Facilitating Self-as-Context: A Treatment Component Study

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ABSTRACT

A crucial step in assessing the scientific basis of a psychotherapeutic intervention is examining the individual components of the treatment to determine if they are additive or important to treatment outcomes. The construct of self-as-context (S-A-C), a central process in the acceptance and commitment therapy (ACT) approach, has not yet been studied in a component analysis. A previous dismantling trial, however, has shown this process has an additive effect as part of an ACT package (Williams, 2006). The current study is a preliminary trial of feasibility and efficacy to determine a) the practicality of assessing S-A-C in isolation in a laboratory setting, and b) the impact of manipulating S-A-C on theoretically related variables, including theorized mechanisms of change in various clinical approaches. 68 participants (55 female, 13 male) were randomly assigned to receive either a brief S-A-C intervention employing a common therapeutic metaphor (the chessboard metaphor), or the control condition, which involved discussing a mildly positive topic with the researcher. Results from the main analyses showed that there was no group-by-time interaction on measures to assess immediate impact on the construct, previously validated therapeutic mediation measures, or symptom measures. Several possible explanations for the failure to identify significant findings are discussed, including limitations of construct measurement. When analyses were repeated using only those participants whose scores were in the mild range or higher for stress, anxiety, or depression, time by condition interactions were significant for stress and approached significance for depression, with participants in the S-A-C group doing better than those in the control group, offering tentative support for the utility of this process among individuals with clinical difficulties. Implications for future studies are reported.

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Dedication

To Alice, who inspires me. I hope you never stop asking, “Why?”

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Chapter 1 – Introduction

Despite the growing emphasis in the field of psychotherapy on evidence-based practice (EBP), the definition of the term is not universal. In fact, there is a great deal of debate about the definition of EBP, and the criteria to achieve this status vary across organizations such as the American Psychological Association (APA) and the U.S. Substance Abuse and Mental Health Administration (SAMHSA) (Lohr, 2011; David & Montgomery, 2011; APA, 2005; SAMHSA, 2013) (see Appendix A). David and Montgomery (2011) note that a common limitation among the varying sets of standards is that they often are solely based on outcomes of treatment packages in controlled trials and fail to consider the strength of a treatment's relationship to principles of basic science. Many advocates of EBP argue that, in addition to treatment efficacy, the relation to a basic theory of behavior change, and evaluation of that basic science, should be a necessary criterion of EBP status (David & Montgomery, 2011; Stuart & Lilienfeld, 2007; Lohr, 2011).

In order to assess the relation of treatment to basic science, one might examine specific mediators of change, the processes by which treatment interventions affect outcome (Kazdin, 2007; Kazdin & Nock, 2003; Murphy, Cooper, Hollon, & Fairborn, 2009). Though this is a crucial step to establishing a complete understanding of evidence-based treatments, an important complement to the analysis of mediators of change in the delivery of a psychotherapy package is the assessment of treatment components individually (Lohr, 2011). Cognitive behavior therapy (CBT) packages do not typically consist of a single element of intervention, but a combination of procedures. Thus these treatments may be evaluated as a whole, as in the case of a typical treatment efficacy trial, or on the basis of specific elements, as in a component analysis or a dismantling trial (Murphy et al., 2009). David & Montgomery propose that component analyses be considered in the assessment of whether or not a treatment's underlying theory of change mechanisms is supported (2011). A component analysis allows for links between the basic and applied science relevant for those developing and those delivering interventions. As Levin, Hildebrandt, Lillis, & Hayes (2012) note, it is becoming increasingly clear that we "need to evaluate the evidence for a treatment's theoretical model, in addition to its efficacy, in

determining evidence-based therapy status" (p. 742). The study of a component of treatment, as with the study of a treatment package, may take place in a variety of forms, and, as with a treatment study, may begin with a preliminary trial to assess feasibility of research design.

1.1 - Acceptance and Commitment Therapy: Theory and Evidence

One therapy for which the empirical support has been growing recently is acceptance and commitment therapy (ACT) (Hayes, Strosahl, & Wilson, 2011). Recent meta-analyses and reviews have found increasing support for its efficacy in its outperformance of placebo controls (Galloway-Williams, Martin, Clum, & Cooper, 2013; Hayes, Luoma, Bond, Masuda, & Lillis, 2006; Powers, Zum Vorde Sive Vording, & Emmelkamp, 2009). Additionally, ACT has largely been found to have outcomes either equivalent to traditional cognitive behavior therapy (tCBT) (which is more heavily based in the cognitive therapy model than ACT) (see Powers et al., 2009), or better than tCBT (see Galloway-Williams et al., 2013 and Hayes et al., 2006). ACT's founders came from strong radical behavioral backgrounds, and ACT emerged in response to what its founders saw as a weakening link between basic scientific principles and treatment interventions in cognitive-based interventions (Hayes et al., 2006). In particular, a basic assumption of cognitive therapy has been that to treat a disorder, one must be familiar with the cognitive model of that disorder and directly target, through questioning and logical reanalysis, modification of these cognitions (Beck, 1993). ACT's founders argue that, the success of tCBT notwithstanding, the evidence for the mechanism via changing cognitive content has been insufficient (Hayes et al., 2006).

ACT is designed to be assessed in a framework of contextual behavioral science (CBS) (Hayes, Levin, Plumb-Vilardaga, Villatte, & Pistorello, 2011). This framework hosts other approaches, such as Relational Frame Theory (RFT) and Functional Analytic Psychotherapy. CBS is not a model of treatment or pathology, but an approach to evaluating science. The emphasis is on functionality, examination of behaviors in context, and developing research programs that are integrated along multiple levels, running the range from basic science to dissemination. Evaluation of moderators of efficacy and mechanisms of behavior change are emphasized within the CBS model in order to test the model's cohesion across levels of analysis (Hayes et al., 2011).

In the ACT model, psychopathology stems from psychological rigidity, and the targeted mechanism of change is psychological flexibility, defined as "being aware of thoughts and feelings that unfold in the present moment …(and)… persisting or changing behavior to pursue central interests and goals" (Kashdan & Rottenberg, 2010, p. 868). Flexibility refers to a flexible relationship between internal events and external behaviors. Several mediational analyses in ACT treatment studies have found that flexibility has indeed been the mechanism of change, and have failed to find support for mediation by process from other models (i.e. change during ACT treatment was not mediated by changes in dysfunctional cognitions, frequency of irrational thoughts, etc.) (Hayes et al., 2013).

Confidence in the mechanisms of change as well as the essential components of treatment within a therapeutic model is cited as an important factor in determining the extent to which an approach should be considered evidence-based (David & Montgomery, 2011). These factors are also fundamental to a clinical science approach to treatment of psychopathology that prioritizes providing the best possible care to treatment-seekers. If a clinician knows the mechanisms of change within a model, then non-response to treatment may be identified earlier (change in the meditational variables should be detectable before change in outcome variables), and clinicians may modify treatment to respond to the course of a particular client's response or failure to respond. Similarly, understanding the essential components of an approach allows clinicians to know when and how much to emphasize certain processes, and to address lack of progress by shifting emphasis onto key elements.

1.2 - Views of Self

In ACT, six core processes foster psychological flexibility: acceptance, cognitive defusion, present moment contact, committed action, values, and self-as-context. In opposition to the idea of a rigid, idealized sense of self that may inhibit flexible responding, self-as-context allows individuals to see that the self is not equal to the thoughts and feelings that one has (the content), but that the self is the context in which internal events occur. Self-as-context is also referred to as self-as-perspective, meaning that the self is the perspective from which thoughts, feelings and experiences are observed. This facilitates awareness and mindfulness, allowing clients to notice thoughts and emotions, without judgment, as they pass through the context of the self (Hayes et al., 2006; Flaxman et al., 2011). Ultimately, this increased flexibility should facilitate an expanded repertoire of behavioral responses.

In the related RFT perspective, and the radical behavioral perspective in which RFT has roots, the term "self" is challenging to scientists in that it is commonly employed to refer to varying, often ill-defined constructs. Yet it remains a construct that is worthy of use and scientific examination, as it is a universal and important part of human experience and is useful in explaining, predicting and modifying behavior (Törneke, 2010; Hayes, 1995). According to Skinner, the self is an "organized system of responses" to the environment (1953, p. 258), i.e. the self and behavior are interchangeable constructs.

Describing the self is a verbal behavior that may be adaptive or maladaptive. In the ACT model, psychopathology may arise when individuals become attached to a self that is defined rigidly; it becomes a "thing." Once we know the 'self' as these words, we strive to be consistent with this definition of self, preventing flexible responding, as it seems logical to behave in accordance with our self-descriptors. If the self becomes equivalent to the conceptualization of the self, then threats to the accuracy of that conceptualization are perceived as threats to the self.

For example, an individual who describes herself or himself as 'professionally competent', and holds tightly to this description of the self, may be reluctant to apply for a promotion for a position in which they would not have gained mastery. Obtaining this promotion would risk the accuracy of the self-descriptor ('professionally competent') and threaten the individual's sense of self, if this sense of self is strongly tied to the self-descriptor. Experiences that threaten the sense of self are subject to experiential avoidance, thus behavior change is prevented (Hayes et al., 2006; Hayes et al., 2012). A person who experiences the self as a perspective may hold more lightly to these verbal descriptions and may have fewer barriers to changing behaviors.

A similar theory emerges from the social psychology literature: self-verification theory (Swann & Brooks, 2012). Swann and Brooks (2012) note research suggesting that people desire to appear consistent with self-views, be they positive or negative, as contradictory information can be threatening to the self. Individuals turn to their self-views as guides for behavioral responding. This goal of validating existing views of self, regardless of the "desirability" of these views, is consistent with RFT's proposition that attachment to the conceptualized sense of self contributes to the inflexible responding that is a core process of psychopathology in the ACT model.

In tCBT emerging from the cognitive model, the self is defined by words, and considered directly modifiable via verbal behaviors, so the goal is to change the individual's conceptualized self in order to promote functioning (Hayes et al., 2012). In ACT, the goal is not to change the conceptualized self, but to weaken the maladaptive attachment to it.

1.3 - Assessing ACT Components

Various metaphors and experiential exercises are used to elicit this process in ACT. One such exercise is the chessboard metaphor, in which clients are instructed to imagine their thoughts and feelings as pieces of a chess game, and to recognize that the 'self' is the chessboard on which the game is being played (Hayes, Strosahl, & Wilson, 2012). This permits clients to distance their identity from internal events, regardless of whether they are "good" or "bad" thoughts or feelings. This also allows a client to see that they can make a decision about how to move the chessboard (take valued action), without having to have the pieces aligned a certain way, illustrating that there is no need to have control over thoughts or feelings in order to change behaviors.

In a recent meta-analysis of component studies, Levin et al. (2012) found medium to large effect sizes on targeted outcomes for interventions targeting values, present-moment contact, acceptance, or defusion in isolation. The authors found no difference in effect sizes between those studies using a convenience sample versus those employing a clinical sample. However, they found that interventions were more effective when they were experiential in nature (leading the participant through an exercise) than when researchers merely presented a rationale (explaining an exercise and its benefits without giving participants a chance to practice). Although studies have been conducted to assess most of the ACT core processes individually, no study has been conducted as yet to assess manipulation of self-as-context in isolation (Levin et al., 2012).

The outcomes in these component studies vary, but many assess the effect of manipulating components on measures of mechanisms that are related to flexibility. Participation in a mindful breathing exercise weakened the association between frequency of repetitive thoughts and negative affective response to these thoughts (Feldman, Greeson & Senville, 2010). Lab-based studies have found that a brief cognitive defusion intervention

decreased the distress and believability of negative self-referential thoughts in both distressed and non-distressed participants (Masuda et al., 2010; Deacon, Fawzy, Lickel, & Wolitzky-Taylor, 2011).

In a 2006 dismantling study, Williams conducted an ACT intervention with a group of Vietnam veterans suffering from posttraumatic stress disorder (PTSD). The participants were assigned in a matched pairs design to receive an intervention with or without the S-A-C process. In this study, the S-A-C chapter of the manual was called "discovering the self," and it was designed to facilitate an understanding of the difference between the content of consciousness and the context in which consciousness occurs. In the context of PTSD treatment, this process is particularly intended to facilitate a sense of self that won't be threatened by experiencing previously avoided unpleasant stimuli. Individuals in the full ACT group had greater pre- to post-treatment decreases in posttraumatic symptomatology than those in the group that did not receive the self-as-context portion of the intervention, suggesting that self-as-context is an important component in conjunction with other treatment elements of ACT.

