Reported Use of Equivalence-Based Instruction Among Practicing Behavior Analysts

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ABSTRACT

Stimulus equivalence is a behavior analytic term that refers to the emergence of untrained relations between stimuli after training on some relations between them. After this training and emergence of untrained relations, the stimuli are said to function symbolically for one another. Equivalence-based instruction (EBI) is an approach to instruction that utilizes stimulus equivalence procedures to facilitate emergent relations in educational settings. EBI has been implemented in a variety of contexts with a variety of subjects. However, the extent to which EBI is used among practicing behavior analysts and the training experiences of those who do use EBI in practice has yet to be assessed. Practicing behavior analysts were surveyed on their use of EBI in clinical settings and were asked questions about their training and perceived barriers to implementing the procedures. Results indicated that most behavior analysts reported using EBI but also identified barriers to greater use or consideration of implementing EBI in their program design. Limitation and directions for future research are discussed.

Keywords: Applied behavior analysis, ABA, derived relational responding, equivalence based instruction, relational frame theory, RFT, stimulus equivalence

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Introduction

The ubiquity of stimuli in the field of applied behavior analysis (ABA), and much of psychology, cannot be overstated. Since early days in the field, a precise identified of stimuli and their relation to behavior in question has been at the heart of an experimental analysis of behavior of social significance (Baer et al., 1968). Environmental stimuli serve a variety of functions in a behavioral analysis of human behavior. For example, a discriminative stimulus (SD) can signal when reinforcement is available contingent on a response. All reinforcers are stimuli as well or involve stimulus changes as well.

Some stimuli can be lack formal similarity yet "mean" the same thing or exert the same control over behaviors. Consider the example of dogs. The spoken word, "dog," is like many other topographies of behavior that, in a sense, can have similar discriminative control over behavior. Such stimuli include the written word D-O-G in several languages, the spoken word in just as many languages, multiple breeds of dogs, pictures of dogs, etc. In certain situations, these stimuli might come to exert specific control or be emitted under similar circumstances as one another. The functional equivalence of the spoken and written word D-O-G sometimes seems to occur without training. From a purely behavior analytic point of view, this is untrue and mentalistic. As individuals grow and are exposed to contingencies of reinforcement, they learn the different types of stimuli (written, spoken, visual) can be treated interchangeably at times. This instruction comes from the verbal community that surrounds them.

Emergent Relations

Despite this explanation seeming simple, it is not so. While direct training and consequences from the verbal community can explain some relations between stimuli,

others are more difficult to explain. Take for example writing devices. Pens, pencils, markers, crayons are all examples. A child may be told to "grab a pencil" (A) and then subsequently grabs the pencil (B). This behavior is learned and can be explained through a history of direct reinforcement (i.e., "good job! That is a pencil"). However, the same account cannot explain why, when shown a pencil (B) and asked, "what is this", most children can reliably tact (label) the item as "a pencil" (A). In this example the labeling (A) of the visual stimulus (B) as a "pencil" by the client occurs without reinforcement. Such emergent relations have been reliably shown to occur without training in humans across a variety of ages (Dixon et al., 2017; Stanley et al., 2018).

Identification of Stimulus Equivalence

When these emergent relations reliably occur, stimulus equivalence is said to have been demonstrated. Stimulus equivalence is defined as "the condition in which two or more related stimuli elicit the same response. Stimuli meet the mathematical definition of equivalence if they can be shown to exhibit reflexivity, symmetry, and transitivity (APA Dictionary of Psychology, n.d.). Sidman and Tailby (1982) elaborated on the concepts of symmetry, reflexivity, and transitivity that are defining relations between stimuli that function in an "equivalence class". Such terms are still used today (Arntzen & Holth, 1997). Symmetry is defined where if stimulus A is related to stimulus B, then stimulus B is related to stimulus A (Pilgrim, 2016). For example, the first stimulus (A) was conditionally related to a second (B) stimulus (A=B). After training, we might expect another relation to emerge without training, that being B=A. Reflexivity holds that stimulus A is related to itself, stimulus A (Pilgrim, 2016). Transitivity is defined where if stimulus A is related to stimulus B, and stimulus B is related to stimulus C, then it must

also be that stimulus A is related to stimulus C (Pilgrim, 2016). Using the previous example, the relations of A=B and B=C would be directly trained. After that, we would expect to see emergent relations of symmetry (B=A, C=B) and transitivity (A=C and C=A) without direct training. As mentioned, the relations of symmetry and transitivity occurs without training and come "free" to the client. While Sidman's study was very simple in design, it opened the door for the future of applications of the procedure, including his own replication (Sidman & Cresson, 1973).

Identification of Equivalence

It should be noted that stimulus equivalence has been utilized to teach individuals skills from its earliest description by Sidman (1971). Sidman's first published study on the topic of stimulus equivalence was with a person with disabilities who lacked written language comprehension but was able to match images to spoken words and could name pictures (Sidman, 1971). After Sidman's instruction on the relations of written words, spoken words, and pictures that shared functional equivalence, the subject was more likely to demonstrate reading comprehension without direct training. Put simply, by teaching one or a few skills to this client, several untrained responses between the stimuli reliably emerged without training.

