EXPERIENTIAL APPROACH AS A MODERATOR OF THE IMPACT OF A POSITIVE MOOD INDUCTION PROCEDURE

A Dissertation by

Jeffrey A. Swails

Master of Arts, Wichita State University, 2015
Bachelor of Arts, SUNY Geneseo, 2012

Submitted to the Department of Psychology
and the faculty of the Graduate School of
Wichita State University
in partial fulfillment of
the requirements for the degree of
Doctor of Philosophy

December 2018
EXPERIENTIAL APPROACH AS A MODERATOR OF THE IMPACT OF A POSITIVE MOOD INDUCTION PROCEDURE

The following faculty members have examined the final copy of this dissertation for form and content, and recommend that it be accepted in partial fulfillment of the requirement for the degree of Doctor of Philosophy.

______________________________
Robert Zettle, Committee Chair

______________________________
Charles Burdsal, Committee Member

______________________________
Charles B. Clark, Committee Member

______________________________
Darwin Dorr, Committee Member

______________________________
Robert Feleppa, Committee Member

Accepted for the College of Liberal Arts and Sciences

______________________________
Andrew Hippisley, Dean

Accepted for the Graduate School

______________________________
Dennis Livesay, Dean
DEDICATION

To my family.
To my grandfather who couldn’t share this final moment with me,
but helped make it possible.
ACKNOWLEDGMENTS

I would like to thank Dr. Zettle for his role in my growth and development as a psychologist. The hours I spent on my education were matched by the time and thought he put into my training. Additionally, I am very grateful for the Department of Psychology at Wichita State University and the members of my doctoral committee for their commitment and support through the process. The WSU Office staff, Marsyl Nelson and Judith Barnes, consistently supported me through the ups and downs of the process going above and beyond to help me. I am grateful for the effort and time offered by the Contextual Behavioral Science Research Lab including Anna Wray, Thiên Vũ, Aja Molinar, Alex Bessel, and Jessica Hickman for their assistance in collecting data. To my fellow graduate students, thank you for your guidance and support.

From the bottom of my heart I would like to thank my family and friends all over the country for their support, which kept me going and gave my pursuit meaning. Thank you Mom and Dad for instilling in me from an early age the value of determination as well as your belief and pride in me throughout my life. I am deeply grateful to my parents and grandparents for their support throughout my journey. To my siblings, Kerri and Jason, thank you for being role models that embodied hard work, intelligence, and passion for others. And, of course, to Kerri for recommending that I become a psychologist 13 years ago. I would like to thank all my friends spanning my times in New York, Kansas and Oklahoma for giving my life balance. All of you are my community, thank you for making my dissertation defense possible.
ABSTRACT

The model of human functioning on which acceptance and commitment therapy is based (Hayes, Luoma, Bond, Masuda, & Lillis, 2006) has recognized how efforts to control negative emotions (i.e., experiential avoidance) may contribute to psychological inflexibility, but has largely overlooked the role that experiential approach in regulating positive affective states might also play in human suffering. The recently developed Experiential Approach Scale (EAS; Swails, Zettle, Burdsal, & Snyder, 2016) suggests that this aspect of experiential control may be comprised of two independent strategies, Anxious Clinging and Experience Prolonging, that appear to be positively and inversely related to psychological distress and dysfunction, respectively. Anxious Clinging involves attempts to sustain positive affective experiences accompanied by worry or anxiety about losing them, while Experience Prolonging refers to efforts to savor desired mood states for as long as they might last. The degree to which these two aspects of experiential approach moderate positive affect in predictable ways was investigated in the laboratory with a mood induction procedure. Contrary to hypotheses, elevations in positive mood induced by viewing a film and associated reactions to it did not significantly vary as a function of the EAS score levels of college student participants (N = 138). Possible reasons for the overall findings and their implications for further assessment and investigations of experiential approach as a positive emotion regulation strategy are discussed.
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. INTRODUCTION</td>
<td>1</td>
</tr>
<tr>
<td>1.1 Purpose of the Study</td>
<td>3</td>
</tr>
<tr>
<td>2. LITERATURE REVIEW</td>
<td>4</td>
</tr>
<tr>
<td>2.1 The ACT Model</td>
<td>4</td>
</tr>
<tr>
<td>2.1.1 Experiential Avoidance versus Acceptance</td>
<td>5</td>
</tr>
<tr>
<td>2.1.2 Cognitive Fusion versus Defusion</td>
<td>6</td>
</tr>
<tr>
<td>2.1.3 Preoccupation with the Past or Future versus Present</td>
<td>8</td>
</tr>
<tr>
<td>2.1.4 Self-as-content versus Self-as-Context</td>
<td>9</td>
</tr>
<tr>
<td>2.1.5 Dysfunctional Rule Following versus Valued Living...,</td>
<td>10</td>
</tr>
<tr>
<td>2.1.6 Inaction/impulsivity versus Committed Action</td>
<td>12</td>
</tr>
<tr>
<td>2.2 Research on Experiential Avoidance/Acceptance</td>
<td>13</td>
</tr>
<tr>
<td>2.2.1 Experimental Analogue Research</td>
<td>13</td>
</tr>
<tr>
<td>2.2.1.1 Subclinical/convenience Samples</td>
<td>14</td>
</tr>
<tr>
<td>2.2.1.2 Clinical Samples</td>
<td>16</td>
</tr>
<tr>
<td>2.2.2 Moderating Research</td>
<td>17</td>
</tr>
<tr>
<td>2.2.2.1 Subclinical/convenience Samples</td>
<td>18</td>
</tr>
<tr>
<td>2.2.2.2 Clinical Samples</td>
<td>20</td>
</tr>
<tr>
<td>2.2.3 Meditational research</td>
<td>21</td>
</tr>
<tr>
<td>2.2.3.1 Subclinical/convenience Samples</td>
<td>22</td>
</tr>
<tr>
<td>2.2.3.2 Physical Health-Related Samples</td>
<td>23</td>
</tr>
<tr>
<td>2.2.3.3 Mental Health-Related Samples</td>
<td>24</td>
</tr>
<tr>
<td>2.3 Experiential Control</td>
<td>26</td>
</tr>
<tr>
<td>2.4 Measuring Experiential Approach</td>
<td>27</td>
</tr>
<tr>
<td>2.5 Purpose of this Study</td>
<td>29</td>
</tr>
<tr>
<td>2.6 Ways of Inducing Positive Affective States</td>
<td>30</td>
</tr>
<tr>
<td>2.6.1 Films</td>
<td>30</td>
</tr>
<tr>
<td>2.6.2 Images</td>
<td>30</td>
</tr>
<tr>
<td>2.6.3 Facial Expressions</td>
<td>31</td>
</tr>
<tr>
<td>2.6.4 Self-statements</td>
<td>31</td>
</tr>
<tr>
<td>2.6.5 Music</td>
<td>32</td>
</tr>
<tr>
<td>2.6.6 Social Interactions</td>
<td>32</td>
</tr>
<tr>
<td>2.6.7 Preferred Method for this Project</td>
<td>33</td>
</tr>
<tr>
<td>2.7 Ways of Assessing Emotion</td>
<td>34</td>
</tr>
<tr>
<td>2.7.1 Subjective Experience</td>
<td>35</td>
</tr>
<tr>
<td>2.7.2 Physiological Changes</td>
<td>36</td>
</tr>
<tr>
<td>2.7.3 Observable Behavior</td>
<td>37</td>
</tr>
<tr>
<td>2.7.4 Preferred Methods of Assessment for this Project</td>
<td>37</td>
</tr>
<tr>
<td>2.8 Overview of Data Analyses and Specific Hypotheses</td>
<td>39</td>
</tr>
<tr>
<td>2.8.1 Film Condition</td>
<td>40</td>
</tr>
</tbody>
</table>
TABLE OF CONTENTS (continued)

