INVESTIGATING THE USE OF TRADITIONAL AND ONLINE INSTRUCTION FOR TEACHERS OF CHILDREN WITH AUTISM SPECTRUM DISORDER: A CASE FOR BLENDING TRAINING MODELS

by

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A Dissertation Presented in Partial Fulfillment
of the Requirements for the Degree
Doctor of Education in Educational Leadership

CAMBRIDGE COLLEGE

November 2014

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ABSTRACT

Autism is a complex brain-based developmental disability with unknown etiology. It involves disturbances or delays in communication, social interaction, and play, as well as behavioral abnormalities including; obsessive, ritualistic, rigid, and/or stereotyped behavior. The disorder affects 1 in 68 individuals nationwide. Applied Behavior Analysis (ABA) is recognized by the medical community as the best practice approach to treating autism. Early, intensive, ABA treatment has been attributed to the widespread opinion that autism is now a treatable condition. The effectiveness of ABA, combined with the increasing incidence of autism, has resulted in a high demand for well-trained professionals who are able to effectively work with individuals with this diagnosis. Training programs are not producing ABA trained personnel at a rate that can meet the demand for services. Given the efficiencies which may be realized with online instruction, this study examined a blended approach to training staff by combining online professional training modules with classroom and field based instruction. The purpose of this quantitative study was to evaluate the efficacy of online instruction in ABA training models. A repeated measures design with the use of a control group was used to evaluate online instruction and compare its efficacy to that of live lecture or classroom based instruction. Results revealed a statistically significant difference in the level of training content learned and retained between the online group and the live lecture group. These results seem to suggest that something other than chance resulted in the online group scoring significantly higher than members in the live lecture group and that the online mode of instruction may have some merits that can be of value to address the demand for highly trained professionals to work in the autism field.

DEDICATION

I want to take this opportunity to say "thank you" to my entire family, all 25 of you for your interest, excitement and encouragement. For the following family members however, this is a special and deserving dedication;

For my Mom Jean Filer, whom I love and admire; I so appreciate your history, experiences, and intelligence. Thank you for your statements of pride, encouragement, and genuine interest in my classes and research. Also, thank you hosting my "hide-aways" when I had to concentrate on school work. Who knew a retirement community, was so conducive to writing and completing a dissertation!

For my four boys, Cody, Ben, Mack and Nate; you never complained about my absence or my perpetual nose in a book or open laptop. You did figure out how to feed yourselves, order food from Pea Pod and attempted to solve your conflicts when I was away. But most importantly, I hear and see in you, an appreciation for books and education. You all have the world at your feet and the brain power to achieve anything if you work hard, stay the course and help each other. I love you all more than you will ever know.

For my daughter-in-law Alyona and grandson Elliott, you joined Ben at the perfect time last summer. Elliott you are my sunshine and Alyona you are my friend and the daughter I always wanted. Thank you for cooking, cleaning and attempting to keep order during my last residency, I am so grateful you both are my family.

For my sisters Sue, Cindi, Kathy and Jane; I appreciate your dedication to family, genuine excitement for achievements (mine as well others), how accessible you are and how you rally at family events and behind family members. You are my best friends.

ACKNOWLEDGEMENTS

I would first like to express my sincere gratitude to Dr. Robert Littleton. Without his support, encouragement, perspective and assistance, this degree would not have been possible much less even considered.

I would like to acknowledge my committee chair and committee members; Dr. Maio for his insight, intelligence, professionalism and genuine care for the students and Dr. Rubino and Dr. Salia Bao, for their expertise and guidance.

I would like to acknowledge Cambridge College Presidents, current and past, doctoral professors and support staff. As a clinician who collaborates with doctoral level professionals routinely, this program, I have come to realize, is like none other. The program is small and protected in that it stands apart from the many other degree programs offered at the college. It is collaborative and supportive in that the doctoral faculty is clearly dedicated only (at least as far as we see it) to the doctoral student. The program is rigorous, standards are high and the social justice "bent", if you will, has changed my perspective of and approach to, daily experiences.

Finally, I want to acknowledge my fellow cohort-classmates, Belinda Willis and Monica Walton, whose intelligence, perfectionist attitude, work ethic and sense of humor I so appreciate and admire. We are a cohort of three and friends for life.

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Chapter 1: Introduction

This study was conducted in an effort to determine whether or not online instruction is an effective format for teaching job-related skills to adults who work with individuals with autism spectrum disorders (ASD). Ninety-six employees volunteered to participate in the study, allowing the researcher a large enough sample to conduct a true experiment consisting of a repeated measures design with the use of a control group. In comparing the treatment effects of online learning with the treatment effects of classroom instruction, the researcher hypothesized that online instruction would produce a similar outcome to classroom lectures in terms of test scores, thus providing company owners/directors with enough evidence to allocate resources and alter current training models. The impact and significance of an altered training model is discussed at length in Chapters 1 and 2. However, what follows first is a summary outlining the reasons why current training models are problematic and the extent to which this problem impacts an individual's ability to access appropriate services.

Statement of the Problem

The primary problem from which the research stems is twofold: first, the rate at which trained, direct service staff members enter the workforce is not keeping up with the increase in demand for services for individuals with ASD. Second, there are not enough expert clinicians available to provide the ongoing training and field-based support necessary for direct service staff to work effectively with individuals who possess this diagnosis (Autism Sig, 2007). This problem extends nationwide and is evident in both public and private practices. The shortage of staff and increased demand for services can be attributed to three factors, namely the complexity of the diagnosis and treatment

methodology, the increase in the number of diagnosed cases of autism, and the long and arduous process of becoming a trained expert qualified to provide support and case-management services for individuals with ASD. See Handbook for pagination protocol.

ASD is a complex, brain-based developmental disability with unknown etiology. It involves disturbances in communication, social interaction, and play skills. Behavioral abnormalities associated with this diagnosis include obsessive, ritualistic, rigid, and/or stereotyped behavior. Individuals with autism may also exhibit challenging behavior, including; tantrums, aggression, and self-injury.

Version 5 of the American Psychological Association's *Diagnostic and Statistical Manual of Mental Disorders* (DSM-5; APA, 2013) defines ASD by the following dimensions:

A. Persistent deficits in social communication and social interaction across multiple contexts.
B. Restricted, repetitive patterns of behavior, interests or activities.
C. Symptoms must be present in early developmental period.
D. Clinically significant impairment in social, occupational, or other important areas of functioning disturbances that are not better explained by intellectual disability.
E. These disturbances are not better explained by intellectual disability (intellectual development disorder) or global developmental delay. (p. 27)

Considerable experience, formal training, and oversight from an expert clinician are necessary to manage maladaptive behavior safely and teach the range of complex

skills needed in order for individuals to achieve independent living (Hagopian & Boelter, 2005; Autism SIG. 2007; Larson, 2013). Once considered relatively rare, the current incidence rate of autism has risen to an all-time high. While in 2008, 1 in 150 children met the criteria for autism, by 2014, that rate had increased to 1 in 68 (Centers for Disease Control and Prevention [CDC], 2014). In response to the growing numbers of children diagnosed with ASD, President Barrack Obama, on April 1st, 2011, wrote the following in a Presidential Proclamation: "With autism spectrum disorders (ASDs) affecting nearly one percent of children in the United States, autism is an urgent public health issue with a profound impact on millions of Americans" (par. 1).

Cooper, Heron, and Heward (2007) defined applied behavioral analysis (ABA) as "the science in which procedures derived from the principles of behavior are systematically applied to improve socially significant behavior to a meaningful degree and to demonstrate experimentally that the procedures employed were responsible for the improvement in the behavior" (p. 20). ABA is recognized as the best-practice approach to treating individuals with autism: "the compelling factor driving identification of individuals on the autism spectrum as early as possible is the creation of a highly effective intervention strategy, based upon the principals of ABA" (Thompson, 2013, p. 90). ABA has the backing of the medical community and it has been credited with changing the prognosis of those with ASD: "the idea that autism was an immutable condition largely vanished; autism has become an eminently treatable condition given [that] effective methods are used with sufficient intensity" (Thompson, 2013, p. 82). ABA treatment models are comprehensive, are individually differentiated, and provide

family members training and support services. For the younger child, treatment models are intensive (between 25 and 40 hours per week) and teaching sessions occur in the child's natural environment where parent and family member training can be incorporated into treatment sessions (Lovaas,1987; Leaf & McEachen,1999; Larson, 2013). It is common practice for programs serving individuals with autism to utilize the expert clinician (Board Certified Behavior Analyst – BCBA) as trainer, supervisor, and consultant for direct service personnel. Although this type of training model is well accepted and supported, the training process is slow, inefficient, and often not accessible to those living in distant communities. Given the efficiencies achieved with online instruction (Means, Toyama, Murphy, Bakia & Jones, 2010), a blended training model (web, classroom, and field) may be a potential solution to this problem. The use of modern digital technology, combined with face-to-face instruction both in the classroom and in the field, may advance the adult learners' understanding of ABA methodology at a quickened pace and ultimately streamline staff training.

Within the existing research, there are significant gaps that limit our understanding of the use and efficacy of online training. This is especially true in ABA models, where research has focused extensively on the use of video modeling as a method for teaching adults the skills necessary to work with individuals with autism. Video modeling is not analogous to online instruction, as it incorporates only the action-oriented teaching steps of a particular skill or intervention rather than an introduction to the concept being taught. Research that has focused on online instruction has primarily been associated with college-level courses and on-the-job training that is unrelated to

ABA. A few studies of involving ABA methodology fall into the category of single subject design. This design may be problematic because the limited size of the samples studied, which do not address a broader range of instructional variables that may lead to greater mastery, acquisition, and retention of information. Other studies in ABA have evaluated the effects of full courses rather than short learning modules, which are associated with blended instruction rather than distance learning. Furthermore, few studies have attempted to explore whether the specific nature or category of content (company policy and procedures, instructional practices, methodology, curriculum) is more or less conducive to online instruction. Studies that have revealed efficacy related to acquisition of content have not assessed retention over time. Studies have identified several success variables associated with online instruction, but have not been able to validate the association of potential learner variables with the effectiveness of online instruction. The current study is unique in that it uses a large sample as well as a control group and measures both the initial acquisition of training content and the maintenance of content learned over time.

Background Information

Imagine being the parent of a two-and-a-half-year-old boy who is not speaking yet and has both severe and frequent temper tantrums and episodes of head-banging. He will only drink milk from a bottle and will only eat McDonald's chicken nuggets, plain noodles, and crackers. You are afraid to limit access to his bottle of milk, as milk is his main source of protein. After waiting several months for an appointment, you are finally able to have your child evaluated by a neurologist. The appointment results in a

diagnosis of autism. The neurologist strongly recommends early intervention, which consists of an ABA model up to 25 hours per week, in addition to speech and language therapy. The doctor explains that ABA is considered a best-practice model, is fully supported by the medical community, and is the only methodology proven successful in the treatment of autism. Your local early intervention program refers you to several ABA programs and you call each to inquire about the process for obtaining services. However, the first program does not serve children in your remote area and the other two do not foresee start-up services being available for 3-5 months due to the limited availability of staff. By then, your son will be close to three years old and no longer eligible for early intervention services. To make matters worse, your health coverage does not include ABA services, even though private insurance companies are now required by law to provide ABA services to children.

Although this particular scenario is fictitious, many families experience the specific behavioral concerns presented above as well as the obstacles that may lead to rejection of or delay in the provision of services. This statement has the backing of the Special Commission Relative to Autism, a three-year-long investigative study on autism and autism services initiated by Massachusetts Governor Deval Patrick on April 22, 2010. The following paragraph is a letter and partial summary of the outcome of the study, written by Chairperson of the Commission, Barbara L'Italien, to Governor Patrick, Senate President Murray and Speaker DeLeo, published and disseminated in March, 2013:

> In recent years, rates of diagnosis of autism in both children and adults have increased dramatically. The spike in the number of individuals diagnosed with autism has placed strain on an already stressed system that was not originally designed to serve the growing number of individuals living with autism in Massachusetts. While demand for services has increased, government programs designed to assist individuals with autism have not kept pace for a number of reasons. Fallout from the economic downturn resulted in cuts in funding for services and prevented the expansion of programs which successfully serve children and adults with autism, lack of autism expertise among staff in government agencies, and insufficient capacity to meet increased demand for services. (p. 3)

ABA involves the use of highly technical methodology, making it necessary for practices to provide extensive and formal training for non-certified staff pre-service (orientation) and on an ongoing basis. A clinician who has met the competencies to provide this form of training is known as a BCBA. The BCBA credential indicates expertise in ABA and often in the treatment of individuals with autism. The process of becoming trained and certified as a BCBA is lengthy and includes a sequence of post-masters classes; 1,500 hours of field work, with 75 of those hours directly supervised by a qualified BCBA; and a passing score on the national board certification exam. In Massachusetts, there are only 1,235 registered BCBAs. The low ratio of BCBAs to individuals with autism necessitates a team approach to treatment: the BCBA is utilized as trainer, consultant, and case manager and both non-certified staff and family members

provide direct service. The process of preparing someone to work directly and effectively with an individual diagnosed with autism requires a combination of pre-service training, ongoing in-service training, and supervised field experience.

Staff training models. A typical staff training model encompasses both clinically oriented concepts and administrative or policy-driven practices. Some examples of clinical training include the picture exchange communication system, reinforcement procedures, shaping, and chaining. Examples of administrative or policy-driven training include confidentiality, mandated reporting, professionalism in the home setting, sexual harassment in the workplace, and report writing. Training in ABA typically takes place in a classroom setting as well as in the work setting, where demonstration and feedback can be provided.

Classroom-based instruction. Classroom-based instruction is widely used and empirically supported as an effective staff training format in ABA programs (Reid & Parsons, 2002; Wallace et al., 2004; Lerman et al., 2008; Critchfield et al., 2010). In fact, most of the research related to ABA staff training models incorporates face-to-face instruction. This training occurs at both the pre-service or orientation level and the in-service or ongoing level. Such training is separate from the teaching environment and, depending upon the instructor, may combine various different methodologies, including lectures with visual displays, role plays, video examples, small group projects, and presentations. Classroom-based instruction allows learners to obtain explanations of unclear content and participate in group discussions. The acquisition of content is usually evaluated through quizzes and tests, papers, student participation, and oral discussions.

This method of instruction has some social advantages, as students are able to interface with other students as well as with the teacher. However, there are also several disadvantages to this form of instruction. First, it is not flexible with regard to scheduling and there are limits to the number of people that can be trained simultaneously. Second, if multiple trainers are used, the fidelity of instruction is at risk of being negatively impacted and with it, the efficacy with which the instruction may be put to practical use (Wallace & Yassine, 2012). Third, the use of BCBA resources for classroom-based staff training reduces the potential time available for supervision and consultation in the field. Finally, as with the case of online learning, the ability to apply knowledge learned outside the training environment successfully to real-life situations is not guaranteed. It is only when students have been given simulated or field-based training that the correct application of the knowledge learned can be ensured.

Field-based instruction. Field-based training is provided within the context of a teaching activity that occurs in the actual teaching environment. Competencies are taught 1:1 through modeling and verbal instruction as well as feedback. Field-based training allows the learner to practice concepts in different situations with different students. Feedback, a critical component of staff training (Parsons, Rollyson, & Reid, 2012) can be provided immediately and any mistakes corrected through additional demonstration. Field-based training is an integral part of an overall staff training model. The main disadvantage of field-based instruction is the expense and inefficiency of providing training to one staff member at a time.

Online learning. Online instruction, e-learning, and web-based instruction are analogous to one another. Cheng and Miller (2009) defined online instruction as follows: "technology enhances education delivery and knowledge acquisition in the form of e-learning where learners and faculty members are at a distance from one another but are connected by technological media such as the Internet" (p. 1). Online instruction uses various forms of media (video, audio, websites, text, or animated multimedia) to produce and deliver content to learner audiences (Cheng & Miller, 2009). Online instruction can be delivered via live video streaming, where the instructor and students can see and hear one another, but have gathered from remote locations. This type of online instruction duplicates the live lecture in many ways as long as technology is available and in working order. Online instruction can also be learner led and self-directed. Readings, demonstration via video, practical exercises, and structured lectures guide the learner through the content and acquisition of knowledge, which is assessed through quizzes and tests. Use of online instruction for professional development purposes is widespread and crosses over many professions, such as the U.S. military and corporations whose employees are dispersed across the country and the world.

The blended instructional model. The blended instructional model incorporates the use of online instruction with other teaching formats, such as classroom and field-based instruction. Online training can be accessed anywhere there is an Internet connection. It can include PowerPoint slides, narration, and video examples. It may also emphasize interactive learning, using postings and chat room discussions to duplicate a classroom setting. Online training modules can be short and concise and in some

learning environments, may be the venue in which initial concepts are introduced (Matheos, Daniel, & McCalla, 2013).

The blended model allows the adult learner regular contact and dialogue with trainers, as well as in-field practice opportunities, constructive feedback, and flexible, efficient, and continuous access to training opportunities online. This has particular relevance for adult learners in ABA training programs due to the difficulties faced when attempting to apply a concept or stage an intervention with a student who presents with a different learning profile and/or challenge. Access to online learning opportunities allows those new to the field to review and refresh their knowledge of topics at any point between supervision meetings and in-service training. It allows supervisors the ability to assign training when a staff member appears to be having difficulty with a particular concept or when a specific procedure that is new to the employee is deemed appropriate for a particular student. Consider this example: John is an employee who has worked with children with ASD in the home setting for one year. He has five children on his caseload, all of whom are between the ages of three and five. One student moves out of services and the child who is his replacement is a seven-year-old boy who possesses a more advanced repertoire of skills. John reviews the students' learning objectives and notices shoe tying as a skill he has never taught before. If online training is available to him, he will be able to familiarize himself with the teaching procedures, as well as framing any questions he may have prior to meeting with his supervisor. Blending traditional and online instruction has many advantages (Coppola, Hiltz, & Roxanne, 2002; Lessen & Sorensen, 2006) and is particularly applicable to geographically

dispersed practices whose part-time staff may have other commitments that conflict with a scheduled training (Hussain, Wang, & Rahim, 2013). Institutions with limited resources, students who are homebound (Silverman, 2001), and families residing in more remote rural areas may all benefit from online learning opportunities (Hussain et al., 2013). With online instruction, a greater number of people can be trained simultaneously without either incurring the expense of travel or unnecessarily taxing trainer resources to teach less clinically complex material. Procedural integrity is improved and although some computer experience is necessary, the technology required is not as specialized as some may think (Hussain et al., 2013).

