavior, it is most important to use:
    a. Methods which have been tested by others
    b. Consequences for a desired replacement behavior which are rewarding to the child
    c. Consequences for the problem behavior which are punitive to the child
    d. Rewards which do not bribe the child

6. Most problem behavior in young children is probably:

    a. A reaction to deeper emotional problems
    b. Due to lack of communication in the home
    c. The child getting something they want or getting out of an unpleasant situation
    d. Due to a stage which the child will outgrow

7. Andy is madly dashing around the room creating chaos, pulling books off shelves, screaming at the top of his lungs, and hitting his head. The teacher wants to avoid this behavior entirely in future, what is the **quickest way to prevent** this problem behavior from ever occurring?
    a. Provide rewards to gradually teach new desired behavior
    b. Remove the motivator for the problem behaviors
    c. Call a behavior specialist
    d. Change the environment to change the behavior (e.g., remove the books and other distractors, add preferred toys/activities)

8. A father tells a child she cannot go to the store with him because she didn't clean her room like she promised. She reacts by shouting, crying and promising she will clean the room when she gets home. What should the father do?
    a. Ignore her and go to the store
    b. Take her to the store but make her clean her room when they return
    c. Calm her down and go help her clean her room together
    d. Talk to her and find out why she doesn't take responsibility

9. A child begins to whine and cry when his teacher explains why he can't play on the computer. How should the teacher react?
    a. Ask the child why playing on the computer so important to him
    b. Explain that it is a teacher's right to make such decisions
    c. Explain again why he cannot play on the computer
    d. Ignore the whining and crying

10. Each time the teacher is talking to another student, Billy begins making a lot of noise resulting in the teacher telling Billy to quiet down. Billy's behavior is probably due to:

    a. Attention
    b. Tangible (Getting things)
    c. Sensory rewards
    d. Avoiding an unpleasant task, item, or person

11. If you want your child to develop proper study habits, you should:
    a. Encourage him to do his homework
    b. Help him to see school as pleasant
    c. Reward him whenever he studies
    d. Give him good reason why he will need school

12. Listed below are four methods used to decrease problem behavior. Which would be the best technique to get Frank to stop sucking his thumb?
    a. Punish the undesired behavior
    b. Ignore the behavior
    c. Reward him for desirable behavior in the situation in which he usually sucks his thumb
    d. Explain to the child why the behavior is undesirable

13. Do NOT use extinction if:
    a. Someone will get hurt
    b. The person will hurt themselves
    c. There are safety issues
    d. All of the above

14. Benny sits on the floor and rocks back and forth arranging and rearranging small pieces of paper. He engages in this behavior when people are present or absent. What is the likely reason for this behavior from a behavioral perspective?
    a. Attention
    e. b.   Avoiding an unpleasant task, item, or person
    c. Tangible (Getting things)
    d. Getting sensory stimulation

15. Edna wakes up in the middle of the night and screams at the top of her lungs. Typically, her dad comes running and tries to calm her down. He has found that she will

quiet down most quickly if he gives Edna her favorite pudding. What is the likely reason for this behavior from a behavioral perspective?

      f. Attention
      g. Avoiding an unpleasant task, item, or person
      h. Tangible (Getting things)
      i. Getting sensory stimulation

16. Joey and Paul are twin boys who drive their baby sitter crazy. One antic, of many, these boys do is hang onto the standing lamp and move it back and forth as if it is about to fall on the floor and shatter the glass lamp coverings. Melissa, the baby sitter, realizing the danger involved in this situation, tells them repeatedly to stop that behavior to no avail. The boys continue this behavior even more in future. What is the likely reason for this behavior from a behavioral perspective?
      a. Attention
      b. Avoiding an unpleasant task, item, or person
      c. Tangible (Getting things)
      d. Getting sensory stimulation

17. When presented with food he doesn't like, Alfonso will fling his arm out sending the plate of food flying all over the kitchen. When he does this the lunchroom monitor sends him to his classroom. Alfonso seems to be doing this more and more. What is the likely reason for this behavior from a behavioral perspective?
      a. Attention
      b. Avoiding an unpleasant task, item, or person
      c. Tangible (Getting things)
      d. Getting sensory stimulation

Appendix E

Instructor-Assisted Script

Increasing desired behavior exercise script feedback and encouragement

Question 1

Incorrect response – "No that is not correct. The principle of positive reinforcement states that if someone does something and it is immediately followed by a positive reinforcer then that person is more likely to perform that behavior again in future."