The lack of a specific component trial limits the ability to assess how the component might be effective in an independent context. An additional advantage of employing a single component study with a control group among a non-treatment-seeking population is that it circumvents ethical issues relevant to withholding treatment known to be effective, and findings suggest that component studies of ACT find similar results in clinical and non-clinical populations (Levin et al., 2012).

1.4 - Feasibility of Studying Self-as-Context

A feasibility study may be "any sort of study that can help investigators prepare for full-scale research leading to intervention" (Bowen et al., 2009, p. 453). The goals of a feasibility study may vary somewhat, but they would generally consist of determining if an area of study or method of assessing a research question merits further investment of resources (participant time, research time, use of laboratory space, etc.). Assessing features regarding the practicality of a study allows for resources to be concentrated into those studies that contain scientific merit or are at least practically able to be carried out. In order to lay the groundwork for assessing the self-as-context process in a laboratory setting, a practical research protocol should be addressed and established. Self-as-context has not been studied in isolation, and there is currently little

data regarding an appropriate research design. This study is designed to assess feasibility as well as initial efficacy, in order to allow us to understand the logistics of studying this construct and provide an estimate of effect sizes for future studies.

Despite the apparent importance of the self-as-context process in ACT, no measure has been developed to assess this construct. The self-as-context process relies on loosening an individual's attachment to literal interpretations of a sense of self, and is closely related to cognitive defusion, which is designed to make language less literal and to foster an awareness that the linguistic representation of the thing does not equal the thing itself. In a previously conducted component study of cognitive defusion, Masuda et al. engaged participants in a cognitive defusion exercise and used distress and believability of negative words was used as the immediate outcome measures (2010). Asking about the distress and believability of negative self-referential words might be the best current proxy measure of self-as-context, given how closely related the S-A-C and cognitive defusion constructs are in both theory and practice.

The proximal goal of manipulating self-as-context would be to develop a more flexible sense of self, which would ultimately be theorized to facilitate behavior change by aiding an individual in feeling less threats to sense of self with behavior changes. In the current study, the theorized model would involve the S-A-C intervention leading to changes in the relationship to a word (as assessed by distress and believability of this word), which might also affect temporary affective states. The change in the relationship to a word might, in the context of a treatment study, affect psychological flexibility over all, which would eventually lead to improvements in behavior and reductions in distress.

1.5 - Pilot Studies

Given the novelty of this area of research, pilot studies were conducted to inform the experimental design.

Pilot study 1. The first pilot study was conducted to assess the overall practicality of the research design; in particular, to estimate the approximate length of the in-lab session, assess the experimental and control conditions qualitatively, and provide a basis for a power analysis.

Pilot study 1 participants. Participants were initially recruited via SONA, the University's online research system for psychology students. However, no participants signed up for the study using SONA (likely due to the very small number of psychology students in courses offering extra credit in the summer term in which this pilot study was conducted). Study

eligibility was then expanded to the campus's summer population of all students, and participants were recruited using announcements pasted in academic and extracurricular buildings and through the graduate student listserv. An incentive of a raffle for a $25 gift card was added.

Twelve participants registered for and participated in the pilot study. Seven participants were assigned to the self-as-context condition, and five to the reflective listening condition. Ten of these were graduate students and two were undergraduates. Six participants were female, and six were male. Additional demographic information was not collected for these participants.

Pilot Study 1 Measures.

Acceptance and Action Questionnaire-II. The Acceptance and Action Questionnaire II (AAQ-II) (Bond et al., 2011*)* is a seven-item self-report measure that assesses the degree of experiential avoidance and cognitive flexibility (see Appendix B). It is commonly used as a process measure in ACT outcomes research and relates to the purported mechanisms of change in ACT (treatment leads to increased flexibility, which then leads to outcome changes). Bond et al. found good support for the AAQ-II's single-factor structure, internal consistency, and discriminant validity (2011). It was also found to correlate highly with measures of depression, anxiety, global symptomatology, and functioning. Higher scores on this measure reflect greater levels of psychological inflexibility.

Cognitive Fusion Questionnaire. The Cognitive Fusion Questionnaire (CFQ) (Gillanders et al., 2013) is a brief self-report instrument that assesses cognitive fusion, which refers to the extent to which cognitions are believed as literally true and may control behavior (see Appendix C). Higher scores reflect greater levels of fusion. The opposing process, cognitive de-fusion, is targeted by ACT, and may be closely related an individual's rating of the believability of thoughts. The CFQ has high reliability and good discriminant validity and has been shown to be sensitive to therapeutic effects (Gillanders et al., 2013).

Depression, Anxiety and Stress Scale. The Depression, Anxiety and Stress Scale (Lovibond & Lovibond, 1996) is a 42-item scale that inquires about an individual's experiences over the past week (see Appendix E). The items correspond to subscales of depression, anxiety, or stress, respectively. The instrument provides cutoff levels for normal, mild, moderate, or severe clinical assessment. The broad nature of the aDASS makes it a preferable instrument with a heterogeneous group of individuals who might endorse a variety of clinical symptoms. This

measure has been used with both clinical and convenience samples, and as an outcome measures with mindfulness-based studies (Feros, 2013; Ronk, 2013; Yadavia, 2012). Higher scores for each subscale reflect higher levels of depression, anxiety, or stress, respectively.

Distress & believability ratings. Likert scale ratings of the believability of, and discomfort associated with, negative self-referential words were assessed, as in Masuda, et al. (2010) (see Appendices F & G, respectively). Participants were asked, "On a scale of 0 to 100, with 0 being not at all believable, and 100 being completely believable, how believability do you find the word "X" to be right now?" and "on a scale of 0 to 100, with 0 being not at all distressing, and 100 being extremely distressing, how distressing do you find the word "X" to be right now?" Participants were shown an accompanying graphic representation of the Likert Scale for each question and asked to make a mark on the form as well as to write a number.

Dysfunctional Attitude Scale, Short Form (Version 1). The Dysfunctional Attitude scale (DAS) (Weissman, 1978) was developed as a process measure in cognitive therapy, specifically to target the mediators of change in cognitive therapy for depression. Two shorter versions were developed for use in repeated measures (Beevers, Strong, Meyer, Pilkonis, & Miller, 2007). The first version, the Dysfunctional Attitude Scale-Short Form 1 (DAS-SF1) is a 9-item version that is highly correlated with the original 40-item instrument and changes similarly to the 40-item version over the course of treatment (see Appendix D). Higher scores indicate greater levels of dysfunction.

Five-Facet Mindfulness Questionnaire. The Five-Facet Mindfulness Questionnaire (FFMQ) (Baer, Smith, Hopkins, Krietemeyer, & Toney, 2006) is a self-report measure that assesses mindfulness as a construct with five facets, including non-reactivity to internal experience, observing, acting with awareness, describing, and non-judging of emotions (see Appendix H). This measure has been used as a pre-treatment as well as outcome measure, and the various facets have been shown to map on differentially to anxiety and depression symptoms (Desrosiers, Klemanski, & Nolen-Hoeksema, 2013; Huijbers et al., 2012; Nedeljkovic, Wirtz, & Ausfeld-Hafter, 2012; Rimes & Wingrove, 2013). Higher scores reflect greater levels of mindfulness in each facet.

Treatment expectancy rating. As in Deacon et al., (2011), participants gave a Likert-scale response to the question "To what extent do you think that the discussion we had will help you cope with your negative thoughts about yourself?" with 0 being "Not at all helpful" and 100 being "Extremely helpful" (see Appendix I).

Pilot study 1 procedures. Upon arrival, participants completed the informed consent. After completing this, they were told that the session would be recorded, and recording began. Participants completed the AAQ-II (7-item version), the CFQ, the DAS-SF1, the DASS-41, and the FFMQ. Participants were then asked to identify a frequent, distressing, and believable negative self-referential thought. They were asked to rate this thought on a scale of 0 to 100 for distress and believability. If either scale was below a 30, participants were encouraged to identify a word or thought that was more distressing or believable. Participants then were given either the reflective listening (control) condition or the self-as-context condition.

In the self-as-context condition, participants were provided a rationale behind the self-as-context process and were guided through an exercise commonly used in ACT to evoke self-as-context (the chessboard metaphor) (see Appendix J). In the control condition, the researcher engaged in non-directive reflective listening with the participant in order to account for therapeutic contact. In this condition, the researcher provided a rationale ("people often find it helpful to discuss their negative thoughts with someone who is trained to listen"), inquired about the participant's negative thoughts (frequency, context) and summarized and reflected the participant's responses to convey empathy and active listening. This was timed to last approximately as long as the self-as-context intervention (10 minutes).

Pilot study 1 results.

Qualitative observations. The entire treatment protocol, from arrival in the laboratory setting to completion of the treatment expectancy rating form, lasted approximately 40 minutes, with a range of approximately 30 to 45 minutes. Participants were all willing to discuss negative self-referential thoughts with the researcher; some were able to identify a single-word summary quickly, while others required help from the researcher distilling their negative self-evaluation into a single word. One participant was asked to identify a second word when he rated his initial word below thirty on both scales. Some participants also required more clarification about what was being asked when they were to rate the current distress and believability of the words.

Participants appeared to understand the self-as-context intervention, and it seemed that the process was able to be evoked effectively in the laboratory setting, without the context of a therapeutic intervention or other ACT processes. Two participants in the self-as-context condition stayed after the termination of the research session because they wished to discuss the concept further. The researcher discussed the study and its hypotheses as well as the theory of ACT and the self-as-context process. They were given additional references for further information.

The reflective listening condition was intended to control for contact with a trained clinician for a period of time discussing the client's problems. There were some challenges associated with the delivery of this control condition. Firstly, there was a great deal of variability in the content and length of this interaction, as it depended greatly on the participant and the word they chose. Some participants were eager to discuss their negative self-referential thoughts and offer additional information about the history and frequency of these thoughts and related feelings. Other participants answered questions simply and without detail. Although cooperative, they did not seem eager to share additional information that was not directly requested.

Additionally, the reflective listening condition had no natural conclusion, and the ending of the conversation varied among participants. For participants who identified these thoughts and feelings as problematic, the researcher inquired about coping techniques and possible alternatives, using questions like "How do you usually cope with these thoughts?" and "What do you think you could do about this situation?" Some participants did not identify a problem in relation to their negative self-referential thoughts and saw no need to "cope" with these thoughts, thus brainstorming solutions would have been awkward and illogical. The researcher instead thanked these participants for discussing these topics before moving on to the next step of the study.

Quantitative observations. Statistical analyses based on the pilot study should be interpreted very cautiously, as they are based on a very small sample size (n=12). Selected results are presented here not as evidence for or against theory, but as informative of the design of the full study.

The correlations among the pre-intervention measures were explored to determine if the instruments offered unique information and which, if any, might be excluded to shorten the protocol of the current full study. The AAQ-II, FFMQ, and CFQ were included as measures related to processes implicated in ACT treatment, and the correlations among these measures were examined. The correlation between AAQ-II score and CFQ score was extremely high (r=.861, p<.001). The correlations between the AAQ-II and the FFMQ subscale scores varied, from a strong negative correlation (r=-.723, p=.008) between the AAQ-II and the FFMQ Non-Reacting subscale, to a very small correlation between the AAQ-II and the FFMQ Describing subscale (r=-.088, p=.786).

The mean change score (pre-test minus post-test) in distress ratings was 24.9 (S.D =27.3), while the mean believability change score was 15.9 (s.d.=16.61). Changes in distress ratings ranged from a decrease of 75 points to an increase of 5 points, while changes in believability ratings ranged from a decrease of 49 points to no change. In a paired samples t-test with both conditions pooled, significant difference in distress (t(11)=3.32, p=.007) and believability (t(1)=3.16, p=.009) were observed in the expected direction (decreased after the manipulation).

When change scores were compared between the two interventions, it was revealed that participants in the self-as-context condition had greater reductions in their distress ratings than those in the reflective listening condition (t(10)=3.562, p=.006), while there was no analogous difference in believability ratings (t(10)=.531, p=.606). Lastly, participants' ratings of treatment expectancy were similar between the two groups (t(10)=.48, p=.64).

When only the seven participants from the self-as-context condition were examined, changes from pre to post-intervention were significant both for believability ratings (t(6)=2.44, p=.05) and distress ratings (t(6)=4.55, p=.004).