Research Questions

RQ1 Are there statistically significant differences in test scores between the training content learned through online instruction and traditional classroom-based instruction?

RQ2 Are there statistically significant differences in retention of training content learned via online instruction when compared with content learned through more the traditional (classroom-based) instruction?

RQ3 Are pretraining scores significantly different from posttraining scores, in general?

RQ4 Are there statistically significant differences in the acquisition of training content learned via online instruction when compared with content learned through more traditional classroom-based instruction?

RQ5 Is acquisition of knowledge better with online instruction than with traditional classroom-based instruction?

RQ6 How does acquisition of knowledge compare between the test groups and a control group?

RQ7 Are there statistically significant differences between postinstruction scores and follow-up scores, in general?

RQ8 Are there statistically significant differences between the retention of knowledge learned through online instruction and knowledge learned through more traditional classroom-based instruction?

RQ9 Is retention better with online instruction than with traditional classroom-based instruction?

Purpose Statement

This research was conducted in an effort to better understand the efficacy of online instruction. Specifically, the researcher was interested in determining how well adult learners acquire, retain, and apply job-related content taught using an online instructional format when compared with adults whose training occurs in a classroom setting with a live trainer.

Significance of the Study

"Unfortunately, there is a large gap between the supply of qualified behavior analysts and the demand for ABA services. Although the supply of qualified individuals is increasing, consumers often must choose from limited options" (Autism SIG. 2007). It is hoped that the results of the study will lead to further research in blended training

models as well more collaborative effort among private and public institutions to train and disseminate useful and accurate information to families and professionals in areas not privy to best practice models for individuals with ASD. ABA programs may begin to offer online training options that are blended with face-to-face instruction in the classroom and in the field. Ultimately, this may result in a more efficient and effective way to train adults to work with individuals with ASD as well as providing training options not previously available to those living in far-flung geographic areas.

Research Hypotheses

H_0: There are no statistically significant differences in the acquisition and retention of content learned through online instruction when compared with content learned during classroom-based instruction.

H_a: There are statistically significant differences in the acquisition and retention of content learned through online instruction when compared with content learned during classroom-based instruction.

Limitations

This study was limited to classroom and online instructional formats, Practice A employees, and a single training program titled *Sexual Harassment in the Workplace*. Analysis of the data was limited to (a) descriptive and inferential statistics used to compare outcome data from one test to the next within each groups and (b) descriptive and inferential statistics used to compare differences in test scores between each collective group.

Organization of the Study

The literature review in Chapter 2 begins with an introduction to the research topic and theoretical frame, followed by a summary of misconceptions and a clarification of terms that are synonymous with online instruction. Relevant research is then reviewed, consisting of the following topics: multimedia learning professional development in ABA; online learning efficacy, attributes, and current applications; and ABA and video modeling.

The methodology section in Chapter 3 begins with the design of the study, identification of the variables in the study population, the study site, the method, and sample size. Instrumentation is discussed within the context of a pilot study, followed by validity and reliability factors, data collection and procedures, ethical considerations, and finally instrumentation.

The results section in Chapter 4 details the descriptive and inferential statistical analyses that identify both between- and within-group trends, associated means, and variance or spread. Normality testing, repeated measures analyses of variance (ANOVA) and post hoc Bonferroni results provide details related to the magnitude and significance of each group's performance on the respective tests.

The discussion section in Chapter 5 begins with a review of the original hypothesis, research questions, and summary of the results of the study, followed by a summary of relevant findings from the literature review and then a more directed review of the research specifically related to attributes unique to online instruction. Limitations,

significance, and implications for policy and practice, as well as areas for future research, are provided at the conclusion of the dissertation.

Research Location

The study was conducted at a Massachusetts-based private group practice and employer of over 300 behavioral therapists and 46 BCBAs. This practice, referred to from here on in as Practice A, utilizes the principles of applied behavior analysis as a treatment model for individuals affected by ASD, and serves approximately 900 families statewide. The group provides children with close to 7,000 treatment hours every week. Practice A's mission is to reduce the hardships experienced by children and families using evidence-based instruction and in so doing to improve the quality of family life. Practice A's focus is on developing the skills needed in a variety of areas required for everyday living, including communication strategies, social engagement, play, and any other skills identified through an initial assessment.

Chapter 2: Literature Review

Introduction

The literature review section of this dissertation identifies factors that may support the use of online instruction with adult learners in ABA staff training models. Four questions formalize the goals of this review: first, does online instruction have the potential to make a big enough impact on the adult on-the-job training models, thus making it a worthy study to pursue? To explore this question fully, learning theory, as it applies to behaviorism and the adult learner, is discussed, along with an attempt to clarify terminology as well as associated facts of online instruction as we know it today. The other three questions are as follows: what features of online instruction are attractive to the adult learner and are those features associated in any way with learning? In what capacity is online instruction currently being used? What does the research say about the effectiveness of online instruction?

An interest in finding solutions to socially significant problems is what drew the researcher to ABA in the first place and the belief that for every problem there is a solution is what has kept her in the field for more than 25 years. The problems associated with this field are complex and can impact one's ability to learn, socialize, and live independently. Yet, solutions do exist, though they are not always easy to identify, as they are embedded: in the data one gathers, in peer reviewed research, in a conversation with a parent, and/or in a report somewhere deep in the child's file. ABA adheres to the same standards that guide all science-based practice, such as objective observation,

experimentation, and replication, as well as underlying assumptions or attitudes (Cooper, Heron, & Heward, 2007) such as determinism and philosophic doubt, to name a few.

In their 1968 seminal article titled *Dimensions of Applied Behavior Analysis*, Baer, Wolf, and Risley described the dimensions that have framed ABA for almost 50 years, namely applied, behavioral, analytic, technological, conceptual, effective, and generality. These dimensions provide the BCBA with a practical, scientific, and ethical road map or guide to the practice of ABA. The assumptions or attitudes of science and the dimensions of ABA fit within the theoretical umbrella of pragmatism. Baer et al. wrote, "Behaviorism and pragmatism seem often to go hand in hand.… Applied research is eminently pragmatic" (p. 93). There are other attributes, less publicly noted but no less important, that link pragmatism to the practice of ABA. In his award winning essay, recognized at the 1998 annual Peirce Essay competition, Kasser, writing about Charles Sanders Peirce, wrote:

> More famously, the early Peirce holds that logic demands certain moral commitments. [L]ogic rigidly requires, before all else, that no determinate fact, nothing which can happen to a man's self, should be of more consequence to him than everything else. He who would not sacrifice his own soul to save the whole world, is illogical in all his inferences, collectively. So the social principle is intrinsically rooted in logic. (Kasser, 1999, para. 25)

Similarly, the BCBA in practice, focus' his/her clinical attention on socially significant behavior, either as a means of developing critical skills and/or decreasing concerning behavior that presents as health and safety risk and /or barrier to learning,

socializing and living independently. The BCBA tends to possess a diligent, even dogged attitude when attempting to find causes and solutions to a problem that impacts the quality of life one is able to lead. Consider this real case scenario. A little boy, nonverbal, diagnosed with ASD presented with numerous behavioral challenges: bolting, removing clothes, aggression, tantrums, and self-injury. The child received his educational services within an ABA model and through this approach these behaviors began to subside and functional skills emerged. Then, his behavior began to deteriorate, slowly, over time until his rates of problem behavior had reverted to baseline levels. Procedures had been consistent, parents had been on board, and no corresponding event could be identified. There was nothing in the child's current student records that led to any possible answers. The researcher/lead clinician accessed very old student records and there it was: a viable cause for the boy's deteriorated state, namely reflux. Though the discovery led the boy's clinical team to a proper medical diagnosis, it was due diligence combined with scientific inquiry that ultimately solved this particular problem.

> While it's true that everyone perceives reality differently, reality could care less about our perceptions. Reality does not change to adapt to our viewpoints; reality is what it is. Reality is fact. Reality is truth. Reality, however, is not always a known. (Ringer, 2014, para. 3)

There are many misconceptions associated with online instruction, some of which are identified by Demaria and Bongiovanni (2010). They include a belief that online instruction is impersonal and isolating and that online learners are distracted by the opportunity to surf the Internet during class time. There is a misconception that certain

courses are not conducive to online learning and that features such as blogs have no value when it comes to learning. Furthermore, it is believed that discussion forums are ineffective and geographic spread prevents group collaboration on projects. There is also a misconception that the virtual classroom must look and feel like a real classroom and that passion associated with one's teaching cannot be conveyed online. Finally, it is believed that faculty members are not provided the technical training needed for appropriate and effective instruction delivered online. Misconceptions are often caused by confusion over terminology and perceptions that are communicated as factual. Misconceptions involving technology can negatively impact public perception and derail potential viable uses. What follows is factual information related to online instruction.

Online instruction is widely used by both public and private entities, is cost efficient (Means et al., 2010; Wacker, et al., 2013), increases learning opportunities for those unable to access center based classes (Means et al., 2010; Hussain et al., 2013), and is supported by the Association for Supervision and Curriculum Development. "The typical online consumer now tends to be the adult who wishes to advance skills for professional gain" (Uhlig, 2002, p. 271). Online instruction has a unique set of features that allow the adult learner the flexibility to tailor the presentation of training content to his or her own learning preferences. The learner is able to decide when, where, and under what circumstances learning will occur. Self-directedness, an adult learning theory in its own right, is particularly relevant to online learning because the concept of motivation is at the center of this learning theory. It was Malcom Knowles (1980) who first introduced the term *andragogy*, a replacement term for pedagogy as a means of

discriminating between the needs of adult and child learners. The terms differ in how learning is directed: by the teacher in pedagogy and by the learner in andragogy. Knowles wrote,

> Andragogy is simply another model of assumptions about adult learners to be used alongside the pedagogical model of assumptions, thereby providing two alternative models for testing out the assumptions as to their "fit" with particular situations. Furthermore, the models are probably most useful when seen not as dichotomous but rather as two ends of a spectrum, with a realistic assumption (about learners) in a given situation falling in between the two ends. (Knowles, 1980, p. 43)

Self-directedness is a learning attribute and terminal goal that can and should be facilitated as the learner matures. Adult learners differ from child learners and should therefore receive instruction that differs as well (Knowles, 1980). Adults are more likely to be intrinsically motivated and differ in both the quality and magnitude of the experience they bring to the classroom or training. Learning activities tend to be goal oriented, are often centered on a problem, and coincide with applicable and relevant tasks. Additionally, adults must divide their attention between competing interests such as work, family, and entertainment and they are impacted by economy and efficiency. In addition, adults are better able to identify learning style and preferences (Felder & Spurlin, 2005).

Edward Thorndike's research conducted in the early 1900s centered on the principles that govern learning. He can be credited for what he identified as the Law of

Effect. The Law of Effect refers to a connection between learning and gratification, as the learner must be satisfied with his or her success in acquiring the material to be motivated to continue. *The Trainers Handbook: The AMA Guide to Effective Training*, 3rd edition (Mitchell, 1998) is a resource for those employers who provide on-site training to their employees. In it, Mitchell cited Edward Thorndike's work on adult learning theory as being relevant to current practice and presented it as an overarching framework, supporting what he referred to as the principles of learning. These principles provide us with both insights into the circumstances under which an adult learns and/or does not learn and a clear understanding of what is conceptually important in the development of a training program. They are:

> (a) adults learn when ready, (b) adults learn from mistakes, (c) adults learn when content is familiar, (d) adults learn easiest what is familiar, (e) adults learn when they can favor different senses, (f) adults learn when material is presented in a methodical and systematic manner, (g) adults learn through practice, (h) adults learn when they can see their own progress, (i) adults learn when content is presented in a manner that is unique to them, and (j) adults do not learn what they cannot understand. (Mitchell, 1998, p. 7)

It is only through blended instruction, that all ten principles (cited above) are achievable. Principals e and i: "adults learn when they can favor different senses" and "adults learn when content is presented in a manner that is unique to them" are most conducive to the flexible nature of online instruction. It is the learner who understands the circumstances under which he or she learns best. Typically, online learning

opportunities, when available, are continuous and the frequency and duration of time on task can be decided by the learner. Principle g: "adults learn through practice," on the other hand, can be achieved only through simulated activities in the classroom and field-based instruction. The remaining seven principles can potentially be incorporated into any instructional format.

Review of Relevant Literature

Professional development. A general consensus does exist within the ABA community on the components of a best practice training model. Some early developments in this field are still current and are still practiced today; for example, Fred S. Keller developed the personalized system of instruction in the early 1960s. Components currently include (a) the use of a multimodality approach to teaching, (b) material that has been broken down into units and is taught to mastery, (c) instruction that allows for self pacing and (d) the use of proctors for clarification purposes (Boyce & Hynline, 2002). The focus of Keller's research moved away from teaching approaches to learner engagement and motivation, with his current research centering on the ARC-L model (attention, relevance, confidence, satisfaction, and volition; "scholars in a large number of countries have investigated the applicability and effectiveness of this model, and they generally concluded that motivation should be an integral part any of effective learning system" (Simsek, 2014, p. 94).

Multimedia learning. "People can learn more deeply from words and pictures than from words alone" (Mayer, 2005, p. 31). Multimedia learning combines various forms of digital media such as pictures, video, animation, etc. to communicate

knowledge-based content to learner audiences. Claims have been made that this form of instruction has been shown to assist in the transfer of knowledge from initially acquired to field-tested and applied. To accomplish this, web-based lectures are assigned to students for review prior to class and are the first contact the learner has with the course content. These lectures are short and content is presented through both auditory and visual (video, pictures, photos, etc.) means. Students then participate in class exercises that somewhat resemble homework assignments. However, the exercises are completed with the teacher playing more the role of a facilitator than that of an instructor. Mayer describes this model as learner-centered, rather than technology-centered, as the online model allows the individual learner to tailor the lecture to his or her own learning style.

Inter-teach. Inter-teach is an instructional method whose development stemmed from the need for a more user-friendly curriculum associated with ABA. Classroom lectures play only a minor role in this method; rather, inter-teach uses "mutual probing, mutually informing conversation between two people" (Boyce & Hynline, 2002, p. 220). The sequences of instructional steps are as follows: (a) a preparation guide is provided to students, with source material, due date, and main points highlighted; (b) note-taking; (c) peer-to-peer conversation, interaction and practice; (d) classroom discussion; (e) review; and (f) evaluation. Boyce and Hynline (2002) pointed out that the lecture provides an avenue for greater understanding and perhaps even motivation. They stated, "if the lecture is properly developed, its potency as a reinforcer is virtually assured" (p. 222). Inter-teach is not commonly used in the staff training models used today.

Behavioral skills training. The efficacy of behavioral skills training as a method for training ABA methodology has been well documented in current ABA research (Sarokoff & Sturmey, 2004; Rosales, Stone, & Rehfeldt, 2009; Nigro-Bruzi & Sturmey, 2010). This model incorporates six distinct training phases. Parsons, Rollyson, and Reid (2012) describe this protocol as an evidence-based procedure designed to train performance skills (work duties that are action oriented and observable). The goal is for staff members to be able to use the skills in which they have been trained effectively with their patients/clients. In the initial instructions phase, the trainer describes the target skill and presents information related to its purpose and usefulness. In Phase 2, the trainee receives a written sequence of the actions necessary to perform the skill. Phase 3 requires that these actions be modeled by the trainer. For the purposes of this discussion, it is relevant to note that the authors identify the use of video modeling as a helpful and effective strategy during this phase. In Phase 4, the trainee practices the skill. Practice continues in Phase 5, with additional corrective and supportive feedback being provided to the trainee. Finally, Phase 6, evaluation, is a continuation of Phases 4 and 5 until mastery is achieved.

Online instruction – Attributes. Volery and Lord (2000) evaluated the factors of online learning associated with success. These were seen as participant ease of access, an appealing and well-structured web page design, interactive possibilities between students and instructor, instructor attitude toward students, the level of the instructor's technical ability and enthusiasm, and the instructor's success in motivating students to engage. Rabai and Rjaibi (2012) reported similar findings, but added user ability to the

list. Their list comprised assessments of efficacy, memory, errors, learner control, learner activity, motivation, and feedback. Tavangarian, Leypold, Nölting, Röser, and Voigt (2004) identified flexibility of an online instruction as highly relevant because this format can accommodate different learner needs, including the needs of learners with disabilities (Rabai & Rjaibi, 2013). Rjaibi and Rabai (2012) Investigated what they refer to as the key factors associated with learner satisfaction, including the learner's attitude; the learning platform, the ability to have one's assessment validated, the quality and/or reliability of the web connection used, the ease with which the student is able to understand the course content, the quality of that content, the instructor's attitude toward e-learning, the ability to synchronize what is being learned with the web discussion, and the dimension of self-learning.

Telemedicine training models. There is an abundance of research describing effective models of *telemedicine*, defined as a long-distance consultation that uses live web streaming to provide behavioral and medical services to individuals, families, and teaching teams. Although this model differs from online instruction in both purpose and structure, this research was included because of its practical application in connecting clinicians with non-clinicians in a remote location.

Barretto et al. (2006) presented two case studies involving the use of telemedicine with teaching teams, having to do with children who have severe behavioral challenges. The children selected were those for whom travel to a clinic was difficult. Each child had a team of adults who participated in the training, including parents, special education professionals, teachers, physical therapists, and so on. These teams were trained to

conduct a functional analysis. In each case study, the results showed the use of telemedicine to be effective in training functional analysis procedures to teaching teams. Although the authors provided data for only the two case studies, they noted that the telemedicine model has been used in over 75 cases to train team members in the use of functional analyses, with rates of success similar to those seen in the original case studies.