Derived Relational Responding

EBI is also referred to as derived relational responding, in addition to being related to relational frame theory (Barnes-Holmes et al., 2004; Hayes et al., 2002). The basics of relational frame theory (RFT), "proposes that human cognition and communication are founded in our capacity for identifying and creating relational links between stimuli and made possible by our 'arbitrarily applicable relational responding'

ability," (Cullinan & Vitale, 2009). This is compatible with stimulus equivalence, which as mentioned earlier has been used to teach language skills through forming relations with equivalent stimuli (Sidman, 1971). Derived relational responding is another term that is used in the domain of equivalent relations. Derived relational responding is defined loosely as making conditional discriminations with stimuli in relation to one-another (Dymond & Whelan, 2010). Under this, equivalence relations are part of derived relational responding as one of the ways we can make a derived relational response.

Applied Research

As years passed since Sidman's initial works of the 1970's, several other researchers dove into the subject of stimulus equivalence. The term "equivalence-based instruction (EBI)," is a more recent term used to describe the use of stimulus equivalence in educational settings. The topics that EBI has been applied to includes such varied topics as teaching emergent reading (Carr & Felce, 2000; Sidman & Cresson, 1973) teaching college students' neuroanatomy (Fienup et al., 2015), and teaching individuals with traumatic brain injuries (Cowley et al., 1992). While the complexity or nature of the stimuli can vary as noted above, the use of EBI still commonly facilitates the emergence of untrained relations between the stimuli in question.

Previous Research on EBI

Fienup and colleagues (2015) used EBI to teach equivalent terms in neuroanatomy. The researchers split 16 neuroanatomy term classes into 3 members of each term and taught the relations of the three members with EBI. In their study, the students were given a tutorial with EBI of up to 4 classes in a two-hour period in the laboratory. Results of the study showed that all students that completed the tutorial

performed better on an exam taken later in the semester than students who had not. An additional finding was that the order of stimuli presented was not found to have any effect on performance. These findings indicate two things: the first is that EBI methods can assist or enhance the learning outcomes of students in comparison to TAI (teaching as-is). The second finding was that regardless of the order of stimulus presentation, the stimuli are equivalent, and the connections are strengthened.

Greville and colleagues (2016) also used EBI to teach neuroanatomy to college students. The problem they identified in their study was that medical jargon and the use of technical language was often a barrier to the success of students. Greville and colleagues (2016) made use of EBI to create relations with different but functionally equivalent terms of neuroanatomy. In the pretest, students were tested on those neuroanatomical terms. During training students were taught relations between equivalent neuroanatomy terms, with hope relations would occur following training that were not directly taught. Afterwards, testing trials demonstrated that all students passed the posttest and demonstrated equivalence. The use of a pretest and posttest following training students with EBI resulted in a higher number of untrained relationships between various neuroanatomy terms.

Additional findings in higher education include studies involving statistical variability (Albright et al., 2015), and interpretation of operant functions of behavior (Albright et al., 2016). During the study on teaching statistical variability, Albright and colleagues sampled undergraduate students and used EBI to teach relations between high and low variability in statistics. Both high and low statistical variability were stimulus classes, and labels within those were related to one-another and were taught with MTS. In

the pretest, students were administered questions relating to statistical variability and identifying multiple cases of high versus low variability. During training, students were taught with EBI to relate members, or examples, of the high and low variability classes. A follow-up posttest showed that all students passed, demonstrating emergent relations formed between the members of their respective classes. Students were given a pretest and a posttest and results showed a statistically significant improvement in score for all students.

During Albright and colleagues' (2016) study with operant functions of behavior, 10 graduate students were selected to be taught about the 4 functions of behavior using EBI. The functions were designed to be the classes, each of which had 4 examples with which students would be taught to relate to each other. The functions were behaviors maintained by attention, escape, access to tangibles, and automatic reinforcement (Albright et al., 2016). Students were taught the relations between the members of each class using MTS and were given a pretest beforehand. After the training occurred, students were given a posttest on the material. Results showed that all students had an improvement in performance following EBI.

Brodsky & Fienup, 2018 also conducted a meta-analysis on the use if EBI in higher education. In their analysis, they examined previously published studies from *a* number of behavior analytic journals. The authors analyzed the articles to answer questions about EBI's effectiveness, whether specific variations of EBI show more effectiveness than others, and whether EBI was more effective than alternative teaching methods. The prime finding of their meta-analysis of 31 experiments with EBI in higher education was that this method was found to be superior to not only no formal teaching at

all, but it was found superior to typical teaching as well. The authors found that 10 of 31 articles had significant differences between the teaching as usual and equivalence group. In addition, the authors found that in 3 articles that tested the differences between variations of EBI indicated that there was little difference between the variations of EBI in terms of effectiveness.