Implications from Pilot Study 1. Based on the results of the pilot study, several modifications were suggested for the protocol of the proposed study. To shorten the protocol, CFQ was dropped, as it overlapped quite highly with the AAQ-II in the current study. The researcher added details to the study script in order to clarify the request for the negative self-referential word. In the self-as-context condition, the researcher employed a physical chessboard to help symbolize the metaphor. Given the evidence (based on limited data) that the intervention may have an impact on proximal variables intended to lead to ultimate behavioral change the study protocol was also extended to include a follow-up measure of self-report variables, as

described below. Lastly, given the challenge in administering the reflective listening condition and in ensuring a fairly similar experience for all participants in this condition, it was determined that a second pilot study would need to be conducted.

Pilot study 2. The focus of pilot study 2 was primarily to assess alternative control conditions, as the initially piloted reflective listening condition introduced too much variability among participants. The following alternative conditions were piloted sequentially, with the goal of determining a control condition that would account for passage of time, contact with researcher, and participant expectation of efficacy. Results of Pilot Study 2 were examined qualitatively for appropriateness as a control condition, and no quantitative analyses were performed on these results.

Structured Reflective Listening Condition. Reflective listening techniques were used in a more structured fashion than in Pilot Study 1, with a typed protocol to follow that included specific areas of questioning and prompts for the researcher to reflect, probe, and summarize in each area. When this revised protocol was employed with two participants, results varied widely, as in Pilot Study 1. One participant only minimally engaged with the researcher, and the other participant became visibly distressed during the protocol. In collaboration with the committee chair, it was determined that this condition was a) too variable and b) potentially distressing for participants, and piloting this condition was discontinued.

Progressive Muscle Relaxation Condition. Participants in this condition (n=4) were provided a brief rationale and then led through a progressive muscle relaxation script typically used in therapy. This was timed to last as long as the Self-As-Context intervention (approximately 10 minutes). This is a known short-term effective intervention. It was determined that this intervention might be "too effective" for this type of feasibility trial, in which a true control condition was desired for comparison with the active self-as-context condition.

Alternative Discussion Condition. In this condition, participants (*n*=6) first heard a rationale explaining that one way of coping with negative thoughts is to discuss something positive. The researcher then explained that for most students, their decision to come to Virginia Tech was positive, and then engaged the participant in a semi-structured interview about their coming to Tech, including questions like "Tell me about the day you found out that you were accepted here," and "What is your favorite thing about being a student here?" (see Appendix K).

This condition was well-received by participants and seemed to generate mild positive affect from participants. This was selected as an appropriate control condition to control for effects of time, participant expectation of benefit, and interaction with the researcher.

1.6 - Current Study

The goals of the current study were to a) explore the feasibility of evoking a single treatment component of ACT, self-as-context, outside of a therapeutic context, and b) assess the impact of manipulating this process on immediate variables theorized to be related to proposed mechanisms of change and outcomes of treatment. The current study used a convenience sample in a laboratory setting and compared a self-as-context manipulation to a control manipulation (discussion of an alternative topic). Bowen et al. (2009) note that there may be multiple aims of a feasibility study. In the current study, the aims were to assess *implementation* (whether or not an intervention, namely, the chessboard metaphor, could be implemented as planned) and *practicality* (whether or not an intervention may be assessed with reasonable use of resources). Issues such as recruitment, length and ease of administration, participant willingness to participate, participant time burden, and retention were examined. To assess initial efficacy, the primary outcome examined was the change in participants' relationships to a negative self-referential word, operationalized as self-rated distress and believability ratings associated with the word.

It was hypothesized that a) decreases in the self-reported distress of negative self-referential words would be larger in the S-A-C condition than the control condition, and that b) decreases in the self-reported believability of negative self-referential words would be larger in the S-A-C condition than in the control. Additional variables related to theoretical mechanisms of change (psychological flexibility, mindfulness, Dysfunctional Attitude) as well as treatment-related outcomes (mood, depression, anxiety and stress) were also assessed. Inclusion of these measures was for exploratory purposes, and no hypotheses were offered about changes in variables related to treatment mechanisms and outcomes, though changes over time were measured. Additionally, given sufficient variability within the sample on these associated measures, they were assessed as covariates of change in distress and believability measures. The ultimate goal is that results of this study will inform future studies of self-as-context that may be conducted on a larger scale, as well as offer information about the process of self-as-context that may be useful to scientists and clinicians assessing the scientific basis of ACT.

Chapter 2 - Method

2.1 - Participants

The current study involved a different control condition than Pilot Study 1. The current control condition is similar to the thought distraction condition provided by Masuda et al. (2010) in a component study of cognitive defusion, so this study is used as a basis for the power analysis. Masuda et al. found a large effect size (d=.74) in comparing post-intervention believability scores between the cognitive defusion and thought distraction interventions. Based on this effect size, with 80% power and α=.05, 48 participants (24 in each group) would be required to achieve significance. To account for approximately 20% attrition, a goal of recruitment of 60 participants was set.

Participants were undergraduate students taking psychology courses at a large, Southern, rurally located Research 1 University. A total of 70 participants were run in the study (see Figure 1). Two participants were excluded from the analyses on the basis of unusual conditions during the experiment. One participant was excluded due to apparent cognitive impairments at the time of testing, and a second participant was excluded due to significant language barriers and frequent interruptions in the treatment protocol to consult electronic translation software. The 68 remaining participants were analyzed. Of these, 57 completed follow-up measures one week later.

Of the 68 participants analyzed, 55 participants identified as female (81%), and 13 (19%) as male (although this was framed as an open-ended question, no participants wrote anything other than "male" or "female"). Mean age of the sample was 19.1 years (sd=1.3). 5.9% of participants identified were Latino or Hispanic, 73.5% Not Latino or Hispanic (20.6% missing)[1]. 2.9% of participants identified as American Indian/Alaskan Native only (n=2), 10.3% as Asian or Asian American (n=7), 4.4% as Black/African American (n=3), 58.8% of participants as White/Caucasian (n=40), 2.9% as other (n=1, write-in "Hispanic"), and 2.9% identified as more than one race (n=2) (missing=19.1%).

2.2 - Measures

The AAQ-II (7-item version), DAS-SF1, FFMQ, distress rating, believability rating, and treatment expectancy rating, as described above, were used. However, the CFQ was not

[1] Data regarding age, ethnicity and race are missing for several participants due to a technical error.

administered, given its high correlation with the AAQ-II. Also, a shorter version of the DASS (21-item version, see Appendix L) was used. The DASS-21 has been widely used in a research context (e.g. Roemer, Orsillo, & Salters-Pedneault, 2008) and reduced the burden on participants without a loss of validity or reliability, as research has demonstrated the 21-item version to be as useful as the longer version for research purposes (Antony, 1998).

Three additional measures beyond those used in the pilot were included: a demographics questionnaire (see Appendix M), a researcher belief rating form (see Appendix N), and the Positive and Negative Affect Schedule (PANAS) (see Appendix O). The researcher belief form "To what extent do you think *the researcher* believes that the discussion we had will help you cope with your negative thoughts about yourself?" with anchors of 0 ("Not at all helpful") and 100 ("Extremely helpful"). This was added in order to assess the researcher's credibility and enthusiasm in administering both conditions.

The PANAS was added as an additional assessment of momentary affective states (Watson, Clark, & Tellegen, 1988) (see Appendix O). The PANAS is a measure that allows participants to provide a rating of the extent to which they are experiencing or have experienced a list of 20 emotions. The instructions are flexible, so that the administrator may select the time period participants are to consider in responding. The current study employed the momentary version of the assessment, which instructs participants to rate how much they are feeling each emotion "right now (that is, at the present moment)." The PANAS yields two subscale scores: a positive affect subscale, for which higher scores are desirable, and a negative affect subscale, for which lower scores are desirable.

2.3 - Procedures

Participants were recruited using SONA, the university's online research management system, as well as via in-class announcements and fliers posted in the psychology department building. The language used in announcements and flyers was standardized and was IRB approved (see Appendices P and Q) Participants registered for the study online. Participants registered for the study using SONA. Procedures followed the same sequence for every participant:

Stage 1. Upon arrival, participants completed the informed consent (see Appendix R) and video-recording of sessions began. Participants then completed self-report instruments related to treatment process and outcomes (AAQ-II, DAS-SF1, DASS-21, FFMQ).

Stage 2. Participants were offered a brief rationale of the impact of thoughts about the self on functioning, cognitions, and emotions, and were then asked to identify a negative self-referential word that occurs to them repeatedly and regularly. If participants identified a phrase, the researcher attempted to help them condense this to a single word.

Stage 3. Participants completed distress and believability forms for the identified word, then completed the PANAS.

Stage 4. Participants were administered the self-as-context intervention or alternative discussion (control) intervention, as determined by random assignment prior to the session. The S-A-C condition was very similar to that delivered in the pilot study, except that the researcher employed an actual chessboard to assist in illustrating the metaphor. Participants in the control condition participated in the alternative discussion condition, as described above.

Stage 5. Participants again completed distress and believability rating forms for their negative self-referential word, then completed the PANAS again.

Stage 6. The researcher gave participants the treatment expectancy form and therapist belief form and instructed them to complete each after she had left the room. A research assistant then collected these final forms and reminded participants that they would be receive an email in one week with a link to the follow-up survey measures.

Stage 7. One week following the initial session, participants were emailed a link to an online version of the follow-up surveys, which included the DASS-21, FFMQ, AAQ-II and DAS-SF1. Participants were instructed to complete this link within a day of receiving the email. Responses were included if participants completed the survey by the end of the following day (within 8 days of initial participation).

Chapter 3 - Results

3.1 - Feasibility

Recruitment was easy, and participants filled the majority of available slots in the first few weeks of data collection. Participants were willing to complete baseline measure forms, and no participant declined to share with the researcher the negative self-referential word, although some identified a word more readily than others. A few participants indicated that the word they identified was only minimally distressing, believable, or both. Participants engaged with apparent willingness in both conditions, and some indicated with extraneous comments that they found the S-A-C intervention interesting and novel. Total participation time for the in-person session ranged from 25 to 40 minutes. The mean time to administer the manipulation was 8 minutes and was the same in both conditions. Of the 68 analyzed participants who attended the in-person session, 56 (82%) completed follow-up measures.

3.2 - Baseline Equivalence

In order to ensure successful randomization of participants, t-tests were performed to assess for significant differences on all measure at baseline. Participants in both groups were equivalent on all but one measure, the Act with Awareness subscale of the FFMQ. This subscale refers to the extent to which an individual attends to current activities, and it is negatively correlated with absentmindedness and dissociative symptoms (Baer et al., 2008). Participants randomized to the S-A-C condition had higher baseline scores, indicating greater levels of initial mindfulness.

3.3 - Hypothesis Testing with Pre to Post ANOVAs

The primary hypotheses were that participants in the self-as-context condition would see greater drops in the a) distress and b) believability of a negative self-referential word than participant in the control condition. These were tested via two-way (time x condition) ANOVAs (see Table 1). For the test of distress ratings, there was a significant main effect for time, $F(1,66)=84.7$, $p<.001$, but there was no time by condition interaction, $F(1,66)=0.8$, $p=.379$). Similarly, for the test of believability ratings, there was a significant main effect for time, $F(1, 66)=55.53$, $p<.001$, but no time x condition interaction, $F(1,66)=.000$, $p=.993$. Neither of these hypotheses was supported.

The PANAS was administered immediately pre and post manipulation, and the positive and negative affect subscale scores were tested via group x time ANOVAs. On the PANAS negative subscale, there was a significant main effect for time F (1,66) =48.779, p<.001, but no time by condition interaction, F (1,66) =.080, p=.779. Similarly, for the PANAS positive subscale, there was a significant main effect for time F (1,66) =65.26 , p<.001, but no time by condition interaction, F (1,66) = 1.38, p=.244.

3.4 - Pre to Follow-Up ANOVAs

The AAQ-II, DAS-SF1, DASS-21, and FFMQ were administered in person at baseline and electronically at one week follow-up. Each of these measures was assessed via a time x condition ANOVA (see Table 2). Listwise deletion was used for the analyses of follow-up measures, meaning that only participants who completed the follow-up were included. The time by condition interaction was not significant for any measures. There was a main effect for time for all three DASS subscales, as well as for the Describing and Nonjudging of Emotions subscales of the FFMQ. For the DASS subscales, participants reported significantly higher levels of symptoms one week later. Participants had higher scores at follow-up in the Nonjudging of Emotions subscales, indicating greater ability to engage with emotional states without evaluating them, although they had lower scores in Describing, which is the ability to verbalize internal experiences. The main effect for time approached significance (p=.087) for the AAQ-II, with scores trending towards greater levels of flexibility overall.