Correct response – "Awesome! That is correct

The object is delivered immediately after Brianna's behavior. Her pointing behavior increases."

Question 2

Incorrect response: "No that is not correct. The principle of positive reinforcement states that if someone does something and it is immediately followed by a positive reinforcer then that person is more likely to perform that behavior again in future."

Correct response: "Good Job Thinking! That is correct

Something was added immediately after the behavior and that behavior increased."

Question 3

<u>Incorrect response:</u> "No that is not correct. Remember effective reinforcers are important. Reinforcers are individualized, one child could be motivated by one thing while it could be different for another child."

<u>Correct response:</u> "Good choice! That is correct!

Effective reinforcers are important and it may be that the reinforcer used was not a strong motivator"

Question 4

<u>Incorrect response:</u> "No that is not correct. Positive reinforcement may be one reason for problem behavior. Consider the child who is given a treat to quiet him down, he will be more likely to scream again."

<u>Correct response:</u> "Awesome! That is correct!

Positive reinforcement may be one reason for problem behavior."

Question 5

<u>Incorrect response:</u> "No that is not correct. It is important that the positive reinforcer, or the object or event that increases the behavior is delivered immediately after the desired behavior. If there is a delay in the delivery of the reinforcer, then some other behavior may be reinforced."

<u>Correct response:</u> "Good Job! You're doing great

It is important that the positive reinforcer, or the object or event that increases the behavior is delivered immediately after the desired behavior."

Decreasing problem behavior exercise script feedback and encouragement

Question 1

<u>Incorrect response:</u> "No that is not correct. The correct answer is that this problem behavior is occurring because Jordan wants attention, he hears his grandma say "No, don't do that!" when he is stepping on the wet paint, she is motivating this problem behavior."

<u>Correct response:</u> "Good Job! – Yes that's correct, this problem behavior is occurring because Jordan wants attention, when hears his grandma say "No, don't do that!" when he is stepping on the wet paint, she is motivating this problem behavior."

Question 2

<u>Incorrect response:</u> "No that is not correct. The correct choice is attention deficit hyperactivity disorder. Attention from other kids, scolding, and avoidance are all reasons for problem behavior"

<u>Correct response:</u> "Good Job, Nice choice! Attention from other kids, scolding, and avoidance are all reasons for problem behavior"

Question 3

<u>Incorrect response:</u> "No that is not correct. The other choices sound beneficial but the best answer is that extinction works best when you combine it with rewarding a replacement behavior that results in the same motivator."

Correct response: "You're doing great! –To increase the effectiveness of extinction, always combine it with rewarding a replacement behavior that results in the same motivator."

Question 4

Incorrect response: "No that is not correct. This is not an example of extinction because the usual motivator is not being removed to decrease the problem behavior.

The child's behavior may be motivated by getting attention, if it increases in future situations."

Correct response: "Awesome! That is correct

The child's behavior is not being rewarded and so, provided the behavior decreases, extinction is being applied. Extinction can occur whether we want it to occur or not. In this case, rewarding appropriate requests, such as this one, is desirable, of course."

Question 5

Incorrect response: "No that is not correct. Remember we learned that an extinction procedure should not be used if someone will get hurt or any safety issues exists or if you cannot remove the usual event, item, or reaction that typically followed the behavior in the past."

Correct response: "Good answer! These are both situations when extinction cannot be used."

Appendix F
Video 1 Answer sheet:

Question 1: "How would you decrease the problem behavior engaged in by the child displayed in the video clip?"

Possible answers: [partial answers] [get experts to give answers – 2/3 people]
   a. **Teach, prompt, and reinforce new desirable behavior (communication, "on task behavior," following instructions) (1.7)**
   b. **Provide assistance/clear instructions and reinforce good behavior (1.7)**
   c. **Changing task (making environment more pleasant/enriched) (1.7)**

Question 2: "How would you increase desirable behavior engaged in the child displayed in the video clip?"