EBI has also been used with individuals with autism spectrum disorder (ASD; Dixon et al., 2016). For example, EBI has been used to facilitate emergent relations in areas such as science, mathematics, and history to adolescents with ASD (Stanley et al., 2018). Children with ASD can also be taught with EBI alongside neurotypical children (Hill et al., 2019), which allows these students to learn in a more mainstreamed environment. EBI has also been demonstrated several times to facilitate the emergence of untrained relations with various populations (Fienup et al., 2015), across multiple topics, and it does it better than standard teaching (Brodsky & Fienup, 2018).

Importance of EBI

The importance of EBI is that the learner or client can learn relationships between stimuli for free without direct training (Sidman, 2009). With a standard teaching procedure, one must first teach multiple equivalent terms sequentially. First, we teach term A, and then term B, and so. With EBI, we need only teach the relations of these terms to one-another and can probe to evaluate whether symmetry or other relations have emerged afterward without training. In practice, this potentially results in more relations (Fienup et al., 2010). In the study by Fienup mentioned above, the reported number of terms learned in the same amount of time as standard teaching was doubled.

The Use of EBI in Practice

The use of EBI procedures requires a specialized training and understanding of the process and procedure(s) involved. Although it is a powerful teaching technology, no data exists on how often EBI procedures are used in regular practice by behavior analysts. Specifically, how often it is used in clinical applied behavior analysis settings. To date, no research has sought to determine the frequency of EBI use in practice and barriers to the use of EBI procedures. While equivalence-based instruction has been shown to be effective in clinical settings, it is necessary to survey practicing behavior analysts on their use of EBI in their daily practice. Additional information on how practicing behavior analysts were trained, the populations they use EBI with, and other information on their training would also be important. This information could help policy makers and other stakeholders develop appropriate training strategies to teach behavior analysts how to use EBI during and after formal training. It could also point interested behavior analysts understand the preparation and competence required to use these procedures in applied settings. Therefore, the purpose of the current study was to survey practicing behavior analyst for their use of EBI procedures and practice.

Method

Participants and Setting

The survey was hosted by Youngstown State University's Qualtrics® website. The survey was approved as "exempt" by Youngstown State university's Institutional Review Board (IRB #2023-62) Participants were sampled from social media website groups that explicitly stated they were for behavior analysts or were involved with ABA. Titles of these groups were found by searching the terms, "BCBA," "ABA," or,

"behavior analysis." Permission to distribute the survey within the group was requested and granted with one social media group. The survey was distributed to potential respondents through an online link in a post in the group. The web post that distributed the survey specified that the survey was for Board Certified Behavior Analysts® (BCBA), Board Certified Behavior Analysts-Doctoral® (BCBA-D), or Board-Certified assistant Behavior Analysts® (BCaBA) to take on the use of EBI procedures in practice.

Procedure

Participants who clicked the link were taken to a page that explained the survey and obtained informed consent to complete the survey. If participants did not consent, the survey closed, and the participants were thanked for their time. If they consented, participants were taken to the 15-item survey (see Table 1). Participants were initially asked if they were currently a BCBA, BCBA-D, or BCaBA. Individuals who indicated they were not licensed as such were routed to the end of the survey. Additional demographic questions were asked afterward such as, "How long have you been practicing in the field of applied behavior analysis?" with specification of time (<1 year to more than 10 years), "What region of the United States are you from?" with the options being West, Southwest, Midwest, Northeast, Southeast, and an option to specify they are not from the United States. Additional questions asked about what they do in their work as a behavior analyst and the population they primarily work with. The type of graduate program participants attended was surveyed, in addition to whether they had any formal coursework on the topic of EBI. Then, participants were asked if they had a continuing education unit (CEU) or formal training in the last 6 months that included the topic of EBI. Participants were surveyed on how often they came across articles on the

topic of EBI and were asked to rate themselves (5-point scale) on how familiar they are with EBI's use in clinical settings. Participants were then asked how often they have used EBI in the last 6 months, and what (if any) barriers they may have to using EBI. A final set of questions was presented as a matrix table of 7-point Likert scales asking about how often they use a variety of methods in their work setting. Options included: EBI with match-to-sample, EBI with stimulus pairing, EBI based on RFT; use of the *Promoting Emergence of Advanced Knowledge* (PEAK; Dixon et al., 2016) curriculum, use of the *Accept, Identify, and Move* (AIM, Issen et al., 2021) curriculum, or some form of personalized programming. Finally, when participants were finished, they were thanked for their time and the survey closed.