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.8.2</td>
<td>40</td>
</tr>
<tr>
<td>2.8.3</td>
<td>40</td>
</tr>
<tr>
<td>2.8.4</td>
<td>41</td>
</tr>
<tr>
<td>3.</td>
<td>42</td>
</tr>
<tr>
<td>3.1</td>
<td>42</td>
</tr>
<tr>
<td>3.2</td>
<td>42</td>
</tr>
<tr>
<td>3.2.1</td>
<td>43</td>
</tr>
<tr>
<td>3.2.2</td>
<td>43</td>
</tr>
<tr>
<td>3.3</td>
<td>44</td>
</tr>
<tr>
<td>3.3.1</td>
<td>44</td>
</tr>
<tr>
<td>3.3.2</td>
<td>45</td>
</tr>
<tr>
<td>3.3.3</td>
<td>45</td>
</tr>
<tr>
<td>3.3.4</td>
<td>45</td>
</tr>
<tr>
<td>3.4</td>
<td>46</td>
</tr>
<tr>
<td>3.4.1</td>
<td>46</td>
</tr>
<tr>
<td>3.4.2</td>
<td>46</td>
</tr>
<tr>
<td>3.5</td>
<td>47</td>
</tr>
<tr>
<td>4.</td>
<td>49</td>
</tr>
<tr>
<td>5.</td>
<td>52</td>
</tr>
<tr>
<td>5.1</td>
<td>53</td>
</tr>
<tr>
<td>5.2</td>
<td>53</td>
</tr>
<tr>
<td>5.3</td>
<td>54</td>
</tr>
<tr>
<td>5.4</td>
<td>55</td>
</tr>
<tr>
<td>5.5</td>
<td>56</td>
</tr>
<tr>
<td>5.6</td>
<td>59</td>
</tr>
<tr>
<td>REFERENCES</td>
<td>60</td>
</tr>
<tr>
<td>APPENDICES</td>
<td>76</td>
</tr>
<tr>
<td>A. Background Questionnaire</td>
<td>77</td>
</tr>
<tr>
<td>B. Experiential Approach Scale (EAS)</td>
<td>78</td>
</tr>
<tr>
<td>C. Positive and Negative Affect Schedule (PANAS)</td>
<td>80</td>
</tr>
<tr>
<td>D. Desire to Sustain Elated Scale (DSES)</td>
<td>81</td>
</tr>
<tr>
<td>E. Subjective Units of Pleasure Scale (SUPS)</td>
<td>82</td>
</tr>
<tr>
<td>F. Polygon Ratings</td>
<td>83</td>
</tr>
<tr>
<td>G. Consent Form</td>
<td>84</td>
</tr>
<tr>
<td>H. Film Opinion Survey</td>
<td>87</td>
</tr>
<tr>
<td>I. Debriefing Form</td>
<td>89</td>
</tr>
<tr>
<td>Table</td>
<td>Page</td>
</tr>
<tr>
<td>-------</td>
<td>------</td>
</tr>
<tr>
<td>1. Summary of Participant Characteristics by Film Condition</td>
<td>90</td>
</tr>
<tr>
<td>2. Descriptive Statistics of Dependent Variables</td>
<td>91</td>
</tr>
<tr>
<td>3. Bivariate Correlations Between Predicted/Criterion Variables</td>
<td>92</td>
</tr>
<tr>
<td>4. Standardized Coefficients and Effect Sizes for First Function</td>
<td>93</td>
</tr>
</tbody>
</table>
CHAPTER ONE
INTRODUCTION

Over the past 20-30 years, a new generation of cognitive behavioral therapies (CBT) has emerged. Referred to by some as the “third wave” of CBT (Hayes, 2004), these approaches share a common focus in incorporating acceptance and mindfulness-based strategies in managing unwanted thoughts and emotional states. Prominent among these interventions is acceptance and commitment therapy (ACT), which is based on a model of human functioning rooted in a pragmatic philosophy and informed by a related theory of human language and cognition (Hayes, Strosahl, & Wilson, 1999; 2012). The superordinate goal of ACT is to increase psychological flexibility or the ability to make behavioral adjustments necessary to lead a meaningful life consistent with personal values (Hayes et al., 2006). Although several processes are thought to contribute to psychological inflexibility, the one that has been the primary focus of research involves experiential avoidance, which consists of efforts to control the type, duration, or frequency of *negative* private events such as thoughts, feelings, sensations, and memories, as well as the contexts that give rise to them (Hayes et al., 2004).

Experiential avoidance has most often been measured with either the original (Hayes et al., 2004) or updated versions of the Acceptance and Action Questionnaire (AAQ-II; Bond et al., 2011). An accumulating body of research related to ACT suggests that the AAQ-II, as well as more context-specific measures of experiential avoidance (e.g., Vowles, McCracken, McLeod, & Eccleston, 2008), can serve as both moderating and mediating variables. For example, in response to physically distressing stimuli such as carbon dioxide inhalation (Felder, Zvolensky, Eifert, & Spira, 2003) and the cold pressor task (e.g., Feldner et al., 2006), participants high in experiential avoidance experienced greater levels of anxiety and affective distress compared to their less avoidant counterparts.
While some in the ACT community have argued that experiential control more broadly defined as efforts to control any type of emotion or private event, including happiness, may contribute to psychological inflexibility (e.g., Harris, 2007), the potential negative impact of positive emotion regulation has received much less empirical attention. Perhaps this is unsurprising, given that specific negative emotional experiences in many cases constitute key symptoms of psychiatric disorders (American Psychiatric Association, 2013). However, this omission has occurred within the context of the premium many contemporary cultures place on positive emotions. For example, many psychologists and laypeople alike identify the attainment of happiness as a core aspect of high psychological well-being (Diener & Larsen, 1993; Fredrickson, 1998; Keyes, 2002; Myers & Diener, 1995) and positive emotions are even used to measure an individual’s subjective well-being (Diener, Emmons, Larsen, & Griffin, 1985). It is important to note that while happiness and other positive emotions in general have been a heavily researched topic within psychology (e.g., Fredrickson, 1998; Fredrickson & Branigan, 2005), the impact of efforts surrounding attainment and/or maintenance of such emotions, more specifically, by comparison has been a relatively limited area of research with relatively few exceptions (e.g., Fordyce, 1983; Mauss, Tamir, Anderson, & Savino, 2011; Quoidbach, Mikolajczak, & Gross, 2015; Sin & Lyubomirsky, 2009).