Wacker, et al., (2013) also used a telemedicine model to conduct functional analyses for 20 young children with autism. In each case, the actual functional analysis was conducted by a parent, in a clinic and in the home setting. Data for both clinical and home settings were compared on several different factors. The results identified a lower cost for services in a home setting. In addition, the training was equally effective in either the clinic or home setting.

Online instruction – Teacher training. Relevant literature exists which reflects the efficacy of online instruction in various educational models. In their study titled *Assessment of Effectiveness of Web-based Training on Demand*, Liu, Chiang, and Huang (2007) compared the efficacy of online instruction to that of classroom-based instruction. They noted that the online learners outperformed the classroom learners and the result of a survey indicated that online learners enjoyed a superior learning experience. Lee, Kyunghwa, Choi, and Ikseon (2008) reported results similar to those reported by Liu et al., (2007). Online instructional modules were developed for early childhood teachers, with content related to classroom management techniques and solutions to problems. Lee et al.'s study suggested that online instruction is effective in teaching early childhood teachers new techniques and methods of solving problems associated with a pre-

kindergarten environment. Walker and Harrington (2008) examined the efficacy of computer-based training modules used in the care and support of elderly patients/clients. Their results revealed higher posttest scores than before the test was administered, suggesting that the model was effective in imparting knowledge of the content taught. A satisfaction survey revealed a strong positive response to this format of instruction. McVeigh, Gusella, Tweed, and Ferrari (2009) designed and implemented a web accessed training program for elementary school teachers and practitioners in public health settings. The training curriculum was designed to teach strategies effective in preventing eating disorders in children. Mcvey, Tweed, Ferrari, and Manuel (2008), reported that web-based instruction was effective in improving knowledge in the content area. A satisfaction survey revealed positive feedback regarding the training model.

A 2010 meta-analysis of 50 studies, funded by the US Department of Education (DOE) and prepared by authors Means, Toyama, Murphy, Bakia & Jones, evaluated the learning effects of online, blended, and classroom (face-to-face) instruction. Results suggest that blended instruction has greater advantages and in some cases better efficacy than classroom instruction or instruction that is delivered solely online. However, the authors cautioned the reader not to interpret the finding too literally, they stated;

> The studies in this meta-analysis do not demonstrate that online learning is superior as a medium. In many of the studies showing an advantage for blended learning, the online and classroom conditions differed in terms of time spent, curriculum, and pedagogy. It was the combination of elements in the treatment conditions (which were likely to have included additional learning time and

materials as well as additional opportunities for collaboration) that produced the observed learning advantages. (p. xviii)

The results of an 11-article meta-analysis comparing the learning effects of human versus computer tutorials (Grubišic, 2010) indicated that the computer tutorial was actually less effective than a human tutor.

Two recent studies used a single subject design as means of evaluating the learning effects of online training associated with ABA methodology. McCulloch and Noonan (2013) evaluated the use of online training videos to teach a skills-acquisition protocol to three paraprofessionals. Results were marginally effective and therefore inconclusive. Fisher et al. (2014) developed a series of e-learning modules and evaluated the learning effects with eight adult participants. Participants were randomly selected and then placed in one of two groups; treatment and control. Data were collected through direct observation measures. Results revealed that the treatment group showed a statistically significant improvement in knowledge and performance over the control group. The treatment package included the use of role play and therefore teacher-student interface occurred prior to posttest.

Other studies have evaluated the efficacy of teaching ABA courses (as opposed to online modules) in an online instructional format; Fazzio, Martin, Arnal, and Yu, (2009) evaluated the effectiveness of online instruction with teachers and paraprofessionals in the use of ABA content and methodology. This study showed that the majority of participants increased their knowledge of ABA methodology. Granpeesheh et al. (2010) taught academic ABA knowledge to staff under two conditions: e-learning and live

lecture. Results indicated that both groups increased knowledge significantly, with the classroom group scoring slightly higher on posttest scores than e-learning group. Pollard (2012), evaluated the effectiveness of a two-hour interactive computerized training program on ABA discrete trial instruction used to teach a small sample of college students. Fidelity measures were taken pre and post in two conditions; role-play with an adult and training sessions with a child with ASD. Results revealed that all but one of the participants met the pre-set performance criteria. The participant who did not meet criterion was provided performance feedback and coaching, as result, fidelity measures increased to appropriate levels. The author also noted that participants were able to apply their newly acquired skills, using ABA methods preciously untrained.

In a study conducted by Hamad, Serna, Morrison, and Fleming (2010), 51 volunteers were taught ABA methodology within the context of three discrete learning modules. Results revealed a statistically significant increase in scores from pre- to posttest overall.

A study conducted by Nosik, Williams, Garrido, and Lee (2013) resulted in the opposite effects from outcomes mentioned above. They compared computer-based training involving the use of instructions and video modeling, with behavioral skills training involving instructions, video modeling, rehearsal, and feedback. Participants were trained to implement a discrete trial training methodology. Results suggested that the group receiving behavioral skills training outperformed the group receiving computer based training.

ABA and video modeling. Video modeling has been used with adult learners in ABA training programs. Video modeling differs from online instruction in that only the teaching steps are viewed on video by the adult learner, rather than the full training. Nielsen, Sigurdsson, and Austin (2009) assessed whether video modeling could aid in preventing back injuries commonly suffered by hospital staff. Five members of the nursing staff participated in the study and improvements were noted by all. However participants' behavior returned to baseline levels once the study had ended, indicating that learning was not maintained.

Moore and Fisher (2007) compared the combination of lecture style and video instruction to a full use of videos that modeled technique in the teaching and implementation of functional analysis. The video model resulted in greater mastery and implementation of training content, whereas the live lecture combined with only partial use of video modeling resulted in negligible mastery of training content. An additional benefit of the use of video exemplars was the resulting increase in procedural integrity among those using video modeling.

Iwata et al. (2000) developed a training package that combined different forms of instruction related to the understanding and implementation of functional analysis. Training, consisting of videotaped simulation, reading materials, and feedback, was provided to participants with relatively little experience with functional analysis. Results showed that all met mastery criteria following the training, which lasted only about two hours. Iwata et al. cited the importance of mastery of novel material within a limited amount of time.

Day, Foley, and Catrambone (2006) compared the effects of four training conditions: PowerPoint only; text transcript and PowerPoint; audio instruction, PowerPoint, and video; and audio instruction and PowerPoint. Results showed significantly better learning when the training condition contained a video component. Catania, Almeida, Liu-Constant, and DiGennaro-Reed (2009) evaluated the effectiveness of video modeling to train three employees, interventions associated with ABA methodology. Although treatment integrity did improve, field-based performance was inconsistent. When verbal performance feedback was added to the training package, treatment integrity increased to 100%. Data collected one week after training revealed that teacher performance had been maintained. DiGennaro-Reed, Codding, Catania, and Maguire (2010) revealed very similar results when staff members were trained using video modeling to follow/implement behavioral interventions. Treatment integrity was measured, revealing that one staff member met the performance criteria while the remaining two required the use of performance feedback.

Conclusion

The efficacy of online instruction is suggestive but not conclusive. In ABA, support for its use exists; however, there are factors that indicate a need for continued research on the subject matter. First, there are conflicting results, as a few studies indicated that online instruction proved less effective (McCulloch & Noonan, 2013; Nosik et al., 2013) than other training methods associated with a live trainer. Second, the studies differ greatly in terms of experimental design, target population, and procedures; therefore, a generalized statement regarding effectiveness cannot be justified. Recent

studies (Pollard, 2013; Granpeesheh et al. 2010) concur with this statement, as does the National Standards Report (2009), authored by the National Autism Center, whose report on the efficacy of interventions associated with ABA and ASD has categorized online instruction as emerging rather than evidence-based. Although an updated report is due out this fall, it is unlikely that online instruction will be categorized as evidence-based, as this criterion is set at upwards of 30 empirical research studies. The research outside of ABA appears to favor the blended model. Given the complex learning profile of the individual with ASD, the technical nature of ABA methodology, and the abundance of research in support of face-to-face instruction both in the classroom and in the field, blended instruction may be well suited for ABA training models as well. The flipped classroom (Educause, 2012; Suiter, 2010), a model that is gaining momentum in use, assigns and combines short video-based lectures both as homework and as practical exercises conducted in the classroom. Yet, the efficacy of this technology is not conclusive and its use has not yet been integrated into ABA training models.

Chapter 3: Methodology

Design of Study

A between-groups true experimental design was used to compare the efficacy of web-based instruction to that of classroom-based instruction. Creswell (2012) defined group comparisons as "the process of a researcher obtaining scores for individuals or groups on the dependent variable and comparing means and variances both within the group and between the groups" (p. 302). This design was selected for of its strong control over those factors threatening both internal and external validity. It incorporates both the use of a control group and random assignment of the study sample. A pretest, posttest, and follow-up test were used to measure the influence of the independent variable (instructional method) on the dependent variable (test scores).

Identification of Variables

Dependent variable. The domain targeted for measurement in this study was a training module titled *Sexual Harassment in the Workplace*. The instrument used to measure acquisition of training content is a single test developed by the researcher as part of a pilot study. Scores obtained from this test were treated as the dependent variable and they reflect individual and collective knowledge at baseline, post training, and 30 days post training.

The *Sexual Harassment in the Workplace* training was deemed most suitable for the pilot and the research study because (a) as is also true of concussion training for sports (CDC, 2013), the content is federally mandated for all employees in both private and public institutions and could potentially be shared between institutions; (b) the

training incorporates best practice guidelines relative to the construction of online learning modules; and (c) the content is outside the scope of ABA training and thus not applicable to the direct teaching of clients.

Independent variable.

Training Type. Three treatments (or categories) of training types were used in this study.

#1, Live Lecture: Participants assigned to this group were given the *Sexual Harassment in the Workplace* training. This is considered a traditional classroom format and it consists of a live trainer making use of PowerPoint and video examples. The duration of the training is 28 minutes and 30 seconds and the number of participants receiving this training at any given time did not exceed 25.

 # 2, Online Learning: This is an online format, also known as training on demand (TOD). TOD is a web-accessed training database developed for and used by employees of Practice A. The training is accessible 24 hours a day, seven days a week. Individual accounts are established for all newly hired employees and training in the use of TOD is provided during orientation. Employees access the site by logging in with a user name and password. Technical support is provided online, through a help desk. The TOD training site consists of over 100 online training modules. This training is an exact duplicate of the training described for the live lecture group, except that instead of a live trainer, voice over PowerPoint is what the listener sees and hears in addition to the other multimedia effects.

#3 Control group: the control group did not receive the Sexual Harassment in the Workplace training.

Description of the *Sexual Harassment in the Workplace* Training

Practice A's *Sexual Harassment in the Workplace* training followed five stages:

I. Definition of sexual harassment, with supporting examples given.

II. Description of Practice A's written statement of policy and values.

III. Research and statistics: the victim, harasser, reporter, environment, and causes.

IV. Video examples

Video 1: Patronizing comments; focus on appearance or gender.

Video 2: Unwelcome vs. welcome physical contact.

Video 3: Quid pro quo, reporting sexual harassment and the investigation.

Video 4: Hostile work environments.

V. Conclusion: Company liability and due diligence, summary and employee hotline.

Study Population

Study site. The study was conducted at a Massachusetts-based private group practice and employer of over 300 behavioral therapists and 46 BCBAs (Practice A). This practice serves approximately 900 families statewide.

Study population. Participants were adult employees of a private Massachusetts-based practice whose clients include individuals with autism and related disabilities. Employees are hired on either a part-time or full-time basis and must possess at least a

bachelor's degree. As of November 12, 2013, the practice consisted of 243 employees, who may be differentiated by experience level, identified below;

Associate Behavioral Therapist (ABT): This is an entry-level position. ABTs have at least a bachelor's degree and minimal experience in the field of ABA.

Associate Behavioral Therapist/Behavioral Therapist (BT): A BT may have a bachelor's or master's degree and is considered the lead clinician/implementer. The BT works directly with the student, supervises ABTs, and maintains the program book data and graphs, as well as updating progress on a quarterly basis.

Supervising Behavioral Therapist (SBT): The SBT has more than three years' experience in the field of applied behavior sets. A master's degree is required and BCBA certification is preferred. The SBT provides consultation and training, both to the behavioral therapist and to members of the patient/client's family.

Board Certified Behavior Analyst (BCBA): The BCBA provides consultation to staff and families and typically works on insurance cases, as certification is required.

Board Certified Behavior Analyst – Doctorate (BCBA-D): This is a BCBA who has earned a doctoral degree.

Figure 1 represents the number of employees at Practice A sorted by job title:

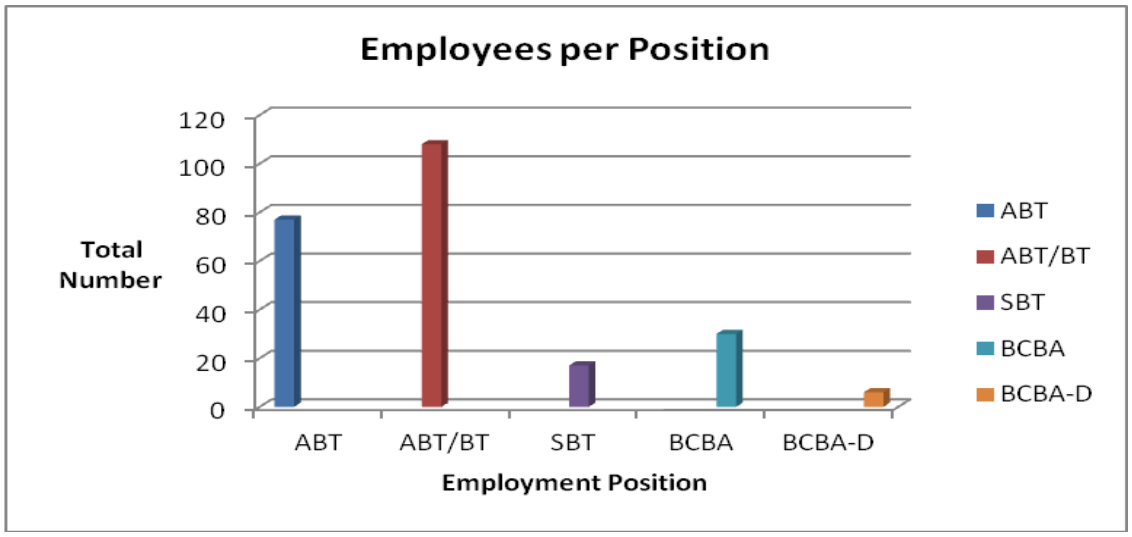

Figure 1. Employees per position.

Sample Method and Sample Size

All Practice A employees were eligible to participate. Approximately 119 employees volunteered to participate and consented in writing to the use of the results in this study. After obtaining a complete list of Practice A staff, organized by identification number and job title (names were omitted to avoid bias on the part of the researcher), participants were classified according to their job descriptions and each randomly assigned to one of three treatment groups: control, live lecture, or online training. This method of sampling, referred to as stratified random sampling, was used in order to ensure that an equal sample of those at each of the various experience levels was represented in each group. Creswell (2012) defined this particular method as "a quantitative sampling procedure in which the researchers stratify the population on some specific characteristics (e.g., job title) and then sample, using simple random sampling from each stratum of the population" (p. 628). The controlling variables identified in this

study sample consisted of ABT, ABT/BT, SBT, BCBA, and BCBA-D (all noted in Figure 1).

Instrumentation

One test, constructed by a committee of behavior analysts including the researcher, was designed to measure three major factors of the training. The instrument was produced within the context of a pilot study and measured the following:

- stability of baseline knowledge from pretest to posttest for the control group;
- initial acquisition of training content from pretest to posttest for the live lecture and online groups;
- retention of training content from posttest to follow-up test for live lecture and online groups

The *Standards for Educational and Psychological Testing* (AERA et.al, 1999) defines the term "test" as an "evaluative device or procedure in which a sample of an examinee's behavior in a specified domain is obtained and subsequently evaluated and scored using a standardized process" (p. 3). In this case, the specified domain is the aforementioned study, entitled *Sexual Harassment in the Workplace*.

The test was developed within the context of a pilot study as recommended by, and in adherence with, the *Standards for Educational and Psychological Testing.* The goal of the pilot study was threefold: (a) implement procedural guidelines that support and produce proper test construction, (b) identify confounds that threaten the validity and reliability of the test, and (c) provide "strands of evidence" to support "the intended interpretation of test scores for specific uses" (p. 17).

The pilot study steps, procedures, and results and the description of the final product are summarized below, in conjunction with relevant standards outlined in the *Standards for Educational and Psychological Testing* (AERA et. al, 1999).

Pilot Study

Development of the test questions. Between one and four questions were developed for each content area. Standard 1.6 requires that a test adequately represent the content it is intended to measure. For this reason, 57 test questions were developed, allowing the expert judge (Standard 1.7) an appropriate pool of items from which to select. Two expert judges were used in the pilot study to ensure adequate representation of the training content, as well as the clarity and fairness of the questions.

The first judge was the author of the *Sexual Harassment in the Workplace* training and the Senior Vice President of Human Resources at Practice A. He evaluated each test question using the criteria of scope and representation. The second judge was a doctoral level BCBA who routinely writes test questions for the Behavior Analyst Certification Board. This judge evaluated the test for the clarity and fairness of the questions.

Test iterations. The first iteration contained 57 test questions, the second iteration 31 and the final pilot test consisted of 24 test questions.

Selection of participants. Twenty-nine individuals participated in the pilot study. Participants were evenly dispersed among three programs, comprising Practice A and two sister companies. All were willing participants and each signed a consent form. The Practice A participants were then removed from the future study sample, because they had prior exposure to both the training and the test.

Selection of trainers. Three trainers received specific instruction in the implementation of the *Sexual Harassment in the Workplace* training in the live lecture format. (The training had previously only been available online.) Both formats used the same scripts, video demonstrations, and written prompts and were 28 minutes and 30 seconds from start to finish. The trainers were selected due to their significant number of years of experience as clinicians and trainers in ABA and because of their advanced positions at Practice A. It was assumed that at least two out of the three trainers would meet the criteria established to qualify as a trainer for the study. The two individuals selected for the study were those who demonstrated the most consistent execution of the training in a timely manner and followed the training script exactly.