In order to determine if baseline scores on symptom or treatment mechanism factors affected responses to the interventions, the two-way (time by condition) ANOVAs for the immediate post measures (distress, believability, PANAS positive and PANAS negative) were repeated as ANCOVAs, with covariates that included participants' initial standing on the AAQ-II, DAS-SF1, and all subscales of the FFMQ and the DASS. Controlling for these covariates did not change the results of significance from those found with the ANOVAs, as there were still no significant time by condition interactions.

3.5 - Analysis of Follow-up Status

Participants who completed follow-up measures were compared to those who did not on all baseline measures, as well as on change scores (post minus pre) for those instruments administered immediately post-manipulation. Participants who completed follow-up measures did not differ from those who failed to complete them on any measures except for the FFMQ Act

with Awareness subscale ($t(66)=-2.08$, $p=.041$). Scores were higher, indicating greater levels of mindfulness, for participants who completed follow-up measures ($m=27.5$, $sd=4.4$) than for those who failed to complete then ($m=24.4$, $sd=5.5$).

3.6 - Credibility and Perceptions of Allegiance

T-tests comparing participants' ratings of their expectations of helpfulness of the interventions, as well as their perceptions of the researcher's belief in the interventions helpfulness, were conducted. The ratings of participants' expectation of helpfulness did not differ between groups ($t(66)=-.265$, $p=.792$), nor did participants' perceptions of the researcher's expectation of helpfulness ($t(66)=-.013$, $p=.990$).

3.7 - Exploratory Analyses

Accounting for the effects of initial score. In order to determine if pre to post changes in measures depended on initial scores, the correlations between pre-intervention time points measures and change scores were calculated and assessed for significance (after reviewing scatterplots to ensure that there was no evidence for curvilinear relationships). Significant correlations were found between initial score and change score for distress ratings, believability ratings, PANAS negative subscale, all three DASS-21subscales, the FFMQ non-react subscale, and the AAQ-II (see table 3). Given the finding of these significant correlations for some variables, it was of interest to re-assess the affect of condition on change scores after controlling for initial standing on the variable. ANCOVAs were conducted with initial score on the measure as covariate, and with change scores as the outcome.

Before running each ANOVA, the assumption of homogeneity of regression slopes was tested in order to assure that the relationship between the covariate and outcome score was the same for each group. This assumption was rejected for the believability ratings, DASS-Stress, DASS-Anxiety, and DASS-Depression, so ANCOVAs for these measures were not conducted

The assumption of homogeneity of slopes was met for distress ratings, AAQ-II, PANAS Negative, and FFMQ Non-reaction subscale; however, the subsequent ANCOVAs revealed that the time by condition interactions for each variable were not significant.

Clinical subsample. In order to determine the effects of the self-as-context component in a sample that might more closely resemble individuals who would be seeking psychotherapy, the group X time ANOVAs described above were repeated with just those participants who were

in the clinical range (mild or higher) for any of the DASS-21subscales. 30 participants fell within the clinical range for at least one subscale. Of these participant, 22 completed follow-up measures.

The time x condition interaction was of particular interest in these analyses. This interaction was not significant for distress ratings, believability ratings, PANAS Positive, PANAS Negative, AAQ-II, DASS-Anxiety or any of the FFMQ Subscales. However, the time x Condition interaction was significant for the DASS_Stress subscale, with better scores for participants in the S-A-C condition than the control condition, $F(1,20) = 9.62$, $p = .006$ (see Figure 2). The test of the time x condition interaction for the DASS_Depression subscale trended towards significance $F(1, 20) = 4.33$ $p = .051$ (see Figure 3), again favoring participants who received the S-A-C intervention. The time x condition interaction also trended towards significance for the DAS-SF1, $F(1,20) = 3.55$, $p = .07$ (see Figure 4).

Chapter 4 - Discussion

The purposes of this study were a) to assess the feasibility of the current study as an attempt to evoke self-as-context, and b) to assess the impact of this evocation on constructs theorized to be mechanisms of change in treatment.

4.1 - Protocol Feasibility

Current findings suggest that the protocol employed is logistically feasible. Recruitment was easy, and the time burden on participants was minimal (approximately 40 minutes total in--person, and about 10 minutes for online surveys). No participants declined to participate in any portion of the initial session or left the session before completing the protocol. Variations in time to complete protocols appeared largely due to varying times to complete self-administered survey instruments, perhaps because of reading and processing speed differences.

It is difficult to determine if the self-as-context construct was evoked via the experimental manipulation. There is no measure specifically for self-as-context, and so the only way to evaluate this was less directly, by assessing the relationship with negative self-referential words via a method designed to evaluate cognitive fusion. The S-A-C intervention did not differ from the control condition on changes in measures of distress and believability, which, as measures of cognitive defusion, were selected as the proxy measures of S-A-C. It cannot be stated that this construct was evoked; this limitation is discussed further below.

4.2 - Analyses Specified a Priori.

The stated hypotheses, that the S-A-C intervention would result in greater reductions in distress and believability of a negative self-referential word, were not supported. This was despite exceeding the proposed needed minimum n-size of 48 participants from the power analyses based on a previous study. However, this power analysis was based on a component analysis of cognitive defusion, for which there are more specific proximal measures of change available. The current study may have been underpowered for the specific protocol. However, there are several other possible explanations for the failure to find differential changes in distress, believability, and affect between the experimental group and the control group.

One possibility may be that the intervention did not evoke the self-as-context process. The chessboard metaphor is designed for use in a therapy context; perhaps outside of this context, the ability of this intervention to evoke this process falls flat. It may also be that the self-as-context intervention may not be effectively evoked in isolation, without inclusion of other

ACT processes. Perhaps the S-A-C condition was effective, but the control condition was equally as effective, or effects in both conditions were overshadowed due to demand characteristics of the session environment. Participants indicated they expected similar levels of efficacy for both interventions and perceived similar enthusiasm for the respective intervention on the part of the researcher.

A variety of difficulties with construct measurement may have led to the current results. The first and most basic concern may have been a floor effect. More participants in the current study, as compared to the pilot studies, indicated very low levels of distress and believability. If these levels were so low that participants in both groups had "nowhere to go" after the intervention, that might artificially decrease the variance of the outcome measures. However, there was a main effect for time, in that all participants decreased overall from pre to post in their ratings of distress and believability, making this an unlikely explanation.

The distress and believability ratings are measures designed to assess the cognitive defusion process that were used as a proxy for self-as-context measures. A better question than distress and believability measures may have been framed in terms of definitions of self (e.g. "To what extent does this word define you?" or "How much does it matter that you think this about yourself?"). These immediate measures might assess S-A-C more closely.

Both groups were equivalent at baseline as assessed by all measures except for one subscale, the Act with Awareness subscale of the FFMQ. Participants randomized to the self-as-context condition scored higher on this measure at baseline than participants in the control condition. Even though all measures were assessed as repeated measures, this baseline difference could have affected outcome scores if being more aware in daily activities could lead participants to respond differently to the two interventions.

There was no effect of condition on the measures administered at follow-up for participants as a whole. As this was a very brief and limited intervention, the S-A-C manipulation was not predicted to have an effect on the process measures implicated in ACT (AAQ-II) or cognitive therapy (DAS-SF1), nor was it expected to have a meaningful effect on trait mindfulness or measures of symptomatology as assessed by the DASS. Interestingly, there was a main effect for time, with participants overall worsening over time on all three subscales of the DASS. This may be due to increased willingness to disclose difficulties and symptoms in an online survey rather than in a paper format, despite assurances of confidentiality. These

increases in symptoms were similar in both conditions, and it is notable that, with conditions combined, participants all improved on the in-session post measures (distress, believability, positive affect, and negative affect); this supports the case that these results were due to the difference in mode of assessment, perhaps related to perceptions of privacy and anonymity. Previous reviews have found that participants may be more willing to disclose sensitive information, such as symptoms, in an online survey format (Bowling, 2005).

4.3 - Exploratory Analyses

When the ANCOVAs assessing the effect of group on change over time were repeated with the subsample of participants whose scores were "mild" or higher (where higher indicates greater symptomatology) on the DASS. When analyzing this 'clinical sample,' time by condition interactions were significant for self-reported stress symptoms and trended towards significance for self-reported depression and for Dysfunctional Attitude. These findings circumvent the proposed model of change. The expectation would be that the S-A-C intervention might lead to a more flexible relationship with the negative self-referential word, assessed by distress and believability ratings, and that these changes might, over time and with generalization, contribute to greater psychological flexibility overall, as assessed by the AAQ-II, and then, in the course of therapy, changes in the flexibility might lead to changes in behavior and symptoms. Instead we found that, for those participants who most closely resemble the kind who might be seeking treatment, there were no significant group x time effects in the realm of the most immediate, proximal mechanisms (distress, believability), or the proposed treatment mechanism of the model (flexibility). Yet we found group difference in the realms of symptoms, and associated changes in the mechanism from *cognitive therapy* (Dysfunctional Attitude). (Analyses that did not exceed the p=.05 cutoff but were below p=.10 are discussed here as meaningful. These results provide important information for the future program of research in this area. The current study was not designed, in terms of power, to assess symptom changes).

These findings may again be attributed to measurement issues, and specifically the lack of appropriate measures of the self-as-context. Given the findings with the clinical sample discussed it does seem that some meaningful process was evoked in the S-A-C condition. It may be that the model was accurate, but that the measures used to assess the model were insufficient to capture the theorized constructs. The fact that participants in the S-A-C group fared better than participants in the alternative condition on measures of stress, and that the groups tended

towards difference in depression and Dysfunctional Attitude, suggests that these results merit further examination. Was the mechanism of change from the self-as-context intervention actually a change in the *content* of cognitions, as might be assessed via the DAS? The design of the study did not allow for specific meditational analyses, as the mechanism and symptom measures were assessed simultaneously.

Measurement issues continue to appear in the interpretation of these results. The AAQ-II has consistently been used in treatment studies of ACT as a measure of mechanisms of change, and the failure to see change on this measure that could account for changes in symptoms is surprising. However, it is possible that the AAQ-II is too general for such a specific intervention. The items of the AAQ-II ask for an individual's level of agreement with broad statements about how they relate to their inner experiences (e.g. "My painful experiences make it difficult for me to live a life that I value."). These items would likely adequately assess change in a broad-based acceptance intervention, but none of the questions refers to an individual's view of self. It is plausible that the S-A-C intervention may have generated flexibility around an individual's sense of self that was sufficient to change symptoms, but did not affect scores on the AAQ-II, which is more closely related to the acceptance process, or even distress and believability, which are more closely related to cognitive defusion. Previous research has found that a specific form of the AAQ may capture change mechanisms better than the general measure (e.g. Martin, Galloway-Williams, & Winett, 2014).

The fact that between-group differences were detectable within the clinical subsample, but not within the full sample, is not consistent with the findings of the Levin et al (2012). In the component meta-analysis, it was found that the type of sample used (at-risk/clinical vs. convenience) was *not* a moderator of effect sizes in component studies. However, certain components studies, as well as treatment studies, have found that initial levels of distress or dysfunction were moderators of treatment outcomes, with ACT (or components thereof) being more likely to be effective with distressed participants, and, in some cases, less effective than controls for non-distressed participants (Forman, Herbert, Moitra, Yeomans, & Geller, 2007; Forman, Hoffman, et al., 2007; Masuda et al. 2007). It is reasonable to consider that, for individuals who are *without* symptoms, an intervention targeting that person's sense of self may

not be beneficial if the individual does not already struggle with their sense of self. Self-as-context may be an arena where little would be gained from exposing a high-functioning person to this process.

