

A RANDOMIZED CONTROL TRIAL OF VIDEO MODELING FOR ENACTING SKILL
CHANGE IN A GROUP OF MASTER'S LEVEL TRAINEE CLINICIANS.

by

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ABSTRACT

The “research-to-practice” gap is a problem that the field of medicine faces regarding disseminating findings from research into the field of practice. The traditional methods of disseminating best practices, using workshops and manuals, has been found to be ineffective. Several more active learning strategies, such as the use of behavioral models and behavioral rehearsals have been suggested as possible alternatives that may increase transfer of knowledge after a training. Additionally, web-based trainings have been suggested as another possible avenue for increasing dissemination of evidence-based practices. This is particularly important for evidence-based treatments such as Exposure Therapy for PTSD which suffers a “public relations problem” in the field of mental health.

This study examined the utility of using a video model to disseminate the skill of fear hierarchy construction for patients with PTSD. Analyses were conducted using a moderated mediation model looking at how video modeling or script condition moderate the relationship between condition and change in self-efficacy, and if this change mediates the relationship between condition and change in fear hierarchy skill. Self-efficacy and positive attitudes toward exposure therapy were increased, however, there was no connection between treatment condition and change in skill. The study’s findings suggest that short online trainings may be effective at reducing negative attitudes toward EBTs, and at increasing self-efficacy for a related skill of fear hierarchy construction.

Keywords: Training, Trainee Therapists, Exposure Therapy

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TABLE OF CONTENTS

LIST OF FIGURES	vii
LIST OF TABLES	viii
CHAPTER ONE: INTRODUCTION.....	1
A Specific Use Case: Training Therapists In Exposure Therapy	3
Training Approaches.....	6
Measuring Training Outcomes	8
Self-Efficacy	10
Online Training Interventions.....	12
Optimizing Online Training for EBT	13
Current Study	17
CHAPTER TWO: METHODS.....	19
Recruitment.....	19
Procedure	19
Training.....	19
Randomization	21
Measures	21
Analyses:.....	23

CHAPTER THREE: RESULTS	25
Sample Description	25
Initial Analyses	26
Moderator Analyses	27
Return on Investment	29
CHAPTER FOUR: DISCUSSION	30
Theoretical Issues and Methodological Issues	33
CHAPTER FIVE: CONCLUSION	37
APPENDIX A: DEMOGRAPHICS FORM	38
APPENDIX B: TBES	40
APPENDIX C: SELF-EFFICACY OF THERAPISTS	46
APPENDIX D: CONSENT FORM	48
APPENDIX E: SCRIPT	56
APPENDIX F: TABLES	66
APPENDIX G: IRB LETTER	74
LIST OF REFERENCES	78

LIST OF FIGURES

Figure 1 Moderated Mediation of Change in Skill by Change in Self-Efficacy	24
Figure 2 Moderated Mediation of Change in Attitudes by Self-Efficacy by Change in Self-Efficacy	24
Figure 3 Moderated Mediation of Change in Skill by Change in Self-Efficacy with numbers....	28
Figure 4 Moderated Mediation of Change in Attitudes by Change in Self-Efficacy with numbers	28

LIST OF TABLES

Table 1: Sample Characteristics.....	67
Table 2: Skill, ANOVA (Within Subjects).....	67
Table 3: Skill * Group ANOVA (Within Subjects).....	68
Table 4: Skill * Group ANOVA (Between Subjects).....	68
Table 5: Skill and Covariates ANOVA (Within Subjects)	68
Table 6: Skill * Group ANOVA (Between Subjects).....	69
Table 7 Self-Efficacy ANOVA (Within Subjects)	69
Table 8: Self-Efficacy * Group ANOVA (Within Subjects).....	69
Table 9 Self-Efficacy * Group ANOVA (Between Subjects)	70
Table 10 Self-Efficacy and Covariates ANOVA (Within Subjects)	70
Table 11 Self-Efficacy * Group ANOVA (Between Subjects)	70
Table 12 Attitudes ANOVA (Within Subjects).....	71
Table 13 Attitudes * Group ANOVA (Within Subjects).....	71
Table 14 Attitudes * Group ANOVA (Between Subjects).....	71
Table 15 Attitudes and Covariates ANOVA (Within Subjects)	72
Table 16 Attitudes * Group ANOVA (Between Subjects).....	73

CHAPTER ONE: INTRODUCTION

Professionals in mental health and other fields of healthcare face a “research-to-practice gap” between the research on best practices and current practices in the working environment (Burke & Hutchins, 2007; Harvey & Gumpert, 2015; Lyon, Stirman, Kerns, & Bruns, 2011; Shafran et al., 2009). This gap is a problem because of the increasing effects of mental disorders on quality of life, some estimates have placed this increase as high as 36% over the span of 30 years (Harvey & Gumpert, 2015). Relatedly, mental disorders are undertreated. It has been estimated that less than half of the individuals who need mental health care are receiving the care they need, and that among those who do receive treatment, only a third receive treatment that is “minimally adequate treatment” (Harvey & Gumpert, 2015; Wang et al., 2005). Together, these findings suggest that the “research-to-practice gap” is a pressing concern with the rising influence of mental disorders on quality of life and the lack of adequate treatment available to treat these disorders.

In Shafran et al. (2009), the problem about the “research-to-practice gap” is explored in more detail. In both the US and the UK, it was found that for a variety of disorders, non-evidence-based treatments were received at a higher rate than treatments like Cognitive Behavioral Therapy (CBT). For Post-Traumatic Stress Disorder (PTSD), in the UK the most popular treatment offered was supportive counselling which contrasts treatment guidelines that recommend more trauma-focused psychological treatments (Shafran et al., 2009). And even when CBT or other evidence-based therapies (EBTs) were delivered, it was done so sub optimally. When looking at mood disorders only 20.9% of those with Major Depressive disorder

(MDD) had received adequate pharmacological/psychological treatment which was defined as at least 8 sessions of treatment. In a study with persons with Obsessive Compulsive Disorder (OCD), 60% of those who received CBT did not meet the minimally defined criteria.

Successful dissemination and implementation of Evidence Based Treatments (EBTs) understandably is an issue under investigation. Barriers at multiple levels have been identified for implementation of EBTs (Harvey & Gumport, 2015). On a more micro level are therapist level barriers which include but are not limited to negative beliefs about the EBTs, a lack of training in EBTs, or a lack of direct clinical experience with EBT's (Harvey & Gumport, 2015; Lyon et al., 2011). Shafran et al. (2009) explores some of the negative beliefs about EBT's held by clinicians. One belief is that research trials have limited relevance to clinical practice based on the lack of generalizability of research findings. However, several studies found that research tend to generalize to routine clinical practice with more complex comorbidities no longer being excluded from trials. It is noted by Shafran et al. (2009) that treatment manuals still need to detail how these comorbidities are handled even though the treatment studies support the generalizability. Therefore negative beliefs about EBTs are being addressed in the research literature, although gaps still remain.

Addressing the lack of training, and experience with EBTs, a review of the literature observed that even when professionals receive training, only 10-50% of training actually causes behavioral change (Burke & Hutchins, 2007). Typical training relies on the distribution of written materials like manuals or single-shot workshops for practitioners to attend and learn more about best practices for EBTs (Herschell, Kolko, Baumann, & Davis, 2010). However, Herschell et al. (2010) concluded that there was little evidence to support this method of training.

While workshop attendance and/or reading treatment manuals have been shown to increase knowledge, they do not effectively change the attitudes of clinicians or promote mastery and long term application of the skills they learned in the workshop or from the treatment manuals (Herschell et al., 2010; Lyon et al., 2011).

The ineffectiveness of workshops lends support for the need for further research into more nuanced methods of disseminating research. Many authors have conducted research into the best means of conducting trainings so that the skills will transfer beyond the training (Beidas & Kendall, 2010; Burke & Hutchins, 2007; Herschell et al., 2010; Salas & Cannon-Bowers, 2001). However, implementation of their findings for training therapists in new ESTs, such as exposure therapy is still being explored.

A Specific Use Case: Training Therapists In Exposure Therapy

Exposure therapy (ET) is one of the most effective treatments currently available for PTSD and anxiety disorders (Norton & Price, 2007; Taylor et al., 2003). ET has been shown to reduce symptoms and health care utilization in a sample of veterans at the VA by up to 45% (Tuerk et al., 2013). Ultimately the use of more EBTs like ET can lead to cost savings by allowing more individuals to access the care of clinicians who are “freed up” by more effectively treating past patients (Tuerk et al., 2013). In a recent meta-analysis, ET has been found to be efficacious in improving PTSD symptoms and removing a diagnosis of PTSD with high and moderate strengths of evidence respectively (Cusack et al., 2016). Cusack does note majority of the trials of exposure therapy have been with prolonged exposure, a manualized treatment

combining imaginal and in-vivo exposure. Unfortunately, effective dissemination of ET faces barriers that include underutilization (Becker, Zayfert, & Anderson, 2004; Deacon & Farrell, 2013; Harned, Dimeff, Woodcock, & Contreras, 2013) and a lack of training in the community (Becker et al., 2004; Deacon & Farrell, 2013).

In a sample of psychologists from the general community, Becker, Zayfert & Anderson (2004) discovered that only 28.5% of community clinicians had been trained in imaginal exposure (IE) for PTSD and only 27.1% of community clinicians had been trained in in-vivo exposure for PTSD. In contrast, members of the Disaster and Trauma Special Interest Group (D&T SIG), which includes clinicians from the Association for Advancement of Behavior Therapy, had 93.1% of their members trained in IE for PTSD and 75.9% in in-vivo exposure for PTSD. In terms of familiarity, 47% of the general community had slight or no familiarity with IE, 17% of the general community reported using IE currently for PTSD and only 20% of the general community who were familiar with IE reported being somewhat or very comfortable using IE for PTSD. In contrast, the D&T SIG reported 96% somewhat or very familiar with IE, 92% reported somewhat or very comfortable using IE for PTSD and 66% currently used IE to treat PTSD. However, while the D&T SIG reported higher usage of IE than the general community, only 17% reported using IE with 81% or more of patients, and only a disappointing 66% used IE currently with patients at all (Becker et al., 2004).

Additionally, Becker, Zayfert & Anderson's (2004) results suggested that among the general population of clinicians, many false contraindications of IE were endorsed. The general population also believed that there may be complications where IE would likely lead to an increase in symptoms or problems in therapy, a perception which runs contrary to the established

literature (Foa, Zoellner, Feeny, Hembree, & Alvarez-Conrad, 2002). It is important to note that these concerns were not restricted to any particular training, familiarity with IE, or comfort with IE, nor was it related to theoretical orientation (Becker et al., 2004). Even therapists from the D&T SIG had concerns about the use of IE possibly causing harm during therapy, indicating current training does not completely assuage concerns about the use of IE for PTSD treatment.