Results

Respondent Demographics

A total of 47 individuals started the survey and 26 participants (55%) completed the entire survey. Results are reported based on the number who answered each question. A total of 39 of 41 (95%) indicated they held the BCBA credential and 2 of 41 (5%) indicated they held the BCBA-D credential (Figure 1). No respondents indicated they held the BCaBA credential. A total of 1 of 41 respondents (2%) indicated they had been working in the field of ABA for less than a year, 4 of 41 (9%) reported they worked in the field for 1-2 years, 9 of 41 (22%) reported they worked in the field for 3-5 years, and 27 of 41 (66%) worked in the field of ABA for 6 or more years (Figure 2). Results of respondents' primary work role shows that 5 of 41 (12%) worked as an owner of an ABA service organization, 2 of 41 (5%) worked as non-supervisor administrators in an ABA service organization, 27 of 41 (66%) worked as direct supervisors of service delivery in

an ABA organization; 1 of 41 (2%) worked in a university setting, and 6 of 41 (14%) selected "other," with 3 of 6 respondents (50%) writing in that they are BCBA's that worked directly with clients in an ABA service organization (Table 3). A total of 29 of 41 respondents (70%) indicated their primary work population was with individuals diagnosed with ASD. 2 of 41 (4%) indicated they worked with others diagnosed with some other neurodevelopmental disorder, 6 of 41 (14%) worked with school-age students without a diagnosis of a neurodevelopmental disorder, 1 of 41 (2%) worked with college-age students without a diagnosis, 2 of 41 (5%) reported they worked with other individuals without a diagnosis of a neurodevelopmental disorder, and 1 of 41 (2%) chose "other," as an option.

Education and Training

Next, participants were asked questions about their education and training with EBI. Specifically, respondents were asked if their graduate coursework included a course focused on stimulus equivalence, EBI, or some other similar topic. A total of 24 of 35 (68%) reported that they did, with 11 of 35 (32%) reporting they did not (Figure 3). As shown on Figure 4, 9 of 35 respondents (26%) indicated they had taken a CEU on the topic of EBI in the last 6 months, with 26 of 35 (74%) responded they did not. Figure 5 shows that 7 of 35 respondents (20%) indicated they received formal training in the last 6 months on the topic of EBI, while 28 of 35 (80%) did not. As shown on Figure 6, 8 of 26 respondents (31%) reported they had not read literature pertaining to EBI in the last 6 months. 12 of 26 (33%) read literature on EBI 1-3 times, 1 of 26 (4%) read 4-6 times, 3 of 26 (11%) read 7-9 times, and a combined 2 of 26 (7%) read EBI literature 10 or more times in the last 6 months.

Self-Reported Competence

Next, respondents were asked to rate their competence with EBI procedures. A total of 1 of 26 (4%) indicated they were not familiar at all, 4 of 26 (15%) indicated slight familiarity, 14 of 26 (53%) reported moderate familiarity, 6 of 26 (23%) reported being very familiar, and 1 of 26 (4%) said they were extremely familiar with EBI (Figure 7). In Figure 8, respondents were asked how often they used EBI with clients in a clinical setting in the last 6 months. Results showed that 5 of 26 (19%) did not use EBI, 11 of 26 (42%) used EBI 1-3 times, 2 of 26 (8%) used it 4-6 times, 2 of 26 (8%) used it 7-9 times, 3 of 26 (11%) used it 10-12 times, and 3 of 26 used EBI 12 or more times in the last 6 months. As shown on Table 4, respondents identified what barriers (if any) they have with using EBI in clinical settings. Results showed that 9 of 42 (21%) reported a personal lack of training using EBI in practice, 6 of 42 (14%) reported a lack of experience implementing EBI programming, 9 of 42 (21%) responded with a lack of training or competence with supervisees that would implement EBI programming; 8 of 42 (19%) reported organizational constraints, and 10 of 42 (24%) indicated that there are no barriers to using EBI.

Discussion

Participants' responses indicate that most practicing behavior analysts are using EBI in clinical settings to some extent. However, the reported frequency of the use of EBI was low, with most respondents reporting they used it 1-3 times in the past 6 months. A majority (75%) of behavior analysts surveyed identified barriers to their use of EBI. The two more frequently cited barriers were a personal lack of competence with EBI it and concerns their supervise were inadequately trained implement EBI programs. This is

not a surprise considering the training for technicians to use such procedures would come from the supervising behavior analyst. Most respondents reported they did not receive CEUs or additional training with EBI in the last 6 months. However, about 75% of surveyed behavior analysts reported some familiarity with EBI. These data indicate two issues: Behavior analysts are using EBI with limited frequency and a significant number of behavior analysts had concerns about their personal competence and that of their supervisees to implement programs with EBI. Solutions to these problems would be to advocate for additional training for both the supervisor (behavior analyst) and the supervisee. If behavior analysts are already using these programs as they have indicated, but do not believe they are competent enough to do it effectively, this calls for more training.

Most respondents reported having coursework focused on stimulus equivalence or EBI as opposed to not having coursework, but nearly one-third of respondents are not keeping up with literature on EBI. The primary population most respondents worked with are individuals with ASD, with a minority of respondents working with other populations. Only 2 respondents held the BCBA-D credential, while the remaining 39 held the BCBA credential.

Limitations and Directions for Future Research

One notable limitation is that the number of participants surveyed was low. Additional limitations include that the survey uses self-report data, use of a non-random sample, and attrition throughout the survey. Future research should attempt to gain more respondents to see if the results are replicable with a large sample. A larger sample would

provide a clearer picture of this issue in the field of ABA and increase the internal validity of the results.