However, findings from a recent study by Foody et al. (2013) add a layer of complexity to this interpretation. The researchers intentionally screened out participants reporting even mild levels of distress before conducting their study. The researchers assessed discomfort, anxiety and stress related to a negative sentence participants generated about themselves, and then performed an intervention that either targeted their sense of self from a *distinction* framework (yourself is *different from* your thoughts and feelings) or a hierarchical framework (your self is *greater than* your thoughts and feelings), then re-measured discomfort, anxiety and stress. The rationale and metaphor used in the current study are more similar to the distinction framework, and the authors found results that were somewhat consistent by separating participants who were high versus low on their initial ratings of the sentence and comparing across conditions. They found that high and low participants both improved with the hierarchical intervention, as did high-scoring participants in the distinction intervention. However, participants who scored low and were then given the distinction intervention became *more* distressed. This indicates that the *manner* in which S-A-C is targeted should perhaps be tailored for the client's type and level of difficulty. It is hoped that more research in this realm may elucidate the recommendations that can be offered to clinicians.

A stated goal in CBS is to assess the *limits* of an approach such as ACT (Hayes et al., 2013). If we assume that failure to find a difference in symptoms change over time between the S-A-C and control conditions is not due to a floor effect or problems with construct measurement, but is a result of a failure of the model, then this, too, is meaningful information. This may suggest an area where ACT theory does not apply, and establishing the boundaries of this theory is important. Manipulating self-as-context may not be helpful for participants who are not already dealing with difficulties. If fusion to a sense of self is not dysfunctional, as may be evidenced by a lack of symptoms, then it may be counter productive to try to change a sense of self. It is possible, even that people without symptoms are indeed fused to their thoughts of self, and that this is *functional* for them. Taking a step back from ACT philosophy, in a larger CBS framework, what is true is what works, and if fusion is not a source of avoidance that has costs for individuals in terms of valued behavior, then it stands to reason that we should not

attempt to modify this fusion. In the light of Foody et al's findings, though, it may be that the answer is more nuanced, and the manner in which self-as-context is targeted should vary depending on the characteristics of the sample or individuals.

4.4 - Clinical Implications

An important goal of assessing self-as-context is determining if it is a component that is integral to the delivery of ACT. The current study offers some evidence that there is a potential role for the Self-as-Context among individuals with clinical levels of distress, anxiety or depression, and that this should be explored further. Even a brief intervention of self-as-context may have an effect on symptoms. Further research is needed to understand under which conditions of initial level of distress or dysfunction a self-as-context intervention might be helpful, along with how and why an effect might be found.

Additionally, the findings of a time by condition interaction for the clinical participants, but not for the non-clinical participants, are consistent with earlier findings that ACT may be effective only for participants who are distressed. ACT targets psychological flexibility, and participants who are not rigidly entangled with their internal experiences may not benefit from attempts to increase flexibility. This process may be more important for individuals with greater levels of distress, and less important when ACT is targeting non-clinical issues, such as performance enhancement.

Given that symptom change occurred in the absence of changes in the theorized mechanism of flexibility, as measured by the AAQ-II, clinicians attending to meditational measures should include several possible mechanism measures, with preference given to symptom or disorder-specific measures of psychological flexibility.

4.5 - Limitations

A major limitation of the current study is the lack of a validated, or even piloted, measure of self-as-context. Use of proxy measures that may or may not validly assess this construct has led to ambiguous results; failure to find hypothesized effects may be because self-as-context was not evoked, or because evoking self-as-context had no meaningful impact on participants, or because the impacts of this evocation were not adequately captured by the measures used in the current study. Proximal measures to assess S-A-C should be developed in the absence of a formal S-A-C measure.

Another major limitation is that the current study was designed to assess changes in distress and believability. Changes in symptoms and treatment mechanisms were not expected, and so the current study was underpowered to assess adequately the promising results found from the clinical sample in terms of stress, depression, and Dysfunctional Attitude. Future studies should target a clinical sample and take the observed effect sizes from the current study into account.

Lastly, multiple analyses were conducted, and many of these analyses (such as those using the clinical subsample) were not specified a priori. Some researchers call for statistical corrections to be employed in order to adjust the experimentwise alpha to .05 (Pedhazur & Schmelkin, 1991). However, these adjustments, such as Bonferroni corrections, have multiple drawbacks, including significant decreases in power to detect effects (Perneger, 1998). As the current study is intended as the first in a series to assess S-A-C, it was considered a priority to glean as much information as possible, in order to determine which avenues should be explored in future studies. The above results are presented cautiously, with hopes that they inform a future path of research that may be fruitful for theorists and clinicians.

4.6 - Future Directions

Several paths lay open to improving our understanding of S-A-C and its potential contribution to therapies. For a study that would have the same aims as the current one, it would be wise to recruit a sample of participants who all meet at least the "mild" criteria for one of the DASS categories. This may allow for a treatment component study with a sample more similar to the intended ultimate beneficiaries of this line of research—treatment-seekers. Additionally, use of a clinical sample may avoid running into a floor effect with DASS subscales or other measures correlated with symptomatology.

Additionally, protocol changes might improve the assessment of this construct. Asking participants to write a sentence representing their negative self-referential thought ("I am _____"), and then assess the distress, believability, and importance of this thought might approximate the self-as-context construct better. To minimize potential demand characteristics, participants might be encouraged to write their ratings on a form covertly, rather than verbally, and without the researcher watching.

Other ways of evoking S-A-C have been demonstrated since the proposal of the current study. Further research and development of ACT theories is increasing the flexibility of the views of self, beyond that which is represented by the self-as-context term. These developments are bringing the techniques applied closer to the RFT underpinnings of an understanding of self that will facilitate behavior change

Since change in symptoms for the clinical participants occurred in the absence of change in the specified mechanism measures, further research to identify other mediators, or other ways to assess these mediators, is recommended. It is also recommended that, once a suitable protocol for assessing self-as-context is established, additional measures of functioning be added. This may be a study of distress tolerance, for example. The ultimate goal of ACT is to increase flexibility, and behavioral measures that allow researchers to assess the extent to which content impairs functioning would be most clinically relevant.

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Figure 1. Consort Diagram

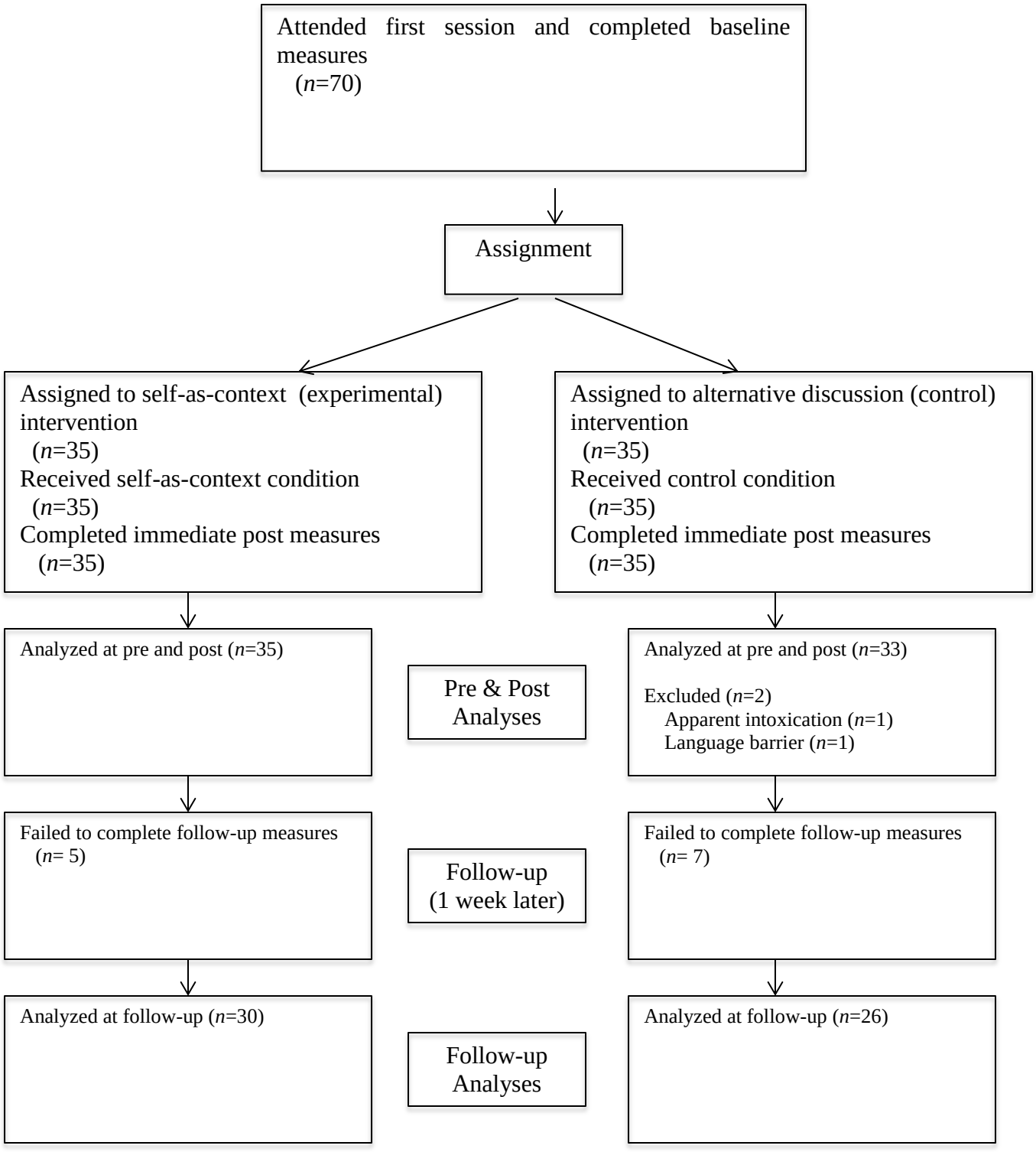


Figure 2. DASS-21 Stress Subscale Time by Condition Graph for Clinical Subsample

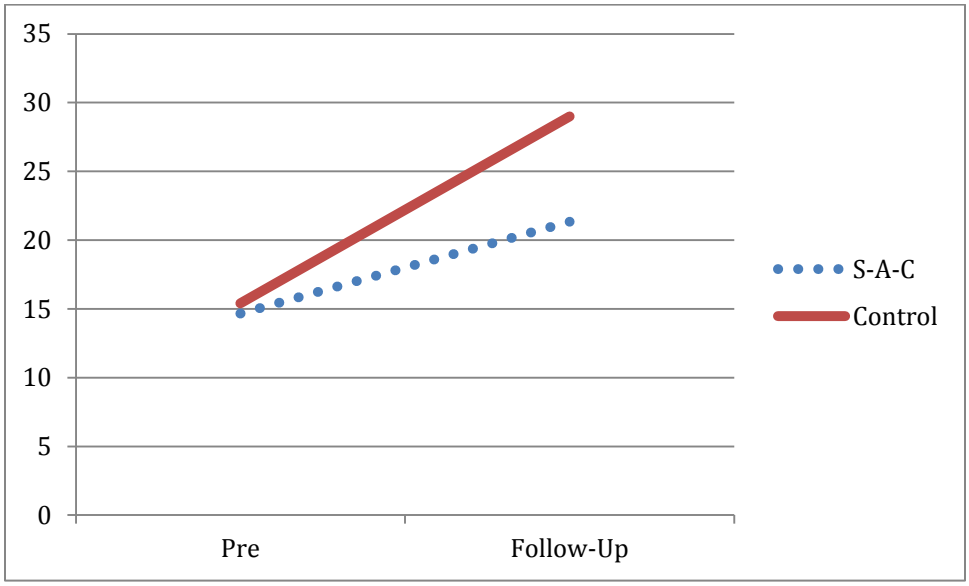


Figure 3. DASS-21 Depression Subscale Time by Condition Graph for Clinical Subsample