In light of these concerns, ET can be described as having a “public relations problem” (Deacon & Farrell, 2013). ET is viewed by many as being harmful, intolerable, and unethical (Farrell, Deacon, Dixon, & Lickel, 2013). In one study, Farrell and colleagues (2013) investigated whether negative beliefs about exposure therapy impacted its delivery. The authors concluded that negative beliefs were correlated with a more cautious delivery: less ambitious exposure hierarchies were created, less anxiety provoking items were chosen for the exposure task, and greater attempts were made to minimize client’s anxiety. The effects of attitudes on the delivery or even utilization of EBTs has been clearly demonstrated to have effects on outcomes of EBTs (Burgess et al., 2016; Waller & Turner, 2016). Therefore, any training that aims to increase knowledge and skills about ET will need to address three primary concerns. The first concern is to disseminate accurate knowledge about ET and its uses in therapy. Next, the training needs to address attitudes toward ET because as Farrell and colleagues observed, if there are negative beliefs or attitudes toward ET it will impact the delivery of ET and cause suboptimal outcomes (2013). Past literature has concluded that attitudes are malleable to intervention, suggesting that an intervention can change attitudes of clinicians (Pinderup, 2017). Lastly, any training would need to then teach the skills of ET such as fear hierarchy construction.

The literature contains several suggestions that would allow trainers to address these concerns. To target attitudes, cognitive and affective appeals such as facts and empirical evidence or testimonials respectively can be effective (Farrell, Deacon, Dixon, et al., 2013; Powell, Hausmann-Stabile, & McMillen, 2013). Additionally, trainings that are focused on behavioral rehearsals in addition to modeling might be well suited to transferring skills like fear hierarchy construction (Bennett-Levy, McManus, Westling, & Fennell, 2009). An added benefit of behavioral rehearsals is that they can be used to change clinicians' attitudes about certain kinds of therapy. However, these methods alone will not be sufficient for effective dissemination of treatments.

Training Approaches

To increase the knowledge about the best methodologies for dissemination, Lyon and colleagues (2011) investigated training which was conceptualized as “skill acquisition and implementation support” for practitioners already in the field. The authors concluded that the current gold standard, “single-shot” workshops that rely heavily on didactic presentation of new knowledge and skills, are ineffective. Didactics have been demonstrated to be effective for dissemination of information and increasing practitioner declarative knowledge but are limited in creating consistent behavior change in the utilization of new skills (Beidas & Kendall, 2010; Lyon et al., 2011). Another study observed that readings and lectures were the most effective ways to learn declarative knowledge while modeling was proposed to be effective for teaching more procedural knowledge and ways of organizing information (Bennett-Levy et al., 2009).

In their review of the literature, Burke and Hutchins (2007) also found that behavioral modeling was effective for increasing transfer generalization for novel tasks. The authors also found that the utilization of active learning, where the learner is more actively engaged, is thought to help retain adults' attention which is a requisite step for promoting transfer. Experiential methods and modeling were thought to be effective for learning more procedural tasks such as providing therapy (Bennett-Levy et al., 2009). Lastly, the researcher's findings supported that readings, lectures, and modeling were the most effective training methods for mastering conceptual and technical skills while role plays among other behavioral methods were most effective for teaching interpersonal skills (Bennett-Levy et al., 2009).

Another facet of training to consider is how to get the trainings out there once the techniques for teaching have been determined. Technology based training is one suggested method, citing its scalability, cost-savings and convenience for the learner (Beidas, Koerner, Weingardt, & Kendall, 2011; Burke & Hutchins, 2007). Technology, such as web-based trainings or the use of video models, can be used to disseminate EBTs using the best practices from the training literature. However, as Beidas and colleagues attest, this field of study still requires further research before technology as an effective tool for dissemination can be incorporated.

Overall, the field has been moving toward a more cohesive idea of how best to disseminate complex skills such as therapy. Measurements of knowledge are currently being used widely in the field (Beidas & Kendall, 2010; Herschell et al., 2010), but our knowledge of measuring other training outcomes, such as skill use after an intervention, is lacking.

Measuring Training Outcomes

In a review article for training providers in PTSD, Rosen et al. (2017) discussed how to measure outcomes from psychotherapy training studies. Competency evaluation is one outcome, but there is a problem with how competence can be operationalized. Self-assessments were suggested as one possible avenue, with the caveat that they can be unreliable and may overestimate skill or competence (Miller & Mount, 2001). Other assessment methods like structured role plays and attitude assessment among other methods were suggested as possible avenues for assessing competency. Ultimately the authors were not able to draw conclusions on how best to measure competency in therapy but suggest that future research could investigate how best to measure competency in therapy.

Another way to evaluate the effectiveness of training is to look at outcomes such as knowledge, skills and abilities using the model proposed by Kraiger, Ford & Salas (1993). Kraiger and colleagues conceptualized training as having 3 measurable outcomes; cognitive outcomes, such as declarative knowledge, skill-based outcomes which measured how procedural knowledge was utilized, and affective outcomes such as attitude and self-efficacy.

To measure declarative knowledge, Kraiger et al. (1993) found a variety of methods to be workable. Standard multiple-choice, true-false or free-recall exams can be used to assess acquisition of declarative knowledge. This is then split into two types of approaches, speed tests, that are used when speed of recall is the most important or power tests, which are used to assess when recall accuracy is important or the consequences of making a mistake are high. From this description, therapy may fall into the latter category of power testing due to the need to be accurate rather than quick with responses.

Next, Kraiger et al. (1993) stated role plays or observing actual job behaviors are the typical ways to measure skill change. While receiving tapes of all patients is not always possible, some studies have implemented structured role plays as means of measuring clinical proficiency (Harned et al., 2013; Harned et al., 2014) that are argued to be replications of actual job behaviors. In support of Kraiger, behavioral rehearsals have also been found to be an analogue for measuring treatment fidelity in the clinical literature (Beidas, Cross, & Dorsey, 2014), suggesting that skill changes can be measured with behavioral outcomes.

Furthermore, Kraiger and colleagues (1993) discussed the importance of affective outcomes for future usage of the skills and knowledge gained during training. Attitudes were argued to be important because a change in attitude signifies the learning of the value of the new method. Self-efficacy, the judgments and individual makes about their competency to perform a specific task (Bandura, 1982), was also found to be important due to its potential to moderate the relationship between knowledge acquisition and subsequent performance. Additionally, self-efficacy was argued to be a useful predictor of long-term transfer of knowledge or skill maintenance.

Kraiger's findings support that self-efficacy may be a construct worth measuring for outcomes of training interventions, which can be beneficial for examining outcomes. A later review of the training literature suggests that individual factors like self-efficacy can aid the transfer process, and is defined as the usage of newly trained knowledge and skills back to the job environment (Burke & Hutchins, 2007). Among the individual factors are various characteristics such as cognitive ability, self-efficacy regarding the training task, and motivation level, as well as personality traits that can affect the transfer of knowledge from training to actual

practice. Some factors, like cognitive ability, are not malleable to interventions (Burke & Hutchins, 2007). Self-efficacy, however, was identified as one characteristic that is potentially changeable by interventions (Burke & Hutchins, 2007; Cannon-Bowers, Salas, Tannenbaum, & Mathieu, 1995; Salas & Cannon-Bowers, 2001).

Self-Efficacy

In their review of the literature, Burke & Hutchins (2007) found that multiple studies identified a positive relationship between self-efficacy and transfer generalization, which was defined as the usage of newly trained knowledge and skills in the job environment. Trainings that specifically target self-efficacy have produced increases in trainee performance, thus suggesting that self-efficacy is a malleable target for change in interventions (Burke & Hutchins, 2007; Cannon-Bowers et al., 1995; Salas & Cannon-Bowers, 2001). To increase self-efficacy, Bandura (1982) originally hypothesized that enactive mastery experiences, vicarious experiences, verbal persuasion and physiological and affective states can act as sources of self-efficacy. In support of Bandura, Burke & Hutchins (2007) concluded that when mastery experiences are included, these interventions can increase self-efficacy. Research has also stated that self-efficacy can be predictive of usage of ET post-training, suggesting that self-efficacy can measure transfer and actual usage of exposure therapy (Harned et al., 2013)

However, self-reported self-efficacy on its own may not be the most accurate way to measure self-efficacy. When conducting a workshop for teaching motivational interviewing (MI), Miller and Mount (2001) observed that self-efficacy of participating therapists increased after the training. However, upon reviewing video recordings of therapy sessions conducted after

the training, it was discovered the changes were much more modest than originally assumed from the participant's self-reported self-efficacy at post assessment. This finding was substantiated by a review in the literature. It was concluded that therapist self-report was inadequate for assessing actual change in a therapist's skills and abilities after learning a new therapy (Herschell et al., 2010). Therefore, while self-efficacy is a viable target for intervention due to its malleability (Burke & Hutchins, 2007), it must be measured with more than just self-reporting to determine the true efficacy of training.

Self-efficacy being a changeable characteristic is particularly important in the case of therapy. When aiming to reduce the "research-to-treatment" gap, it appears that increasing self-efficacy through training can have positive outcomes on performance (Burke & Hutchins, 2007). For therapy, while higher self-efficacy can be important for increasing the usage of a new therapy, it cannot serve as an indicator of clinical proficiency (Harned et al., 2013; Harned et al., 2014). Thus, the finding that self-efficacy is a changeable characteristic in related fields is useful but implementing change through only self-efficacy would be difficult. One possible solution is to combine measurements of self-efficacy with behavioral rehearsals or role plays to gauge the transfer generalization of a skill, allowing a combination of self-report and objective skill demonstration. While developing measurements of treatment effectiveness are important, without the ability to disseminate these treatments to a wider audience, assessing treatment effectiveness is of limited use.

Online Training Interventions

Several authors have called for more research into online training for dissemination of treatment (Beidas et al., 2011) to address the “research-to-practice gap”. Online trainings have the potential for cost-savings and increased scalability and fidelity of both didactic and active learning modalities of teaching information (Beidas & Kendall, 2010). Several online interventions that teach therapy have shown promise in terms of their efficacy (Dimeff et al., 2015; Dimeff et al., 2009; Harned et al., 2014; Kobak, Craske, Rose, & Wolitsky-Taylor, 2013).

One study conducted by Harned and colleagues (2014) examined technology-based training methods for exposure therapy. They looked at three groups, online training only (OLT), OLT and a motivational enhancement (ME) intervention, and an OLT + ME + web-based learning community (LC). The study concluded that regardless of condition, clinician self-efficacy and self-reported use of exposure therapy increased (Harned et al., 2014). Consistent with the Miller and Mount (2001) finding, an important limitation is that they were unable to examine observed vs. reported exposure therapy use.

Another study by Dimeff et al. (2009) investigated three different methods for training community mental health providers in Dialectical Behavior Therapy (DBT). The methods were a written manual, an interactive online training (OLT) and a two-day instructor led training workshop (ILT). OLT was found to be superior to both ILT and treatment manual for increasing clinicians’ knowledge of DBT skills and this difference was maintained at a 3 month follow up. Their findings suggested that OLT may be a superior method for disseminating declarative knowledge than more traditional workshop or manual training methods for this purpose in terms of knowledge gains and self-efficacy changes.

In a related study, Dimeff et al. (2015) investigated three different methods of training clinicians in two core strategies of DBT. These strategies were chain analysis, and validation strategies. The authors found that OLT was superior in increasing knowledge gains and equivalent to the other trainings in terms of clinical use and proficiency. Gains were moderate across all conditions. Their findings suggested that skills could be taught using an online training, and that these skills could be taught at an equivalent level to those delivered in person or via the treatment manual.