The recent development of the Experiential Approach Scale (EAS; Swails et al., 2016) as a self-report measure of efforts to contact, sustain, or somehow alter desired private events, such as happiness, affords an opportunity to investigate how this form of experiential control might also contribute to psychological rigidity and human suffering. The EAS consists of two subscales, anxious clinging and experience prolonging, that are differentially related to other psychologically-relevant measures. Specifically, anxious clinging is positively related to measures of psychological distress and dysfunction, while experience prolonging appears to
function as a mild buffer against depression (Swails et al., 2016). Individual differences in responding to positive private events are of particular concern within clinical psychology, given evidence of the sometimes pernicious impact of pursuing happiness (Carl, Soskin, Kerns, & Barlow, 2013; Ford, Shallcross, Mauss, Floerke, & Gruber, 2014). For example, valuing happiness has been identified as a risk factor for major depressive (Ford et al., 2014) and bipolar disorder (Ford, Mauss, & Gruber, 2015).

**Purpose of Study**

The purpose of this study was to extend research on experiential approach more broadly and its assessment with the EAS in particular by investigating the degree to which its two subscales moderate responses to a protocol designed to induce a positive affective state. A convenience sample of college students viewed films designed to either induce a positive or neutral emotional response. Given the nature of the two EAS subscales, it was anticipated they would differentially and interactively moderate emotional reactivity. More specifically, individuals high in anxious clinging and low in experience prolonging were expected to be especially vulnerable to the paradoxical effects of pursuing positive affective states and consequently report the lowest levels of happiness in response to a film designed to induce that emotional reaction. Conversely, individuals high in experience prolonging and low in anxious clinging were hypothesized to experience the largest mood boost under the same circumstances. Any findings should have implications for the further validation of the EAS as well as for addressing experiential approach in ACT or related therapeutic approaches. Before further elaborating on the purpose and methodology of this study, a more in-depth look at the existing conceptual and empirical literature on experiential control is warranted.
CHAPTER TWO
LITERATURE REVIEW

To place a review of the literature on experiential control in a broader context, this paper will first introduce and describe the model of human functioning on which ACT is based. This will be followed by a discussion of the role that the specific processes of experiential avoidance and acceptance play within this model and a review of related research. Then the implications of expanding the concept of experiential control to also include experiential approach within the model of human functioning on which ACT is based will be considered and efforts to date in developing a means of assessing it will be summarized.

The ACT Model

ACT is a transdiagnostic approach designed to increase psychological flexibility, or the ability to attend to the present moment and adaptably react to dynamic contexts in order to live in accordance with one’s values (Hayes, n.d.). From the ACT perspective, “values are freely chosen, verbally constructed consequences of ongoing, dynamic, evolving patterns of activity, which establish predominant reinforcers for that activity that are intrinsic in engagement in the valued behavioral pattern itself” (Wilson & Dufrene, 2009, p. 66). In other words, values are personally chosen, ever-changing, and are a source of inherent reinforcement for behaviors with which they are congruent. Values are not achievable goals, but as “verbally construed global desired life consequences” (Hayes et al., 1999, p. 206) provide directions that guide actions (Wilson, Sandoz, & Kitchens, 2010). For example, individuals valuing parenthood may establish the goal of reading to their children 30 minutes each night at bedtime. However, they never complete the goal of being a nurturing parent – it cannot be checked off their list of things to do – no matter how many times they engage in this specific behavior or others actions that are congruent with this value.
Because psychological flexibility is defined functionally and is itself contextually-influenced, the optimal way to move in a valued direction in any situation is not easily specified by a rule or set of guidelines. This pragmatic focus that colors how psychological flexibility is conceptualized reflects the broader philosophical foundation of functional contextualism on which ACT is based. One core feature of functional contextualism includes viewing behavior as activity of the entire organism situated within both historical and current situational contexts. A second core feature of functional contextualism is its endorsement of a pragmatic truth criterion (Hayes, 1993; Hayes et al., 2012). From this perspective, “the truth” of a proposition; including overt actions, thoughts, and even ways of speaking; is based on its usefulness in attaining some predetermined goal. For example, practitioners of ACT often refer to “the mind” when engaging in “clinical talk” with clients because doing so is useful therapeutically. These same individuals, however, would not use this same language in speaking about ACT scientifically as it is not useful in this context.

The model of human functioning on which ACT is based is more specifically one of psychological inflexibility/flexibility. Because the overall model emphasizes six oppositional processes, it often is referred to somewhat “tongue-in-cheek” as the “hexainflex” (Hayes et al., 2012, p. 63) in speaking of psychological inflexibility, and as the “hexaflex” (p. 62) when applied to psychological flexibility. These six antagonistic processes will be elaborated on in what follows and include (a) experiential avoidance versus acceptance (b) cognitive fusion versus defusion, (c) preoccupation with the past or future versus present moment awareness, (d) self-as-context versus self-as-content, (e) dysfunctional rule following versus valued living and (f) inaction/impulsivity versus committed action (Hayes et al., 2012).

**Experiential avoidance versus acceptance.** As previously stated, experiential avoidance is the avoidance of unwanted psychological events and/or the contexts that give rise to them.
Because it is defined functionally, experiential avoidance can take multiple forms, ranging from overt (e.g., refusing to fly) to covert actions (e.g., silently praying that the plane won’t crash while flying). As a further example, individuals may avoid a party to prevent potential social anxiety. In doing so, a private affective state is treated as a problem that can be effectively avoided. Experiential avoidance in this context is not itself seen as problematic provided it does not limit psychological flexibility by serving as a barrier to valued action. If socially anxious individuals value interpersonal relationships, shunning the party is problematic; if they do not, it is not. The alternative to experiential avoidance is acceptance or a deliberate and active willingness to experience unpleasant psychological events, such as social anxiety, as a byproduct of leading a meaningful and value-directed life as opposed to responding to them as problems in need of solving (Hayes et al., 2012).

It is important to note especially in light of some further discussion on this to come later, that experiential avoidance may be an overly specific and consequently limiting term in speaking of the opposite of experiential acceptance. According to Swails et al. (2016), experiential approach may constitute another type or form of experiential control that also stands in opposition to experiential acceptance.

**Cognitive fusion versus defusion.** Relational frame theory (RFT; Hayes, Barnes-Holmes, & Roche, 2001) is a functional contextualistic account of human language and cognition that informs ACT and provides the most exhaustive delineation of cognitive fusion versus defusion. However, because the fairly lengthy discussion and overview of RFT necessary to give justice to this explication seems beyond the scope and focus of the paper, interested readers are instead referred to Hayes et al. (2001). For present purposes, cognitive fusion can be said to occur when words about events have the same psychological impact as the events the words are about. For instance, individuals with arachnophobia may react to the spoken or written word “spider” in
much the same way they do to the actual creature – by anxiously turning away. Fusion refers to a way of contacting one’s thoughts with high believability and attachment, so that having the thought “I am worthless” becomes indistinguishable from a self-identity of being worthless. For a therapy client seeking help with PTSD, thinking and speaking about the key traumatic event may have the same psychological impact as the event itself.