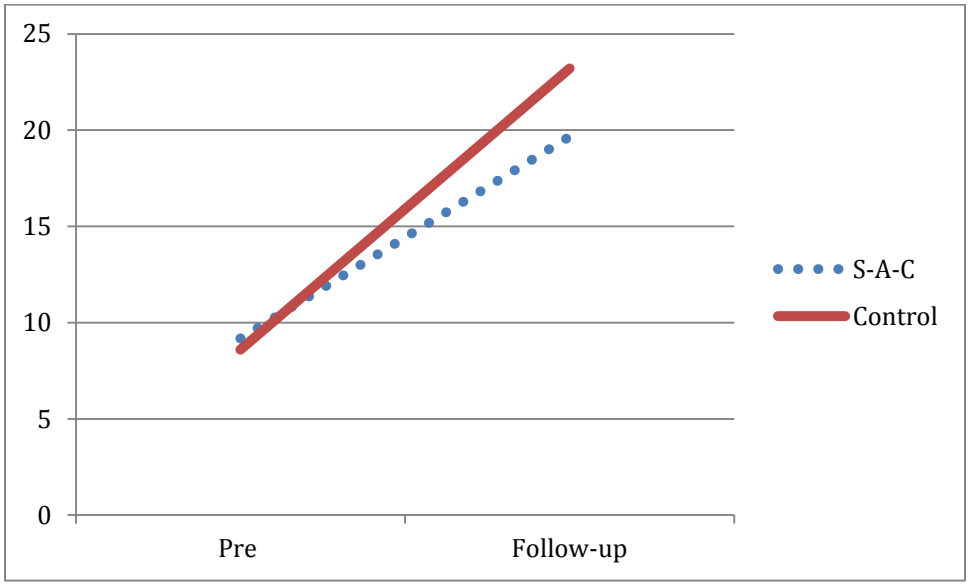


Figure 4. Dysfunctional Attitudes Scale Time by Condition Graph for Clinical Subsample

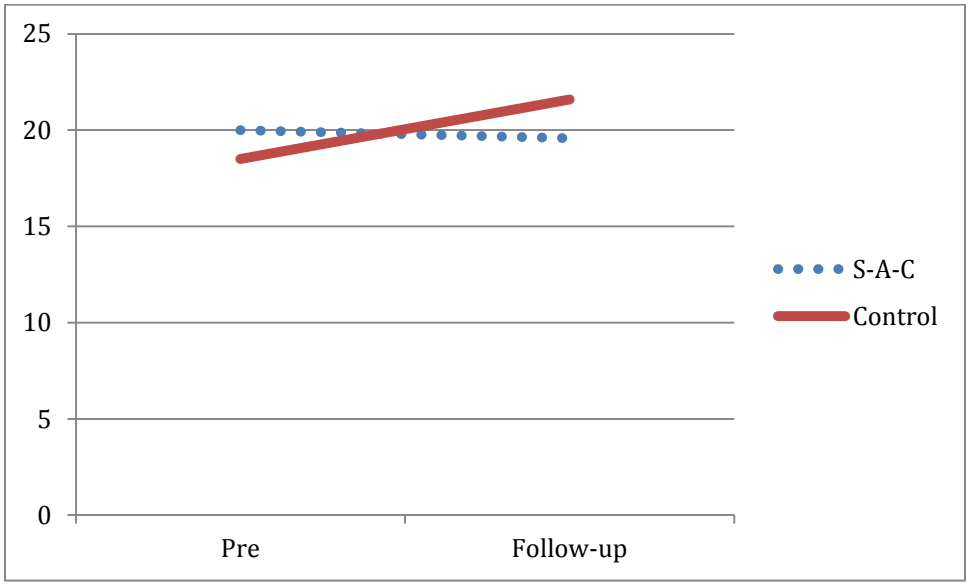


Table 1

Participant Demographics

Age	19. 1 years (*SD*=1.3)
Gender	*n*
Female	55
Male	13
Hispanic/Latino Status	*n*
Hispanic or Latino	4
Not Hispanic or Latino	50
Missing	*4*
Ethnicity	*n*
American Indian/Alaskan Native	2
Asian	7
Black or African-American	3
Caucasian	40
(Selected more than one of the above)	2
Other ("Hispanic")	1
Missing	*13*

Table 2

Pre- to Post-Manipulation ANOVAs for Full Sample

Measure and Time Point	Self-as-Context (*n*=35)	Control (*n*=33)	Main Effect of Time	Time x Condition Interaction
Distress Rating			*F*=84.69	*F*=.783
Pre-Intervention	56.2 (22.2)	58.8 (24.1)	*P*<.001	*p*=.379
Post-Intervention	40.2 (19.5)	39.5 (26.5)	η^2=.562	η^2=.012
Believability Rating			*F*=55.53	*F*=.000
Pre-Intervention	55.3 (27.2)	59.0 (27.7)	*p*<.001	*p*=.993
Post-Intervention	39.4 (24.0)	43.1 (30.7)	η^2=.457	η^2=.000
PANAS Positive			*F*=65.625	*F*=1.383
Pre-Intervention	28.4 (7.4)	26.7 (7.8)	*P*<.001	*p*=244
Post-Intervention	32.2 (7.4)	31.8 (8.5)	η^2=.499	η^2=.021
PANAS Negative			*F*=48.779	*F*=.080
Pre-Intervention	14.8 (5.2)	14.7 (5.1)	*P*<.001	*p*=.779
Post-Intervention	12.2 (3.8)	11.9 (2.3)	η^2=.425	η^2=.001

Table 3

Pre- to Follow-up ANOVAs for Full Sample

Measure and Time Point	Self-as-Context (*n*=30)	Control (*n*=26)	Main Effect of Time	Time x Condition Interaction
AAQ-II			*F*=3.033	*F*=.817
Pre-Intervention	16.4 (4.8)	16.7 (7.6)	*p*=.087	*p*=.370
Follow-Up	14.7 (4.9)	16.2 (7.0)	η^2=.053	η^2=.015
DAS-SF1			*F*=.748	*F*=.465
Pre-Intervention	17.8 (3.6)	18.3 (3.4)	*p*=.391	*p*=.498
Follow-up	17.9 (4.0)	19.2 (5.9)	η^2=.014	η^2=.009
DASS-Stress			*F*=224.410	*F*=1.76
Pre-Intervention	10.6 (6.2)	10.4 (6.2)	*P*<.001	*p*=.190
Follow-up	22.0 (5.8)	24.0 (7.4)	η^2=.806	η^2=.032
DASS-Anxiety			*F*=375.076	*F*=.738
Pre-Intervention	4.5(4.3)	4.8 (4.8)	*p*<.001	*p*=.394
Follow-up	18.3 (5.8)	19.9 (5.5)	η^2=.874	η^2=.013
DASS-Depression			*F*=554.162	*F*=1.118
Pre-Intervention	5.6 (5.4)	5.8 (5.7)	*p*<.001	*p*=.295
Follow-up	18.5 (4.3)	19.9 (6.7)	η^2=.911	η^2=.020
FFMQ-Observe			*F*=.171	*F*<.001
Pre-Intervention	24.6 (5.2)	27.1 (5.4)	*p*=.681	*p*=.994
Follow-up	24.4 (5.9)	26.9 (6.0)	η^2=.003	η^2<.001
FFMQ-Describe			*F*=7.778	*F*=1.185
Pre-Intervention	28.3 (5.8)	28.3 (7.3)	*p*=.007	*p*=.281
Follow-up	26.6 (6.8)	27.5 (7.4)	η^2=.126	η^2=.021
FFMQ-NonJudge			*F*=5.729	*F*=1.394
Pre-Intervention	28.4 (6.3)	27.6 (6.4)	*p*=.020	*p*=.243
Follow-up	30.1 (7.4)	28.2 (6.9)	η^2=.096	η^2=.025
FFMQ-NonReact			*F*=.026	*F*=.084
Pre-Intervention	21.3 (4.9)	22.0 (5.4)	*p*=.873	*p*=.773
Follow-up	21.4 (4.4)	21.7 (5.4)	η^2<.001	η^2=.002
FFMQ-Aware			*F*=.084	*F*=1.991
Pre-Intervention	28.0 (3.9)	26.8 (4.9)	*p*=.773	*p*=.164
Follow-up	29.0 (4.4)	26.2 (6.9)	η^2=.002	η^2=.136

Table 4

Correlations between Initial Score and Change Score (Full Sample)

Measure name	Correlation *r*	*p*-value
Distress Rating	**-.34**	**.004**
Believability Rating	**-.32**	**.008**
PANAS Positive	-.22	.07
PANAS Negative	**-.76**	**<.001**
DASS-Stress	**-.43**	**.001**
DASS-Anxiety	**-.38**	**.003**
DASS-Depression	**-.38**	**.004**
Dysfunctional Att	-.14	.290
AAQ	**-.44**	**.001**
FFMQObserve	-.15	.286
FFMQDescribe	-.07	.603
FFMQAware	-.07	.590
FFMQNonJudge	-.02	.899
FFMQNonReact	**-.43**	**.001**

Table 5

Pre to Post ANOVAs (Clinical Subsample)

Measure and Time Point	Self-as-Context (*n*=15)	Control (*n*=15)	Main Effect of Time	Time x Condition Interaction
Distress Rating			F=43.7	F=.01
Pre-Intervention	62.87 (17.48)	64.33 (22.90)	p<.001	p=.92
Post-Intervention	47.99 (16.99)	48.00 (28.02)	η^2=.61	η^2=.00
Believability Rating			F=23.6	F=.37
Pre-Intervention	57.27 (27.24)	65.60 (29.70)	p<.001	p=.55
Post-Intervention	40.20 (28.30)	52.33 (29.63)	η^2=.46	η^2=.013
PANAS Positive			F=26.6	F=.50
Pre-Intervention	30.33 (7.48)	26.07 (8.15)	p<.001	p=.486
Post-Intervention	34.33 (6.86)	31.33 (8.85)	η^2=.49	η^2=.017
PANAS Negative			F=32.5	F=.021
Pre-Intervention	16.93(6.94)	16.93 (5.66)	p<.001	p=.887
Post-Intervention	13.07 (4.86)	12.87 (2.92)	η^2=.54	η^2=.001

Table 6

Pre- to Follow-up ANOVAs (Clinical Subsample)

Measure and Time Point	Self-as-Context (*n*=12)	Control (*n*=10)	Main Effect of Time	Time x Condition Interaction
AAQ-II Pre-Intervention Follow-Up	 19.17 (5.17) 15.58 (5.85)	 21.2 (9.48) 19.50 (8.96)	*F*=5.8 *p*=.025 η^2=.23	*F*=.74 *p*=.400 η^2=.04
DAS-SF1 Pre-Intervention Follow-up	 20.00 (2.66) 19.58 (2.87)	 18.5 (3.78) 21.60 (6.33)	*F*=2.07 *p*=.166 η^2=.094	*F*=3.56 *p*=.074 η^2=.151
DASS-Stress Pre-Intervention Follow-up	 14.67 (5.93) 21.33 (4.38)	 15.40 (6.33) 29.00 (8.60)	*F*=82.2 *P*<.001 η^2=.804	*F*=9.6 *p*=.006 η^2=.325
DASS-Anxiety Pre-Intervention Follow-up	 8.17 (3.86) 19.17 (5.15)	 8.20 (6.14) 22.80 (6.88)	*F*=92.5 *P*<.001 η^2=.822	*F*=1.83 *p*=.191 η^2=.084
DASS-Depression Pre-Intervention Follow-up	 9.17 (6.95) 19.67 (4.81)	 8.60 (7.83) 23.20 (9.20)	*F*=161.56 *P*<.001 η^2=.890	*F*=4.311 *p*=.051 η^2=.177
FFMQ-Observe Pre-Intervention Follow-up	 25.42 (5.88) 25.42 (6.49)	 25.90 (6.08) 27.00 (7.33)	*F*=.427 *p*=.521 η^2=.021	*F*=.427 *p*=.521 η^2=.021
FFMQ-Describe Pre-Intervention Follow-up	 26.08 (5.93) 23.33 (6.29)	 26.60 (8.91) 25.60 (8.04)	*F*=8.064 *p*=.01 η^2=.287	*F*=1.756 *p*=.200 η^2=.081
FFMQ-NonJudge Pre-Intervention Follow-up	 26.67 (4.91) 28.25 (6.36)	 25.50 (6.31) 26.20 (7.90	*F*=4.779 *p*=.041 η^2=.193	*F*=.715 *p*=.408 η^2=.035
FFMQ-NonReact Pre-Intervention Follow-up	 20.50 (4.03) 21.25 (4.07)	 19.70 (4.03) 17.90 (4.89)	*F*=.354 *p*=.559 η^2=.017	*F*=2.087 *p*=.164 η^2=.095
FFMQ-Aware Pre-Intervention Follow-up	 27.75 (4.03) 27.127 (4.30)	 26.40 (6.04) 26.70 (8.62)	*F*=.036 *p*=.852 η^2=.002	*F*=.347 *p*=.562 η^2=.017

Appendix A

Definitions of Evidence-Based Treatment/Evidence-Based Practice

APA: “Evidence-based practice in psychology (EBPP) is the integration of the best available research with clinical expertise in the context of patient characteristics, culture, and preferences.” *(APA Policy statement on EBPP, 2005)7*

SAMHSA’s National Registry of Evidence-based Programs and Practices: “Evidence-based: Approaches to prevention or treatment that are based in theory and have undergone scientific evaluation. ‘Evidence-based’ stands in contrast to approaches that are based on tradition, convention, belief, or anecdotal evidence.”