Another study by Kobak et al. (2013) piloted a program that combined online didactic training and applied training using web-based video conferencing. They observed that there was an increase in knowledge with both online components of the training. Additionally, self-reported use of CBT increased as well. However, the training did not use randomization, incorporate a long term follow up or consultation period, nor did it use any form of observed clinical evaluation for use of evidence-based practices in the trainee's patients.

Together, these findings advocate that online interventions are effective at changing knowledge and potentially at changing behaviors. The literature remains conflicted whether online training interventions can enact significant change in a therapist's skills and abilities. In addition, research still needs to be done to determine if online training interventions will function best as stand-alone or adjunctive tools for training therapists in EBTs (Beidas et al., 2011).

Optimizing Online Training for EBT

As Harned and colleagues (2013; 2014) discuss, motivational aspects are important to consider when conducting trainings for EBTs. Changing a therapist's motivation to utilize a new

technique has been hypothesized to be due to their acceptance of a new technique (Kraiger et al., 1993). Changes in motivational aspects, such as self-efficacy, have also been shown to increase utilization of ESTs post-training (Harned et al., 2013). Measuring changes in self-efficacy can be argued to be an indicator of potential post-training utilization of the new techniques.

Another component that needs to be included are active learning elements. For instance, experiential role plays or behavioral rehearsals can potentially increase retention of knowledge of skills in training (Beidas et al., 2014; Beidas & Kendall, 2010; Dimeff et al., 2015). More specifically, video modeling as a method of active learning has been increasing in acceptability due to its ability to standardize delivery of information and for its potential cost savings (Tuong, Larsen, & Armstrong, 2014; Wouters, Tabbers, & Paas, 2007). Research has found video modeling is superior to didactics for the communication and retention of skills regarding different therapeutic interventions such as functional behavior analysis (McCahill, Healy, Lydon, & Ramey, 2014).

The modeling of therapy is a type of cognitive modeling, as it requires the explanation of the thought processes for the decisions made during session (Wouters et al., 2007). Video modeling has been hypothesized to be effective for therapy due to its ability to provide learners a cognitive representation of therapy that they can then refine over multiple rehearsals. Especially for complex interactions like therapy, observing a model allows learners to process the information being provided at their own pace.

Video modeling has been found to assist with cost savings in terms of trainer hours in relation to live training (Macurik, O'Kane, Malanga, & Reid, 2008). Another advantage for video

modeling is that videos will remain available outside of work hours when live trainers may not be available for consultation and allow for repeated viewing (Parsons, Rollyson, & Reid, 2012). This benefit can also be useful to ensure that all trainees have the opportunity to receive the amount of modeling they need to master the skill during the initial stages of training (Parsons et al., 2012).

To most effectively use video modeling for training clinicians' in therapeutic skills, it is necessary to maximize the model's effectiveness. Mayer (2008) postulated a model that combines the science of instruction and the science of learning for the most effective design of multimedia instruction. He lists 3 primary elements toward successfully increasing the transfer of information: reducing extraneous processing, managing essential processing and increasing generative processing.

To reduce extraneous processing, which he defines as cognitive processing that is not necessary for the learning objective at hand, Mayer (2008) has conceptualized five principles. The coherence principle is that people will learn better when extraneous material is minimized. The signaling principle entails people will learn better when the essential words or objects of interest are highlighted or in some way made more salient to the learner. The redundancy principle states that people will learn better from animations and narrations only rather than the addition of on-screen text. Spatial contiguity principle states that better learning occurs when the corresponding words and pictures are presented closer in proximity to each other physical, while the temporal contiguity principle states that people learn better when the narration and the animation are presented simultaneously.

To manage essential processing, which Mayer (2008) defines as the cognitive processing needed to mentally present the incoming material and is related to the complexity of the material, one principle is segmentation, dividing the content up to aid learners in processing the essential material. The pretraining principle or introducing the video after learners already know the names and characteristics of what they are looking for helps them pay better attention to the salient cues. Lastly, the modality principle suggests that people will learn better through spoken text rather than printed text.

In all, for fostering generative processing, which Mayer (2008) defined as cognitive processing that makes sense of the incoming material and helps integrate it with any prior knowledge the learner may have, personalizing, or using a more conversational style rather than formal style of communicating assists learners in retaining and processing the information. One last factor in the success of video modeling is that personal characteristics of a video model, such as expertise, influence the efficacy of the video model, where higher expertise models contribute to a more efficacious training (Hoogerheide, van Wermeskerken, Loyens, & van Gog, 2016).

Even though the evidence supporting the efficacy of the use of video models is strong, few studies have studied specifically the return on investment for creating video models. Several studies have suggested it can act as a cost savings or time savings (Macurik et al., 2008; Wouters et al., 2007), though these savings are determined in part by how widely the therapy is disseminated as more widely disseminated trainings will have higher cost savings than more narrowly disseminated trainings. These cost savings are both in terms of the trainer time, travel costs, and future trainings that have modifications (Macurik et al., 2008). However, while hypothetical cost and time has been implied to be less for roughly same efficacy, it has yet to be

determined if the return on investment for video modeling is sufficient to warrant the creation of the videos over a script only intervention.

The object of the current study was fivefold. First, it evaluated the efficacy of online training for fear hierarchy construction by assessing change in behavioral, attitudinal and motivational aspects of the therapist pre-post training. Second, it measured whether change in self-efficacy in the video condition was superior to those in the script condition. Third, it measured if the video condition's effect on the changes in fear hierarchy construction was mediated by the changes in self-efficacy. Fourth, it measured if the video condition's effect on the changes in attitudes was mediated by the changes in self-efficacy. Fifth, it measured if the investment into a video model created enough of an increase in behavior change to be a worthwhile investment.

Current Study

The current study looked at a part of a larger training study examining its efficacy for disseminating Trauma Management Therapy and other exposure therapy paradigms, a recent innovation in the field of exposure therapy that had promising outcomes in treating PTSD symptoms (Beidel, Frueh, Neer, Bowers, et al., 2017; Beidel, Frueh, Neer, & Lejuez, 2017). As a part of the training, elements related to prolonged exposure were also explained and the study looked at fear hierarchy construction and if video modeling was an appropriate means of disseminating this skill. The study was split into two arms, one arm with a video demonstrating how to construct a fear hierarchy, while the other arm had a script of the fear hierarchy video.

The authors hoped to replicate the findings of other studies that video modeling is in fact superior to didactics for conveying skills such as fear hierarchy construction.

CHAPTER TWO: METHODS

Recruitment

Participants were recruited through the master's clinical psychology program, the master's in social work program, and the master's in mental health counseling program at the University of Central Florida. Participants were also recruited through listservs and undergraduate psychology courses for course credit. Participants were offered this training as part of their other clinical coursework or for credit in their undergraduate courses.

Procedure

Participants were recruited through email through their respective departments or through guest lectures as part of their course curriculum. They were administered the pre-survey and then invited to take part in the study. Upon invitation, the participants were randomized into one of two groups, either video only or script only as described below. Once they accepted the invite to the study, participants then completed the training. After the training, participants were asked to take the post-survey.

Training

The training consisted of two arms. In one arm, the participants received the fear hierarchy construction portion of a larger online training with an accompanying video to highlight how to conduct the skill. In the other arm, the participants received the fear hierarchy portion of the larger training, however there was no video, instead a transcript of the video was presented. In both arms, therapists were provided information about how effective exposure

therapy is, using case vignettes as affective appeals, and empirical evidence and facts as cognitive appeals, to influence clinician's desire to use exposure therapy for PTSD (Farrell, Deacon, Dixon, et al., 2013; Powell et al., 2013).

The video was constructed based on Mayer's (2008) principles and in line with Cognitive Load Theory (CLT) (Paas, Renkl, & Sweller, 2003). In short, CLT models learning as a function of how much cognitive load is available per learner. To create effective trainings, 3 kinds of load need to be considered. Intrinsic load, how many elements that need to be processed, extraneous load, material or visual objects that are present that do not contribute to learning and germane load, which is related to cognitive activities that strengthen the process. Ideally, videos will minimize extraneous information while maximizing the germane elements to the maximum possible given the intrinsic load of the material being reviewed. By doing so, extraneous cognitive load will be minimized, allowing for a faster schema acquisition, where schemas are defined as cognitive constructs that incorporate many different elements of information into a single element that is easier to recall from long term memory storage (Paas et al., 2003). Ultimately, faster schema acquisition is ideal because it means that the skill will have made it to long term storage, suggesting it will be utilized more often than if it were not to make it there.

The video had a short introduction that highlighted the key components that needed to be gained from the video, per the pretraining principle. The video focused as much as possible only on fear hierarchy construction, combining the coherence and segmenting principles with the minimizing of extraneous load. Words on screen were minimized to reduce redundancy. Lastly, words on the screen were minimized to keep the learner's attention focused on the modeling with all explanations occurring verbally, per the modality principle.

More specifically, the video highlighted the behavioral modeling of how to construct a fear hierarchy from the information gathered during an interview. This experiential learning portion featured the video of a therapist working with a client, is theorized to increase the effectiveness of transfer from training to the workplace (Bennett-Levy et al., 2009). This increase in effectiveness may also be viewed from the perspective of CLT which posits that the learners can generate schemas for skills and their usage. Through experiential learning, the learners were theorized to be able to move the basic elements of constructing a fear hierarchy (i.e. identification of core fear, proper ordering of activities based on SUDS) into long-term storage as a schema for conducting exposure therapy. The “clinician” in the video was of similar age and experience to the trainees and conveyed the idea of expertise via an introduction at the beginning of the training emphasizing the clinician’s background and requisite skills.

Measures were administered pre and post training to gauge the effectiveness of the training intervention and a power test method was used so clinicians were not timed on their responses to maximize their ability to get the correct answer but rather on their quick response.

Randomization

Participants were randomized using block randomization into one of the two arms.

Measures

Demographic variables: Sociodemographic information about therapists was collected at pre-training, including gender/sexual identity, age, primary racial/ethnic group, marital status, education level, theoretical orientation and previous experience conducting therapy.

Therapist Beliefs about Exposure Scale (TBES): A 21-item questionnaire about a therapist's negative beliefs about exposure therapy. Psychometric properties of this scale are reported by Deacon and colleagues (2013). The TBES has a single-factor, and excellent internal consistency ($\alpha = .95$), with adequate item level psychometric properties. Test-retest reliability was excellent at the 6-month mark ($\alpha = .89$). Deacon and colleagues found that TBES scores were associated with several demographic groups. Significantly fewer reservations about exposure were found for men, younger therapists and anxiety specialists. Also, those who were trained at the Ph.D. level were much more likely to rate fewer reservations. Women also scored higher than men for rating higher levels of concerns. For each item, therapists rated their level of agreement with each statement on a 5-point scale from 0 (disagree strongly) to 4 (agree strongly). Lower scores are considered to be more reflective of positive attitudes. Therapists were assessed pre-treatment and post-treatment.