Additional research could also examine what other types of programs and interventions behavior analysts might use instead of EBI in their practice. This would allow for a better analysis for the reasons behavior analysts prefer some types of programming over one another. With respect to competence and education of behavior analysts, many reported having a class that focused on EBI in graduate school. However, a didactic class may not be enough to gain competence in *implementing* a procedure. Future research should examine the necessary conditions to teach the use of EBI in practice to behavior analysts. Likewise, research on how to teach supervisees under the direction of behavior analysts how to implement EBI procedures would be helpful since these supervisees implement most of the direct treatment.

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Table 1

Survey questions

Item	Question
1	I am a (credential)
2	How long have you been practicing in the field of applied behavior analysis? ____ years.
3	What region of the United States are you from?
4	Which of the following best describes your current primary position (80% or more of your time) in ABA service delivery?
5	In your current position, the population you primarily work with (80% or more of your time) is:
6	Which of the following did you receive formal supervision (modeling, guided practice, performance feedback) on using in the field of applied behavior analysis? (Select all that apply):
7	From what type of program did you receive your education in applied behavior analysis? (Select only the highest level of completion)
8	Did your graduate coursework in applied behavior analysis contain one or more classes that focused on the topic of stimulus equivalence/equivalence-based instruction (or other similar procedure)?
9	Within the past year, have you received a continuing education unit (CEU) on the topic of stimulus equivalence/equivalence-based instruction (or other similar procedure)?
10	Within the past year, have you sought out additional formal training (i.e., from a colleague, workshop) other than CEU's to develop competence on the topic of stimulus equivalence/equivalence-based instruction (or other similar procedure)?
11	Over the past 6 months, how many times have you read literature (i.e., journal articles, books) on the use of equivalence-based instructional interventions in clinical settings?
12	How familiar would you rate yourself with the use of EBI interventions in clinical settings?
13	Over the previous 6 months, how many times have you utilized EBI interventions in a clinical setting with clients? Example include teaching using EBI procedures, writing programs for clients in a manner that takes advantage of EBI technology, assessing for the emergence of untrained responses after an EBI program, using an EBI based curriculum, etc.
14	What (if any) were barriers to you using EBI in your clinical practice? (select all that apply). Alternatively, if there are no barriers and you utilize EBI procedures in practice as needed based on your clinical judgment, please indicate so.
15	Over the previous 6 months, how frequently have you utilized the following in your clinical work (see choice chart below)

Table 1 (continued)

Item Choices for Number 15

Teaching Methods
Equivalence based instructional methods using match to sample training (i.e., tabletop MTS procedures)
Equivalence based instructional methods using stimulus pairing (i.e., respondent type training, stimulus pairing)
Equivalence based instructional methods based on relational frame theory (i.e., ACT based interventions)
Curriculums
Used the PEAK curriculum (any module)
Used the AIM curriculum (any module)
Personal programming/curriculum developed

Note: All choices above rated using the following scale: Never; 1-2 Times; 3-4 Times; 5-6 Times; 7-8 Times; 8-10 Times; 10+Times

Table 2

Primary Work Role

Response	N	%
A BCBA or BCBA-D who is an owner of an ABA service organization	5	12.20
A BCBA or BCBA-D working in an administrative position in an ABA service organization not supervising direct service delivery to clients (i.e., clinical coordinator, lead behavior analyst, trainer, consultant, internship coordinator).	2	4.88
BCBA or BCBA-D supervising the direct delivery of therapeutic ABA services to clients in an ABA service organization.	27	65.85
BCBA or BCBA-D working in a university setting (i.e., faculty, university program director, adjunct instructor, etc.)	1	2.44
Other (specify)	6	14.63

Table 3

Primary Work Population

Response	*N*	*%*
Individuals diagnosed with autism spectrum disorder (ASD)	29	70.73
Individuals diagnosed with neurodevelopmental conditions other than autism spectrum disorder (ADHD, intellectual delay, language disorder, etc.)	2	4.88
School-age students without a diagnosis of a neurodevelopmental disorder (K-12)	6	14.63
College-age students without a diagnosis of a neurodevelopmental disorder (graduate or undergraduate)	1	2.44
Other individuals without a diagnosis of a neurodevelopmental disorder (consulting, other mental health condition)	2	4.88
Other (specify):	1	2.44
Total	41	100

Table 4

Barriers to Using EBI in Clinical Practice

Response	*N*	*%*
Personal lack of training utilizing EBI in practice	9	21.43
Personal lack of experiencing implementing (program writing, etc.) EBI programming	6	14.29
Lack of training/competence on the part of supervisees who would implement EBI programming	9	21.43
Organizational constraints (i.e., standard company curriculum, standard company approach to teaching, etc.)	8	19.05
There are no barriers to me using EBI and I used them as needed in clinical practice (if selected, only response)	10	23.80
Other (specify):	0	0
Total	42	100