Much like experiential avoidance, cognitive fusion per se does not invariably contribute to psychological rigidity. Sometimes cognitive fusion may even support psychological flexibility and valued action as can be seen in the story of “Little Engine that Could” (Piper & Bragg, 1961). This popular children’s book speaks of a small train that completes a seemingly impossible task by climbing a dauntingly steep hill while repeating the mantra “I think I can.” One might argue that the train’s persistence was found in its steadfast fusion with the thought “I can.”

A central component of ACT is to work towards defusion when doing so supports psychological flexibility. This can occur at varying levels of problematic verbal constructions, ranging from single damning words (e.g., “stupid”) to life narratives that support continued psychological rigidity. Because fusion with the life story will be discussed further in the upcoming section on self-as-content, only defusion/fusion with individual thoughts will be expanded upon here. For example, merely hearing the word “lemon” may elicit seeing a small, oblong yellow fruit, tasting a tart juice, and/or smelling a distinct aroma. All of these can occur in the absence of an actual lemon. However, rapid repetition of a word (Titchener, 1916) leads to a decreased association, or what RFT would describe as weakening of transformed stimulus functions, between the word and the item or event the word corresponds to. As applied to the word lemon, as it is rapidly repeated aloud, its visual, gustatory, and olfactory properties are effectively attenuated and only the auditory ones of how the word itself sounds remain (Hayes et
In a similar way, ACT clients can learn to cognitively defuse from certain key thoughts that limit psychological flexibility. Such thoughts are quite often are self-referential. Clients fused with the thought “I’m stupid” may avoid engaging in value-congruent activities, such as seeking a college degree in order to better provide for their families, in which they believe failure is certain. Defusion from such a negative self-referential thought may enable them to work towards the degree and have the thought that they are too stupid to do so successfully.

**Preoccupation with the past or future versus present moment awareness.** While attention to the past and future can be functional in certain contexts (e.g., planning for retirement; Quoidbach, Hansenne, & Mottet, 2008), rigid preoccupation with either often limits psychological flexibility. Living psychologically in a ruminative past and/or worrisome future have been strongly linked to both clinical and subclinical forms of emotional distress and suffering (e.g., Nolen-Hoeksema, 1991, Nolen-Hoeksema, Wisco, & Lyubomirsky, 2008; Wells & Carter, 2001). The alternative and antidote to each is present moment awareness where someone contacts the only juncture in which ongoing experience unfolds (Alleva, Roelofs, Voncken, Meevissen, & Alberts, 2014; Verplanken & Fisher, 2014). One increasingly popular means of increasing present moment awareness is through mindfulness training and practices, which involve paying intentional and nonevaluative attention to current moment experiences (Kabat-Zinn, 1994).

Of course, planning for the future and considering the past can be functional if done in a dynamic way that promotes valued living as opposed to undermining it. Yet, it should be noted that we appear to spend most of our time thinking about the past or future (Hayes et al., 2012) and in ways that may be dysfunctional. For example, both rumination and worrying appear to serve an experiential avoidant function, and thereby contribute to psychological rigidity. Being
unable or unwilling to attend to the present moment is characteristic of psychological inflexibility, and mindfulness, unlike rumination and worrying, adopts an accepting stance towards unwanted thoughts and emotions. Attentional rigidity itself can be thought of as a type of psychological inflexibility. ACT clients are typically taught mindfulness by practicing intentionally shifting the focus of their attention among external stimuli (such as sounds), bodily functions and sensations (e.g., breathing), as well as unwanted thoughts and feelings. The form and structure of mindfulness training within ACT varies on a client-by-client basis from the use of as-needed, in-session exercises (e.g., leaves on the stream, Hayes et al., 1999, p. 158) to adherence to formal protocols similar to those integral to mindfulness-based programs for stress reduction (e.g. Kabat-Zinn, Lipworth, & Burney, 1985; Kabat-Zinn et al., 1992) and cognitive therapy for depression (Segal, Williams, & Teasdale, 2002).

**Self-as-content versus self-as-context.** As alluded to earlier, self-as-content, or what is also referred to within ACT as the “conceptualized self” (Hayes et al., 2012, p. 111) is a byproduct of cognitive fusion in which our identity is defined by thoughts and stories we construct about ourselves. The content of our thoughts about the self encompasses our roles, dispositions, history, and attributions, such as “I’m a mother”, I’m generally optimistic”, “Life has treated me unfairly”, or “I’m a loser.” These various threads of self-as-content are then woven into a coherent life story that typically is rigid, evaluative, and resistant to change (Kwang & Swann, 2010; Swann, 1983). In some instances, fusion with a life story that supports resilience and a “can-do attitude” may be a major contributing factor to psychological flexibility. Unfortunately, all too often, the conceptual self that emerges from a consistent narrative (e.g., Bruner, 1990; Gergen & Gergen, 1988; McAdams, 2001) and that people are highly motivated to maintain, instead supports psychological rigidity and being stuck (Swann, Wenzlaff, & Tafarodi, 1992). Individuals fused with a life story that explains and justifies why they are incompetent
have less psychological space within which to lead a valued life. In extreme cases, individuals may be more invested in validating and “being right” about a life story that explains their suffering than in having their lives be more meaningful and productive.

As a counterweight to the potentially pernicious impact of fusion with the conceptual self, ACT clients are taught to view themselves as the context in which all of their history and private events unfold. Self-as-context encompasses a type of transcendent perspective taking in which individuals experience that they are the “observer” that always has and continues to view their ongoing flow of psychological experiences from an invariant vantage point. In this sense, self-as-context has been likened to a sense of spirituality (Hayes, 1984). Rather than teach clients to change their self-concept, ACT therapists seek acceptance of and defusion from self-relevant thoughts and related stories that contribute to psychological inflexibility. The objective is not to exchange one fused narrative with another, but to construct multiple stories that can all be held lightly.

**Dysfunctional rule following versus valued living.** As previously mentioned, values are “freely chosen, verbally constructed consequences of ongoing, dynamic, evolving patterns of activity” (Wilson & Dufrene, 2009, p. 66). As verbal constructions, values can be seen as rules that help guide behavior maintained by intrinsic reinforcement rather than by externally mediated consequences. In this way, valued living can be viewed as rule-governed behavior (Skinner, 1969), and more specifically from the perspective of RFT, as appetitive tracking (Törneke, 2010).