Self-efficacy about Fear Hierarchy Construction: Assesses a clinician's beliefs about their ability to make a fear hierarchy pre-training, post-training. Total score changes were used to assess for self-efficacy, with changes of 1 SD or more from pre-post to be sufficient for explaining this change is more than chance.

Fear Hierarchy construction examples: The therapists were provided several sample vignettes detailing the intake history of patients who experienced trauma and developed PTSD. The therapists were instructed to utilize information from the intake to begin brainstorming possible fear hierarchy items (e.g., items that could be used during exposure therapy) and to begin brainstorming ideas on how to modify tasks to increase or decrease the difficulty of the

situation (e.g., sit with back to one entrance, to two entrances, to all entrances for a crowd exposure). This assessment took place pre and post training.

The examples were pilot tested by clinicians in the Clinical Psychology Doctorate program at the University of Central Florida ($N = 14$). The clinicians scored very high in the measure ($M = 16.11$, $SD = 1.08$). Overall feedback was positive about the examples and vignettes, with mechanical modifications (e.g., making text boxes bigger) and some wording changes for clarity requested. These changes were made to the survey prior to being administered to the population of interest.

Analyses:

The study used a moderated mediation approach to examine how training with video modeling and training with only scripts differed in terms of changes in self-efficacy, and how this relationship mediated the relationship between change in fear hierarchy skill, and the training conditions (see Figure 1). The study used a mediation approach to examine how training with video modeling and training with only scripts differed in terms of changes in self-efficacy, and how this relationship mediates the relationship between change in positive attitudes toward ET, and the training conditions (See Figure 2). For measuring return on investment, a calculation was made to determine if the cost of investment (estimated as \$5000) was offset by the amount of time a trainer would need to utilize, along with the amount of time that therapists would have to take out of their work schedule to attend such a training.

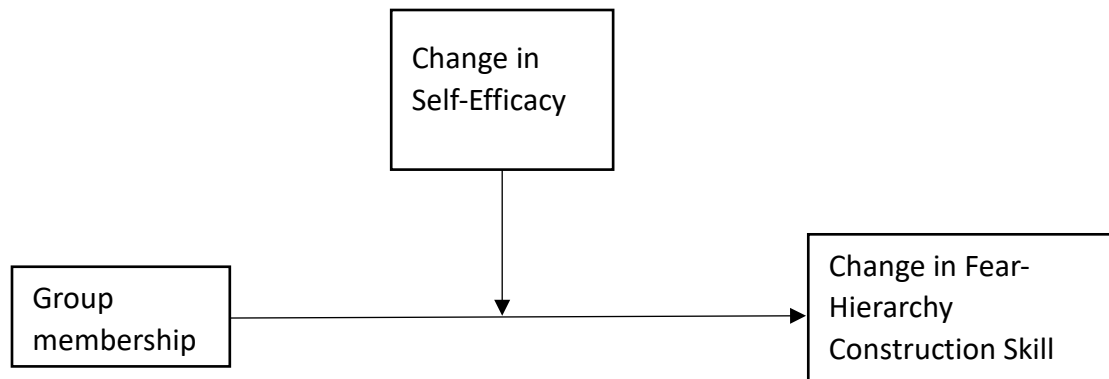


Figure 1 Moderated Mediation of Change in Skill by Change in Self-Efficacy

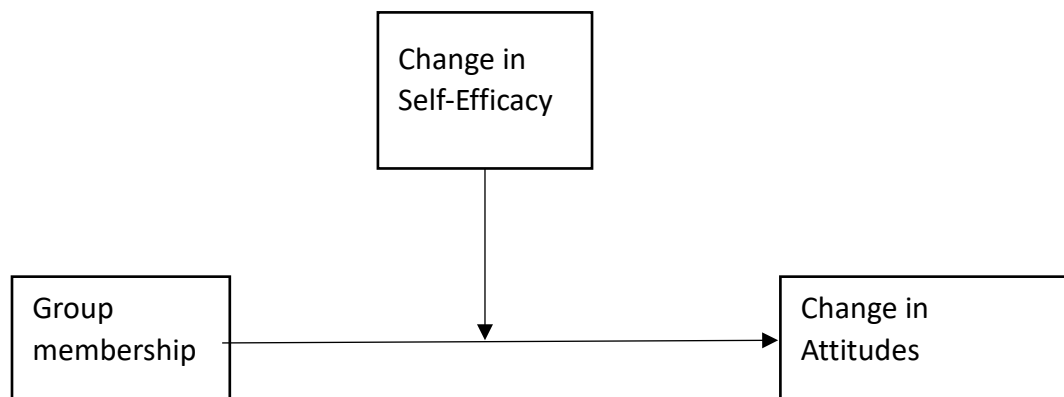


Figure 2 Moderated Mediation of Change in Attitudes by Self-Efficacy by Change in Self-Efficacy

CHAPTER THREE: RESULTS

Sample Description

Demographics for the sample are summarized in Table 1.

A chi-square test of independence was performed to examine the relationship between demographic data and group. The relationship between previous fear hierarchy experience and group was significant $X^2 (1 = N = 68) = 4.42, p = .036$. People in the intervention group were approximately 70% less likely to have previous fear hierarchy experience than the control group. No other demographic variables differed significantly between the two groups.

Between completers ($M = 173.33, SD = 118.96$) and non-completers ($M = 274.88, SD = 118.22$) there was a statistically significant difference between the groups for scores on pre-self-efficacy $t (56) = 2.86, p = .006$. However, when the pre-self-efficacy scores were covaried with their scores on the pre-skill and previous experience with fear hierarchy construction, this difference was no longer significant $F(1,31) = 3.24, p = .083, \eta^2 = .104$. There was also a significant difference between completers ($M = 12.23, SD = 3.5$) and non-completers ($M = 9.16, SD = 4.75$) for pre-skill scores $t (45) = -2.49, p = .017$. Lastly, theoretical orientation was significantly different between completers (Psychodynamic = 4, Evidence Based Therapies = 9, Eclectic = 11) and non-completers (Psychodynamic = 20, Evidence Based Therapies = 42, Eclectic = 12) $X^2 (2 = N = 98) = 8.86, p = .012$. No other pre-test data or demographic differences were significantly different between the two groups.

Initial Analyses

A 2 (condition) x 2 (time) repeated measures analysis of variance (ANOVA) was used to assess the change in skill. Differences in skill pre ($M = 10.59$, $SD = 4.45$) to post ($M = 11.33$, $SD = 4.30$) were found to be not statistically significant $F(1, 20) = .81$, $p = .38$, $\eta^2 = .039$. There was not a statistically significant interaction effect $F(1, 19) = .16$, $p = .69$, $\eta^2 = .009$, nor was there a significant difference between groups $F(1, 19) = .46$, $p = .506$, $\eta^2 = .024$. When a repeated measure analysis of covariance (ANCOVA) was run, no demographic or pre-scores on measures were found to be statistically significant $F(1, 2) = 2.06$, $p = .29$, $\eta^2 = .51$ nor was there a significant difference between groups $F(1, 2) = .07$, $p = .816$, $\eta^2 = .034$. Tables 2-6 summarize these results and the covariates tested.

A 2 (condition) x 2 (time) repeated measures analysis of variance (ANOVA) was used to assess the change in self-efficacy. The increase in self-efficacy pre ($M = 248.62$, $SD = 125.65$) and post ($M = 382.4$, $SD = 68.63$) was found to be statistically significant $F(1, 13) = 57.98$, $p < .001$, $\eta^2 = .822$. There was not a statistically significant interaction effect $F(1, 12) = .029$, $p = .867$, $\eta^2 = .002$, nor was there a significant difference between groups $F(1, 12) = 1.66$, $p = .221$, $\eta^2 = .113$. When a repeated measures ANCOVA was run, the tested demographic variables were found to not be significant within the randomized groups $F(1, 11) = .07$, $p = .796$, $\eta^2 = .006$, nor was there a significant difference between groups $F(1, 11) = .40$, $p = .54$, $\eta^2 = .035$. Tables 7-11 summarize these results and the covariates tested.

A 2 (condition) x 2 (time) repeated measures analysis of variance (ANOVA) was used to assess the change in attitudes. Reductions in negative attitudes pre ($M = 63.69$, $SD = 8.38$) and post (M

= 56.19, SD = 11.16) found that the reduction in scores was statistically significant $F(1, 22) = 17.20, p < .001, \eta^2 = .439$. There was not a statistically significant interaction effect $F(1, 21) = .20, p = .657, \eta^2 = .010$, nor was there a significant difference between groups $F(1, 21) = .10, p = .752, \eta^2 = .005$. Lastly, a repeated measures ANCOVA was used to determine if the differences in attitudes change pre-post between the randomized groups was due to covariates. The analysis found no significance within group differences based on the covariates. The analysis also found that for between-subjects, the interaction of sex x attitudes was significant $F(1) = 10.776, p = .046, \eta^2 = .782$. This finding suggests that on average male respondents had a lower score at pre ($M = 56, SD = 6.08$) and post ($M = 50, SD = 12.12$) than females at pre ($M = 62.83, SD = 9.49$) and post ($M = 56.5, SD = 7.48$). Tables 12-16 summarize these results and covariates tested.

Moderator Analyses

The PROCESS macro for IBM SPSS, developed by Hayes, was used to evaluate change in attitudes and change in self-efficacy as potential moderators of the relationship between change in skill and group randomization. Neither interaction term accounted for a significant portion of the variance in change in skill; therefore, neither change in self-efficacy ($p = .628$) nor change in attitudes ($p = .0750$) appeared to moderate the relationship between group and change in skill. The extent to which group membership affected change in skill did not depend on the degree of change in self-efficacy or attitudes. Lastly, the PROCESS macro was used to evaluate change in self-efficacy as a potential moderator of the relationship between change in attitudes and group

membership. Self-efficacy did not account for a significant portion of the variance in change in attitudes ($p = .957$). Figures 3 and 4 summarize these findings graphically.