Figure 1

Reported Credential for all Respondents

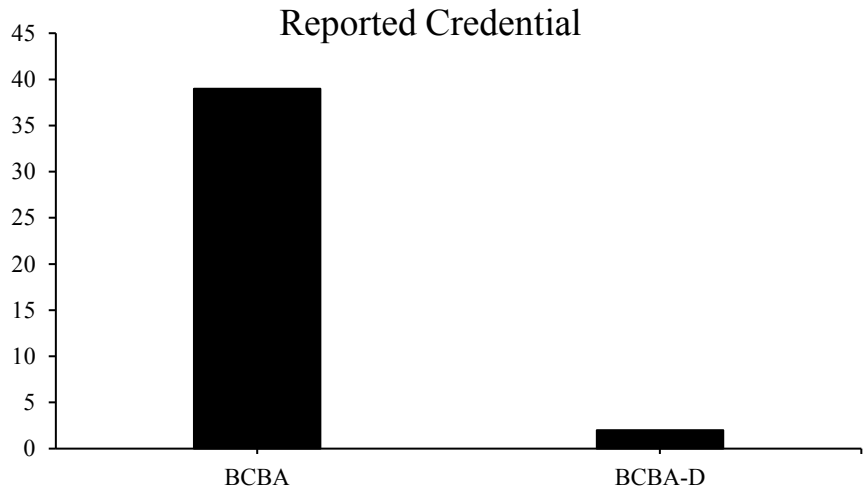


Figure 2

Time Practicing in the Field of ABA

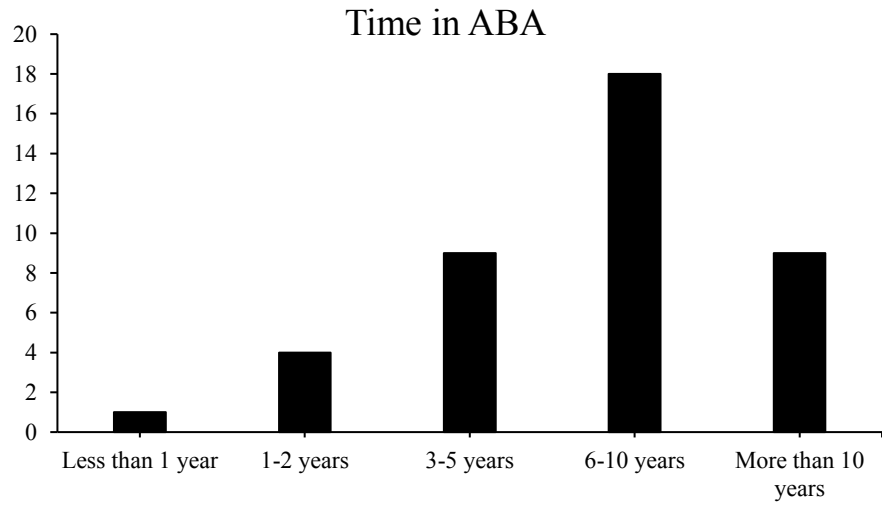


Figure 3

Had a Graduate Course Focused on EBI

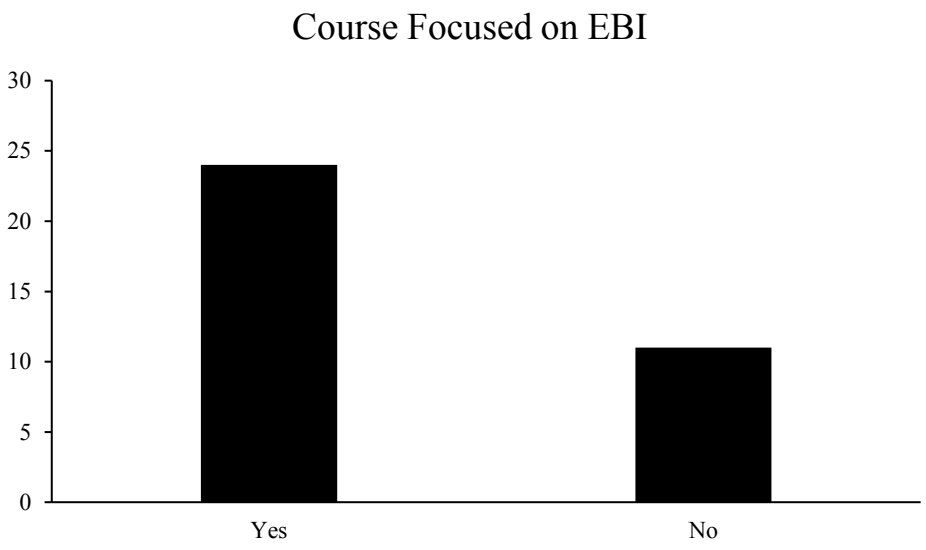


Figure 4

Had a Continuing Education Unit (CEU) Focused on EBI (Last 6 Months)