Training of the trainers. The trainers received extensive instruction in the implementation of the *Sexual Harassment in the Workplace* training. The training was modeled by the author and expert judge. The trainers received and reviewed the training content in written format. Each slide was then explained and justified and questions about the training content, guidelines, and background information of the proposed study were answered. Each trainer practiced and then implemented the full training for one observer, who measured the amount of time used and the fidelity with which the training was implemented.

Implementation of the pretest. Three days prior to the implementation of the *Sexual Harassment in the Workplace* training, the pre-test was given to all three groups. It was scored and the responses were analyzed by the primary researcher.

Implementation of live lecture training. The *Sexual Harassment in the Workplace* training was given separately to each of the three groups. Reliability of instruction was again measured, in terms of both the training duration and the consistency of the training content or script.

Implementation of the posttest. Immediately following the training, the posttest was given to participants in all three groups. Participants were given 30 minutes to complete the test.

Further training of the trainers. Results revealed that two out of the three trainers were able to meet the duration criteria. However, all three trainers deviated slightly from the script. As a result, the two trainers who had met the duration criteria were selected as trainers for the study. Each trainer was encouraged to continue with practice trainings and a second observation was conducted and treatment integrity data collected. The results of the second observation revealed that each trainer was able to complete the training within less than one minute and thirty seconds of the targeted duration; trainer one had a training duration was 29 minutes and 48 seconds and trainer two completed the full training in 28 minutes and 55 seconds. Each trainer was able to remain 100% faithful to the training script.

Analysis of pretest responses. Scores on the pretest were consistently low and showed limited variability among the participants in all three groups. Those test questions containing the option “all of the above” had a higher percentage of correct responses, suggesting that the format may have hinted at the correct answer. Test questions that were scenario-based were answered correctly by a very low percentage of

participants. The mean pretest scores for each group were as follows; Group 1 averaged; 24% correct Group 2; 20% correct and Group 3; 22% correct

Posttest responses. The average score of all three groups improved from pretest to posttest and they are represented in Figure 2.

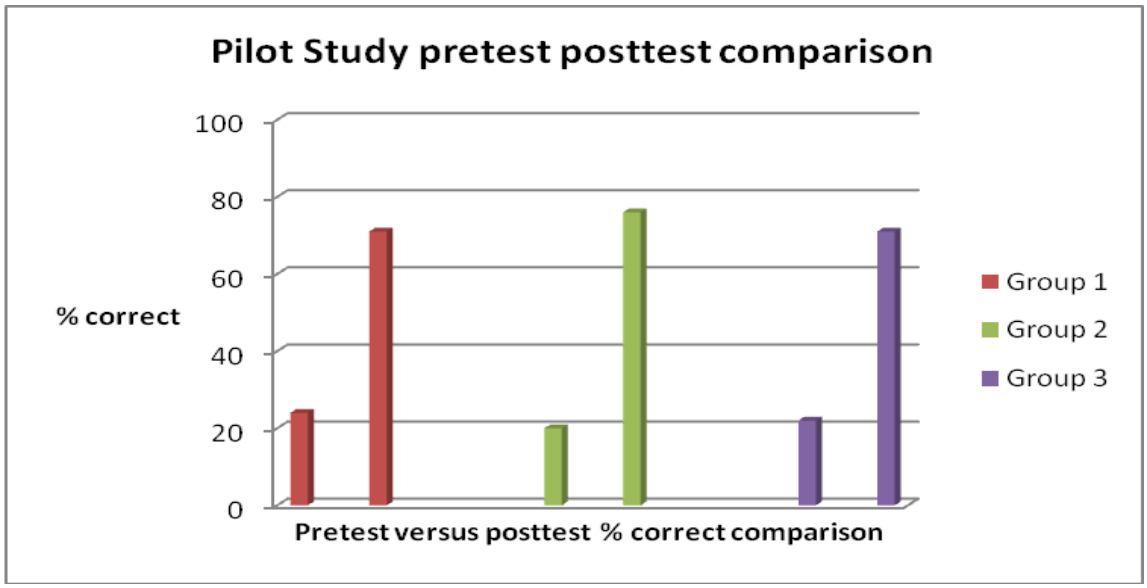

Figure 2. Pilot study pretest/posttest comparison.

The mean posttest scores for each group were as follows; group one;71% correct, group 2; 76% correct and group 3; 71% correct.

Item analysis. Of the 29 participants, six scored in the failing range (< 65% correct) on the posttest. The majority of the errors were seen in the answers to scenario-based questions.

Results, discussion, and description of final product. Several changes were made to the test as a result of the pre- and posttest analysis. The number of test questions for which "all of the above" was offered as a possible answer was reduced. Several scenario-based questions were also removed and those that remained were modified. The

first judge (also the author of the training) reviewed each question again for clarity and the answer choices for accuracy. The final product that was used in the study consists of 21 test questions. Eight questions were scenario-based and measure the learner's ability to select the correct answer based upon a written scenario involving a potential sexual harassment term or circumstance. Thirteen questions were factual, requiring the learner to remember a specific term, definition, or statistic. Answers to the questions were presented in a multiple choice format.

Validity Factors

Creswell (2012) defined validity as

> The development of sound evidence to demonstrate that the intended test interpretation (of the concept or construct that the test is assumed to measure) matches the proposed purpose of the test. Analysis of evidence is based on test content, responses, processes, internal structure, relations to other variables and the consequences of testing. (p. 630)

Accordingly, a pilot study was conducted to identify any potential flaws in the instrument that could impact the validity of the outcome data.

Expert judges (Standards 3.5 & 1.7) were used to ensure fairness and accuracy (Standard 1.6), endure relevance, and avoid under-representation (Standard 3.1)

Two expert judges evaluated the test questions and answers for fairness and accuracy and made sure that content was well represented in terms of scope, relevance, and item representation. By reviewing test-taker responses on the pretest and posttest,

the clarity of the test questions was also evaluated. The test underwent five iterations before it was deemed by the judges a valid instrument for measurement purposes.

Control for Item Exposure (Standard 3.12)

A control group was used to verify the validity of the measurement system as well as the independent variable or treatment. Control group participants did not receive any training, but did complete the pretest and posttest. A five day window between the pretest and posttest was anticipated, in an effort to reduce any test-retest bias however the response time of many of the participants taking the online pretest was slower than anticipated. The latency between pretest and posttest, at least for the Live Lecture and Control groups ranged from 5 to 2 days. Participants in the TOD group were asked to take their training online starting the evening of training day. Although time between pretest and posttest was not calculated, one may assume this groups overall latency between pretest and posttest was longer. This limitation is further discussed in the discussion portion of the dissertation.

Reliability Factors

Reliability of instruction: Within the context of a pilot study, outlined in the methodology section of this proposal, fidelity of instruction between the three trainers in the live lecture group was measured by an observer. Each observer used a competency checklist developed by the researcher. Competencies included duration of training time and the level of accuracy in which the trainer corresponded with the script. Results are discussed below in the procedures section of the dissertation.

Reliability of the test: The online test was scored electronically and the results were stored in a database. The paper-and-pencil tests were independently scored by office support staff. The local scorer was given the answer key and procedures for scoring were demonstrated. A second clinician also scored each test to ensure accuracy. Four calculation errors were made in total. These tests were then given to a third scorer who confirmed the correct calculation.

Data Collection

Online: Test takers signed into individual accounts and were given 30 minutes to complete the test. Test scores (percentage correct), items correct and incorrect, and test duration were automatically calculated, saved, and stored in the Practice A database.

Live lecture and control: The test was a paper-and-pencil version of the online test. Test takers were given 30 minutes to complete the test. Test-taking was proctored and the tests were collected by the trainer. Data collected consisted of percentage correct and items correct and incorrect. Test duration was not collected. The tests were stored, along with the consent forms, in a locked office at the Practice A main office.

Procedures.

Pretest. One week prior to the training event, the test and statement of disclosure was loaded onto the TOD training website. The test discloser emphasized the following points: (a) the purpose of the test; (b) a statement indicating that the test was for research purposes; (c) the president's approval of the test's goals and procedures; (d) a statement that that the test was evaluative, rather than an evaluation; and (e) that the maintenance of confidentiality was to be ensured. The test's duration was set at 30 minutes. All

participants form all three groups who volunteered for the study took the pretest online. Instructions were e-mailed by Practice A's office manager to all participants, detailing both the procedures for accessing the test and the date by which the test was to be completed.

The pretest was given to measure each participant's knowledge of the training content prior to treatment. It was determined that any employee who received greater than 66.7% (or 71.4% correct and above) may have entered into the study (and training) with pre-existing knowledge of the training content and those employees were excluded from the study. The number of individuals excluded based upon this criterion was 25 reducing the number of participants from 121 to 96. Participants were then randomly assigned to one of three groups: control, live lecture, and TOD.

Sexual harassment in the workplace training. Five days after the pretest a company-wide, day-long training session took place. All staff attended. The live lecture group was separated into two groups, each receiving the *Sexual Harassment in the Workplace* training from the trainers identified within the context of the pilot study. The group was divided in order to represent a typical classroom setting in terms of number of students. On that same day, the control group received an alternate training that had been assigned by members of the training department. This training was titled; Adaptive Behavior. This group did not receive the *Sexual Harassment in the Workplace* training. Participants in the TOD group were also assigned an alternate training by the training department. They did not receive the live lecture version of the Sexual Harassment in the Workplace training, on that day. This group was provided with a written request to

complete the online version of the *Sexual Harassment in the Workplace* training and that the training and along with the corresponding posttest would be available for access beginning that evening. The request included instructions pertaining to the number of days in which training and posttest must be completed (five days), how to access the training, how to access the posttest, duration of both the training and posttest, and instructions on how to receive their regular pay for time spent on the training.

Posttest. For the live lecture group, each participant was given the posttest immediately following the Sexual Harassment in the Workplace training. The posttest was an exact duplicate of the pretest, only it was a paper and pencil version and the questions were re-ordered. Members of the control group were also given the posttest on that same day. The posttest was given to members of the control group to provide the researcher with evidence that any increase in scores from pre to posttest for the treatment groups was due to the independent variable and not to any number of potentially confounding variables. The TOD group completed the posttest immediately following the online version of the *Sexual Harassment in the Workplace* training. The posttest was an exact duplicate of the posttest given to the live lecture and control groups, except that it was accessed online.

*Follow-up test***.** To assess and compare retention of the training content, a follow-up test was given 30 days after the posttest to members of the two treatment groups (live lecture and TOD). Of the original participants, 28 participants from the live lecture and 25 participants from the TOD agreed to take and actually took the follow-up test. For the purpose of data analysis, the number of participants was made even by reducing

participants in the live lecture group from 28 to 25. Three participants (and their test scores) were randomly selected for removal from this phase of the study.

Data Analysis

Statistical analysis 1 (pre- and post data). Descriptive and inferential statistical analyses were conducted to identify between- and within-group trends, associated means, and variance. Analysis included testing for normality in the datasets and repeated measures ANOVA and post hoc Bonferroni tests were used to analyze the magnitude and significance of each of the groups' performance on the respective tests. The following is the step-by-step process of the first set of analyses:

Step 1. Plan: analyze drop-outs to determine if they introduce bias into the data. Method: compare descriptive statistics for non-drops versus drops.

Step 2. Plan: pre-post data – test data for normality and run descriptive statistics. Method: normality test – alpha=0.05.

Step 3a. Plan: pre/post data – test for differences in pre/post scores among the three treatments. This is the overall model. If there is statistical significance in this model, the researcher can proceed to do post hoc tests. Method: repeated measures ANOVA – alpha = 0.05.

Step 3b . Plan: post hoc tests were conducted to determine the magnitude and significance of specific pairwise comparisons. Methods: ANOVA and post hoc Bonferroni comparisons for both pre- and posttest scores (overall family alpha = 0.05).

Statistical analysis 2 (post- and follow-up data). Descriptive and inferential statistical analyses were conducted to identify between- and within-group trends,

associated means, and variance in the posttest and follow-up data. Analysis included testing for normality in the data sets and a paired *t* test. The following is the step-by-step process of the second set of analyses:

Step 4. Plan: post- and follow-up data – test for normality and run descriptive statistics. Method: normality test – alpha = 0.05.

Step 5a. Plan: conduct tests to determine the magnitude and significance of specific pairwise comparisons for post- versus follow-up test scores and determine whether there is a group effect between the TOD and live lecture groups. Methods: paired *t* test for post-/follow-up test scores (alpha = 0.05);

Step 5b. Plan: t-test for follow up scores between the 2 groups. Methods: *t* test for follow-up test scores between groups (alpha = 0.05).

Ethical Considerations

Procedures used to ensure ethically responsible conduct on the part of the researcher included the following:

(1) Participation was requested in writing.

(2) Participation was voluntary.

(3) Privacy was protected and participants could opt out of the study at any point.

(4) Written consent was obtained from all participants.

A comprehensive guide to the ethical standards related to the development, implementation, scoring, and storing of data in newly constructed tests is documented in the *Standards for Educational and Psychological Testing* (AERA et., 1999). The standards adhered to are as follows:

Standards 3.2, 3.3, 3.19, 3.20, and 3.27

(1) The purpose of the training was communicated to participants. Participants were reminded both in writing and verbally (in the live lecture) that the training is part of a research project and that participation is purely voluntary.

(2) The purpose of the test, the represented domain, and the dimensions were provided prior to each test being taken and included:

   a. a statement describing the purpose of the test;

   b. a statement indicating that the test is being conducted for research purposes;

   c. a statement indicating the President's approval;

   d. a statement indicating that the test is non-evaluative; and

   e. a statement indicating that the maintenance of confidentiality is ensured.

(3) Training and test instructions were clearly communicated in writing to all participants. The instructions included directions for accessing the necessary training, directions for accessing the test itself, and a description of the time allotted for taking the test.

(4) Confidentiality and security measures were put in place in order to ensure confidentiality and security of test-taking materials. Test scores and test duration were automatically calculated, saved, and stored in the Practice A training database. Test taking was proctored and tests were collected by the trainer. The tests were stored, along with the consent forms, in a locked office at the Practice A main office site.

Chapter 4: Findings

This research was conducted in an effort to evaluate the efficacy of web-based instruction better. Specifically, the researcher was interested in determining how well adult learners acquire, retain, and apply job-related content when taught within a web-based instructional format compared to a classroom-based model.

Summary of Methods

Statistical analysis 1 (pre/post comparison: control, live lecture, and TOD). Pretraining and posttraining scores measured participant knowledge and understanding of training content. Scores were collected from the three groups: control, live lecture, and TOD. A repeated measures ANOVA was used to evaluate online instruction and compare its efficacy to that of live lecture or classroom-based instruction, as well as a control group.

Variables.

Independent variable. Training type: (a) control; (b) live lecture: traditional classroom-based format of instruction; or (c) TOD: online format of instruction

Dependent variables. Knowledge of training content (scores) obtained from the test (pre-, post-, and follow-up) was treated as the dependent variables.

Research hypotheses.

H_0: There are no statistically significant differences in the acquisition and retention of content learned through online instruction when compared with content learned during classroom-based instruction.

H_a: There are statistically significant differences in the acquisition and retention of content learned through online instruction when compared with content learned during classroom-based instruction.

Research questions.

RQ3 Are pre-instruction scores significantly different from post-instruction scores, in general?

RQ4 Are there statistically significant differences in the acquisition of training content learned via online instruction when compared with content learned through more traditional classroom-based instruction?

RQ5 Is acquisition of knowledge better with online instruction than with traditional classroom based instruction?

RQ6 How does acquisition of knowledge compare between the test groups and a control group?

Statistical analysis 2 (post/follow-up comparison: live lecture and TOD). After thirty days, follow-up scores were collected from two of the treatment groups: live lecture and TOD to assess and compare retention of training content. To determine whether follow-up scores were significantly different from post-lecture scores, changes in scores were analyzed using a paired *t* test. To compare follow-up scores among the two treatment groups, a *t* test was used.

Variables.

Independent variables. Training type: (a) live lecture: traditional classroom-based format of instruction; (b) TOD: online format of instruction.

Dependent variables. Scores obtained from the test (post- and follow-up) were treated as the dependent variables.

Research hypotheses.

H_0: There are no statistically significant differences in the acquisition and retention of content learned through online instruction when compared with content learned during classroom-based instruction.

H_a: There are statistically significant differences in the acquisition and retention of content learned through online instruction when compared with content learned during classroom-based instruction.

Research questions.

RQ7 Are there statistically significant differences between postinstruction scores and follow-up scores, in general?

RQ8 Are there statistically significant differences between the retention of knowledge learned through online instruction and knowledge learned through more traditional classroom-based instruction?

RQ9 Is retention better with online instruction than with traditional classroom-based instruction?

Analysis and Results

Statistical analysis 1 (pre/post comparison: control, live lecture, and TOD).

Data exploration. Normality, variance and potential impact of drop-outs: descriptive statistics were run on each dataset. The results of the analysis are shown in Table 1:

Table 1

Descriptive Statistics

		Descriptives		Statistic
Posttest	drops	Mean		75.124
		95% Confidence Interval for Mean	Lower Bound	70.989
			Upper Bound	79.258
		Median		71.400
	ND	Mean		74.669
		95% Confidence Interval for Mean	Lower Bound	64.974
			Upper Bound	84.365
		Median		71.400

Data tested were found to follow a generally normal distribution; therefore parametric tests were acceptable. It should be noted that seven participants within the lecture-type groups (live lecture and TOD) did not complete a follow-up test and therefore some of the data were missing.

The researcher checked for any potential bias this may have introduced by running descriptive statistics for pretest and posttest scores of individuals that dropped out (drops) versus individuals that did not (ND = no dropout).

The researcher also found that means and medians for both drops and ND were very similar and that the 95% confidence intervals for the means overlap, indicating there is no statistically significant difference in pretest or posttest scores between these two groups. Hence, the researcher concluded that individuals who dropped out of the study

were not significantly different from those who remained in the study and that using the available data for drop-outs would not bias the results.