Appendix B

AAQ-II

Below you will find a list of statements. Please rate how true each statement is for you by circling a number next to it. Use the scale below to make your choice.

1	2	3	4	5	6	7
never true	very seldom true	seldom true	sometimes true	frequently true	almost always true	always true

1.	My painful experiences and memories make it difficult for me to live a life that I would value.	1	2	3	4	5	6	7
2.	I'm afraid of my feelings.	1	2	3	4	5	6	7
3.	I worry about not being able to control my worries and feelings.	1	2	3	4	5	6	7
4.	My painful memories prevent me from having a fulfilling life.	1	2	3	4	5	6	7
5.	Emotions cause problems in my life.	1	2	3	4	5	6	7
6.	It seems like most people are handling their lives better than I am.	1	2	3	4	5	6	7
7.	Worries get in the way of my success.	1	2	3	4	5	6	7

Appendix C

Text

CFQ13

Below you will find a list of statements. Please rate how true each statement is for you by circling a number next to it. Use the scale below to make your choice.

1	2	3	4	5	6	7
never true	very seldom true	seldom true	sometimes true	frequently true	almost always true	always true

1.	My thoughts cause me distress or emotional pain	1	2	3	4	5	6	7
2.	I get so caught up in my thoughts that I am unable to do the things that I most want to do	1	2	3	4	5	6	7
3.	Even when I am having distressing thoughts, I know that they may become less important eventually	1	2	3	4	5	6	7
4.	I over-analyse situations to the point where it's unhelpful to me	1	2	3	4	5	6	7
5.	I struggle with my thoughts	1	2	3	4	5	6	7
6.	Even when I'm having upsetting thoughts, I can see that those thoughts may not be literally true	1	2	3	4	5	6	7
7.	I get upset with myself for having certain thoughts	1	2	3	4	5	6	7
8.	I need to control the thoughts that come into my head	1	2	3	4	5	6	7
9.	I find it easy to view my thoughts from a different perspective	1	2	3	4	5	6	7
10.	I tend to get very entangled in my thoughts	1	2	3	4	5	6	7
11.	I tend to react very strongly to my thoughts	1	2	3	4	5	6	7
12.	Its possible for me to have negative thoughts about myself and still know that I am an OK person	1	2	3	4	5	6	7
13.	It's such a struggle to let go of upsetting thoughts even when I know that letting go would be helpful	1	2	3	4	5	6	7

Thank you for completing this questionnaire

Appendix D

DAS-SF1

The sentences below describe people's attitudes. Circle the number which best describes how much each sentence describes your attitude. Your answer should describe the way you think most of the time.

		Totally Agree	Agree	Disagree	Totally Disagree
1.	If I don't set the highest standards for myself, I am likely to end up a second-rate person.	1	2	3	4
2.	My value as a person depends greatly on what others think of me.	1	2	3	4
3.	People will probably think less of me if I make a mistake.	1	2	3	4
4.	I am nothing if a person I love doesn't love me.	1	2	3	4
5.	If other people know what you are really like, they will think less of you.	1	2	3	4
6.	If I fail at my work, then I am a failure as a person.	1	2	3	4
7.	My happiness depends more on other people than it does me.	1	2	3	4
8.	I cannot be happy unless most people I know admire me.	1	2	3	4
9.	It is best to give up your own interests in order to please other people.	1	2	3	4

Appendix E

DASS

subj. no_____

Please read each statement and circle a number 0, 1, 2 or 3 that indicates how much the statement applied to you *over the past week*. There are no right or wrong answers. Do not spend too much time on any statement.

The rating scale is as follows:

0 Did not apply to me at all
1 Applied to me to some degree, or some of the time
2 Applied to me to a considerable degree, or a good part of time
3 Applied to me very much, or most of the time

1	I found myself getting upset by quite trivial things	0	1	2	3
2	I was aware of dryness of my mouth	0	1	2	3
3	I couldn't seem to experience any positive feeling at all	0	1	2	3
4	I experienced breathing difficulty (eg, excessively rapid breathing, breathlessness in the absence of physical exertion)	0	1	2	3
5	I just couldn't seem to get going	0	1	2	3
6	I tended to over-react to situations	0	1	2	3
7	I had a feeling of shakiness (eg, legs going to give way)	0	1	2	3
8	I found it difficult to relax	0	1	2	3
9	I found myself in situations that made me so anxious I was most relieved when they ended	0	1	2	3
10	I felt that I had nothing to look forward to	0	1	2	3
11	I found myself getting upset rather easily	0	1	2	3
12	I felt that I was using a lot of nervous energy	0	1	2	3
13	I felt sad and depressed	0	1	2	3
14	I found myself getting impatient when I was delayed in any way (eg, elevators, traffic lights, being kept waiting)	0	1	2	3
15	I had a feeling of faintness	0	1	2	3
16	I felt that I had lost interest in just about everything	0	1	2	3
17	I felt I wasn't worth much as a person	0	1	2	3
18	I felt that I was rather touchy	0	1	2	3
19	I perspired noticeably (eg, hands sweaty) in the absence of high temperatures or physical exertion	0	1	2	3
20	I felt scared without any good reason	0	1	2	3
21	I felt that life wasn't worthwhile	0	1	2	3

Reminder of rating scale:

0 Did not apply to me at all
1 Applied to me to some degree, or some of the time
2 Applied to me to a considerable degree, or a good part of time
3 Applied to me very much, or most of the time

22	I found it hard to wind down	0	1	2	3
23	I had difficulty in swallowing	0	1	2	3
24	I couldn't seem to get any enjoyment out of the things I did	0	1	2	3
25	I was aware of the action of my heart in the absence of physical exertion (eg, sense of heart rate increase, heart missing a beat)	0	1	2	3
26	I felt down-hearted and blue	0	1	2	3
27	I found that I was very irritable	0	1	2	3
28	I felt I was close to panic	0	1	2	3
29	I found it hard to calm down after something upset me	0	1	2	3
30	I feared that I would be "thrown" by some trivial but unfamiliar task	0	1	2	3
31	I was unable to become enthusiastic about anything	0	1	2	3
32	I found it difficult to tolerate interruptions to what I was doing	0	1	2	3
33	I was in a state of nervous tension	0	1	2	3
34	I felt I was pretty worthless	0	1	2	3
35	I was intolerant of anything that kept me from getting on with what I was doing	0	1	2	3
36	I felt terrified	0	1	2	3
37	I could see nothing in the future to be hopeful about	0	1	2	3
38	I felt that life was meaningless	0	1	2	3
39	I found myself getting agitated	0	1	2	3
40	I was worried about situations in which I might panic and make a fool of myself	0	1	2	3
41	I experienced trembling (eg, in the hands)	0	1	2	3
42	I found it difficult to work up the initiative to do things	0	1	2	3

Appendix F

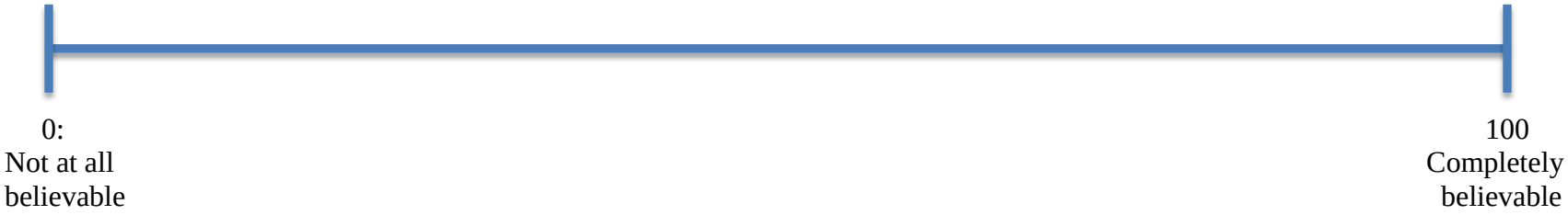
Distress Rating

0:
Not at all distressing

100
Extremely distressing

Appendix G

Believability Rating



Appendix H

Subject number_____ **Date_____**

5-FACET M QUESTIONNAIRE

Please rate each of the following statements using the scale provided. Write the number in the blank that best describes your own opinion of what is generally true for you.

1	2	3	4	5
never or very rarely true	rarely true	sometimes true	often true	very often or always true

_____ 1. When I'm walking, I deliberately notice the sensations of my body moving.

_____ 2. I'm good at finding words to describe my feelings.

_____ 3. I criticize myself for having irrational or inappropriate emotions.

_____ 4. I perceive my feelings and emotions without having to react to them.

_____ 5. When I do things, my mind wanders off and I'm easily distracted.

_____ 6. When I take a shower or bath, I stay alert to the sensations of water on my body.

_____ 7. I can easily put my beliefs, opinions, and expectations into words.

_____ 8. I don't pay attention to what I'm doing because I'm daydreaming, worrying, or otherwise distracted.

_____ 9. I watch my feelings without getting lost in them.

_____ 10. I tell myself I shouldn't be feeling the way I'm feeling.

_____ 11. I notice how foods and drinks affect my thoughts, bodily sensations, and emotions.

_____ 12. It's hard for me to find the words to describe what I'm thinking.

_____ 13. I am easily distracted.

_____ 14. I believe some of my thoughts are abnormal or bad and I shouldn't think that way.

_____ 15. I pay attention to sensations, such as the wind in my hair or sun on my face.

_____ 16. I have trouble thinking of the right words to express how I feel about things

_____ 17. I make judgments about whether my thoughts are good or bad.

_____ 18. I find it difficult to stay focused on what's happening in the present.

_____ 19. When I have distressing thoughts or images, I "step back" and am aware of the thought or image without getting taken over by it.

_____ 20. I pay attention to sounds, such as clocks ticking, birds chirping, or cars passing.

_____ 21. In difficult situations, I can pause without immediately reacting.

_____ 22. When I have a sensation in my body, it's difficult for me to describe it because I can't find the right words.

PLEASE TURN OVER

1	2	3	4	5
never or very rarely true	**rarely true**	**sometimes true**	**often true**	**very often or always true**

_____ 23. It seems I am "running on automatic" without much awareness of what I'm doing.

_____24. When I have distressing thoughts or images, I feel calm soon after.

_____ 25. I tell myself that I shouldn't be thinking the way I'm thinking.

_____ 26. I notice the smells and aromas of things.

_____ 27. Even when I'm feeling terribly upset, I can find a way to put it into words.

_____ 28. I rush through activities without being really attentive to them.

_____ 29. When I have distressing thoughts or images I am able just to notice them without reacting.

_____ 30. I think some of my emotions are bad or inappropriate and I shouldn't feel them.

_____ 31. I notice visual elements in art or nature, such as colors, shapes, textures, or patterns of light and shadow.

_____ 32. My natural tendency is to put my experiences into words.

_____ 33. When I have distressing thoughts or images, I just notice them and let them go.

_____ 34. I do jobs or tasks automatically without being aware of what I'm doing.

_____ 35. When I have distressing thoughts or images, I judge myself as good or bad, depending what the thought/image is about.