Possible answers:
   a) **Positive reinforcement directly after desired behavior (3)**
   b) **Teach behavior through modeling, prompting & fading (2)**

Appendix G

Debriefing Statement

Debriefing

Thank you for participating in the study, Self-directed versus Therapist-assisted Online Applied Behavior Analysis Training: Examination of Knowledge Gain and Performance with Minority Students. The purpose of this study is to evaluate whether the presence of an instructor is beneficial for learning ABA material by minority-ethnic college students. Specifically, this study has been conducted to compare if there are differences in participants' ABA knowledge levels between self-directed versus instructor-assisted training conditions. This study will allow the primary investigators to identify effective and beneficial approaches to training minority-ethnic groups. This study is important in that it will provide more inclusion of minority, specifically, African American participants in ABA research. More specifically, this study will address the possible disadvantages of self-directed online learning (less engagement, less motivation, lack of clarity) and may contribute to greater evaluation of effective online learning environments within the minority-ethnic population. The information from this study will serve as a foundation for a thesis of one of the primary investigators. In this study, participants were randomly assigned to a self-directed or instructor-assisted training sequence, given posttest assessments on material matching each training module (increasing desirable behavior/decreasing problem behavior), complete an application

assessment as well as demographic and subjective evaluation self-reports. Past research has demonstrated that therapist-assisted training methods have been more effective than self-directed methods in increasing student and parent knowledge levels as well as enhancing parent and student engagement and satisfaction with online training. Also past research has demonstrated that therapist-assisted training may be more beneficial than self-directed training for African American parents and minority-ethnic students. We expect to find a significant difference between self-directed versus instructor-assisted ABA training when used to improve ABA knowledge with minority-ethnic students.

If you would like to learn more about self-directed versus instructor-assisted ABA training, learn about the results of this study, or your role as a participant in this study, you may contact primary investigators, La'ker KwaMogi (lkwam1@u.brockport.edu) or Dr. Marcie Desrochers (mdesrochers@brockport.edu).

Thank you for your participation!

Appendix H

Procedure Checklist

Example of Sequence 1

___The researcher will obtain informed consent from each voluntary participant prior to the study

___Demographic sheet will be given to the participants at the start of the experiment

___ Random assignment of participants to instructional conditions and training begins with the self-directed decreasing problem behavior content module

___Researcher generally gives instruction for self-directed condition (.e.g., "Please carefully read the information in training module the notes section and answer the five questions. Let me know when you have completed the tutorial.")

___ Researcher instructs participant to put on headphones

___ Upon completion of the self-directed decreasing problem behavior condition, researcher administers first post assessment (decreasing problem behavior post assessment) to participant (e.g., "please complete this post assessment based on what you recently learned during this training)

___ Researcher instructs the participant after their first post assessment (e.g.,"You are allowed a ten minute break before beginning the next instructional module")

___ When participant returns the researcher begins the next instructional module (instructor-assisted increasing desired behavior condition)

__ Researcher follows instructor-assisted script (replication of SD with feedback and encouragement) during this instructional condition, not allowing participants access to headphones

___ Upon completion of the instructor-assisted increasing desired behavior condition, researcher administers second post assessment (increasing desired behavior post assessment) to participant (e.g., "please complete this post assessment based on what you recently learned during this training)

___ Upon completion of the last post assessment researcher will instruct participant to complete an application assessment utilizing a video example (e.g., "Please watch this video clip, and using what you learned, best answer each question")

___ After participant watches the video the researcher will hand the participant a worksheet and instruct them to answer further questions (e.g., "How would you decrease/increase the problem behavior for the child displayed in the video clip?")

___ Upon completion of all phases, the researcher will give the participants the subjective evaluation survey

___ Researcher reads the debriefing statement to the participants

___Research credit will be added to SONA account

**Researcher will repeat steps throughout the experiment matching the counterbalanced content sequences

Appendix I

Expert 1

Question 1: "How would you decrease the problem behavior engaged in by the child displayed in the video clip?"

I would initially observe the behavior of the student once he has received an activity to complete.   I would observe the location when the behavior began. I would also look at the intensity and the duration of the student's response. Based on my observation of the video he appeared as if he was trying to escape from doing the activity.
If using the extinction procedure I would repeat directing him to complete the task request. Examples take the crayon, color within the line.
Depending on the level of the student's skill set. I may need to alternate the method that is presented to the student. Instead of verbally directing him to color, I could use pictures of someone coloring or write the directions out in a simplified format (FCT). Example Color the picture, with in the line.
Even if the student continued the negative behavior throughout several sessions as well as exhibiting extinction outburst, I would maintain consistency and continue with the procedure regarding of the student's reaction.