Tracking more generally refers to “rule-governed behavior under the control of a history of coordination between the rule and the way the environment is arranged independently of the delivery of the rule” (Hayes, Barnes-Holmes, & Roche, 2001, p. 109). In other words, all types of tracking are maintained by the natural consequences of engaging in the behavior specified by the rule rather than those that are arbitrarily mediated by rule-givers or their agents. For example,
a child may put on a coat before going outdoors in response to a parental reminder that “it is cold outside.” The child’s behavior would be tracking if the reinforcer for doing so is the increased comfort while outdoors. It would not be an instance of tracking if the child wore the coat to avoid the admonishment of the parent for not doing so. Some of the natural consequences controlling tracking may be positively reinforcing and support appetitive tracking [e.g., “I can get to where I’m going the quickest if I follow my Global Positioning System (GPS)”], while others are aversive and instead maintain avoidant tracking (e.g., “I follow my GPS so I don’t get lost”). A certain degree of behavioral rigidity would be expected under both types of tracking given a general tendency of behavior under the control of rules to be relatively insensitive to the influence of direct contingencies (e.g., Hayes, Brownstein, Zettle, Rosenfarb, & Korn, 1986; Hayes, Zettle, & Rosenfarb, 1989). This tendency towards decreased flexibility, however, would be expected to be more pronounced with avoidant tracking insofar as aversive contingencies contribute to more rigidity than appetitive ones (Sidman, 1989; Skinner, 1971).

A second functional class of rule-governed behavior tends to yield even greater levels of behavioral and psychological rigidity than avoidant tracking. Pliance is perhaps most succinctly defined as “doing what you are told” and refers to “rule-governed behavior under the control of socially mediated reinforcement” (Törneke, 2010, p. 118). The child who puts on the coat in the example cited earlier to comply with the parental reminder is displaying pliance, and in all likelihood, more specifically, avoidant pliance. This is because of research documenting that children are more likely to be admonished for noncompliance and other forms of misbehavior than they are to offer praise for “good behavior” in the classroom (e.g., Beaman & Wheldall, 2000; Thomas, Presland, Grant, & Glynn, 1978) and at home with their parents or guardians (e.g., Baumrind, 1971; 2005). In general, pliance is more likely to support behavioral rigidity than tracking for at least two reasons. One, the socially-mediated consequences of pliance are likely
to be less variable than the natural contingencies surrounding the behavior under consideration (e.g., the parental consequences of compliant/noncompliant coat-wearing are likely to be more consistent than outdoor temperatures). Second, these socially-mediated consequences are likely to be aversive and punitive in nature, which as already underscored, generate rigid and stereotyped patterns of behavior.

Rule-governed behavior is not inherently problematic, but rigid rule-governed behavior is psychologically inflexible. For an illustration, consider how one might follow guidelines or prescriptions for leading a meaningful life when doing so is incongruent with personal values. In the ostensible pursuit of happiness, one might get a college degree, obtain a good job, buy a nice home, get married, and have children. While these behaviors per se are, of course, not problematic, they lack vitality if driven by pliance or avoidant tracking. If individuals seek all the “right” things in life because that's what “you should do” (pliance) or as a means to avoid being unhappy (avoidant tracking), psychological rigidity and lives deficient in meaning and vitality may be the ultimate consequences. These possible outcomes can be illustrated by the “midlife crisis” (Hayes et al., 2012, p. 92) in which middle-aged individuals may temporarily forsake their routine through extravagant purchases, marital affairs, or adrenaline-rushing adventures in search of a deeper meaning than their seemingly mundane lives afford. ACT clients experiencing such a crisis would be asked to reflect upon the ultimate futility of such a strategy and be redirected towards their values (Hayes et al., 2012).

**Inaction/impulsivity versus committed action.** Because the purpose of enhancing psychological flexibility is to enable living a meaningful and value-driven life, committed action can be seen as clear marker of therapeutic success within ACT. While committed action most often entails observable behavior (e.g., spending time with your children), it can also include
private events (such as noticing present moment thoughts and feelings that emerge while doing so).

Under the ACT model, the converse to committed action is a collection of behaviors that may appear topographically diverse, but are united in serving an experiential control function rather than valued ends. For example, individuals struggling with depression may routinely stay at home watching Netflix in order to at least momentarily obtain relief from their dysphoria as opposed to engaging in value-congruent activities that may be more meaningful. Or the individual admiring a new expensive purse may experience a desired “buzz” upon impulsively buying the item on credit despite not having sufficient funds.

Research on Experiential Avoidance/Acceptance

Of the six processes posited as contributing to psychological inflexibility/flexibility, that involving experiential avoidance/acceptance has perhaps received the most attention. For ease of discussion, investigations of this process can be organized into three different domains: (a) experimental analogue research, (b) moderating research, and (c) mediational research.

Experimental analogue research. While outcome studies offer useful evidence for supporting the efficacy of a packaged intervention, or treatment program/protocol, such as ACT, they are less able to provide evidence for the impact of its specific components. Laboratory-based analogue experiments offer an opportunity to investigate how a theoretical model works with high internal validity, thereby shedding light on what components and processes are central to the intervention in question (David & Montgomery, 2011; Kazdin, 1978). Such analogue studies are especially well suited for the ACT model even when subclinical or convenience samples are used given its postulation that the processes comprising psychological flexibility are universal ones that are not specific to psychopathology or clinical forms of human suffering (Hayes et al., 2011). Moreover, the ACT model lends itself well to the investigation of the six
separate, albeit related, processes that purportedly contribute to psychological inflexibility/flexibility as each is ostensibly activated to at least some degree by treatment components specific to them (Levin, Hildebrandt, Lillis, & Hayes, 2012).

Experimental analogue studies of experiential avoidance/acceptance manipulate as independent variables components within ACT that are posited to impact these antagonistic processes. Most of these analogue experiments, as will be seen, have been with subclinical and convenience samples, primarily comprised of college students. Others, however, have presented some of the same or very similar exercises and tasks with clinical samples. Methodologically, the components being examined typically are presented in the form of experiential exercises, metaphors, and/or brief protocols with performance on one or more challenging tasks serving as dependent variables (e.g., Wagener & Zettle, 2011). Perhaps the most commonly used tasks have been the cold pressor (e.g., Zettle et al., 2005) and inhalation of carbon dioxide enriched air (e.g., Feldner et al., 2006; Feldner et al., 2003), but have also included other preparations to induce pain (Kohl, Rief, & Glombiewski, 2013) and fear (Wagener & Zettle, 2011). The cold pressor induces acute pain by submersion of the hand in icy water for up to 5 minutes (Hines & Brown, 1932), while inhalation of carbon dioxide-enriched air is designed to simulate symptoms of panic; including potential increases in heart rate, perspiration, feelings of dizziness and increased difficulty breathing (e.g., Feldner et al., 2003; Karekla, Forsyth, & Kelly, 2004). Only a few illustrations of analogue experiments investigating experiential avoidance and acceptance will be offered here, with a more comprehensive summary provided by Kohl, Rief, and Glombiewski (2012) and Levin et al. (2012).