_____ 36. I pay attention to how my emotions affect my thoughts and behavior.

_____ 37. I can usually describe how I feel at the moment in considerable detail.

_____ 38. I find myself doing things without paying attention.

_____ 39. I disapprove of myself when I have irrational ideas.

Appendix I

Treatment Expectancy Rating

Q: To what extent do you think that the discussion we had will help you cope with your negative thoughts about yourself? *(please mark on the chart below and write a number next to the mark)*

0:
Not at all
helpful

100
Extremely
helpful

Appendix J

Self-As-Context Condition Script

There are a lot of different thoughts that people have about themselves. "I'm good", or "I'm bad", or "I'm afraid of dogs". And sometimes, we can get very attached to the words we use to describe ourselves. But these are just words, and though they might describe the self, they aren't **equal to** the self. When you have a thought like "I'm _____," who's having that thought? (Pause for response--your self, "I" "me") .When you have that thought, how do you usually feel? Who is having that feeling? And right now, in this room, who is noticing these thoughts and feelings and telling me about them? We could go on and on like this (we won't!) but it's the point is that thoughts and feelings come and go, but the part of you that is able to notice the thoughts and feelings, that's always there. So when I asked you who's noticing and telling me about these thoughts and feelings, that's the part of you that you I'm talking about. The noticing part—the self that can notice—is always there. I know this might sound a little funny or unusual, so I'm going to do a little exercise with you that I think will help explain this a little bit better. (Take out the chessboard) Imagine this chessboard is infinite, spreading out in all directions. And your thoughts and feelings, let's imagine them as pieces on a chessboard. So the though, "I'm _____," is a piece on this chessboard. You might think of this as a negative thought, a thought you don't want to have. Let's say it's a brown piece, And that feeling, _____ that comes along with it, is probably the same color, working on the same team. And the rest of the pieces on the chessboard, maybe some of them are other thoughts and feelings that you don't wish to have, those are the rest of the brown pieces. Then maybe we have tan pieces that are thoughts and feelings that you think of as positive, or that you like to have. So sometimes, if you're having a lot of negative thoughts and feelings, if feels like the brown

pieces are winning. Then other times, if you are feeling good about yourself, it might seem like the tan pieces, are the ones that are winning. So it changes. The way the pieces are arranged, it changes ,right? It's not always the same. In a real chess game, pieces can be captured, and they would be removed from the board. But my guess is that your experience is that your thoughts and feelings are never gone forever. They just come and go. So there a couple of problems with this set-up. When you have a negative thought, we've established that it's you that's having thought. What about when you have a positive thought, who has that thought? (You) And a positive feeling? (You) So the problem with playing this like a game to be won is that you are playing against yourself. And trying to knock certain pieces off the board can be like trying to make parts of our human experience disappear. And sometimes, we can get caught up in this game, stuck at the level of the pieces, and we stop seeing the outside world. But what I want to suggest is, what if it's possible to let go of the fight? What if you are the chessboard in this metaphor? There is a distinction between your thoughts and your self, just like there is a difference between the pieces of the game and the board itself. So that, regardless of what's happening with the brown pieces and the tan pieces, no matter how they are arranged, it doesn't change the board itself. The board is always there. It's like that noticing self. The chessboard is just the arena. The chessboard can carry the weight of both sides, and can move, not matter how the pieces are arranged. So what if you can focus your energy on doing what you want, rather than "winning" this internal war? Maybe, in the future, when thoughts or feelings come up that you think might be negative, maybe you can take a moment to imagine them as pieces on the board.

Appendix K

Alternative Discussion (Control Condition) Script

Different Topic

Ok. Now, there are many ways that we know that people can cope with negative thoughts or feelings about themselves. One of the strategies that people sometimes use is engaging in something different, something that might be positive or enjoyable, or at least more neutral, so that by shifting attention away from the negative thought we might feel better. So we have a particular activity in mind, and it's going to involve me asking you to tell me a little bit about a topic that is positive for a lot of people: Virginia Tech.

Tell me about your decision to come to Tech. What did you know about Tech before you applied?

How did you hear about it?

What made you think you wanted to come here?

Did you have friends or family who had come here?

Is it what you expected?

How and when did you apply?

What did you do when you found out you had been accepted.

What was your orientation like, or your first week?

Is there anything you love about Tech that you didn't know you would love that surprised you?

What is your favorite thing?

What do you like to do here that you couldn't do in your home town?

Tell me about the type of friends you have here or community you're a part of. Where do you like to spend time?

Appendix L

DASS21

Name: *Date:*

Please read each statement and circle a number 0, 1, 2 or 3 that indicates how much the statement applied to you *over the past week*. There are no right or wrong answers. Do not spend too much time on any statement.

The rating scale is as follows:

0 Did not apply to me at all
1 Applied to me to some degree, or some of the time
2 Applied to me to a considerable degree, or a good part of time
3 Applied to me very much, or most of the time

1	I found it hard to wind down	0	1	2	3
2	I was aware of dryness of my mouth	0	1	2	3
3	I couldn't seem to experience any positive feeling at all	0	1	2	3
4	I experienced breathing difficulty (eg, excessively rapid breathing, breathlessness in the absence of physical exertion)	0	1	2	3
5	I found it difficult to work up the initiative to do things	0	1	2	3
6	I tended to over-react to situations	0	1	2	3
7	I experienced trembling (eg, in the hands)	0	1	2	3
8	I felt that I was using a lot of nervous energy	0	1	2	3
9	I was worried about situations in which I might panic and make a fool of myself	0	1	2	3
10	I felt that I had nothing to look forward to	0	1	2	3
11	I found myself getting agitated	0	1	2	3
12	I found it difficult to relax	0	1	2	3
13	I felt down-hearted and blue	0	1	2	3
14	I was intolerant of anything that kept me from getting on with what I was doing	0	1	2	3
15	I felt I was close to panic	0	1	2	3
16	I was unable to become enthusiastic about anything	0	1	2	3
17	I felt I wasn't worth much as a person	0	1	2	3
18	I felt that I was rather touchy	0	1	2	3
19	I was aware of the action of my heart in the absence of physical exertion (eg, sense of heart rate increase, heart missing a beat)	0	1	2	3
20	I felt scared without any good reason	0	1	2	3
21	I felt that life was meaningless	0	1	2	3

Appendix M

Demographics Questionnaire

1) Age in years _____

2) Gender _____

3) I am (select one)
_____ Latino or Hispanic
_____ Not Latino or Hispanic

4) My race/ethnicity is (select all that apply)
_____ American Indian/Alaskan Native
_____ Asian
_____ Black or African American
_____ Native Hawaiian or other Pacific Islander
_____ White/Caucasian
_____ I prefer not to answer this question
_____ Other (please describe) _____

Appendix N

Researcher Belief Rating

Q: To what extent do you think **the *researcher* believes** that the discussion we had will help you cope with your negative thoughts about yourself? *(please mark on the chart below and write a number next to the mark)*

0:
Not at all helpful

100
Extremely helpful

Appendix O

PANAS Questionnaire

This scale consists of a number of words that describe different feelings and emotions. Read each item and then list the number from the scale below next to each word. **Indicate to what extent you feel this way right now, that is, at the present moment.**

1	2	3	4	5
Very Slightly or Not at All	A Little	Moderately	Quite a Bit	Extremely

_____	1. Interested					_____	11. Irritable
_____	2. Distressed					_____	12. Alert
_____	3. Excited					_____	13. Ashamed
_____	4. Upset					_____	14. Inspired
_____	5. Strong					_____	15. Nervous
_____	6. Guilty					_____	16. Determined
_____	7. Scared					_____	17. Attentive
_____	8. Hostile					_____	18. Jittery
_____	9. Enthusiastic					_____	19. Active
_____	10. Proud					_____	20. Afraid

Appendix P

IRB-Approved Recruitment Language

Researchers want to know how you think and feel about yourself. You are invited to participate in a study of emotions, cognitions, and the self. This study will include an in-person lab session, and a follow-up online session a week later. Sign up using SONA. You will earn an hour's worth of credit for each phase of the study, although the in-person portion should take about 45 minutes and the online portion even less. Participants must be 18 years of age, and you may not participate in this study if you are a current student of the primary investigator, Lee Cooper, or the co-investigator, Neville Galloway-Williams. Contact Neville@vt.edu for further information.

Appendix Q

Recruitment Flyer

We want to know how you think & feel about yourself!

You are invited to participate in a **Study of Emotions, Cognitions, and the Self**!

-Log in to SONA and find Study of Emotions, Cognitions, and the Self,(S.E.C.A.T.S.).

-Sign up on SONA for part one, an in-person lab session, (45 min, 1 point of E.C.). Part two will be online, 1 week later, worth an additional point of extra credit (about 25 min).

-Participants must be 18 years of age   Contact Neville@vt.edu for further information.

Go to: https://vt-psyc.sona-systems.com Study of emotions, cognitions and the self Neville@vt.edu

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Appendix R

Informed Consent

VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY

Informed Consent for Participants in Research Projects Involving Human Subjects

Study of emotions, cognitions, and the self.

Neville Galloway-Williams, M.S. Doctoral Candidate Department of Psychology

Lee D. Cooper, Ph.D, LCP Clinical Associate Professor Director of Clinical Training Department of Psychology

I. Purpose of this project.

The purpose of this project is to assess how processes analogous to ones that occur in psychotherapy affect variables such as emotions, cognitions, and behaviors. In order to participate, you must be 18 years of age or older, and you may not currently be enrolled in a course taught by either of the investigators listed above (Neville Galloway-Williams or Lee Cooper).

II. Procedures

Participants will sign up online initially. When you sign up, you will sign up for a time slot. You will attend an initial in-person session in Williams Hall that will take about 40 minutes. This will involve completing some materials and participating in an activity with a researcher. You will then receive an email one week later asking you to complete a brief (less than 30 minutes) online survey.

III. Risks

The risks of this study are minimal. There is a slight risk of emotional distress or frustration while you respond to questions or complete activities. Research assistants will be present in case you do become distressed.

IV. Benefits

Benefits of this study may include increased awareness of your self-knowledge. Benefits of the study to the society at large include possible improved delivery of therapy for treatment-seeking individuals. No promise or guarantee of benefits has been made to encourage you to participate in this study. You may contact the researcher at Neville@vt.edu in the future for the results of the study.

V. Extent of Anonymity and Confidentiality

As you will use your name to sign up for this study and to receive extra credit,

information gathered on you will not be completely anonymous.

However, researchers promise not to divulge information on your specific results, thus keeping your results confidential. At no time will the researchers release the results of the study to anyone other than individuals working on the project without your written consent. To further keep your information confidential, each participant will be assigned a code number. All study materials, excluding this informed consent form and the materials used to keep track of your participation and allocation of extra credit, will be labeled with a code, and will not have your name upon them. The key that links every participants' name to its corresponding code will be kept in a locked cabinet in a locked office in Williams Hall, to which only authorized personnel will have access.

It is possible that the Institutional Review Board (IRB) may view this study's collected data for auditing purposes. The IRB is responsible for the oversight of the protection of human subjects involved in research. In some situations, it may be necessary for an investigator to break confidentiality. If researchers have reason to believe that you are a danger to yourself or others investigators will notify the appropriate authorities.

Paper data will be kept for three years after all publications from this dissertation data, at which point it will be destroyed. Video tapes will be kept for five years after all publications from this dissertation data, at which point they will be destroyed. Electronic data will be stored in a password-protected computer file (no linking files) on a password-protected computer and will deleted ten years after termination of all research activities.

VI. Compensation

You may earn 2 point of extra credit in your psychology class for participating in this study. You will earn one point for each phase (in-person and online) that you complete. You are eligible to receive extra credit in other ways than participating in human subjects research. Consult your course syllabus for further information. If as a result of a research project, the investigator determines that you should seek counseling or medical treatment, a list of local services will be provided. Any expenses accrued will be your responsibility of and not that of the research project, research team, or Virginia Tech.

VII. Freedom to Withdraw

You are free to withdraw from this study at any time without penalty. If you do so before completing the experiment, you will not receive extra credit for your participation. You are free not to answer any question or respond to experimental situations that you choose without penalty. There may be circumstances under which the investigator may determine that a subject should not continue as a subject. In this case you will still receive compensation.

VIII. Subject's Responsibilities

I voluntarily agree to participate in this study.

Virginia Tech Institutional Review Board Project No. 13-452 Approved January 29, 2014 to June 25, 2014

IX. Subject's Permission

I have read the Consent Form and conditions of this project. I have had all my questions answered. I hereby acknowledge the above and give my voluntary consent.

_____

Signature

Contact Information Co-Investigator: Neville Galloway-Williams, M.S. Neville@vt.edu

Primary Investigator: Lee D. Cooper, Ph.D. ldcooper@vt.edu

Psychology Department Human Subjects Committee Chair: D.W. Harrison, Ph.D. dwh@vt.edu 540-231-4422

If I should have any questions about the protection of human research participants regarding this study, I may contact Dr. David Moore, Chair Virginia Tech Institutional Review Board for the Protection of Human Subjects, telephone: (540) 231-4991; email: moored@vt.edu; address: Office of Research Compliance, North End Center, Suite 4120, Virginia Tech. 300 Turner Street NW, Blacksburg, Virginia 24061

Virginia Tech Institutional Review Board Project No. 13-452 Approved January 29, 2014 to June 25, 2014