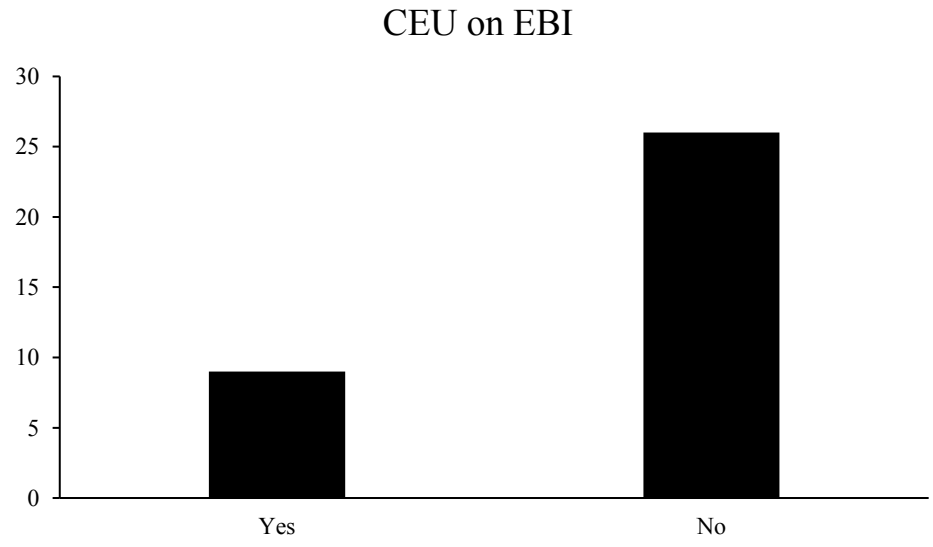


Figure 5

Received Formal (Non-CEU) Training on EBI (Last 6 Months)

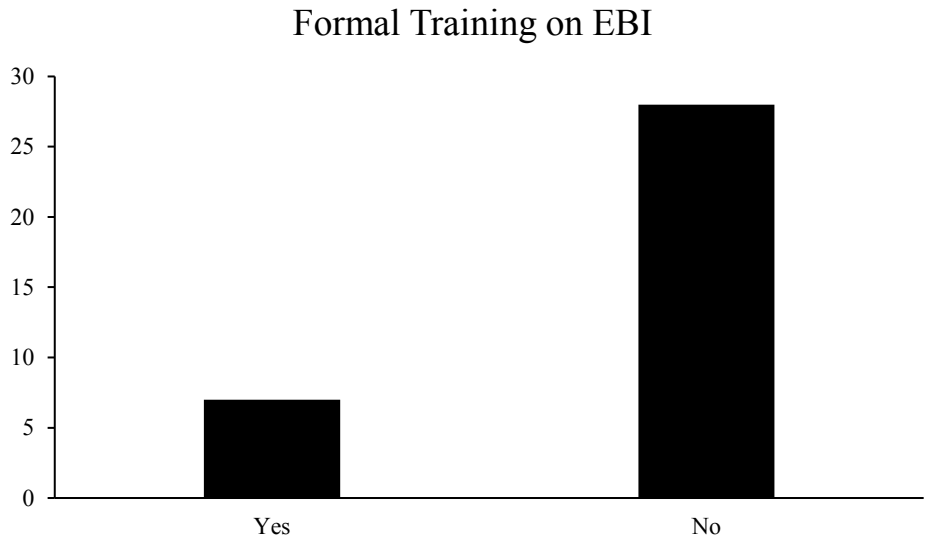


Figure 6

Times Read Literature on EBI (Last 6 Months)