**Subclinical/convenience samples.** In the first published analogue (Hayes et al., 1999), college student participants presented with a brief acceptance protocol displayed significantly greater pain tolerance on the cold pressor than those assigned to a control-based coping protocol
or attention-placebo control group. The acceptance-based protocol challenged automatic rule-following, attachment to distressing thoughts, and other unworkable strategies in the face of acute pain. Alternatively, the control-based protocol was based on a stress inoculation approach to pain (Turk, 1978) that taught various techniques (e.g., positive self-talk, positive imagery, and controlled breathing) to control pain-related sensations, thoughts, and emotions. Lastly, in the attention-placebo control group, participants were educated about the nature of pain from a behavioral perspective and reviewed their own previous coping techniques.

In addition to the cold pressor task, other researchers have utilized a thermode to induce acute pain by administering high, but not damaging, temperatures beginning at 89.6° F, and climbing at a rate of .9° F per second until it reaches 122° F. Undergraduate participants taught acceptance (e.g. “be ready to experience the pain without any attempt to change it”) rather than cognitive restructuring (e.g. “unpleasant thoughts can be replaced by helpful thoughts”) persisted significantly longer on the task (Kohl et al., 2013), but did not differ from a third group instructed to distract themselves from the task (“distract yourself from the pain and the thoughts which urge you to stop”). In yet another pain-induction study, undergraduate participants were exposed to electric shocks if they opted to continue an incentivized nonsense syllables matching task. Participants given acceptance-based training (e.g. “be in contact with your thoughts and feelings of discomfort”) versus cognitive-control/distraction-based training (e.g. “distract yourself from discomforting thoughts by focusing on positive thoughts or scenes”) persisted longer in the task (Gutiérrez, Luciano, Rodríguez, & Fink, 2004).

In one of the first analogue experiments to employ carbon dioxide inhalation (Eifert & Heffner, 2003), undergraduate females rated high in anxiety on general measures were taught via metaphors and instructions to either accept or suppress any resulting aversive or distressing reactions by redirecting their attention to their breathing. Those taught acceptance reported
significantly less anxiety during the task and were more willing to complete a second challenge compared to their suppression group counterparts (Eifert & Heffner, 2003). In another fear-inducing protocol (Wagener & Zettle, 2011), undergraduate participants frightened of spiders were presented with the Perceived-Threat Behavioral Approach Test (PT-BAT; Cochrane, Barnes-Holmes, & Barnes-Holmes, 2008) in which they were asked to place their hands in a series of opaque containers that they were led to believe had an increased likelihood of housing a spider. Those randomly assigned to the group taught to accept their fear progressed through significantly more containers and were more willing to repeat the task than those who received information that debunked myths about spiders. A third group presented with anxiety-reduction and management techniques did not differ from the other two on either of these measures.

Clinical samples. The impact of acceptance-based protocols in responding to pain and panic-inducing preparations has also been investigated experimentally with clinical samples (e.g., Levitt, Brown, Orsillo, & Barlow, 2004; Vowles et al., 2007). Using patients suffering from chronic pain, Vowles and his colleagues (2007) explored the differences between the coping strategies of accepting pain (e.g., “It’s possible for pain levels to not affect activity levels”), controlling pain (e.g., “It’s possible to control pain via mental strategies or efforts”), and continued practice (e.g., “Continue to perform as you did in the initial assessment of bending and stretching”) in a battery of standardized physical functioning tasks likely to be pain-inducing. The group taught acceptance-based coping showed the greatest overall functioning across the seven tasks.

Utilizing a preparation similar to that of Eifert and Heffner (2003) with college students, Levitt et al. (2004) taught participants diagnosed with panic disorder before inhaling carbon dioxide-enriched air to either accept or suppress any anxiety-inducing reactions through metaphors and instructions. Those taught acceptance reported less anxiety during the task and
were more willing to complete a second challenge compared to participants taught suppression.

At this juncture enough experimental analogue research pertaining to the ACT model more generally, and experiential avoidance and acceptance more specifically, has been conducted to be summarized by two recent meta-analyses (Kohl et al., 2013; Levin et al., 2012). Levin et al. (2012) identified significantly large effect sizes for acceptance-based exercises, metaphors, and protocols in comparison to inactive control groups (e.g., attention-placebo conditions) on outcome variables specified by the psychological flexibility model, such as ability to persist in a distressing task or believability of (fusion with) distressing thoughts. These results did not vary as a function of sample type (i.e., subclinical vs. clinical). In a second meta-analysis (Kohl et al., 2013), acceptance-based protocols also were identified as superior to commonly used emotion regulation strategies (e.g., suppression, distraction, and reappraisal), in improving performance on challenging tasks such as pain tolerance on the cold pressor. The only difference as a function of sample type occurred when clinical participants benefitted more than their subclinical counterparts from an acceptance strategy following negative mood induction.

Moderating research. Moderators have been defined by Kazdin (2007) as “characteristics that influence the direction or strength of the relation between intervention and outcome” (p. 13). Identifying moderators helps facilitate further discovery of how a therapy works and also has potential treatment utility in tailoring interventions to clients (Kazdin, 2007). While identifying a moderator does not reveal the mechanism of an intervention, it does provide insight into when and for whom a particular treatment may be most or least beneficial.

As was the case with experimental analogue research, investigations of experiential avoidance/acceptance as a moderating variable have been conducted with both subclinical/convenience and clinical samples. However, unlike analogue studies that seek to experimentally induce acceptance, moderating research employs a correlational strategy in
determining if responsivity to some intervention varies as function of existing participant levels of experiential avoidance as measured by the AAQ.

**Subclinical/convenience samples.** Most of the “interventions” in moderating research with subclinical/convenience samples have been comparable to many of the challenging tasks (e.g., cold pressor) presented in analogue experiments. As expected, participants reporting high levels of experiential avoidance have generally behaved in significantly different ways compared to their more accepting counterparts. For example, on the cold pressor, college students high in experiential avoidance discontinued the task sooner, were more likely to endorse the dysfunctional coping strategy of catastrophizing (Zettle et al., 2005), and returned to baseline levels of self-reported physical distress slower compared to those low in experiential avoidance (Feldner et al., 2006).