The results of a descriptive statistical analysis for pre-post data are shown in Tables 2 and 3 and they include means, confidence interval bounds, variances, standard error, and standard deviation. The normality test showed no extreme departures from normality in the data.

Table 2

Descriptive Analysis of Pre-Post Data

Descriptives								
	Statistic							
				95% Confidence Interval for Mean				
	n	Mean	Std. Error	Lower Bound	Upper Bound	Median	Variance	Std. Deviation
Pretest	96	41.646	1.0613	39.539	43.753	42.800	108.122	10.3982
Posttest	96	65.397	1.9664	61.493	69.301	66.600	371.199	19.2665
Change	96	23.751	2.1071	19.568	27.934	23.800	426.213	20.6449

Table 3

Descriptive Analysis of Data by Group

Descriptives									
		Statistic							
	Group				95% Confidence Interval for Mean				
		n	Mean	Std. Error	Lower Bound	Upper Bound	Median	Variance	Std. Deviation
Pretest	Control	32	40.272	1.4017	37.413	43.131	38.000	62.869	7.9290
	Live	32	43.484	2.0776	39.247	47.722	42.800	138.128	11.7528
	TOD	32	41.181	1.9739	37.155	45.207	42.800	124.685	11.1662
Posttest	Control	32	46.128	1.8901	42.273	49.983	45.200	114.320	10.6921
	Live	32	70.784	2.2329	66.230	75.338	69.050	159.553	12.6314
	TOD	32	79.278	2.8037	73.560	84.996	80.900	251.544	15.8601
Change	Control	32	5.856	2.2471	1.273	10.439	4.750	161.580	12.7114
	Live	32	27.300	2.6678	21.859	32.741	26.250	227.752	15.0915
	TOD	32	38.097	3.3579	31.248	44.945	38.100	360.807	18.9949

The researcher tested for differences in pre/post scores among the three treatments (control [n = 32], live lecture [n = 32], TOD [n = 32]) using a repeated measures ANOVA (Tables 4 and 5). The predictor variable was training type (control, live, or TOD) and the dependent variable was knowledge of training content or score, (pre- and post- scores). The repeated factor was the individual who participated in training.

Table 4

Repeated Measures ANOVA

Repeated Measures ANOVA						
			Hypothesis			
Effect		Value	F	df	Error df	Sig.
Pre/Post scores	Wilks' Lambda	.300	216.579	1.000	93.000	.000
Pre/Post scores by group	Wilks' Lambda	.574	34.465	2.000	93.000	.000

Table 5

Tests of Between-Subjects Effects

Tests of Between-Subjects Effects					
Measure: Score Transformed Variable: Average					
Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Intercept	549990.788	1	549990.788	3466.119	.000
Group	10533.504	2	5266.752	33.192	.000
Error	14756.893	93	158.676		

The overall repeated measures ANOVA (alpha = 0.05) showed that there was a statistically significant effect found among the pre-post periods (Wilks' Lambda = 0.300, $F(1,93) = 216.579$, $p < 0.001$) and among pre-post periods by treatment group (Wilks' Lambda = 0.574, $F(2,93) = 34.465$, $p < 0.001$). Across all groups, posttest scores were an average of 23.8 points higher than pretest scores.

ANOVA and post-hoc, Bonferroni tests were conducted to determine the magnitude and significance of specific pairwise comparisons for pretest scores and posttest scores. Alpha was adjusted for multiple comparisons. Results are shown in Tables 6, 7, and 8:

Table 6

Post Hoc Test Results; Pretest Scores; ANOVA

Test Results					
Dependent Variable:	Pretest				
Source	Sum of Squares	df	Mean Square	F	Sig.
Contrast	175.483	2	87.741	.808	.449
Error	10096.136	93	108.561		

Table 7

Post Hoc Test Results; Posttest Scores; ANOVA

Test Results					
Dependent Variable:	Posttest				
Source	Sum of Squares	df	Mean Square	F	Sig.
Contrast	18975.968	2	9487.984	54.174	.000
Error	16287.922	93	175.139		

Table 8

Bonferroni Intervals

Multiple Comparisons

Dependent Variable: Posttest

Bonferroni

(I) Group		Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Control	Live	-24.656*	3.3085	.000	-32.723	-16.590
	TOD	-33.150*	3.3085	.000	-41.216	-25.084
Live	Control	24.656*	3.3085	.000	16.590	32.723
	TOD	-8.494*	3.3085	.036	-16.560	-.427
TOD	Control	33.150*	3.3085	.000	25.084	41.216
	Live	8.494*	3.3085	.036	.427	16.560

Note: Based on observed means. The error term is Mean Square (Error) = 175.139. *: The mean difference is significant at the .05 level.

The above analysis provided an answer to the following research questions:

3; are pre-instruction scores significantly different from post-instruction scores, in general?

#4; are there statistically significant differences in the acquisition of training content learned via online instruction when compared with content learned through more traditional classroom-based instruction and research question?

#5; is acquisition of knowledge better with online instruction than with traditional classroom based instruction?

There was no statistically significant effect found among the treatment groups for pretest scores ($F(2,93) = 0.808$, $p = 0.449$). There was a statistically significant effect found among the treatment groups for posttest scores ($F(2,93) = 54.174$, $p < 0.001$).

Pairwise comparisons indicated that the control group scores are significantly lower than both the live ($p < 0.001$) and TOD ($p < 0.001$) groups and that there is a significant difference between live and TOD groups ($p = 0.036$), with the live group scoring an average of 8.49 points lower than the TOD group.

Based upon the results of analysis #1, the Null Hypothesis was rejected; results from this analysis indicated that there are statistically significant differences in the acquisition of content learned, favoring online instruction as opposed to classroom-based instruction.

Figure 3 below is a graphic representation of mean pre and posttest comparison between the control, live lecture and TOD groups.

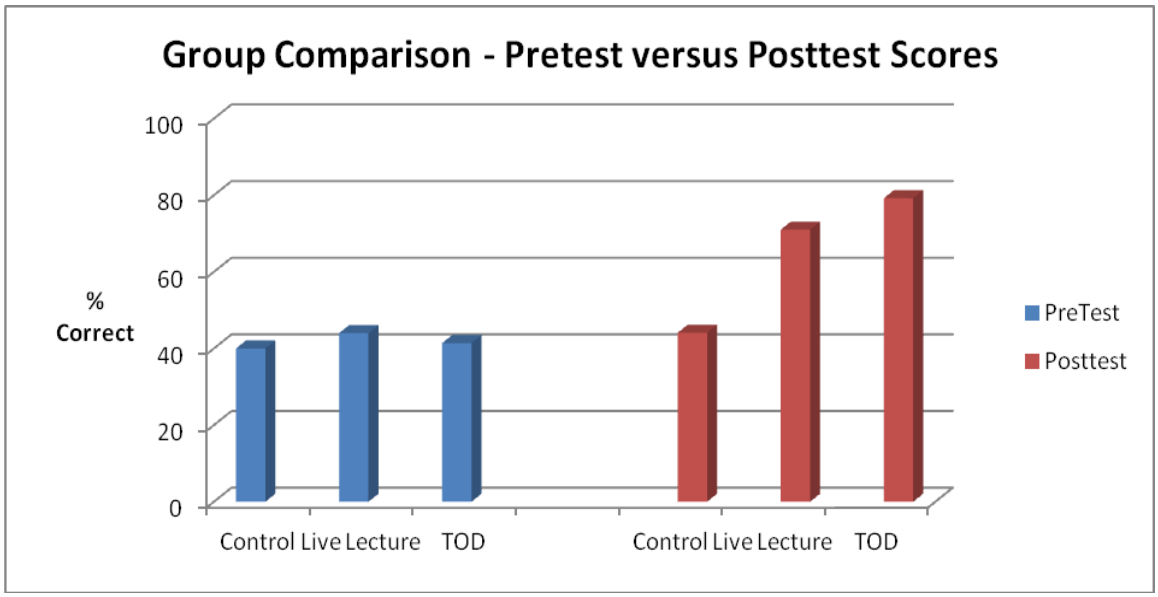

Figure 3. Group comparison – Pretest versus posttest scores.

Statistical analysis 2 (post/follow-up comparison: live lecture and TOD).

Results from a descriptive statistical analysis are shown in Table 9 and they include means, confidence interval bounds, variances, standard error, and standard deviation. Normality tests indicated no severe departures from normality.

The follow up test was given 30 days after the posttest to live lecture and TOD groups. The test was taken by each participant online on the Practice Atraining website. From the original 64 participants, 25 from the TOD group and 28 from the live lecture took the test, resulting in a drop of fourteen participants. There were several individual reasons why the participants did not take the follow up test. These include; out of town/on vacation, no longer with the company, did not want to participate in this phase of the study. For the purpose of data analysis, the number of participants was made even by randomly selecting three participants whose scores were eliminated from study.

Table 9

Descriptive Analysis Results for Post/Follow-up Data

Descriptives								
	Statistic							
				95% Confidence Interval for Mean				
	n	Mean	Std. Error	Lower Bound	Upper Bound	Median	Variance	Std. Deviation
Posttest	50	74.642	2.1615	70.298	78.986	71.400	233.605	15.2841
Follow-up	50	66.336	2.7277	60.854	71.818	66.600	372.019	19.2878
Change	50	-8.306	2.7838	-13.900	-2.712	-7.150	387.477	19.6844

Table 10

Descriptive Analysis Results for Post/Follow-up Data by Group

Descriptives									
		Statistic							
	Group				95% Confidence Interval for Mean				
		n	Mean	Std. Error	Lower Bound	Upper Bound	Median	Variance	Std. Deviation
Post-test	Live	25	69.516	2.6206	64.107	74.925	66.700	171.684	13.1028
	TOD	25	79.768	3.1656	73.235	86.301	80.900	250.518	15.8278
Follow up	Live	25	59.764	4.0903	51.322	68.206	57.100	418.272	20.4517
	TOD	25	72.908	3.1704	66.365	79.451	71.400	251.285	15.8520
Change	Live	25	-9.752	5.0395	-20.153	.649	-9.500	634.913	25.1975
	TOD	25	-6.860	2.4644	-11.946	-1.774	-4.800	151.829	12.3219

The researcher tested for differences in post and follow-up scores using a paired *t* test. Results are shown below in Table 11:

Table 11

Paired Samples Test

	Paired Differences					*t*	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Posttest – Follow-up	8.3060	19.6844	2.7838	2.7117	13.9003	2.984	49	.004

The above analysis provided an answer to research question # 7; are there statistically significant differences between post-instruction scores and follow-up scores, in general? The results of the paired *t* test (alpha = 0.05) showed that there was a statistically significant difference found between the posttest and follow-up scores (t(49) = 2.984, p = 0.004), with post-test scores being an average of 8.3 points higher than follow-up scores.

The researcher tested for differences in follow-up scores among the two treatments (live lecture (n = 25), TOD (n = 25)), using an independent samples *t* test (Table 12):

Table 12

Follow-up Scores; t test

	Independent Samples Test						
	t test for Equality of Means						
	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
						Lower	Upper
Follow-up	-2.432	48	.019	-13.1440	5.4044	-24.0104	-2.2776

The above analysis provided an answer to the following research questions:

#8; are there statistically significant differences between the retention of knowledge learned through online instruction and knowledge learned through more traditional classroom-based instruction?

#9; is retention better with online instruction than with traditional classroom-based instruction? The predictor variable was lecture type (live or TOD) and the dependent variable was follow-up score. The results of the independent samples *t* test (alpha = 0.05) showed that there was a statistically significant effect found among the treatment groups for follow-up-test scores (t(48) = -2.432, p = 0.019), with the live group scoring an average of 13 points lower than the TOD groups.

Based upon the results of analysis #2, the Null Hypothesis was once again rejected; findings indicate that there are statistically significant differences in the retention of content learned, favoring online instruction as opposed classroom-based instruction.

Figure 4 below is a graphic representation of mean pre, post and follow up test comparison between live lecture and TOD groups.

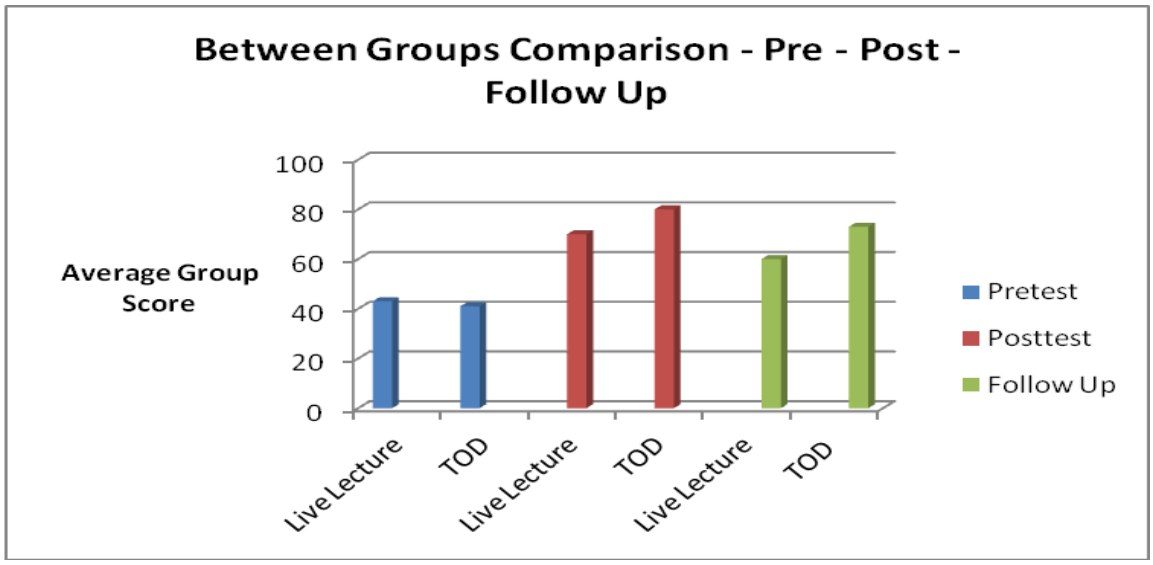

Figure 4. Comparison of pre-, post-, and follow-up test scores.

Chapter 5: Discussion, Conclusion, and Implications

The researcher hypothesized that online instruction would produce results on the pre-, post-, and follow-up tests similar to the results achieved with classroom instruction. It was not anticipated that the online group would achieve statistically significant higher scores on both the posttest and follow up tests.

Further investigation is warranted given this unexpected outcome, beginning with the following questions: First, did the online learners have any advantage over the live lecture group? Are there variables uniquely associated with online instruction that increase the likelihood that content will be learned?

Did procedures favor the online group in anyway? Efforts were made to keep procedures exactly the same so as not to bias the study; trainers received training and fidelity measures were taken, video clips were duplicates across instructional formats, as was training length and quiz length. Pretest scores were similar in means (non-significant) across control, live lecture, and TOD. There was more variability in pretest scores between live lecture and TOD than in the control group, which poses a potential threat to the validity of the study. However, further analysis of this variability proved non-significant. One possible advantage available to the online group (at posttest only) was the freedom to use notes taken during the training as a reference when taking the test. However, at follow up, both groups had potential access to notes, yet the online group still achieved statistically significantly higher test scores than the classroom group. If bias or error did not play a role in the TOD group's higher achievement in training content than the live lecture group, what did? Investigation of this question should begin

with a summary of what was learned from the in-depth analysis of the research associated with online learning and learning theory in general.

1. The flexibility variable, uniquely associated with online instruction, is clearly depicted in the literature.
2. Attributes of the adult learner may be capitalized upon through online instruction. This, however, has been theorized but not empirically validated.
3. Adults are generally satisfied with online learning; however, satisfaction may or may not be tied to efficacy.
4. Online instruction brings learning elements not found in classroom models. Research does suggest that online instruction may produce a subset of learning behaviors related to engagement, not necessarily found with classroom instruction. (Means et al., 2010)

Given what we know, the following question is worth exploring: What is the relationship between online instructional variables and learner or learning attributes?

Learner Engagement

John M. Keller, in an interview on motivational design of instruction (Simsek 2014), stated,

> Generally speaking, instructional designers and many teachers focus primarily on the instructional quality of the work they do. They might assume that if the instructional quality is good, either motivation will take care of itself or it's the learner's responsibility to be motivated to learn the material. (p. 94)

Keller suggested that focus should be placed on the individual learning preferences of the adult learner and should allow for self-directedness over training content.

O'Brien and Toms (2008) sought to identify the key components of true user engagement. Their findings described this as a process consisting of several attributes: attention, novelty, interest, control, feedback, challenge, and emotion, with the last factor corresponding to affect and motivation. The authors stated,

> Failing to engage users equates with no sale on an electronic commerce site and no transmission of information from a Web site; people go elsewhere to perform their tasks and communicate with colleagues and friends. Successful technologies are not just usable; they engage. (p. 938)

Choice and Preference

"We judge preferences among situations not by how much behavior they produce but by the relative likelihoods with which an organism enters them" (Catania 2013, p. 231). How impactful is choice for the sake of choice? Do learners in general have a preference for choice and can choice lead to greater learning? Catania (2013) defined preference as the "probability of one of two or more alternative responses derived from the relative frequencies of the response over an extended sequence of choices" (p. 456). He defined choice as "the omission of one or two or more alternative and usually incompatible responses. The term is sometimes applied to the other behavior that precedes the response" (p. 431).

Michaels (2004), in his *Concepts & Principles in Behavior Analysis*, discussed the variables associated with motivation. He asked, "What might motivate students to

spend a large portion of their waking hours attending class and studying academic materials outside of class?" (p. 213). He identified the following concepts as variables associated with motivation; interest in the course content, approval (or lack thereof) in the instructional setting, social consequences as a result of the content learned, short-term and long-term benefits, scores on tests, and ultimately course grades.