Question 2: "How would you increase desirable behavior engaged in the child displayed in the video clip?"

To increase the desirable behavior I would continuously use reinforcing languages to identify and affirm the child's positive action and encourage him to continue the appropriate behavior. Example (If the student colored within the line, I would respond by saying to the student "great job coloring within the line".
Sometimes praises have no impact. If that's the case with this student, then I would give him a small reward of something that he would enjoy. Example, (candy, cereal, sticker), or tokens in which he could accumulate to be used for a greater reward.
With time the desirable behavior should be increase while the interval of rewards should be decrease.

Expert 2

Question 1: "How would you decrease the problem behavior engaged in by the child displayed in the video clip?"

Before attempting to decrease the problem behavior, I would first observe the child when they are engaging in the problem behavior. I would document the antecedent, behavior, consequence, location, duration, and intensity of the problem behavior. I would then identify and define what the problem behavior is. The problem behavior in the clip appears to be the child engaging in task avoidant behavior and banging his fist. In the video a demand was placed on the child to engage in the coloring activity and the

child refused. After refusing the instructor attempted to coax the child into coloring by touching their chin and providing attention following the problem behavior. In order to decrease the problem behavior I would advise the instructor to avoid providing an immediate reaction when the child engages in that behavior (incase the immediate attention is positively reinforcing the positive behavior).

I would encourage the instructor to provide non-contingent reinforcement before engaging in the undesired activity to build momentum. If the child begins to engage in the problem behavior when the activity is presented, I would advise the instructor to not allow the child to escape but to explain to the child you will wait until they have a calm body and calm hands. I would then advise the instructor to reiterate to the child what they are working for, and what the task is.

Question 2: "How would you increase desirable behavior engaged in the child displayed in the video clip?"

In order to increase the desirable behavior I would first identify what that behavior is. The desired behavior appears to be having the child effectively engage in a coloring activity, which involves coloring circles within the line using crayons. Before engaging in the coloring activity I would present to the child two preferred items they can work for, and have them choose the more preferred item (when selecting items I would refer to preference assessment if one is conducted). Preferably I would present reinforcement items that can be delivered and reinforce the child immediately. I would place the child on a CRf schedule in the beginning in order to increase the desirable behavior. Every time the child engaged in the defined behavior reinforcement is immediately given. I would also pair my positive reinforcement with eye contact and praise.

 I would also explore other options such as allowing the child to pick a crayon in their favorite color, or seeing if presenting a coloring activity with a preferred character increases the child motivation to engage in the desired behavior.

Expert 3

Question 1: "How would you decrease the problem behavior engaged in by the child displayed in the video clip?"

Withholding attention for the problem behavior would be one way I would attempt to decrease the problem behavior.

Question 2: "How would you increase desirable behavior engaged in the child displayed in the video clip?"

Providing immediate praise paired with a desired reinforcer when the child performs the task.

Appendix J

 Raw Data of Participants' responses to open-ended subjective evaluation questions

Q. 15) What would you improve about the SD instructional method of delivery?

Nothing
More + clearer examples used in the slides when talking about how to decrease/increase behavior
N/A
I think it was pretty okay
More examples
Nothing
Nothing it was great, very informative
Better headphones
Nothing
Having more details on the information
Nothing
Allow for the entire process to be done alone
I would not improve anything
Nothing it was good
Nothing, it was well
I wouldn't imporve anything, maybe go over all of the answers
Nothing
Nothing
N/A
It was perfect
Not reading from a copmuter. I work best when reading from an actual physical book or article
More examples
Nothing
Nothing that I could think of here
Nothing
N/A
I would improve it by studying more
Bigger words on the note section kind of small and packed with info so it was hard to read
Nothing
Better headphones
Nothing
Nothing
Nothing
Trying to have a better understanding of the information
Nothing everything was good
Nothing
Nothing

I would improve the word sizing I could not see your notes
Nothing I thought it was great
More details on the situations that I needed to analyze
Nothing
Nothing, good as is
I would say make readings are slides more entertaining. Add color.
The format of the answer choices
N/A