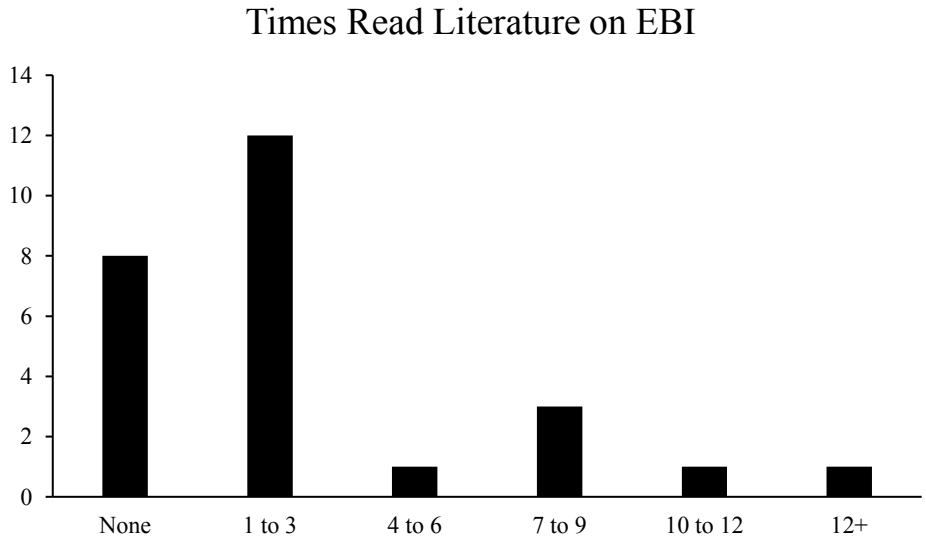


Figure 7

Self-Reported Familiarity With EBI

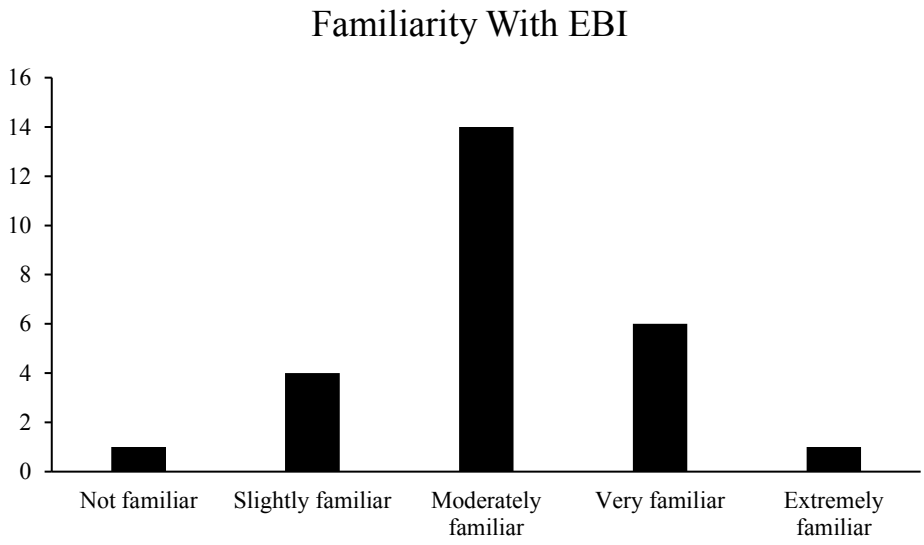
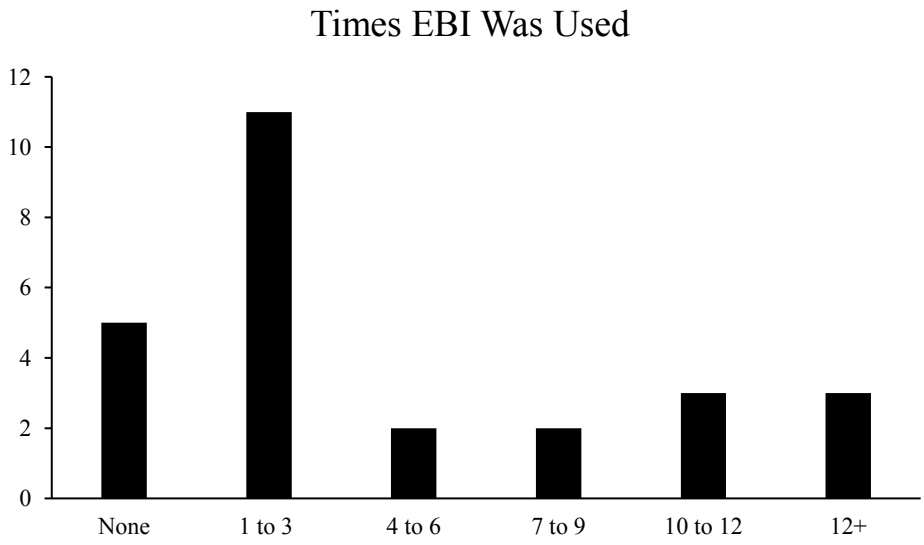


Figure 8

Self-Reported Use of EBI in Direct Services (Last 6 Months)



APPENDIX I
IRB APPROVAL

From: do-not-reply@cayuse.com
Subject: 2023-62 - Initial: Initial - Exempt
Date: October 19, 2022 at 12:55 PM
To: cjnorth@student.ysu.edu, kjbrown@ysu.edu

YOUNGSTOWN STATE UNIVERSITY

Oct 19, 2022 12:55:44 PM EDT

Kris Brown
Psych Sciences and Counseling 140719

Re: Exempt - Initial - 2023-62 Reported Use of Equivalence Based Instruction Among Practicing Behavior Analysts

Dear Dr. Kris Brown:

Youngstown State University Human Subjects Review Board has rendered the decision below for Reported Use of Equivalence Based Instruction Among Practicing Behavior Analysts

Decision: Exempt

Selected Category: Category 2.(i). Research that only includes interactions involving educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures, or observation of public behavior (including visual or auditory recording). The information obtained is recorded by the investigator in such a manner that the identity of the human subjects cannot readily be ascertained, directly or through identifiers linked to the subjects.

Any changes in your research activity should be promptly reported to the Institutional Review Board and may not be initiated without IRB approval except where necessary to eliminate hazard to human subjects. Any unanticipated problems involving risks to subjects should also be promptly
reported to the IRB.

Findings: The student research study aims to assess the use of equivalence-based interventions by practicing behavior analysts in applied contexts. The survey contains 15 items and will take approximately 5 to 10 minutes to complete. The practitioners will be provided with an opportunity to participate through an online posting; no identifying information will be collected and IP addresses will not be tracked. This protocol meets the parameters of an exempt from further review protocol.

The IRB would like to extend its best wishes to you in the conduct of this study.

Sincerely,
Youngstown State University Human Subjects Review Board