As it relates to adults with disabilities, choice is a very important aspect of behavioral programming. Cannella, O'Reilly, and Lancioni (2005), in their review of the literature between 1996 and 2002, identified four dimensions of choice for individuals with severe to profound disabilities: building opportunities for choice, evaluating the effects of choice, evaluating preferences, and formats for preference assessments. The results of their analysis revealed that "choice interventions led to decreases in inappropriate behavior and increases in appropriate behavior" (p. 1).

In early animal studies, Catania (2013) cited his earlier work and the works of fellow researchers that show a clear preference for free choice, as opposed to forced choice. He stated, "We cannot produce a durable forced choice preference" (p. 192) and "choice among simultaneously available responses may be more satisfactory than the proportion of time occupied by each" (p. 79).

Clark and Macrae (1976) focused specifically on adult learners. They found that a freely self-selected instructional package (choice) was preferred by their subjects over an imposed instructional package and that the self-selected training methods were collectively, as effective in training the adult participants as the imposed package.

Ausburn and Brown (2005) studied groups of learners who came from technical and non-traditional education programs. Their study revealed a distinct preference among participants for an educational model that allows for self-direction on the part of the adult learner. With self-direction comes choice: "This style of teaching is often missing in conventional education classrooms and in many courses in traditional higher education" (p. 34), stated the authors, but this style of teaching has been associated with career-based and technical education models.

Learner Control

"Learner control is the extent to which learners can choose what, where, when, and how to learn" (Kraiger & Jerden, 2007, p. 11). Learner control has been the subject of several research studies. This research suggests that adult learners prefer to have some control over the manner in which they are trained and that some degree of control on the part of the trainee may be correlated with greater assimilation of training content. Kay (2000) identified specific aspects of learner control. They include control of training content, peers, teacher beliefs, and the amount of control one is afforded. She wrote, "Given the importance of co-operation by the learner, if learning is to be achieved, we have no choice but to trust the learner with control" (p. 122). Granger and Levine (2010) added to these dimensions of learner control by including time and place of training as well as adaptive guidance, pace, and sequence. Sims and Hedburg (1995) suggested that the context in which learning occurs, instructional method, optional content, and perceived control on the part of the learner, also fit within the dimensions of learner control.

A meta-analysis conducted by Sitzmann, Kraiger, Stewart, and Wisher (2006) compared learning outcomes between web-based instruction (online only), web-based instruction (blended), and classroom instruction, specifically the effects of low versus high amounts of learner control. Ninety-six studies were included in the analysis; 15% of courses were for employees as opposed to college students and courses ranged between one and 120 days. Course content related to the fields of psychology, engineering, computer programming, business, and technical writing. Results revealed that trainees learned more in courses that allowed for high amounts of learner control. Other studies have produced similar findings: the research teams of Means et al., (2010) and Tabbers and Koeijer (2009) both identified a correlation between learner control and increased understanding of the concepts presented. Kraiger and Jerden (2007) compared the effects of low versus high learner control in computer-based training and correlated the effect with the type of knowledge associated with the training, that is, procedural versus declarative. A significant effect was correlated with high learner control for both knowledge types over face-to-face instruction. Participants fared slightly better with procedural knowledge than with declarative knowledge. Orvis, Fisher, and Wasserman (2009), in their study involving 274 undergraduates, indicated that learner control is tied to trainee satisfaction and more importantly that trainee satisfaction is positively correlated with learning outcomes. Granger and Levine (2010), in their analysis of the research, also suggested that learner control may correlate with greater learning; however, these authors disputed the magnitude of the effect. They stated, “On balance,

learner control does appear to have a positive impact on learning, but the impact is relatively small" (p. 3).

In his textbook titled *Learning*, Catania (2013) wrote, "For too long, educational systems have focused on what a teacher does, instead of what a student does. What the student does is what the student learns" (p. 183). He also suggested that the learning modalities adults are drawn to may differ from one adult to another and may also vary depending on context and preference in the moment. It is not one perfectly matched learning modality that assists in achieving greater acquisition, it is the combination of time spent learning through many modalities that provides the learner more bang for the buck. He wrote,

> The student who learns by rote and the one who learns by understanding will each learn something, but it is the one who learns in all these ways and others besides [who] will learn more. The more time students spend with the material to be learned, the more they learn. (p.183)

The characteristics associated with online instruction have some distinct advantages over traditional formats, that is, they are more flexible, more accessible, more individualized, and perhaps even intrinsically more motivating. In addition, the learner is afforded some degree of control over the manner in which instruction occurs. Current teaching and training trends have suggested that the traditional classroom lecture is no longer an adequate format for instruction. "Recent literature has suggested that sustained, creative knowledge work can be better supported through distributed, flexible, adaptive,

social structures than centralized, rigid, or fixed structures" (Zhang, Scardamalia, Reeve, & Messina, 2013).

Public schools across the United States are incorporating such concepts as learner engagement, learner differences, and learning strategies into teaching practices that involve a multimedia approach that can accommodate all students and ultimately provide explicit instruction in learning how to learn (Dove, Honigsfeld, & Cohan, 2014). If our public educational system has moved toward explicitly teaching students the skills necessary to become self-directed, then adult training models will need to change as well. A training curriculum is neither static nor linear; it evolves and adapts and is dependent upon the training content, avenues available for instruction as well as personal learning circumstances. That learning is complex is an understatement. Teachers and trainers cannot foresee what a learner brings to any given training in terms of background knowledge and learning preferences; the learner, however, can. Learner control is best achieved through an online instructional format and some degree of learner control appears to be a preference that may be associated with learning effectiveness. However, it has not been examined within the context of ABA training programs.

Limitations of the Study

The results of the study suggest that online training that is procedural in nature is a viable form of instruction for adults in the workplace. This research contributes to the already existing body of research that supports its use with college students, adult trainees outside the field of ABA, and, to a lesser extent, adult trainees in the field of ABA.

These findings are preliminary, however, since many questions remain concerning the widespread usefulness of this form of instruction in applied settings.

There are other limitations worth noting; first, the training provided to participants in the live lecture and TOD groups was a short instructional module titled *Sexual Harassment in the Workplace*. This module represents only one of several different training categories (procedural, descriptive, applied) and within its corresponding category, only one discrete training. There are many more training types and training categories that need to be evaluated for use in an online instructional format. Furthermore, although it is a state-mandated training and is applicable across many different practice types, it is of little use to individuals outside of an ABA practice who may be looking for, or may benefit from, training modules are that clinical and applied in nature. This training module was however selected purposefully. Given an outcome that produced equal or greater efficacy with this type of training, perhaps a more streamlined approach to staff training could begin by redirecting the training responsibility from clinical practices to state-funded agencies such as CDC or NIH.

Second, although considerable efforts were made in ensuring that the trainings provided in the live lecture and TOD treatment groups were exact duplicates of one another, the participants in the online group were able, if they so chose, to take notes and have the notes available for the quiz. This may have created an unfair advantage for this group.

Third, there were slight differences (variances) in the pretest scores, between the control group and Live Lecture and TOD groups. Even though further analysis revealed

that the differences were not statistically different, this may still be considered a limitation.

Fourth, between the posttest and follow-up test, 23 participants dropped out of the study, reducing the total number of participants from 119 to 96. Even though there was no statistical bias, this may still be considered a limitation.

A final limitation relates to the test-retest latency of time from pre to posttest. Five days prior to training day, a request to take the pretest was emailed to 119 employees who had volunteered to participate in the study. The timeframe in which individual participants completed the pretest varied, resulting in latency between two and five days from pretest to training day. A test-retest confounding variable could have biased the study. In anticipation of this confounding variable, the test items were reordered so that sequence of test questions was different from pretest to posttest. The TOD treatment group would likely have been disadvantaged the most because participant access to the online training was available beginning that evening, after training day. If this group collectively had performed worse rather significantly better than the live lecture, further investigation would have been necessary.

Significance

Autism is a disability that affects many individuals regardless of race, economic status, or geographic location of residence. Unfortunately, equal access to quality treatment programs is not always realized: there are "persistent barriers to treatment and continued theoretical quibbles, insufficient personnel training and lack of political willingness to invest in treatment" (Thompson, 2013, p. 87). The ability to access quality

treatment programs favors those families who live in locations that are easy to access, that have support, that have graduate programs in ABA, and where insurance mandates exist. In addition, adults who live far from training sites have family commitments, or work part time may be reluctant to enter into this field. Expert clinicians are not evenly dispersed throughout the country and they live in states where insurance companies have been mandated to fund this medical condition. Statistics related to the number of registered BCBAs associated with various states in the Union and countries around the world highlight how unequal access to services for individuals with ASD is. The Behavior Analysis Certification Board's [BACB] (2014) most recent publication identifies, as an example, Massachusetts as having 1,230 BCBAs registered as resident versus North Dakota, where only six BCBAs reside. As concerning are the numbers associated with various countries; there are only two BCBAs in all of Indonesia, three BCBAs in the Russian Federation, and only one BCBA in all of Kenya.

Online learning offers a format that is flexible, giving the adult learner the opportunity to select when and where to take a training activity as well as individually to tailor parts of his or her training model to personal preferences and learning style. Blending online instruction with traditional instructional formats may result in increased accessibility to a larger pool of qualified practitioners by (a) enticing those who live in remote areas to work with individuals with autism, (b) quickening the pace at which adults who enter the work and currently work with individuals with autism are trained, (c) lead to better mastery of content as a result of more time in which training can be accessed freely. In addition, incorporating the use of telemedicine models with blended

instructional models may provide states within the Union as well as countries across the world information on best practice, introduction to ABA treatment methodology, and face-to-face possibilities with expert clinicians**.**

Implications for Policy and Practice

> Leaders face the challenging task of training a new generation of practitioners with sufficient skills to individualize interventions for children with autism and to more effectively disseminate best practices. Engendering the political will to implement such procedures by government agencies and in some countries, private health insurers, continues to be a formidable barrier, including devising ways of justifying effective services based on cost-effectiveness as well as humanity. Assisting parents and practitioners in countries where outmoded and backward practices prevail should be a global goal of international professional organizations. (Thompson, 2013, p. 102).

Programs serving children with ASD rely on their own resources to teach employees the necessary skills to work with this unique population. Online instruction is cost-efficient (Wacker, et al. 2013), increases learning opportunities for those unable to access center based classes Means et al., (2010) and Hussain et al., 2013), and allows a greater number of people to be trained simultaneously without the expense of travel or over-taxing trainer resources for less clinically complex material. At the policy and political levels, the implication of adding online training modules to typical ABA training models is economic, that is, the burden of producing and training can be a shared endeavor. Collaboration between public institutions, towns, and even states could result

in the production of specific training content that has been identified (empirically) as conducive to the online format of instruction. The CDC has already set precedents for sponsoring federally funded training by hosting concussion training for young athletes (CDC Heads Up Online Training, 2014), their coaches, and their families. The Office of Human Resources at NIH also hosts mandated training. Sponsorship by government entities could benefit autism treatment programs by streamlining training models within individual practices, saving valuable resources (expert trainers) for content that is more conducive to classroom- and field-based training and maintain procedural integrity across training.

Areas for Further Research

The research related to online instruction and adult learning suggests the following: first, blended training models have advantages over other formats of instruction; second, online instruction is associated with certain learning characteristics that correlate with greater efficacy, such as more time spent with material; third, adult learners have preferences about the way training is constructed; and finally, an element of learner control appears to be an important element to include when producing online learning modules. The results of the current study, combined with the existing research involving online training of ABA methodology, suggest that online instruction is viable and worthy of additional research given the limited number of studies, limitations of studies cited by authors, varying subject matter, and differences in design and procedures. It is important to note that online learning modules that are blended with other instructional formats should be short, interactive, and easily accessible for different uses

such as an introduction to a concept or to clarify a concept not understood or forgotten. Much of the research described in the literature review examined entire courses of study that occurred over days or even months. It is from these gaps that the following areas of research are recommended;

Research Area # 1: What specific dimensions of online modules are most conducive to online instruction? In addition, once this is known, given free access to learning modules, what types of learning modules do employees gravitate to in their own free time?

Research Area # 2: In what ways could learner control be incorporated into the adult training model and what effects does learner control have on efficacy and performance in the field of ABA? Will learner control be correlated with greater effectiveness of content learned as the research suggests with other target populations of learners?

Research Area # 3: From an organizational perspective, it is beneficial for employees to access training freely outside of any mandate or company time. Should an organization encourage or directly reinforce staff that access training on their own free time? Are there any social ramifications or ethical considerations worthy of investigation?

Research Area # 4: How do we begin to work collaboratively in the production of modules that disseminate appropriate and accurate information relative to best practice for individuals with ASD? In what ways can ABA practitioners and families solicit government assistance in the production of and/or as a host for training in ABA.

Conclusion

One does not have to look far into the future to envision how blended instruction and a "flipped classroom" concept may impact autism services and specifically, family and staff training. The combined concepts are being used to teach, on a wide scale, the subject of math and are being accessed by individuals of all ages, in all circumstances and in all geographic locations. In the early months of developing as well as teaching math concepts online, Salmon Kahn reflected at a public speaking event captured on a Ted-Talks video podcast (March 2011):

> And then a few other things started to dawn on me. That not only would it help my cousins right now, or these people who are sending letters, but that this content will never go old, that it could help their kids or their grandkids. If Isaac Newton had done YouTube videos on calculus, I wouldn't have to. (Laughter.) Assuming he was good. We don't know.

The early math modules Kahn speaks of have increased in number to over 2,200 and range in subject matter anywhere from basic addition to vector calculus.

Again, he stated:

> But I didn't think it would be something that would somehow penetrate the classroom. But then I started getting letters from teachers. And the teachers would write, saying, "We've used your videos to flip the classroom. You've given the lectures.… What I [the teacher] do is I assign the lectures for homework, and what used to be homework, I now have the students doing in the classroom."

The use of technology as a teaching tool is promising and the future possibilities may seem endless. However, as final, cautionary note, technology driven training is not yet a *band wagon* that is ready for us to jump on. Its use should continue as an avenue for conducting research that is in line with, and builds upon what we already know, and leads us to the discoveries of what we need to know, in order to fully adopt its use with this population of people. Individuals with ASD and their families have and continue to be, the target of non-evidenced based treatment claims. Some examples include; Facilitated Communication, Auditory Integration Training, Gluten- and Casein-Free Diet, Sensory Integrative Package (NAC 2009) and Floortime (Howard et. al, 2005). This is not to say that a non-evidenced based treatment may one day provide evidence of efficacy. What this does suggest however, is that its use is not supported as a viable treatment of ASD and should be avoided by general practitioners. Non evidenced based treatments such as the ones listed above have caused no physical harm to any individual, but they have delivered false hopes of quick fixes. Money has been wasted as well as valuable learning time that has, for many individuals, negatively impacted potential treatment gains (Howard et. al, 2005). Technology cannot, as of yet, replace the teacher or the trainer of teachers, the literature does not even begin to support this. It is therefore important for us to remember that while we continue to establish a basis for the use of technology as a training tool, it is the practitioners/researchers responsibility to engage in evidenced-based practice, the professors and publishers' responsibility to watch for bias and self serving claims of treatment greatness and the general public's responsibility to maintain a critical and watchful eye out for this sometimes vulnerable population.

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APPENDICES

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APPENDIX A: INFORMED CONSENT

Cambridge College: Informed Consent

Statement of Purpose:

The purpose of this research is to better understand the effectiveness of online instruction. Specifically, the researcher wishes to determine how well adult learners acquire, retain, and apply job-related content taught using an online instructional format.

Risks and Benefits:

There are no anticipated risks associated with participating in the study. Participation is voluntary. Participants may withdraw from the study at anytime.

There are no anticipated benefits associated with participating in the study. The beneficiaries of the study may be families whose child or children have been diagnosed with autism spectrum disorder. If online instruction is revealed as an effective format for training, ABA programs may begin to offer online training options for not only employees, but parents and family members.

Confidentiality and security:

Measures will be put in place in order to ensure confidentiality and security of test taking materials. Online test scores will automatically be calculated, saved, and stored in the Beacon Training data base. Classroom/live lecture tests will be proctored and tests collected by the trainer. The tests will then be stored, along with consent forms, in a locked cabinet at the Beacon Main Office. Anonymity will be maintained at all times.

Data will not be associated with participant names. Tests taken will not be part of any evaluation process related to job performance.

Compensation:

As with all trainings provided by Beacon ABA, you will be paid your regular hourly rate for any and all time spent completing training online, attending a classroom based training, and completing any quizzes associated with the trainings.

Participant Rights':

If you have questions or concerns about your rights as a participant, please contact the principle investigator of this project, Ann Filer at 5086483051 or afiler@beaconservices.org or Mark Rotondo, Coordinator of the Institutional Review board; mark.rotondo@cambridgecollege.edu.

I agree to participate in this study and have read all the information provided on this form:

_____

Name (please print)

_____

Signature

_____

Date

APPENDIX B: INSTITUTIONAL REVIEW BOARD PROPOSAL

Cambridge College: **Institutional Review Board Proposal**

Study Title: Investigating the Use of Traditional and Online Instruction
A Blended Training Model for Teachers of Children with Autism Spectrum Disorder

Purpose of investigation and procedures:

The purpose of this research is to better understand the efficacy of online instruction. Specifically, the researcher wishes to determine how well adult learners acquire, retain, and apply job-related content taught using an online instructional format when compared with other staff trained using a classroom-based model.

The design of the study will be a between groups true experimental research design. One training will be provided within the context of 2 instructional formats: classroom and online. Content learned will be measured by a single test, given at the pre-test, posttest, and follow-up stages. In order to determine whether or not there is a significant difference in test scores, the collective results from one group will be compared to the collective results of the other group.

Anticipated risk and potential benefits:

There are neither risks to nor benefits for participants in the study. Participants will be adult employees who have volunteered and consented in writing. Participants will be told in writing that they can opt out at any time. All identifying information will remain confidential and secure.

The beneficiaries of the study will potentially be families whose child or children have been diagnosed with autism spectrum disorder. If online instruction is revealed as an effective form of instruction, ABA programs may begin to offer online training options for not only employees, but also for parents and family members. This may provide a more efficient and effective means for training adults to work individual with autism. The availability of online training options may increase outreach to families who live in remote areas. Training responsibilities could be shared with government entities, and as a result, resources (clinician time as well as funding) saved.