16) What was beneficial about the SD instructional method of delivery?
Gained new information and learned a lot
Less pressure because if you got something wrong only you knew about it rather than the isntructor watching you answer the question
The questions at the end were very helpful
I was able to go at my own pace
Allows you to work at your own pace
I prefer the instructor
It was an easy way to self educate myself on such an important topic
Learning tips on increasing problem behavior
Learned how to deal with children in more positive manner
Being able to rewiew as long as I needed
Doing it by myself without waiting for instructor
I could go at my own pace and I was not timed
I think the amount of information given was beneficial
You still got told what you did wrong/right after
Taking my time
Learning about children wanting attention
You get to see what knowledge you already know
Learning about behavior
Working on it alone
Since I am a babysitter this training will help me find ways to deal with certain behaviors of kids
Being able to read the notes section on the side. It seemed to have summed everything up
Information content- new information
Gives you much time to complete the task
Had time to think alone, no pressure when answering questions
It gave you a lesson outline and other slide knowledge
N/A
I would be able to learn at my own pace
It was easy to understand
I could go at my own pace
Learning at my own pace
A lot of detail was provided
Structure, the information, and the feedback
There was still feedback even though the instructor wasn't present
You get to go at your own pace and not feel rushed or judged

To see how well you can work alone
Knowing why you answered incorrectly
The benefical part was being able to figure thing out on my own
It was beneficial because I was able to take my time and work at my own pace
No pressure if you answered incorrectly
Independence
Everything
I was able to go at my own pace
I was able to not feel pressured
Learned that sometimes positive reinforcement doesn't work for everyone and that one
should be considerate about those they use it on
Less anxiety being alone

17) What would you improve about the IA instructional content?
Nothing
The instructor repeated the information that was in the "notes" section so the instructor
was in a way unecessary
I believe the instructor should be present for both modules
I think it was pretty okay
Nothing
Nothing
More outside info that isn't in the online content
Nothing
Nothing
Spending more time one on one
Nothing
Nothing, the instructor was clam and enthusiastic when explaining the answer
I would not improve anything
Nothing it was fine
Nothing
Nothing
Nothing
Nothing
N/A
Everything was good
Making an attempt to make it seem less like an exame. The pressure of having someone
with me while I was answering questions wasn't always so pleasing.
Nothing-perfect
Nothing
Having her stay during the beginning of the powerpoint and having her read the
information
Nothing
N/A
If the instructor would give more examples
Nothing

Be more clear about what is being done
Nothing
Nothing
Nothing
Nothing. It was great
Nothing
Nothing it was perfect
Nothing
Nothing
I would improve the speed of the conversation. For example slowing down to explain content
Maybe have the instructor teach the content to you
Nothing the session was good
No
Nothing, good as is
Not much, all was good
Just the format as stated before
N/A

18) What was beneficial about the IA instructional content?
Very specific
The instructor giving feedback after answering a question & offering an explanation as to why the answer was correct or incorrect
It was great to listen to somebody else talk other than reading myself
There was someone that helped me understand why an answer was correct
Having someone explain things if you don't understand and being able to ask questions when stuck
It was easier to do the work personally
Good to have guidance
She was very informative and helpful
Instructor helped me understand things better
Having them near was encouraging
Telling me what to do
Allowing more of an understanding on why the question that was chosen was wrong or right
I feel much better having a instructor give me the information rather than read it
The benefit was that you got told when and where you made your mistake and why you got your answer right
Auditory learning and remembering what the instructor said
Nothing
She gave a better understand and was able to explain
She was explaining instead of just reading
Having someone to guide you
Everything
She explained why y wrong answers were wrong and broke down the questions after I answered

Information content-Assistance
She wasn't in a hurry, which was very helpful, and she gives you as much time to get the work done. She was very helpful and great. She attends to situations quickly.
Having someone tell you verbally that you got an answer right help with moving on to the next one
Having a live person talk helped me better understand
N/A
She was able to explain the reason for my incorrect answer
The explanation by an actual person pulls the information together
Helped me understand information better
Learning at your own pace
If I had a question she'd give me the best example until I understood
The feedback, help nearby
I could ask question to clarify when needed
The reinforcement
You understand and able to get the work done
Knowing why you answered correctly
It was beneficial to receive help and explanations and to talk through the problem
It was beneficial being guided and told why exactly it was incorrect
Made you think a little more before you answered
She helped when I got a question wrong and explained it in a different way if I wasn't understanding
Everything
I had someone explain it better and more detailed
I was able to understand why the questions were right & wrong
She was able to explain how I was incorrect and it was in my mind for the upcoming questions
I knew the help was there when I needed it