In reaction to carbon dioxide inhalation, participants high in experiential avoidance responded with greater self-reported anxiety, fear and panic, as well as greater perceived uncontrollability during the task (Feldner et al., 2003; Karekla et al., 2004). In another ostensible panicogenic task, college students were incentivized to complete a perceptual-motor task involving the sorting of colored straws while wearing “drunk goggles” designed to induce dizziness, blurred vision, and disorientation. Those lower in experiential avoidance sorted more straws, were less likely to engage in catastrophizing, and reported less distress during the task compared to those reporting high levels of experiential avoidance (Zettle, Petersen, Hocker, & Provines, 2007). In a modified replication, this novel task was combined with the cold pressor to also investigate the potential moderating impact of experiential avoidance on endurance across two stressful situations. College students high in experiential avoidance outperformed those low in experiential avoidance on a composite measure of the two tasks derived from the number of straws correctly sorted and pain tolerance (Zettle et al., 2012).
Other research has particularly focused on how emotional distress in reaction to emotion-eliciting films, aversive images, and negative mood inductions are moderated by levels of experiential avoidance/acceptance. For example, participants high in experiential avoidance reacted more intensely to emotion-eliciting films (both positive and negative) than their less avoidant counterparts (Sloan, 2004). In another study, undergraduates were presented with eight short videos depicting a woman suffering from an apparent panic attack. Participants high in experiential avoidance reported more fear and panic symptoms in reaction to the procedure than their low avoidant counterparts in (Kelly & Forsyth, 2009). A more performance-based protocol presented participants with an image-matching task requiring exposure to aversive images in order to correctly complete it. Undergraduates low in experiential avoidance completed this task with more accuracy, less delay in their response, and were more likely to return to the task (Cochrane, Barnes-Holmes, Barnes-Holmes, Stewart, & Luciano, 2007). Lastly, undergraduate participants with higher experiential avoidance indicated greater levels of subjective distress following a dysphoric mood induction than those low in experiential avoidance (Gird & Zettle, 2009).

Not all moderating research with subclinical samples has utilized analogue-type “interventions” as exemplified by at least two investigations that explored the impact of “real-world” interventions with this population. For example, Masuda, Hayes, Fletcher, Seignourel, and Bunting (2007) investigated the benefit of education interventions, among others, in reducing mental health stigma of undergraduate participants. They found only those who were relatively low in experiential avoidance exhibited a reduction in mental health stigma. In another study, employees with relatively lower levels of experiential avoidance responded better to a work-enhancing program as evidenced by decreased absence rates and better improvements in mental health (Bond, Flaxman, & Bunce, 2008).
Clinical samples. A relatively small number of moderating studies have yielded inconsistent findings in focusing on how those with anxiety disorders respond differentially to therapeutic interventions based on their pretreatment levels of experiential avoidance/acceptance. Half of these studies have reported findings supportive of a compensatory learning model (Gladwell, 2013) in which participants with high levels of experiential avoidance responded better to ACT than a comparison intervention. In the first, Zettle (2003) found that participants with higher self-reported experiential avoidance had greater reductions in math anxiety when treated with ACT than systematic desensitization. More recently, Davies, Niles, Pittig, Arch, and Craske (2014) measured behavioral avoidance through performance on a hyperventilation task and found that those who performed worse (more behaviorally avoidant) benefitted more from ACT than more traditional or “second wave” CBT in treatment of anxiety disorders.

In contrast to the two studies just cited, at least one other investigation provides support for a capitalization learning model (Gladwell, 2013) in which those evidencing lower levels of experiential avoidance responded better to ACT. Participants high in experiential avoidance suffering from social phobia (Craske et al., 2014) in particular, and anxiety disorders more broadly (Wolitzky-Taylor, Arch, Rosenfield, & Craske, 2012) benefitted more from traditional CBT than ACT. In a review of comparisons between more traditional CBT and ACT for anxiety disorders (excludes Zettle, 2003 for its comparison to systematic desensitization), Schneider, Arch, and Wolitzky-Taylor (2015) suggest that experiential avoidance may not function as a linear moderating variable, but instead display a quadratic relationship with responsivity to ACT. In short, at this point in time, the impact of experiential avoidance as a moderating variable among anxiety-disordered samples appears to itself be moderated by one or more additional variables that have yet to be determined.
The role of experiential avoidance as a moderator in patients with chronic pain appears to be clearer. Among women struggling with osteoarthritis and fibromyalgia, those with low baseline levels of experiential avoidance were more likely to report positive affect in subsequent weekly interviews (Kratz, Davis, & Zautra, 2007). In addition, chronic pain patients with lower experiential avoidance performed better during a standardized test of physical functioning expected to induce pain (McCracken & Vowles, 2007). Furthermore, among adults suffering from chronic pain, experiential avoidance predicted poorer overall health and more visits to general practitioners than accounted for pain severity alone (McCracken & Velleman, 2010).

**Mediational research.** This field of research, unfortunately, is complicated by the use of varying definitions of mediating variables (Kazdin, 2007). The current paper will adopt Kazdin’s (2007) definition of a mediator as “an intervening variable that may account (statistically) for the relationship between the independent and dependent variable” (p. 3) because it provides a straightforward set of guidelines for identifying mediators. Perhaps most important among these guidelines is the requirement that a mediator must be changed by a therapeutic intervention and that this alteration must precede a change in the dependent variable. Detecting this sequential relationship between changes in purported process and outcome measures requires the assessment of both over multiple occasions. For example, to demonstrate that ACT is effective in improving valued living by reducing experiential avoidance, supporting research must, among other requirements, identify changes in experiential avoidance before improvements in valued living. Kazdin (2007) emphasizes that establishing this timeline is the “Achilles’ heel of treatment studies” as many studies exploring treatment processes do not adequately illustrate that ostensible “causes” in the form of changes in putative mechanisms of action precede changes in outcome variables as the “effect” (p. 5). In fact, there are a number of studies that explicitly
mention mediators, but utilize a definition that clashes with the one recommended by Kazdin and followed in the literature review presented here (e.g., Kashdan & Breen, 2007).

Identifying mediators has several benefits according to Kazdin (2007) in helping shed light on the processes of therapy. First, there may be a plethora of existing therapeutic interventions that are likely to be overlapping in their mechanisms of action. Identifying the mechanism(s) of change could bring organization to the high number of therapies, which could lead to a more manageable number of interventions to train and make available to clients. Second, understanding therapeutic processes could help optimize treatment efficacy as there could be aspects of the intervention that are inert, and alternatively, other components that that are especially critical. Third, when mechanisms of therapeutic change are understood, interventions can be better adapted to different settings. Fourth, identifying mediators can help point out moderators, which, as previously mentioned, improves treatment planning and tailoring of interventions.

Evidence of reductions in experiential avoidance, or alternatively increases in experiential acceptance, as a mediating process in ACT-based interventions has been accumulated across an array of domains, ranging from areas of employment and social problems in universities to physical and mental health-related concerns.

Subclinical/convenience samples. In one of the earliest studies, employees were randomly assigned to an ACT group or an innovation promotion program designed to improve coping with work-related strain (Bond & Bunce, 2000). Both interventions lasted 3 months and contributed to equivalent improvements in mental health and work-related virtues (attitudes towards innovation and growth), but differed in their apparent mechanisms of action. Favorable changes in outcome variables were mediated by increases in experiential acceptance in the ACT group only.
In another project with a nonclinical sample, the impact of supplementing educational lectures aimed at reducing prejudice in college students with an ACT-based intervention was evaluated (Lillis & Hayes, 2007). Participants were assessed six times before, during, and after two separate interventions (either lecture alone or ACT with lecture). Only the combination was successful in decreasing prejudicial thoughts with this change mediated by reductions in experiential avoidance.

**Physical health-related samples.** Forman et al. (2013) compared an acceptance-based behavioral treatment to a more traditional behavioral intervention in reducing weight among obese participants. While the acceptance-based group experienced greater reductions in weight, such improvement was mediated by reductions in experiential avoidance only for those relatively higher in emotional eating. In other words, the role of experiential avoidance as a mediating variable was itself moderated by level of emotional eating.