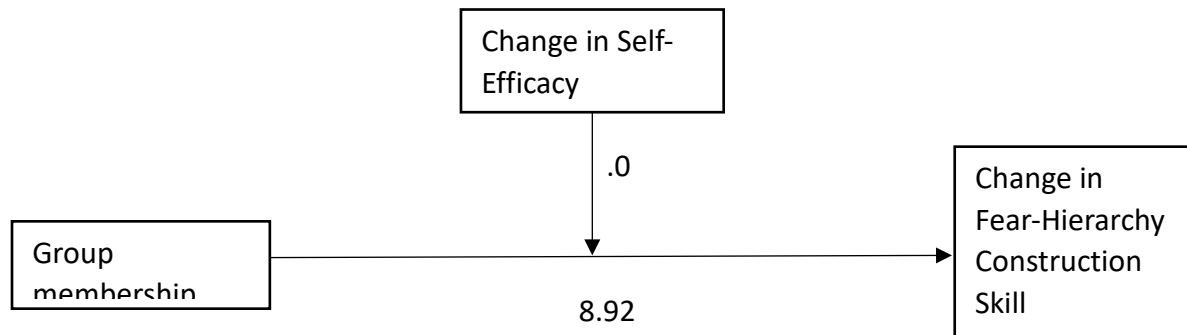


Figure 3 Moderated Mediation of Change in Skill by Change in Self-Efficacy with numbers

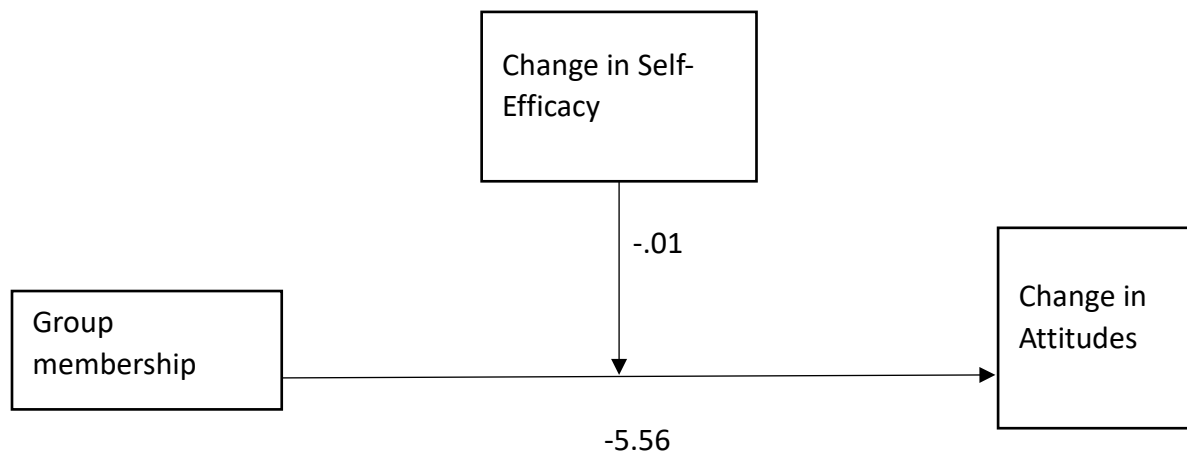


Figure 4 Moderated Mediation of Change in Attitudes by Change in Self-Efficacy with numbers

Return on Investment

To determine if the return on investment was worthwhile, the costs for in-person workshops were calculated. The in-person workshop costs were estimated at \$5450. The salary for the trainer was estimated at \$22.5 per hour. The estimated costs were for 4 in-person workshops, spread across the 5 different recruitment populations. Each workshop was estimated to take two hours with an estimated two hours of travel time to account for real world requirements necessitating travel. Preparation of materials took approximately 8 hours. Lastly, costs for each participant (25 completed) were estimated at 4 hours, with the same salary estimate (\$22.5 per hour) given their trainee status, and an estimated additional cost of \$27.5 an hour to account for missed client fees and travel costs, for a total cost of \$50 per hour per participant.

The costs for the online workshop were estimated at \$1,355. The salary was kept the same for the trainer as was the preparation time. An additional cost was the necessity of video recording which was estimated at \$50. The cost to host the videos online was negligible due to existing partnerships by the hosting university. Costs to the participant were slightly altered due to not needing to travel, total costs being approximately \$45 instead of \$50, and travel time was removed as an additional cost.

CHAPTER FOUR: DISCUSSION

This study investigated if a short video modeling fear hierarchy construction would result in changes for behavioral, attitudinal and motivational outcomes post training. It was found that self-efficacy increased after training, and scores for negative attitudes toward exposure therapy decreased after training, suggesting that the training was effective in increasing self-efficacy and positive attitudes toward exposure therapy. However, change in self-efficacy was not moderated by group membership suggesting the video was not sufficient to create additional change over and above the other content. Change in skill was not significant between pre-post testing, and the decrease in negative attitudes was not mediated by the change in self-efficacy or group membership. Lastly, the estimated costs favored the online workshop as it cost an estimated \$4,095 less than the in-person workshop.

The current training, which was approximately 2 hours in length, was able to achieve a large effect size ($\eta^2 = .439$) change in the TBES scale, suggesting that to overcome the “public relations problem” for exposure therapy, short didactic trainings may be one way to do so. Additionally, the relatively low cost of this intervention (\$1,355) combined with the large effect size suggests that short online didactics may allow further dissemination of EBTs by targeting the attitudes that trainees may hold about EBTs. While the training was unable to effect behavior change making a return on investment difficult to determine, if there are different goals for trainings (e.g., attitude change) then the trainings may be cost effective.

The large effect size of self-efficacy pre-post, while it did not translate into changes in skill, has other important effects. In one study, Harned and colleagues (2013) found that therapist

self-efficacy at post training significantly predicted the use of exposure therapy after the training. Additionally, others have found that trainings that sought to increase learner self-efficacy have produced increases in the trained skill's performance (Burke & Hutchins, 2007; Salas & Cannon-Bowers, 2001). Other researchers have also found that an increase in self-efficacy can aid with transfer behaviors, especially in more complex and stressful situations (Gaudine & Saks, 2004) such as those involving fear hierarchy construction in therapy. Therefore, while the self-efficacy changes in this training did not contribute to skill change, studies have found that the increase in self-efficacy may translate into other beneficial outcomes that were not measured by the current study. Perhaps these shorter trainings (hour and a half to two hours) may be useful for promoting the use of skills even without direct skills transfer.

Other studies have found that changes in attitudes can predict shifts in behavior. The specific nature of the attitudes measured (e.g., related to exposure therapy) propose that these attitudes may more readily translate into behavior change (Kraus, 1995). In his meta-analysis, Kraus found that the more specific attitudes were more predictive of specific behaviors than general attitudes. Cook and colleagues (2018) found that the more specific attitudes toward a therapy were uniquely associated with the self-reported delivery of trauma EBPs above and beyond more general attitudes toward evidence-based practices. While the increase in positive attitudes for exposure therapy did not directly translate into increased skill in this case, an increased likelihood of utilizing these treatments in the future may be an outcome that can be expected from these findings. Farrell and colleagues (2013) did find that more negative attitudes toward exposure therapy changes how people may deliver treatment to a patient, in general they take a more cautious approach. Thus, the increase in positive attitudes from this time limited

intervention suggests that while the skill may not have been directly affected, the potential future use and delivery of exposure therapy or other forms of therapy that use fear hierarchy construction may have been positively impacted by this training.

A video model was utilized in part as a response to the call for action in the field (Beidas & Kendall, 2010) which was for more widely disseminated trainings for EBTs. Video models have been found to be effective because learners gain a cognitive representation of the performance that they can rehearse mentally (Wouters et al., 2007). One line of thought suggests that observing a model may let learners process essential information because of their ability to replay the video as many times as needed (Wouters et al., 2007). The video model was designed to be limited in scope to one specific skill to reduce the extraneous load as much as possible, while maximizing the germane load (Paas et al., 2003). However, it is possible that the skill would need to be broken down even further to reduce the extraneous load and focus the attention of the user onto particular aspects of the dialogue rather than just the model itself. Mayer's theory of multimedia learning (2008), which looks at how information given during multimedia presentations enters long-term memory, suggests that perhaps the amount of visual and auditory information may have been too great for the trainee therapists to integrate and move to long-term memory. It is also unclear if trainees were focused on the important elements of the model (e.g., the reframing of fears) rather than extraneous elements (e.g., distance from the patient, the setup of the room). Future research may wish to not only look at the best ways to convey skills (e.g., size of chunks, how to partition the skill into smaller pieces) so that novice clinicians can display mastery. Future research may also wish to look at measuring whether trainees are attending to

the appropriate elements of the model, and how they evaluated the model, as that can influence how trainees learn the information (Dieker et al., 2009).

Theoretical Issues and Methodological Issues

Another consideration for the study is the attrition rate of about 77%, which is comparable to other voluntary trainings (Long, Dubois, & Faley, 2009). One notable difference between completers and non-completers was a higher self-efficacy and previous experience in fear hierarchy construction, however, there was a corresponding lack of skill measured in the vignette. This could be explained by the “Dunning-Kruger effect” (Dunning, 2011). In short, the Dunning-Kruger effect is the idea that those who lack expertise in a topic may have little insight into their own lack of expertise. While non-completers were more likely to rate themselves higher in self-efficacy ($M = 274.88$, $SD = 118.22$) than completers ($M = 173.33$, $SD = 118.96$) their relative level of skill ($M = 12.23$, $SD = 3.5$) was comparable to completers ($M = 9.16$, $SD = 4.75$). This suggests that non-completer’s higher rating of their self-efficacy was erroneous, and perhaps contributed to the non-completion of the study as they may have believed they did not have anything to gain from completing the study.

A related factor could have been the perceived ease of use of the entire study. One model proposed by Davis, the Technology Acceptance Model (1989) suggests that perceived ease of use, or the “degree to which a person believes that using a particular system would be free of physical and mental effort” (Davis, 1989) has an influence on the behavioral intentions, and may influence actual system use (Roca, Chiu, & Martínez, 2006). The study was relatively cumbersome for enrollment with the participant needing to click through several different menus

and enroll in an online course software in order to participate in the study. If the perceived usefulness of the study was low, because the participants believed they already knew the information, and the ease of use is low, then the actual system use is predicted to be lower.

Additionally, the video may not have taught the precise skill changes that the skill measure required. The video demonstrated the process of building a fear hierarchy from what the patient said, but without information from the patient on potential fear hierarchy items it may have been difficult for trainees to distinguish what exactly should be a fear hierarchy item. For example, many individuals indicated that a “truck” was a fear hierarchy item, when it was a “truck with an open trailer” that was the “correct” fear hierarchy item. The necessity of having a very precise answer as an item on the fear hierarchy may not have been emphasized sufficiently by the training, leading to these suboptimal responses. In addition, the vignettes may not have been sufficiently difficult to demonstrate change across training. While pilot testing indicated that the measure was adequate, this may not have been replicable between pre-post training.

Lastly, self-efficacy scores post may have been artificially inflated due to a false perception of efficacy. Miller and Mount (2001) found that after completing trainings, clinicians were more likely to rate themselves higher after the training, even though their actual skill increase did not match the increase in self-efficacy. This may explain the deficits in skill after the training even though self-efficacy increased, clinicians may have had a misconception that their skills increased when they had not, replicating findings from Miller and Mount’s study.

This study had several limitations. The first is that the attrition rate was high. Of the 108 people to begin the study, only 25 were able to complete the study, an attrition rate of 77%,

which is comparable to other voluntary online trainings (Long et al., 2009). Another limitation was the measurement of skill, which was designed specifically for this study. While the measure was validated using another practitioner sample, the results may have been skewed due to the nature of the training program (e.g., PhD training program) in contrast to the measured sample (Master's program). Another limitation was that while the training was delivered online, the platform it was delivered on may have created another hurdle because of the cumbersomeness of setting up an account to enroll in the course. This may have created a barrier to access that trainee clinicians who are already pressed for time were not able to surmount. In all, the study was conducted with primarily people enrolled in master's programs which is not reflective of most clinicians who may seek additional training for mental health treatments, suggesting that these results not be generalizable to the general trainee population.