Steps taken to protect participants:

Procedures used to ensure ethically responsible conduct on the part of the researcher will include the following:

1. Request to participate will be delivered in writing and reflect that participation is voluntary and that privacy will be protected and that participants will be able to opt out of the study at any point. Written consent will be obtained from all participants.

2. The purpose of the training will be communicated to participants. Participants will be reminded both in writing and verbally (in the live lecture) that the training is part of a research project, and that participation is purely voluntary.

3. The purpose of the test, the represented domain, and the dimensions will be provided prior to each test being taken.

4. Training and test instructions will be clearly communicated in writing to all participants.

5. Confidentiality and security measures will be put in place in order to ensure confidentiality and security of test taking materials. Test scores and test duration will automatically be calculated, saved, and stored in the Beacon training data base. Test taking will be proctored and tests collected by the trainer. The tests will then be stored, along with consent forms, in a locked cabinet at the Beacon main office.

Manner of obtaining participants:

Participants will consist of Beacon employees who have volunteered to participate and consented in writing to the use of the results in this project. Participation in the study will be requested in writing. All Beacon employees will be eligible to participate; however, it is assumed that not all will choose to do so.

APPENDIX C: TEST DISCLAIMER

Test Disclaimer

Dear Employee,

You have been asked to take this test as part of a research project at Beacon ABA. The purpose of this research project is to collect data on the training topic of Sexual Harassment.

Before you complete this test we can confirm that:

Dr. Robert F. Littleton, President and founder has given permission for this study to be carried out.

This test is not part of any evaluation process related to your job performance.

Your anonymity will be maintained at all times. Identifying information will be not accessible to the researchers once the test is submitted on the TOD website.

Thank you for taking part in this study.

APPENDIX D: PILOT TEST – FINAL

Pilot Test - final

1. Select the statement that is true:

a. Sexual harassment is largely a form of gender discrimination

b. Sexual harassment is discrimination based “based on sex”

c. Both a and b

d. None of the above

2. Select the statement that is true:

a. In companies where women hold many of the supervisory jobs, reports of sexual harassment is less common

b. Reports of female supervisors ignoring the complaints of sexual harassment of female employees is becoming more frequent

c. Sexual harassment usually occurs by someone who has authority over the employee such as a professor or supervisor

d. None of the above

3. The reasonable “woman standard” (select the statement that correlates best):

a. has been used in some federal courts to determine whether hostile sexual harassment has occurred

b. was enacted to establish set of guidelines protecting women from sexual harassment in the workplace

c. was established as a result of a court case (Elison versus Brady) that ruled in favor of a woman who had been subjected to years of sexual harassment by one male supervisor

d. all of the above

4. In order for an offensive behavior to be unlawful, the victim

a. Does not have to be the one who directly experiences harassment

b. Does not have to experience adverse effects

c. All of the above

d. None of the above

5. What occupation-type of environment is most likely to encounter sexual harassment?

a. Political

b. Higher education

c. Engineering

d. Athletic

6. From the list provided, select the individual who is most likely to experience sexual harassment:

a. A newly hired female employee

b. A female administrative assistant

c. A female supervisor

d. All are equally at risk

7. Select the environment in which women are more likely to experience sexual harassment:

a. Environments where obscenities and sexual joking is supported

b. Environments that have mostly men in supervisory positions

c. Environments that have frequent sexual harassment reports and complaints

d. Environments that have little to no policies, regulations, or guidelines on workplace relationships and professional conduct

8. Select the statement that best fits the definition of a sexualized environment:

a. Environments that have swimsuit "pin ups" and other pictures that stereotype women as objects, on the walls in common areas

b. Environments where use of obscenities is common and jokes of a sexual nature is accepted

c. An environment that tolerates the visiting of porn sites on a lunch break

d. All of the above

9. Which definition best fits the following example of quid pro quo harassment?

a. A job benefit is provided to an employee who has submitted to sexual advances

b. A job benefit that is no longer available following the breakup of a relationship

c. An employer provides a professional opportunity based on another employee's submission to verbal, nonverbal, or physical conduct of a sexual nature

d. All of the above

10. Circle the scenario that best fits a hostile environment:

a. An employer routinely shares “dirty” jokes with the male staff in the office

b. A work environment where dating is accepted and allowed

d. A boyfriend of woman enters the workplace and verbally and physically assaults her

e. None of the above

11. Select the estimated percentage of women who formally report an incident of sexual harassment:

a. Less than 5%

b. 5-15

c. 25-40

d. 60-75

12.What percentage of men who have been subject to and reported sexual harassment in the workplace?

a.11%

b. Less than 1%

c.7%

d. None of the above

13. Circle the scenario below that creates a hostile work environment within the meaning of sexual harassment:

a. A supervisor has offered a promotion to an individual in return for a sexual favor

b. A valued client has a long term reputation for making lewd statements toward the younger women in the office. Everyone who is bothered by him just stays away when he is in the building.

c. A CEO is dating his secretary

d. All of the above

14. Sexual harassment has been linked to

a. Increased team conflicts in environments where harassment is occurring

b. Increased absenteeism among employees

c. Less success in meeting company financial goals

d. All of the above

15. What percentage of internal reports of sexual harassment result in some form of discipline? Find the answers to see which are correct:

a. 75%%

b. 50%

c. 66%

d. 45%

16. Who has the right to confidentiality consistent with state laws?

a. The victim

b. The harasser who has been suspended pending an investigation

c. The bystander who reported the sexual harassment offence

d. The witness who was called in for questioning

e. All of the above

17. Who is obligated to report an incident of sexual harassment?

a. The person who has been harassed

b. The supervisor

c. A bystander or witness

d. All of the above

18. Circle the statement that includes the most complete examples of sexual harassment:

a. sexual advances, forced sexual activity, requests for sexual favors, a relationship of a sexual nature between an executive and an assistant

b. sexual advances, forced sexual activity, requests for sexual favors, statements about one's sexual orientation and unwanted and unwelcome attention, physical contact, and verbal statements of a sexual nature

c. sexual advances, forced sexual activity, requests for a sexual favors

19. The result of a telephone poll conducted by Louis Harris and Associates on 782 U.S. workers revealed that

a.31% of female workers reported they had been harassed at work

b. Less than 1 % of the male workers reported being harassed at work

c.75 % of sexual harassment targets took no action

d.100% of men reported the harasser was another man

20. The results of a telephone poll conducted by Louis Harris and Associates on 782 U.S. workers revealed the following cause(s) of sexual harassment:

a. Employees are dependent on each other for teamwork and support, and are dependent upon their supervisor's approval for opportunities and career success.

b. Supervisors and employers can grow accustomed to the power they have over their employees.

c. Personal problems can also be a factor, and sexual harassment can be a symptom of the effects of life traumas.

d. All of the above.

Written Scenario based questions

21. Two men at an all male supervisors meeting make the following comment, “There goes Charlie’s new Administrative Assistant. What a hot babe!” Circle the statement you believe is true:

a. If the conference room door is shut, and the woman could not hear the men talking, it is not sexual harassment

b. If the conference room door is open, and the comment is heard by the woman, but she enjoys the attention and is not offended, this would not be considered a form of sexual harassment

c. Depending on the frequency of this type of comment, the environment could be considered hostile environment

d. b and c

e. None of the above

22. A bystander witnesses comments about a coworker that are of a sexual nature. Circle the statement you believe is true:

a. If the comments are offensive to the bystander, it would not be considered sexual harassment

b. It would be considered sexual harassment only if the comments are routinely witnessed

c. Offensive or not, this would be considered sexual harassment

d. This behavior is inappropriate but has not reached the level of Sexual Harassment

23. An older gentleman employee greets a new female employee with a two-handed handshake and states, “A beautiful dress on a beautiful woman! Stan [he says to his boss], where have you been hiding this pretty young woman?” The female employee is clearly uncomfortable with this attention.

a. The man's actions are inappropriate; this would be a form of sexual harassment

b. Since the man is not a supervisor, his comments would not be considered sexual harassment

c. The man does not recognize the woman's discomfort; therefore, this may not be a form of sexual harassment

d. The new employee is clearly uncomfortable; this is a form of sexual harassment

24. A male chef observes another male chef put his arm around a female chef and ask to sample her dish. The female chef is comfortable with his close proximity, as they are friends. A second chef duplicates the actions of the first, but the female chef is not comfortable with this chef's close physical proximity. Select the statement that is true:

a. The female chef's acceptance of attention from one male chef and not the other is confusing and inappropriate

b. The male chef did not recognize that his behavior made the female chef uncomfortable; this could be considered sexual harassment

c. The female chef should ignore his behavior

d. The male chef could be charged with sexual harassment

e. b and d

25. In a cafeteria located on a construction worksite, a man is telling dirty jokes to both a male and female coworker sitting at the same table. Select the statement that is true:

a. It is up to the female employee sitting at the table to decide whether the conversation is offensive enough to say something and/or speak to a supervisor

b. The female should not ignore the jokes and sit somewhere else if she finds the jokes offensive

c. The male employee should tell the man that the jokes are offensive and inappropriate

d. All of the above

26. A client whose contract is worth about 3 million dollars is directing sexually explicit comments toward an employee. Select the statement that is true:

a. The employee should ignore the inappropriate remarks from client.

b. The employee should talk to supervisor and if he or she says to ignore the client, the employee should do so

c. If possible, the employee should avoid the client altogether

d. The employee should discuss the situation with an Affirmative Action representative.

APPENDIX E: SEXUAL HARASSMENT IN THE WORKPLACE TEST - FINAL

Sexual Harassment Test Questions – FINAL

1. Select the statement that is true:

a. Sexual harassment is largely a form of gender discrimination

b. Sexual harassment is discrimination based “based on sex”

c. both a and b

d. None of the above

2. Select the statement that is true:

a. In companies where women hold many of the supervisory jobs, reports of sexual harassment are less common

b. Reports of female supervisors ignoring the sexual harassment complaints of female employees are becoming more frequent

c. Sexual harassment usually occurs by someone who has authority over the employee such as a professor or supervisor

d. None of the above

3. In order for an offensive behavior to be unlawful, the victim

a. Does not have to be the one who directly experiences harassment

b. Does not have to experience adverse effects

c. All of the above

d. None of the above

4. What occupation-type of environment is most likely to encounter report harassment?

a. Political

b. Higher education

c. Surgery

d. Athletic

5. From the list provided, select the individual who is most likely to report sexual harassment:

a. A newly hired female employee

b. A female Administrative Assistant

c. A female supervisor

d. All are equally at risk

6. Select the environment which women are more likely to report harassment:

a. Environments where obscenities and sexual joking are supported

b. Environments that have mostly men in supervisory positions

c. Environments that have frequent sexual harassment reports and complaints

d. Environments that have little to no policies, regulations, or guidelines on workplace relationships and professional conduct

7. Select the statement below the accurately represent quid pro quo harassment:

a. A job benefit that is offered to an employee in return for sexual favors. The employee submits to the sexual advances

b. A job benefit that is offered to an employee in return for sexual favors. The employee refuses the sexual advances

b. A job benefit that is no longer available following the breakup of a relationship

d. All of the above

8. Select the statement below that exemplifies a fits a hostile environment:

a. An employer routinely shares "dirty" jokes with the male staff in the office

b. A work environment where dating is accepted and allowed

d. A boyfriend of woman enters the workplace and verbally and physically assaults her

e. None of the above

9. Select the estimated percentage of women who formally report an incident of sexual harassment:

a. Less than 5%

b. 5-15

c. 25-40

d. 60-75

10. What percentage of men have been subject to and reported sexual harassment in the workplace?

a.11%

b. Less than 1%

c.7%

d. None of the above

11. Circle the scenario below that creates a hostile work environment within the meaning of sexual harassment:

a. A supervisor has offered a promotion to an individual in return for a sexual favor

b. A valued client has a long term reputation for making lewd statements toward the younger women in the office. Everyone who is bothered by him just stays away when he is in the building

c. A CEO is dating his secretary

d. All of the above

12. What percentage of internal reports of sexual harassment results in some form of discipline?

a. 78%

b. 55%

c. 66%

d. 37%

13. In an investigation, who has the right to confidentiality consistent with state laws?

a. The victim

b. The harasser who has been suspended pending an investigation

c. The bystander who reported the sexual harassment offence

d. The witness who was called in for questioning

e. All of the above

14. Select the statement that accurately represents the definition of sexual harassment:

a. Sexual advances, forced sexual activity, requests for sexual favors, a relationship of a sexual nature between an executive and an assistant

b. Sexual advances, forced sexual activity, requests for sexual favors, statements of a sexual nature, unwanted and unwelcome attention and physical contact

c. Sexual advances, forced sexual activity, requests for a sexual favors

d. None of the above

15. The result of a telephone poll conducted by Louis Harris and Associates on 782 U.S. workers revealed that

a. 31% of female workers reported they had been harassed at work

b. Less than 1 % of the male workers reported being harassed at work

c.75 % of sexual harassment targets took no action

d.100% of men reported the harasser was another man

16. The results of a telephone poll conducted by Louis Harris and Associates on 782 U.S. workers revealed the following cause(s) of sexual harassment:

a. Supervisors can grow accustomed to the power they have over their employees.

b. Employees are dependent on each other for teamwork and support, and are dependent upon their supervisor's approval for opportunities and career success.

c. Personal problems can also be a factor, and sexual harassment can be a symptom of the effects of life traumas

d. All of the above

Written Scenario Based Questions

17. Two men at an all male supervisors meeting make the following comment, "There goes Charlie's new administrative assistant. What a hot babe!" Circle the statement you believe is true:

a. If the conference room door is shut and the woman could not hear the men talking, it is not sexual harassment

b. If the conference room door is open, the comment is heard by the woman, but she is not offended, this would not be considered a form of sexual harassment

c. Depending on the frequency of this type of comment, the environment may be considered hostile environment

d. B and C

e. None of the above

18. A bystander overhears comments about a coworker that are of a sexual nature. Circle the statement you believe is true:

a. If the indirect comments are offensive to the bystander, it would not be considered sexual harassment

b. If the indirect comments are routinely witnessed, it would be considered sexual harassment

c. Offensive or not, this would be considered sexual harassment

d. This behavior is inappropriate but has not reached the level of Sexual Harassment

19. A male chef observes another male chef put his arm around a female chef and ask to sample her dish. The female chef is comfortable with his close proximity, as they are friends. A second chef duplicates the actions of the first, but the female chef is not comfortable with this chef's close physical proximity. Select the statement that is true:

a. The female chef's acceptance of attention from one male chef and not the other is confusing and inappropriate

b. The male chef did not recognize that his behavior made the female chef uncomfortable; this could be considered sexual harassment

c. The female chef should ignore his behavior

d. The male chef could be charged with sexual harassment

e. b and d

20. In a cafeteria located on a construction worksite, a man is telling dirty jokes to both a male and female coworker sitting at the same table. Select the statement that is true:

a. It is up to the female employee sitting at the table to decide whether the conversation is offensive enough to say something and/or speak to a supervisor

b. The female should ignore the jokes and sit somewhere else if she finds the jokes offensive

c. Because a male is telling the offensive joke, it would be inappropriate for the male coworker to submit the sexual harassment claim.

d. All of the above

21. A client whose contract is worth about 3 million dollars is directing sexually explicit comments toward an employee. Select the statement that is true:

a. The employee should ignore the inappropriate remarks from client.

b. The employee should talk to supervisor, and if he or she says to ignore the client, the employee should do so

c. If possible, the employee should avoid the client altogether

d. The employee should discuss the situation with an HR manager.

APPENDIX F: TEST INSTRUCTIONS

Test Instructions

You are about to take the Sexual Harassment in the Workplace training. At the end of the training, please take the corresponding quiz. Here are your instructions for the test:

1. Click on **"My Account"** (upper right corner of Training on Demand page).

2. Under **"My Tests"** click on the **"Take Test"** link next to the Sexual Harassment in the Workplace quiz title.

3. A message box will pop-up with the time it takes to complete the test, click **"OK."**

4. Questions are multiple choice. Answer all questions.

5. Once all questions are answered, click the **"Submit Test Answers"** button.

APPENDIX G: TRAINING ON DEMAND - LIST OF COURSES

Training On Demand - List of Courses

CORE Trainings

• Anti-Harrassment Policy

• Bloodborne Pathogens

• Mandated Reporting

• Records and Confidentiality

• Restraint Policy

Courses Offering Continuing Education Credit

• A Comprehensive Basis for Early Intensive Behavior Treatment of Autism

• ABA on Trial: A True Tale of Deception, Denial and Redemption as Told by an Expert Witness

• Early Intensive Behavioral Intervention

• Ethics and Values

• Five Pillars of Professionalism

• Using Science to Improve the Education of Students with Autism Spectrum Disorders

Curriculum Training Series

• CTS: Answers “What” Questions

• CTS: Expressive Body Parts – Vocal Model

• CTS: Expressive Object Labels –Vocal Model

• CTS: Gesture to Mand

• CTS: Imitation with Objects – Physical

• CTS: Looking at Materials upon Request – Gestural

• CTS: Match to Sample with Identical Objects – Gesture

• CTS: Matching Identical Pictures – positional prompts

• CTS: One-step Directions-Model

• CTS: PECS Phase I: The Physical Exchange

• CTS: Receptive Number Identification-Redundancy

• CTS: Responding to Name-Gesture

• CTS: Rote Counting – Visual

• CTS: Sorting by Size

• CTS: Vocal Mand – Vocal Model

• CTS: Yes and No responses to "Do you want this?"