From the results of our study, a line of research looking at how skills can be conveyed could be done. Interviewing an expert in fear hierarchy construction, and using cognitive task analysis, a way of breaking a task down to its component parts in order to understand the parts and how these parts work together to form the whole (Crandall, Klein, Klein, & Hoffman, 2006). Once these component parts have been determined, the next part of the study would be to begin filming each component part in action during role plays. Once these components have been filmed, it will be necessary to assess how much intrinsic load is associated with each of the components across different levels of expertise (e.g., master's level trainee, doctoral level trainee) (Sweller, 2010). Assessing the intrinsic load will allow trainers to tailor trainings to better suit their intended audience, potentially streamlining trainings for more senior trainees while extending them as needed for more novice trainees. This could aid in reducing the gap

between research and practice by potentially increasing the number of trainees who successfully complete the training and retain the skills with tailored training interventions rather than a “one size fits all” solution to training.

CHAPTER FIVE: CONCLUSION

Technology based dissemination efforts are one way of addressing the “research-to-practice” gap. The findings from the current study propose that a short online training on a subcomponent of skill may be useful for changing negative attitudes toward EBTs, an important first step in beginning dissemination of EBTs to the wider community of clinicians. Additionally, a short online training can be effective in increasing the self-efficacy of trainee clinicians, which may increase their willingness to use the skill in the future. Overall, the cost to conduct an online training is significantly less than that of a in-person workshop. Together, these findings provide continuing support that online trainings may be an efficacious way to disseminate EBTs to a wider audience than reached by our current methodology.

APPENDIX A: DEMOGRAPHICS FORM

1. What sex were you born as: Biologically Male Biologically Female
2. What gender do you identify as: Male Female Non-binary/third gender
 Other:_____ Prefer not to say
3. How old are you? _____
4. What racial group do you primarily identify as, if more than one please indicate below:
 Asian African American/Black Caucasian American American Indian/Alaskan
 Native Hawaiian Native/Pacific Islander Other:_____
5. Do you identify as Hispanic/Latino? Yes No
6. What is your marital status? Single Widowed Divorced Married
7. What is your highest degree of education: Some High School High School Some
 College College degree Some Master's Master's Degree
 PhD
8. Theoretical orientation: Psychodynamic Evidence Based Therapies Eclectic
9. How long has it been since you received your previous degree? _____
10. How much experience do you have in the psychology field (years):_____
11. Have you had any experience with constructing a fear hierarchy, which is a method for
 systematically organizing a patient's fears from lowest to highest for the purposes of
 treatment, in a previous job? Yes No
 a. If yes, please explain in what capacity:_____

APPENDIX B: TBES

TBES

Below are statements about exposure therapy for the treatment of anxiety disorders. Please indicate how strongly you agree or disagree with each statement. Circle your answer.

	Disagree Strongly	Disagree	Unsure	Agree	Agree Strongly
1. Most clients have difficulty tolerating the distress exposure therapy evokes.	0	1	2	3	4
2. Exposure therapy addresses the superficial symptoms of an anxiety disorder but does not target their root cause.	0	1	2	3	4
3. Exposure therapy works poorly for complex cases, such as when the client has multiple diagnoses.	0	1	2	3	4
4. Compared to other psychotherapies, exposure	0	1	2	3	4

therapy leads to higher dropout rates.					
5. Conducting exposure therapy sessions outside the office increases the risk of an unethical dual relationship with the client.	0	1	2	3	4
6. Exposure therapy is difficult to tailor to the needs of individual clients.	0	1	2	3	4
7. Compared to other psychotherapies, exposure therapy is associated with a less strong therapeutic relationship.	0	1	2	3	4
8. Asking the client to discuss traumatic memories in exposure therapy may retraumatize the client.	0	1	2	3	4
9. It is unethical for therapists to purposely	0	1	2	3	4

evoked distress in their clients.					
10. Clients are at risk of decompensating (i.e., losing mental and/or behavioral control) during highly anxiety-provoking exposure therapy sessions.	0	1	2	3	4
11. Conducting exposure therapy sessions outside the office endangers the client's confidentiality.	0	1	2	3	4
12. Arousal reduction strategies, such as relaxation or controlled breathing, are often necessary for clients to tolerate the distress exposure therapy evokes.	0	1	2	3	4

	Disagree Strongly	Disagree	Unsure	Agree	Agree Strongly
13. Compared to other psychotherapies, exposure therapy places clients at a greater risk of harm.	0	1	2	3	4
14. Most clients perceive exposure therapy to be unacceptably aversive.	0	1	2	3	4
15. Exposure therapy often causes clients' anxiety symptoms to worsen.	0	1	2	3	4
16. Asking the client to discuss traumatic memories in exposure therapy may vicariously traumatize the therapist.	0	1	2	3	4
17. Clients may experience physical harm caused by their own anxiety (e.g., loss of consciousness) during	0	1	2	3	4

highly anxiety-provoking exposure therapy sessions.					
18. Having clients conduct exposures in their imagination is sufficient; facing feared stimuli in the real world is rarely necessary.	0	1	2	3	4
19. Exposure therapy is inhumane.	0	1	2	3	4
20. Most clients refuse to participate in exposure therapy.	0	1	2	3	4
21. Compared to other psychotherapies, exposure therapy increases the risk that the therapist will be sued for malpractice.	0	1	2	3	4

APPENDIX C: SELF-EFFICACY OF THERAPISTS

A number of situations related to fear hierarchy construction are listed below. Please rate in each of the blanks in the column how confident you are that you can perform these activities in an evidence based manner.

Rate your degree of confidence by recording a number from 0 to 100 using the scale given below

0	10	20	30	40	50	60	70	80	90	100
Cannot					Moderately					High
do at					can do					certainty
all										can do

1. I can explain SUDS to a patient	—
2. I can determine what a person's core fear is from an interview	—
3. I can modify a task in a fear hierarchy as needed	—
4. I can construct a fear hierarchy with a patient	—
5. I can talk about difficult topics with a patient	

APPENDIX D: CONSENT FORM



Training in Fear Hierarchy Construction

Informed Consent

Principal Investigator: Brandon Matsumiya, B.A.

Co-Investigator(s): Deborah Beidel, PhD

Sandra Neer, PhD

Amie Newins, PhD

Faculty Advisor: Clint Bowers, PhD

Investigational Site(s): University of Central Florida, Psychology Department

Introduction: Researchers at the University of Central Florida (UCF) study many topics. To do this we need the help of people who agree to take part in a research study. You are being invited to take part in a research study which will include about 40 people at UCF. You have been asked to take part in this research study because you are a student in the Master's Clinical Psychology Program at University of Central Florida. You must be 18 years of age or older to be included in the research study.

The person doing this research is Brandon Matsumiya B.A. of UCF Psychology Department. Because the researcher is a graduate student, he is being guided by Dr. Bowers, a UCF faculty advisor in the Psychology Department.

What you should know about a research study:

- Someone will explain this research study to you.
- A research study is something you volunteer for.
- Whether or not you take part is up to you.
- You should take part in this study only because you want to.
- You can choose not to take part in the research study.
- You can agree to take part now and later change your mind.
- Whatever you decide it will not be held against you.
- Feel free to ask all the questions you want before you decide.

Purpose of the research study: The purpose of this study is to compare two types of training for fear hierarchy construction, which is a method for systematically organizing a patient's fears from lowest to highest for the purposes of treatment. There exists a "research-to-practice" gap, where best practices are not being circulated to the "real world". The goal of this research is to determine which of the two methods may be superior for dispersing the knowledge we have in universities to practicing clinicians in the field for treatment of Posttraumatic Stress Disorder.

What you will be asked to do in the study: This study can take place anywhere that you have internet access. You will be asked to fill out questionnaires before you take part in the study. Then you will be asked to take part in the online training. This training will go over the the prevailing model in the field about how Posttraumatic Stress Disorder develops. The training will then walk you through the skill of fear hierarchy construction using examples. Lastly, you will be asked to fill out questionnaires after you finish the training to assess how much you have learned. Upon completion, you will receive a \$10 gift card for Amazon. You do not have to answer every question or complete every task. You will not lose any benefits if you skip questions or tasks.

Location: Anywhere with internet access that you feel comfortable taking this training session.

Time required: We expect that you will be in this research study for approximately 2 hours of your time.

Risks: Participants may feel some discomfort reading about traumatic scenarios. Survivors of trauma may become “triggered” by these descriptions and experience great emotional distress.

Benefits: Participating will give you the opportunity to learn about fear hierarchy construction, a useful skill in the treatment of people Posttraumatic Stress Disorder. This skill can generalize to treatment of other mental health disorders like Obsessive Compulsive Disorder and Social Anxiety Disorder.

Compensation or payment:

Participants may expect to spend between 60 and 120 minutes performing experimental tasks, for which they may elect to receive a \$10 Amazon gift card.

Confidentiality: We will limit your personal data collected in this study to people who have a need to review this information. We cannot promise complete secrecy. Organizations that may inspect and copy your information include the IRB and other representatives of UCF.

Study contact for questions about the study or to report a problem: If you have questions, concerns, or complaints, or think the research has hurt you, talk to Brandon Matsumiya, Graduate Student, Clinical Psychology Program, College of Sciences, (407) 823-3910 or Dr. Bowers,

Faculty Supervisor, Department of Sciences at (407) 823-3910 or by email at bmatsu@knights.ucf.edu or clint.bowers@ucf.edu.

IRB contact about your rights in the study or to report a complaint: Research at the University of Central Florida involving human participants is carried out under the oversight of the Institutional Review Board (UCF IRB). This research has been reviewed and approved by the IRB. For information about the rights of people who take part in research, please contact: Institutional Review Board, University of Central Florida, Office of Research & Commercialization, 12201 Research Parkway, Suite 501, Orlando, FL 32826-3246 or by telephone at (407) 823-2901. You may also talk to them for any of the following:

- Your questions, concerns, or complaints are not being answered by the research team.
- You cannot reach the research team.
- You want to talk to someone besides the research team.
- You want to get information or provide input about this research.

If you believe you have been injured during participation in this research project, you may file a claim with UCF Environmental Health & Safety, Risk and Insurance Office, P.O. Box 163500, Orlando, FL 32816-3500 (407) 823-6300. The University of Central Florida is an agency of the State of Florida for purposes of sovereign immunity and the university's and the state's liability for personal injury or property damage is extremely limited under Florida law. Accordingly, the

university's and the state's ability to compensate you for any personal injury or property damage suffered during this research project is very limited.

Withdrawing from the study:

If you decide to leave the research you will not receive any negative penalties. The person in charge of the research study or the sponsor can remove you from the research study without your approval. Possible reasons for removal including if the principal investigator decides the research study is no longer in your best interest. We will tell you about any new information that may affect your health, welfare or choice to stay in the research.

Results of the research:

For any participants interested, the principal investigator can notify them of the results of the study through access to the published manuscript.

Your signature below indicates your permission to take part in this research.

DO NOT SIGN THIS FORM AFTER THE IRB EXPIRATION DATE BELOW

Name of participant

Signature of participant

Date

Signature of person obtaining consent

Date

Printed name of person obtaining consent

APPENDIX E: SCRIPT

T: So last time you were here, we discussed how your life has changed since you were assaulted and the activities that you have been avoiding since that night. Today, what I wanted to do is construct a fear hierarchy to help organize the fears that you are talking about and to just figure out what exactly those situations are. Do you have any questions before we get started?

P: Yeah, what exactly is a fear hierarchy? Like, how do you do that?

T: Yeah, so a fear hierarchy is a systematic way of organizing a person's fears from least to most feared. As you may recall from last time, we use a SUDS scale from 0 – 8. For situations that are a 0, are very, they are not fearful situations, they are situations where you are relaxed, while 8 situations, or situations that are at an 8 are very anxiety provoking, you are about to panic, run away or you are running away depending on the situation. And just to explain a little bit more, these situations can be a variety of different things. Many patients I have worked with in the past have endorsed a fear of crowds, so they have difficulty being in crowded situations, so they are going to avoid going to places like the grocery store or Walmart, where they might encounter these large crowds, unless they go early in the morning or at night. Does that help clarify what a fear hierarchy is?

P: Yeah that's helpful.

T: So next what I want to do is try to anchor the situations that we had just talked about. So for you, what is a situation that would be a 0, and what would be a situation that would be an 8?

P: Ok, a 0 I guess would be just sitting at home eating a bowl of chocolate ice cream.

T: I like that.

P: I guess an 8 would be not being able to check my blinds or lock my door and check to make sure that it is locked.

T: Hmm, I liked your 0 because it is a situation where you are completely relaxed and it is a situation unrelated to things that have changed since the night of your trauma. With your 8 though, do you think you could come up with a situation that is unrelated to your trauma?

P: But that is still stressful?

T: That is still stressful and anxiety provoking.

P: Yeah, I guess there was this time I was swimming at the beach and there was a shark alarm and the people were calling and saying “Oh there is a shark in the water, get out!” And then I started swimming and my heart rate went up really fast and I was terrified for my life, and I couldn’t stop thinking about that until I got to the shore and I was safe.

T: Yeah that does sound like a great example of an 8, because it is anchored in your fear and I am sure you were scared in the past, but even now if you heard that shark alarm and you were in the water you would still be very scared. So, I like how you anchored that, and used an example that was not based on sadness, guilt or anger, which is common in a lot of these situations.

Alright, so now what I would like for us to do is talk about a variety of situations that have changed in your life since your trauma. And how this is going to work is I’m going to lay out these pieces of paper for us just as a visual aid, and then you can organize a variety of situations you have been avoiding from 0-8 on the scale we just talked about. And here are some note cards. And so what are some situations that have changed in your life since your trauma?

P: Well I definitely don't like running, especially at night by myself, that would be like really high on the scale. So, should I write that down?

T: Yeah you can write down running at night alone. And is that something that you want to get back into?

P: Yeah, I would love to be able to do that, that's what I always did before I was assaulted.

T: Ok, and so as you are writing that down, why don't you think of some other variations in the scenario. So, what about running in the morning or during the day, is that easier for you?

P: Yeah, I would say that is more like a 4 or 5 for me.

T: Ok, and then where would you put running at night alone.

P: I think an 8.

T: Ok, yeah it sounds like that makes sense, that's what happened to you so that make would be very anxiety provoking for you. So, running during the day, probably is a 4 or 5, which would you say it is closer to?

P: Probably a 4.

T: Ok, and what about running during the day with a friend or someone else. Have you ever tried that?

P: Yeah, that would be easier than even just running during the day by myself.

T: Where would you put that you think?

P: A 3.

T: Ok

Pause while patient is writing

T: Awesome, and do you think running at night with a friend would help, or would it make it worse?

P: Um, it could be a little easier I think.

T: Do you think it could be at a 7, a 6?

P: Um, probably a 6.

T: Ok

P: Yeah because I would have that other person with me so I would feel safer.

Pause while patient is writing

T: Awesome, and are there any other situations you have avoided since your trauma?

P: I notice that I avoid parking my car next to a bush or something that someone could be hiding behind. Especially when it is dark out. And I get out of my car, and I am like looking around and making sure no one is there. And if there is a bush, I can't really see if there is someone there?

T: Yeah, and so where would you rate that?

P: That would be a 5 or a 6.

T: Ok, and that's at night you had said?

P: Mhmm

T: And what about during the day, does that cause you any problem?

P: No, so should I write those down?

T: Yeah, why don't you write those down, and put them on the hierarch just so we have an idea about various situations.

Pause while patient is writing

P: I would say that parking at night, is probably a 5, yeah, a 5.

T: Ok, and I think you had mentioned it was with bushes?

P: Yeah

T: Or things that obstruct your sight. We just want to be clear with each situation because we will be using these to help us with exposure treatment later on.

P: Ok, hmm, during the day would probably be a 2.

T: Does that still cause you some anxiety then?

P: Yeah, yeah.

T: Ok.

P: Yeah

T: So are there some other situations that either you avoid or that cause you anxiety that has changed since your trauma?

P: I notice that when I go out with friends, especially at night time, I don't like staying out as late as I used to because I get nervous and I am always like looking around and just trying to see if someone is following us or watching us. So that's really hard for me.

T: Yeah that does sound really hard. And does it matter... So it sounds like at night is the concern, so what about during the day, is that a problem at all?

P: No that's fine, and actually it's totally fine if I am out with my friends Greg and Joe because if they are with us, then I feel totally safe.

T: Ok

P: I would say going out with friends at night, is probably a 7 just because I am so on edge and anxious. But if Joe or Greg were with us, it would probably be like a 1.

T: Ok, maybe just put that down just so that we have an idea. But with the going out with friends at night, is there any situation that you have noticed that is easier for you?

P: Umm, yeah when those two friends specifically are with me, with us. And then like, if we are like not in a really crowded place and there is room to sit down and see everything.

T: So like, less crowded areas are probably a little easier than if it is a crowded area.

P: Should I put down a crowded place down?

T: Yeah, and we can make one more for if it's not so crowded.

Pause for patient writing

P: I think that would be, I mean that would probably be really low just because I would be able to see everything.

T: Even at night?

P: Hmm, probably like a 3. But like I was saying, if those specific guys were with us it would not be a problem.

T: Ok we can put that down here then. *indicates 0* Are there any other situations you have avoided or changed?

P: Um, I do notice that I check my lock and make sure that my door's locked more often than I used to. And if I wasn't able to do that I would, probably be at a 6 or a 7.

T: yeah, that does sound pretty hard, being scared like that. So, why don't we put that down as a situation, since it sounds like that is something where if you were unable to do that, then that would change how you felt.

T: Ok, are there any other situations that have changed in your life or that you have avoided.

P: Um, nothing that I can think of.

T: Ok, yeah it looks like we have a nice variety of situations. Um, let's just go over that again, because sometimes when we put situations down they change once we have that context. So, at a 0 we have going out with Greg and Joe, or just having them with the group. We don't have anything for a 1 but that's ok. Parking during the day next to a bush looks like it is at a 2, so it causes you some mild anxiety but you are still able to do it, semi-routinely. There are a lot of bushes here.

P: Yeah that is true.

T: So then, going out with friends at night where it is less crowded *indicates the 3*, so like maybe not such a crowded bar or something like that downtown is ok, but *Indicates 3, then 7* going out with friends in a crowded area, so going out downtown looks like it is a higher *indicates the 7*

P: Yes, especially if my friends aren't with us.

T: And then running during the day is at a 3 as well since that is something you are able to do, or would be able to do. Running during the day alone, seems like a little harder at a 4.

P: Yeah, I still do it, but I'm not comfortable, and I am always thinking about if someone is behind me, but I can do it.

T: Are you always looking around you too?

P: Yeah.

T: Ok, so then at a 5 we have parking at night next to a bush, so it sounds like that's difficult for you, but you are still able to do it.

P: Yeah, now that I think about it, that might be a little bit higher.

T: Where would you put that?

P: Probably a 6, at least because if I do have to park next to a bush at night, I will immediately just run straight to my door and like lock my door as fast as I can.

T: Ok, *indicates 6* and then running at night with a friend that sounds like it would be hard but it is something that you might be able to do. Have you done that before?

P: Um, yeah, I have been able to do it before the assault happened, but not since. Yeah and I think that is a 6.

T: And what about not being able to check your locks.

P: yeah that would be about a 6.

T: Alright, and then we went over what's a 7, and then lastly, what would be an 8. That 8 looks like it is just running at night alone, just like the night of your trauma.

P: I don't think I can ever do that again.

T: But it sounds like you want to, right?

P: I do, because it was such a big part of my life.

T: You know we are not going to address it now, but I think we can eventually work up to it. Just like the rungs of the ladder we will probably start around here *indicates 2 or 3* and start working our way up.

P: Ok

T: Do you have any other questions or any other situations you would want to put on this board.

P: No, that's it.

T: So next time, we will schedule our first appointment and we will be doing exposure therapy.

APPENDIX F: TABLES

Table 1: Sample Characteristics

Characteristics	Completer (N = 25)
Age M(SD)	24.38 (4.22)
Marital Status	
Single	22
Married	2
Gender	
Female	20
Male	4
Non-binary/third gender	1
Ethnicity	
Caucasian	17
African American	2
Asian American	2
Other	2
Multiracial	2
Ethnicity	
Hispanic/Latino	4
Education level	
Some college	2
College Degree	7
Some Master's	12
Master's degree	1
Time since Previous degree (years) M (SD)	2.56 (3.16)
Experience in Psychology related field (years) M (SD)	2.15 (1.93)
Previous Experience with Fear Hierarchy Construction	2
Theoretical Orientation	
Psychodynamic	4
Evidence-based Therapies	9
Eclectic	11

Table 2: Skill, ANOVA (Within Subjects)

Source	SS	df	Mean Square	F-statistic	p	Effect S (η^2)
Skill	6.88	1	6.88	.81	0.38	.039
Error (Skill)	170.62	20	8.53			

Table 3: Skill * Group ANOVA (Within Subjects)

Source	SS	df	Mean Square	F-statistic	p	Effect S (η^2)
Skill	7.17	1	7.17	.81	0.38	.041
Skill*Group	1.46	1	1.46	.16	0.69	.009
Error (Skill)	169.16	19	8.9			

Table 4: Skill * Group ANOVA (Between Subjects)

Source	SS	df	Mean Square	F-statistic	p	Effect S (η^2)
Intercept	6130.67	1	6130.67	274.32	>.001	.935
Group	10.29	1	10.29	.46	0.51	.024
Error	424.62	19	22.35			

Table 5: Skill and Covariates ANOVA (Within Subjects)

Source	SS	df	Mean Square	F-statistic	p	Effect S (η^2)
Skill	5.99	1	5.99	2.06	0.29	.507
Skill * Sex	.01	1	.005	>.01	0.97	.001
Skill * Gender	.71	1	.71	.24	0.67	.109
Skill * Age	1.42	1	1.42	0.49	0.58	0.196
Skill * Race	9.42	1.00	9.42	3.23	0.21	0.618
Skill * Ethnicity	1.40	1.00	1.40	0.48	0.56	0.194
Skill * Marital	17.47	1.00	17.47	5.99	0.13	0.750
Skill * Education	0.05	1.00	0.05	0.02	0.91	0.009
Skill * Orientation	6.02	1.00	6.02	2.07	0.29	0.508
Skill * Degree	0.04	1.00	0.04	0.01	0.92	0.006
Skill * Experience	7.38	1.00	7.38	2.53	0.25	0.559
Skill * Fear Hierarchy	21.11	1.00	21.11	7.24	0.11	0.784
Error (Skill)	5.83	2.00	2.92			