Human Resources

• ADP Manager Access

• Data Security Policy

• DocsNow Tutorial

• Employee Performance Management

• Enterprise eTIME for hourly Timestamp Employees

• Manager Etime

• Sexual Harassment

• Sexual Harassment Pre-Test

• Workplace Violence

Orientation Trainings

• ABE First Day of Work

• Discrete Trial Training Data Collection

• Functional Communication Training: General Overview

• Introduction to ABA

• Introduction to BEACON EI and SA

• Introduction to Functional Analysis

• Introduction to PDD Autism

• Introduction to PECS

• Organizational Structure

• Reinforcement Procedures

• Scope and Sequence of Instruction

• Value Measurement Standards – BEACON Services Mileage Reimbursement

Other Training Topics

• ABA Made Easy Part 1: The Basic Components

• BCBA Assessment Report Writing

- Behavior Therapist Roles and Responsibilities
- Creating a Supportive Environment
- Creating Task Analyses
- Graphing with Excel: Reversal Design
- Mileage Reimbursement Training
- Payroll Forms
- Photographic Activity Schedule
- Program Book Outline
- Supervision: A Behavior Analytic Approach
- Token Reinforcement Systems: An Introduction
- Token Reinforcement Systems: Exchange Training and Conditioning
- Video Modeling

SSF Training Series

- Creating a Supportive Environment
- SSFA: Session Preparation and Organization
- Staff Supervision Form

APPENDIX H: SEXUAL HARASSMENT IN THE WORKPLACE TRAINING

Sexual Harassment Training

Welcome to this training on Sexual Harassment in the workplace. This module will provide you with an overview of sexual harassment along with some video case examples of what sexual harassment might look like. Let's get started!

Sexual harassment is unwanted and unwelcome behavior, or attention, of a sexual nature that interferes with your life and your ability to function at work, home, or school. Sexual advances, forced sexual activity, statements about sexual orientation or sexuality, requests for sexual favors, and other verbal or physical conduct of a sexual nature all *constitute sexual harassment.* **The behavior may be direct or implied**. Sexual harassment can affect an individual's work or school performance, and can create an intimidating, hostile, or offensive environment.

Sexual harassment is largely a form of gender discrimination, or discrimination "based on sex," such as requiring someone to submit to sexual demands also known as quid pro quo. However, this can also be a form of discrimination against homosexuals and transgender individuals who are often targeted because of their orientation. In the United States, sexual harassment is mostly defined under civil law, though some states and countries also define it under criminal law. Moreover, the problem can escalate to involve criminal offenses, such as rape and stalking.

Sexual harassment can occur in a number of ways:

The victim as well as the harasser can be either male or female. The harasser does not have to be of the opposite sex.

The harasser can be anyone: the victim's supervisor, a client, a co-worker, a teacher or professor, a schoolmate, a stranger, even a family member. The victim does not have to be the person directly harassed but can be anyone who finds the behavior offensive and is affected by it. While adverse effects on the victim are common, this does not have to be the case for the behavior to be unlawful. The harasser may be completely unaware that their behavior is offensive or constitutes sexual harassment, or they may be completely unaware that their actions could be unlawful.

Sexual harassment can occur in a variety of situations. Here are some examples of sexual harassment, not intended to be all inclusive: Unwanted jokes, gestures, or offensive words; unwelcome comments and repartee; touching and any other bodily contact, such as scratching or patting a coworker's back, grabbing an employee around the waist, or interfering with an employee's ability to move.

Now that you've understood some examples of what sexual harassment can look like, let's look at are some interesting statistics regarding sexual harassment in the workplace:

31% of female workers reported they had been harassed at work

7% of the male workers reported being harassed at work

62% of sexual harassment targets took no action

100% of women reported the harasser was a man

41% of men reported the harasser was another man

No occupation is immune from sexual harassment; however, reports of harassment of women is higher in fields that have traditionally excluded them, including blue- collar environments, such as mining and firefighting, and white-collar environments, such as surgery and technology.

A telephone poll by Louis Harris and Associates on 782 U.S. workers revealed that the causes of sexual harassment at work can be complex and steeped in socialization, politics, and psychology. Work relationships can be quite intimate and intense, and those involved share common interests. Employees are dependent on each other for teamwork and support, and are dependent on their supervisor's approval for opportunities and career success. Supervisors and employers can grow accustomed to the power they have over their employees. Such closeness and intensity can blur the professional boundaries and lead people to step over the line. Politics can be a catalyst, and problems caused by poor management, workplace bullying, frustration,,and job/financial insecurity, can create hostile environments that leak over into working relationships. Personal problems can also be a factor, and sexual harassment can be a symptom of the effects of life traumas such as divorce or the death of a spouse or child.

According to a recent study (2009) by sociologists at the University of Minnesota, women in supervisory positions are the most likely targets of sexual harassment. After following over 1000 men and women from ninth grade through to their 29th or 30th birthdays, the researchers found that women, homosexuals, and feminine men were the most likely to be harassed throughout their lives. Women supervisors were 137% more likely to be harassed than females in non-supervisory positions. There was no correlation between supervisory status and harassment for the men in the study. One researcher reported, "This study provides the strongest evidence to date supporting the theory that sexual harassment is less about sexual desire than about control and domination. Male co-workers, clients, and supervisors seem to be using harassment as an equalizer against women in power."

Sexist or sexualized environments, those full of sexual joking, sexually explicit graffiti or objects, tolerance for viewing Internet pornography, usually shape the attitudes that male workers have towards their female colleagues. For example, in an environment where obscenities are common, women are 3 times more likely to be sexually harassed than in an environment where such talk is not tolerated. In environments where sexual joking is common, women are 3 to 7 times more likely to be sexually harassed.

Men still retain most of the workplace supervisory positions, and they are the ones who decide whether or not a complaint of sexual harassment is justified. Because of this, if a woman complains about the man who exposed himself to her, in most cases, she is the

one who will be considered the problem. (See Ellison vs. Brady and the "Reasonable Woman" Standard). Still, when the supervisor is female, this does not necessarily make her more sensitive to the seriousness of the problem. We are hearing more and more reports of female supervisors blatantly ignoring complaints of sexual harassment of female employees. Some speculate this is because those female supervisors don't want to *rock the boat* with their male-supervisor colleagues.

Sexual harassment of men does occur, though there is less information about the problem because men are less likely to report the behavior. Sexual harassment of men in the workplace is most often same-sex harassment, and focuses on men who are deemed less masculine than the others; however, neither the perpetrators nor the victim are necessarily homosexual (See Oncale v. Sundowner). Still, there are increasing reports of men being harassed by women, particularly female supervisors.

Quid Pro Quo Harassment means "Something for something." This is the "you do something for me and I'll do something for you" type of exchange. This occurs when a job benefit is directly tied to an employee submitting to unwelcome sexual advances. For example, a supervisor promises an employee a raise if she will go out on a date with him. Quid pro quo harassment also occurs when an employee makes an evaluative decision, or provides or withholds professional opportunities based on another employee's submission to verbal, nonverbal, or physical conduct of a sexual nature. Quid pro quo harassment is

equally unlawful whether the victim resists and suffers the threatened harm or submits and thus avoids the threatened harm.

Hostile Environment Sexual Harassment: This occurs when an employee is subjected to comments of a sexual nature, offensive sexual materials, or unwelcome physical contact as a regular part of the work environment. Generally speaking, a single isolated incident will not be considered hostile environment harassment unless it is extremely outrageous and egregious conduct. The courts look to see whether the conduct is both serious and frequent. Supervisors, managers, co-workers, and even customers can be responsible for creating a hostile environment. It has been estimated that only 5 to 15% of harassed women formally report problems of harassment to their employers or employment agencies such as the Equal Employment Opportunity Commission or EEOC.

There are many reasons why victims are reluctant to make allegations of sexual harassment, including fear of losing their jobs or otherwise hurting their careers, fear of not being believed, the belief that nothing can or will be done to stop the harassment, and embarrassment, shame, or guilt at being harassed.

Men are even less likely to report harassment because of masculine stereotypes, and the pressure to "take anything that comes along." A man may be afraid it is a negative reflection on his masculinity if he does not enjoy the sexual attention, or he may be afraid of having his sexual orientation questioned.

Employers can be legally responsible for sexual harassment against their employees and liable to them for damages; however, liability depends on the type of harassment and who committed it.

If the harassment results in an employment action against the victim (such as firing, demotion, or unfavorable changes in work assignments), the employer is liable. The employer can also be liable if the harassment creates a hostile work environment. However, it has a possible defense if the employer can show that he or she took *reasonable* steps to prevent and promptly correct the problem, and the employee *unreasonably* failed to take advantage of the company's preventive or corrective measures. The employer is liable if he or she knew, or should have known, about the harassment. However, the employer is not liable if immediate and appropriate corrective actions were taken to remedy the problem.

Sexual harassment has been linked to decreased job satisfaction and can lead to a loss of staff and expertise because of resignations to avoid harassment, or because of resignations or firings of alleged harassers.

Every year, hundreds of millions of dollars are lost in productivity because of effects such as employee absenteeism to avoid harassment, and increased team conflict in environments where harassment is occurring. The increased team conflict also leads to problems with team cohesion and less success in meeting financial goals.

The knowledge that harassment is permitted can undermine ethical standards and discipline in the organization. If the problem is ignored, a company's image can suffer amongst clients, employees, potential customers, and the general public. Health care costs can increase because of the health consequences of harassment, not to mention the legal costs if a victim files a lawsuit after complaints are ignored or mishandled.

If you experience sexual harassment or witness it, you should make a report to the Affirmative Action Officer. You do not have to report the incident to your supervisor first, especially if that is the person doing the harassing. Report incidents immediately, especially if they are recurring. Employees who promptly report harassing conduct can help their organizations as well as themselves.

One comprehensive survey by the American Management Association reported that roughly two-thirds of internal reports result in some kind of discipline being imposed on the alleged harasser.

When an employee complains to the Affirmative Action Officer, a supervisor, another employee, or the Human Resources office, about sexual harassment, an immediate investigation of the charge should occur. Supervisors should immediately involve the Affirmative Action Officer. Employees need to understand that they have an obligation to report sexual harassment concerns.

All employees have a responsibility to cooperate fully with the investigation of a sexual harassment complaint. Investigations will vary from case to case, depending on a variety of circumstances. While not every investigation will follow the same format, in every case you need to keep certain things in mind.

First, whether you are the accused employee, the complaining one, or merely a potential witness, bear in mind that confidentiality is crucial. Two people have their reputations on the line, and you may or may not know all the facts. In the typical situation, the employer will keep the information it gathers as confidential as possible, consistent with state and federal laws, and both the accused and the complainant will have a chance to present their cases.

There can be no retaliation against anyone for complaining about sexual harassment, for helping someone else complain, or for providing information regarding a complaint. The law protects employees who participate in any way in administrative complaints, and employee policies protect employees who honestly participate in in-house investigations. If you are afraid to cooperate, you should be very frank about your concerns when talking to the employer's investigator.

If you are making the complaint, the investigator will need to know all the details, unpleasant though they will be to recount. The investigator has a duty to be fair to

everyone involved and needs as much information as possible. Be prepared to give the following information:

- The names of everyone who might have seen or heard about the offensive conduct;
- The names of everyone who may have had a similar experience with the alleged harasser;
- A chronology - when and where each incident occurred;
- The reasons why you did not report the incidents earlier (if you have delayed at all); and
- Your thoughts on what the employer should do to correct the problem and maintain a harassment-free environment.

The investigator may need to talk with you several times while other employees are questioned and information is gathered.

Let's look at some do's and don't's when it comes to sexual harassment in the workplace:

- Do admit that a problem exists
- Tell the offender specifically what you find offensive
- Tell the offender that his or her behavior is bothering you
- Say specifically what you want or don’t want to happen, such as please call me by my name not call me by _____
- Don't blame yourself for someone else's behavior
- Don't choose to ignore the behavior

- Don’t try to handle any severe or recurring harassment problem by yourself -- get help.

A final resource for all employees is the employee hotline if you have witnessed or experienced sexual harassment. There can be no retaliation against anyone for complaining about sexual harassment, for helping someone else complain, or for providing information regarding a complaint. The law protects employees who participate in any way in administrative complaints, and employee policies protect employees who honestly participate in in-house investigations. If you are afraid to cooperate, you should be very frank about your concerns when talking to the employer’s investigator.

If you are making the complaint, the investigator will need to know all the details, unpleasant though they will be to recount. The investigator has a duty to be fair to everyone involved and needs as much information as possible. Be prepared to give the following information:

- The names of everyone who might have seen or heard about the offensive conduct
- The names of everyone who may have had a similar experience with the alleged harasser
- A chronology -- when and where each incident occurred

If you have experience sexual harassment and want to report it anonymously, call 508-473-4315

APPENDIX I: PILOT RAW DATA

Pilot raw data

Group 1	Pretest – raw score	Pretest - average % correct	Posttest – raw score	Posttest – average % correct
P1	5		14	
P2	7		21	
P3	6		20	
P4	4		19	
P5	8		23	
P6	7		22	
P7	5		22	
P8	8		7	
P9	6		20	
	56	24%	168	71%
Group 2	Pretest – raw score	Pretest - average % correct	Posttest – raw score	Posttest – average % correct
P1	4		9	
P2	7		23	
P3	8		22	
P4	3		20	
P5	2		23	
P6	8		18	
P7	6		22	
P8	4		19	
P9	5		24	
	47	20%	180	76%
Group 3	Pretest – raw score	Pretest - average % correct	Posttest – raw score	Posttest – average % correct
P1	10		20	
P2	4		13	
P3	9		23	
P4	5		22	
P5	3		19	
P6	8		7	
P7	7		18	
P8	2		23	
P9	5		22	
	53	22%	167	71%

APPENDIX J: PRE AND POST COMPARISON

Pre and post comparison

Staff #	Control		Staff #	Live Lecture		Staff #	TOD	
C29	47.6	61.9	L5	42.8	80.9	T 23	57.1	85.7
C8	47.6	48.2	L20	66.6	71.4	T 25	33.3	71.4
C20	38	57.1	L15	42.8	66.6	T 14	23.8	100
C5	33.3	57.1	L27	61.9	80.9	T 24	42.8	100
C7	38	38	L8	42.8	66.6	T 21	28.5	80.9
C1	52.3	47.6	L12	28.5	61.9	T 8	38	85.7
C23	42.8	48	L4	61.9	85.7	T 12	38	61.9
C28	42.8	33.3	L29	28.5	66.6	T 17	42.8	57.1
C24	38	38	L23	52.3	85.7	T 22	52.3	76.1
C12	33.3	42.8	L11	52.3	76.2	T 13	38	80.9
C9	38	57.1	L3	42.8	95.2	T 19	33.3	76.1
C15	38	57.1	L1	38	71.4	T 10	42.8	47.6
C11	33.3	38	L26	42.8	47.6	T 27	61.9	100
C25	28.5	42.8	L25	40.9	71.4	T 2	38	66.6
C10	42.8	42.8	L21	57.1	85.7	T 3	19.4	100
C27	57.1	52.3	L19	23.8	61.9	T 31	33.3	71.4
C30	33.3	52.3	L6	47.6	61.9	T 9	42.8	95.2
C22	47.6	61.9	L31	52.3	80.9	T 1	23.8	38
C26	42.8	47.6	L22	38	57.1	T 20	33.3	100
C19	42.8	33.3	L14	52.3	61.9	T 18	47.6	80.9
C17	33.3	28.5	L18	47.6	90	T 30	47.6	66.6
C13	52.3	33.3	L28	28.5	57.1	T 32	33.3	85.7
C6	33.3	28.5	L30	42.8	71.4	T 15	66.6	80.9
C18	47.6	38	L7	42.8	71.4	T 26	42.8	80.9
C4	38	47.6	L10	42.8	66.6	T 5	38	71.4
C2	28.5	67,1	L2	14.2	95	T 7	47.6	71.4
C3	33.3	38	L17	61.9	66.6	T 16	57.1	76.1
C16	23.8	33.3	L24	38	52.4	T 4	42.8	95.2
C31	38	61.9	L13	33.3	47.6	T 29	42.8	95.2
C14	42.8	57.1	L9	38	80.9	T 11	28.5	71.4
C21	52.3	42.8	L16	47.6	66.7	T 6	42.8	100
C32	47.6	42.8	L 32	38	61.9	T 28	57.1	66.6
Average	40.271875	45.451613	Average	43.48438	70.7844	Average	41.18125	79.278125

APPENDIX K: PRE, POST, FOLLOW-UP

Pre – post – follow up comparison – Live Lecture and TOD

Live Lecture				TOD			
Staff #	**Pre-Test**	**Posttest**	**Follow up**	Staff #	pre-test	post test	Follow Up
L5	42.8	80.9	71.4	T 25	33.3	71.4	71.4
L20	66.6	71.4	71.4	T 14	23.8	100	100
L15	42.8	66.7	80.9	T 24	42.8	100	80.9
L27	61.9	80.9	42.8	T 21	28.5	80.9	66.6
L8	42.8	66.7	90.4	T 12	38	61.9	61.9
L12	28.5	61.9	52.3	T 17	42.8	57.1	42.8
L4	61.9	86	76.1	T 22	52.3	76.1	85.7
L29	28.5	66.7	47.6	T 13	38	80.9	80.9
L23	52.3	85.7	52.3	T 19	33.3	76.1	57.1
L11	52.3	76.2	61.9	T 27	61.9	100	85.7
L3	42.8	95.2	52.3	T 2	38	66.6	57.1
L1	38	71.4	42.8	T 3	19.4	100	100
L26	42.8	47.6	42.8	T 9	42.8	95.2	90.4
L19	23.8	61.9	57.1	T 1	23.8	38	52.3
L6	47.6	61.9	61.9	T 20	33.3	100	66.6
L31	52.3	80.9	100	T 18	47.6	80.9	100
L22	38	57.1	33.3	T 30	47.6	66.6	66.6
L28	28.5	57.1	57.1	T 15	66.6	80.9	80.9
L30	42.8	71.4	38	T 26	42.8	80.9	71.4
L10	14.2	95	14.2	T 5	38	71.4	71.4
L2	61.9	66.7	71.4	T 7	47.6	71.4	52.3
L17	38	52.4	47.6	T 16	57.1	76.1	52.3
L24	33.3	47.6	71.4	T 4	42.8	95.2	76.1
L9	47.6	66.7	57.1	T 29	40.9	95.2	80.9
L16	38	61.9	100	T 11	28.5	71.4	71.4
Average	42.8	69.516	59.764	Average	40.46	79.768	72.908