Table 6: Skill * Group ANOVA (Between Subjects)

Source	SS	df	Mean Square	F-statistic	p	Effect S (η^2)
Intercept	2.044	1	2.044	0.251	0.67	0.111
Sex	0.01	1.00	0.01	0.00	0.98	0.001
Gender	0.98	1.00	0.98	0.12	0.76	0.057
Age	0.03	1.00	0.03	0.00	0.96	0.002
Race	0.11	1.00	0.11	0.01	0.92	0.007
Ethnicity	4.86	1.00	4.86	0.60	0.52	0.229
Marital	1.23	1.00	1.23	0.15	0.74	0.070
Education	34.02	1.00	34.02	4.17	0.18	0.676
Orientation	3.14	1.00	3.14	0.38	0.60	0.161
Degree	2.46	1.00	2.46	0.30	0.64	0.131
XP	3.55	1.00	3.55	0.44	0.58	0.179
XP_FH	0.40	1.00	0.40	0.05	0.84	0.024
Group	0.57	1.00	0.57	0.07	0.82	0.034
Error	16.31	2.00	8.16			

Table 7 Self-Efficacy ANOVA (Within Subjects)

Source	SS	df	Mean Square	F-statistic	p	Effect S (η^2)
Self-Efficacy	282270.00	1.00	282270.00	64.59	>0.001	0.822
Error (Self-efficacy)	61180.00	14.00	4370.00			

Table 8: Self-Efficacy * Group ANOVA (Within Subjects)

Source	SS	df	Mean Square	F-statistic	p	Effect S (η^2)
Self-efficacy	281843.81	1.00	281843.81	60.02	>.001	0.822
Self-efficacy*Group	137.14	1.00	137.14	0.03	0.87	0.002
Error (Self-efficacy)	61042.86	13.00	4695.60			

Table 9 Self-Efficacy * Group ANOVA (Between Subjects)

Source	SS	df	Mean Square	F-statistic	p	Effect S (η^2)
Intercept	2152868.81	1.00	2152868.81	154.78	>0.001	0.923
Group	23028.81	1.00	23028.81	1.66	0.22	0.113
Error	180817.86	13.00	13909.07			

Table 10 Self-efficacy and Covariates

ANOVA (within subjects)

Table 10 Self-Efficacy and Covariates ANOVA (Within Subjects)

Source	SS	df	Mean Square	F-statistic	p	Effect S (η^2)
Self-efficacy	282.54	1.00	282.54	0.07	0.80	0.006
Self-efficacy *	609.77	1.00	609.77	0.15	0.70	0.014
Experience						
Self-efficacy *	11094.91	1.00	11094.91	2.75	0.13	0.200
Fear Hierarchy						
Experience						
Self-Efficacy	915.23	1.00	915.23	0.23	0.64	0.020
* Group						
Error (Self-efficacy)	44299.75	11.00	4027.25			

Table 11 Self-Efficacy * Group ANOVA (Between Subjects)

Source	SS	df	Mean Square	F-statistic	p	Effect S (η^2)
Intercept	130216.62	1.00	130216.62	12.08	>0.001	0.523
XP	4833.08	1.00	4833.08	0.45	0.52	0.039
XP_FH	35789.15	1.00	35789.15	3.32	0.10	0.232
Group	4317.85	1.00	4317.85	0.40	0.54	0.035
Error	118576.45	11.00	10779.68			

Table 12 Attitudes ANOVA (Within Subjects)

Source	SS	df	Mean Square	F-statistic	p	Effect S (η^2)
Attitudes	720.09	1.00	720.09	17.20	>0.001	0.439
Error (Attitudes)	920.91	22.00	41.86			

Table 13 Attitudes * Group ANOVA (Within Subjects)

Source	SS	df	Mean Square	F-statistic	p	Effect S (η^2)
Attitudes	711.83	1.00	711.83	16.39	>0.001	0.438
Attitudes*Group	8.79	1.00	8.79	0.20	0.66	0.010
Error (Attitudes)	912.13	21.00	43.43			

Table 14 Attitudes * Group ANOVA (Between Subjects)

Source	SS	df	Mean Square	F-statistic	p	Effect S (η^2)
Intercept	157808.30	1.00	157808.30	1038.24	>0.001	0.980
Group	15.52	1.00	15.52	0.10	0.75	0.005
Error	3191.91	21.00	152.00			

Table 15 Attitudes and Covariates ANOVA (Within Subjects)

Source	SS	df	Mean Square	F-statistic	p	Effect S (η^2)
Attitudes	0.60	4.480 ^b	1.00	3.00	0.12	0.599
Attitudes *	0.78	10.776^b	1.00	3.00	0.05	0.782
Sex						
Attitudes *	0.15	.509 ^b	1.00	3.00	0.53	0.145
Gender						
Attitudes *	0.55	3.688 ^b	1.00	3.00	0.15	0.551
Age						
Attitudes *	0.45	2.442 ^b	1.00	3.00	0.22	0.449
Race						
Attitudes *	0.00	.003 ^b	1.00	3.00	0.96	0.001
Ethnicity						
Attitudes *	0.63	5.179 ^b	1.00	3.00	0.11	0.633
Marital						
Attitudes *	0.00	.002 ^b	1.00	3.00	0.97	0.001
Education						
Attitudes *	0.76	9.308 ^b	1.00	3.00	0.06	0.756
Orientation						
Attitudes *	0.40	2.030 ^b	1.00	3.00	0.25	0.404
Degree						
Attitudes *	0.41	2.107 ^b	1.00	3.00	0.24	0.413
Experience						
Attitudes *	0.48	2.824 ^b	1.00	3.00	0.19	0.485
Fear Hierarchy						
Experience						
Error	0.62	4.976 ^b	1.00	3.00	0.11	0.624
(Attitudes)						

Table 16 Attitudes * Group ANOVA (Between Subjects)

Source	SS	df	Mean Square	F-statistic	p	Effect S (η^2)
Intercept	59.45	1.00	59.45	0.70	0.46	0.189
Sex	78.76	1.00	78.76	0.93	0.41	0.236
Gender	833.13	1.00	833.13	9.82	0.05	0.766
Age	0.03	1.00	0.03	0.00	0.99	0
Race	225.22	1.00	225.22	2.65	0.20	0.469
Ethnicity	254.12	1.00	254.12	3.00	0.18	0.5
Marital	21.42	1.00	21.42	0.25	0.65	0.078
Education	42.84	1.00	42.84	0.51	0.53	0.144
Orientation	200.53	1.00	200.53	2.36	0.22	0.441
Degree	2.92	1.00	2.92	0.03	0.87	0.011
XP	207.87	1.00	207.87	2.45	0.22	0.45
XP_FH	127.86	1.00	127.86	1.51	0.31	0.334
Group	143.19	1.00	143.19	1.69	0.29	0.36
Error	254.56	3.00	84.85			

APPENDIX G: IRB LETTER



University of Central Florida Institutional Review Board
Office of Research & Commercialization
12201 Research Parkway, Suite 501
Orlando, Florida 32826-3246
Telephone: 407-823-2901 or 407-882-2276
www.research.ucf.edu/compliance/irb.html

Approval of Human Research

From: **UCF Institutional Review Board #1**
FWA00000351, IRB00001138

To: **Brandon T Matsumiya**

Date: **September 17, 2018**

Dear Researcher:

On 09/17/2018 the IRB approved the following modifications until 03/11/2019 inclusive:

Type of Review: IRB Addendum and Modification Request Form
Expedited Review
Modification Type: Expansion of recruitment pool
Project Title: Training Therapists in Fear Hierarchy Construction
Investigator: Brandon T Matsumiya
IRB Number: SBE-18-13737
Funding Agency:
Grant Title:
Research ID: N/A

The scientific merit of the research was considered during the IRB review. The Continuing Review Application must be submitted 30 days prior to the expiration date for studies that were previously expedited, and 60 days prior to the expiration date for research that was previously reviewed at a convened meeting. Do not make changes to the study (i.e., protocol, methodology, consent form, personnel, site, etc.) before obtaining IRB approval. A Modification Form cannot be used to extend the approval period of a study. All forms may be completed and submitted online at <https://iris.research.ucf.edu>.

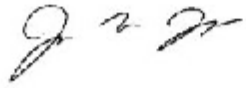
If continuing review approval is not granted before the expiration date of 03/11/2019, approval of this research expires on that date. When you have completed your research, please submit a Study Closure request in iRIS so that IRB records will be accurate.

Use of the approved, stamped consent document(s) is required. The new form supersedes all previous versions, which are now invalid for further use. Only approved investigators (or other approved key study personnel) may solicit consent for research participation. Participants or their representatives must receive a copy of the consent form(s).

All data, including signed consent forms if applicable, must be retained and secured per protocol for a minimum of five years (six if HIPAA applies) past the completion of this research. Any links to the identification of participants should be maintained and secured per protocol. Additional requirements may be imposed by your funding agency, your department, or other entities. Access to data is limited to authorized individuals listed as key study personnel.

In the conduct of this research, you are responsible to follow the requirements of the [Investigator Manual](#).

This letter is signed by:

A handwritten signature in black ink, appearing to read 'J. R. Jacques'.

Signature applied by Racine Jacques on 09/17/2018 10:12:03 AM EDT

Designated Reviewer



University of Central Florida Institutional Review Board
Office of Research & Commercialization
12201 Research Parkway, Suite 501
Orlando, Florida 32826-3246
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The scientific merit of the research was considered during the IRB review. The Continuing Review Application must be submitted 30 days prior to the expiration date for studies that were previously expedited, and 60 days prior to the expiration date for research that was previously reviewed at a convened meeting. Do not make changes to the study (i.e., protocol, methodology, consent form, personnel, site, etc.) before obtaining IRB approval. A Modification Form cannot be used to extend the approval period of a study. All forms may be completed and submitted online at <https://iris.research.ucf.edu>.

If continuing review approval is not granted before the expiration date of 03/11/2019, approval of this research expires on that date. When you have completed your research, please submit a Study Closure request in iRIS so that IRB records will be accurate.

Use of the approved, stamped consent document(s) is required. The new form supersedes all previous versions, which are now invalid for further use. Only approved investigators (or other approved key study personnel) may solicit consent for research participation. Participants or their representatives must receive a copy of the consent form(s).

All data, including signed consent forms if applicable, must be retained and secured per protocol for a minimum of five years (six if HIPAA applies) past the completion of this research. Any links to the identification of participants should be maintained and secured per protocol. Additional requirements may be imposed by your funding agency, your department, or other entities. Access to data is limited to authorized individuals listed as key study personnel.

In the conduct of this research, you are responsible to follow the requirements of the [Investigator Manual](#).

This letter is signed by:

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