By contrast, Gregg, Callaghan, Hayes, and Glenn-Lawson (2007) reported a more generalized effect for increases in experiential acceptance mediating improvement in those with type 2-diabetes. At 3-months follow-up, those whose educational program on diabetic self-care was supplemented with ACT were more likely to report increases in such behavior and demonstrate healthier glycated hemoglobin levels. These positive outcomes were mediated by increases in acceptance only for participants receiving the ACT-related module.

In another health-related, randomized controlled trial, smokers were assigned to a bupropion alone group or one that also included an acceptance-based component. Higher quit-rates among the ACT group at 1-year follow up were mediated by increases in experiential acceptance (Gifford et al., 2011). In yet another health related project (Lundgren, Dahl, & Hayes, 2008), impoverished South Africans suffering from epilepsy were randomly assigned to a 9 hour protocol consisting of either ACT or supportive attention from mental health professionals.
(attention-placebo control group). The ACT group experienced greater reductions in seizures and higher quality of life over the next year with these improvements mediated by increases in acceptance.

At least two studies also have explored the mediating role of experiential avoidance in treating chronic pain. In the first of these, individuals suffering from whiplash-related pain were treated with either treatment-as-usual (e.g., acupuncture, medication) by itself or in combination with ACT (Wicksell, Olsson, & Hayes, 2010). Greater decreases in pain disability and increases in life satisfaction experienced by the latter group were partly mediated by decreased experiential avoidance. In another study, patients receiving treatment at a pain rehabilitation unit received ACT with multiple process measures taken to shed light on the potential change mechanisms (McCracken & Gutiérrez-Martínez, 2011). Decreases in experiential avoidance were correlated with later reductions in depressive symptoms, pain related anxiety, and physical disability. Moreover, a regression model demonstrated that reductions in experiential avoidance predicted these outcomes when controlling for pain intensity.

**Mental health-related samples.** Mediational research conducted with those experiencing psychological distress and disorders is consistent with other findings reviewed within this section. Self-identified individuals with anxious and depressive symptoms received a 9-session, self-help ACT-based program with email support. Fledderus, Bohlmeijer, Fox, Schreurs, & Spinhoven, 2013). Decreases in experiential avoidance mediated alleviation of general psychological distress with decrements during the last third of the program being especially critical for further reductions in anxiety.

Additional research with more clearly-defined clinical samples, have reported similar mediational findings. Community adults diagnosed with social anxiety disorder were treated with traditional CBT and ACT protocols (Niles et al., 2014). While both interventions resulted
in comparable decreases in anxious and depressive symptoms, reductions in experiential
avoidance mediated improvement in social anxiety symptoms and anhedonic depression only
among those receiving the ACT protocol.

Results from other projects suggest that ACT-initiated decreases in experiential
avoidance may mediate therapeutic outcomes with a broad array of anxiety-related concerns. For
example, decreases in experiential avoidance in a clinical group with health-related anxiety
following the introduction of a group-based ACT protocol predicted later decreases in anxious
symptoms at 6-month follow-up (Hoffmann, Halsboe, Eilenberg, Jensen, & Frostholm, 2014).
Another study showed that reductions in experiential avoidance predicted decreases in panic
symptoms among those diagnosed with panic disorder with agoraphobia (Gloster et al., 2014).
Finally, during a 14-week ACT-based group intervention for women diagnosed with borderline
personality disorder, decreases in experiential avoidance preceded reductions in depressive and
anxious, and stress-related symptoms (Gratz & Gunderson, 2006).

Although the bulk of findings supportive of reduced experiential avoidance as a
therapeutic mechanism of change have emerged from research evaluating ACT and closely
related interventions, at least two studies suggest that decreases in experiential avoidance may
also mediate the efficacy of more traditional CBT protocols in treating anxiety disorders. In the
first of these, Arch and her colleagues (2012) reported that decreases in experiential avoidance
predicted reductions in the clinical severity of anxiety disorders among those treated with either
ACT or CBT protocols. In a more recent project, veterans receiving a version of CBT designed
to treat different types of anxiety disorders (for further discussion of this version of CBT see
McEvoy, Nathan, & Norton, 2009) reported reductions in fear ratings and negative affect that
were preceded by decreases in experiential avoidance (Espejo, Gorlick, & Castriotta, 2016).
Arch and Craske (2008) suggested that exposure as a component common to treatment of anxiety
disorders with both traditional CBT and ACT may be instrumental in instigating decreased experiential avoidance as a shared mechanism of change.

**Experiential Control**

The extensive research focus that experiential avoidance has received at least in the opinion of some in the ACT community may have, unfortunately, diverted attention away from a broader process that contributes to psychological flexibility, namely experiential control, of which experiential avoidance may be but one dimension or facet (Harris, 2007; Swails et al., 2016). Experiential avoidance is limited to efforts to control *unwanted* thoughts, feelings, and other private events as well as the contexts that occasion them. As such it can be construed as negative emotional control. Overlooked, however, may be the equally pernicious effects of *positive* emotional control or what can be regarded as experiential approach (Zettle, 2007, p. 170). Experiential approach has been defined as “attempts to contact, sustain, or somehow control positive thoughts, emotions, urges, memories and bodily sensations, as well as the contexts that give rise to them” (Swails et al., 2016, p. 531).

At least two reasons can be cited to warrant further consideration and investigation of experiential approach as an ostensible second type or form of experiential control. One is more theoretical and conceptual in nature, while the other is more pragmatic. First, if both experiential approach and avoidance as types of emotional control can be shown to each separately contribute to psychological rigidity, the breadth and depth of the model of human suffering and its alleviation on which ACT is based, is expanded. Second, on more pragmatic grounds, extending ACT to also explicitly address complications of experiential approach may not only enhance its efficacy, but also increase its overall visibility, given the amount of attention that the pursuit of happiness in particular has received from laypeople and researchers alike. The attainment of happiness has been regarded a core aspect of high psychological well-being (Diener & Larsen,
1993; Fredrickson, 1998; Keyes, 2002; Myers & Diener, 1995) with positive emotions used to measure subjective well-being (Diener, & Larsen, 1993). Many individuals, especially among western cultures, cite “the pursuit of happiness” as a primary motivator for their actions (Kitayama & Markus, 2000) and it is even singled out as a right granted to all U.S. citizens by the Declaration of Independence (U.S. Declaration of Independence, 1776).

While the possible impact of experiential approach on psychological flexibility has been recognized by some in the ACT community within the last decade (Harris, 2007; Zettle, 2007), efforts to study this relationship has been severely hampered until recently by the lack of a means of measuring experiential approach. For instance, in *The Happiness Trap*, Harris (2007) discussed how efforts to chase and maintain happiness can be detrimental in the same way as experiential avoidance. Specifically, Harris warned that controlling positive emotions could be damaging when it is excessive, unsuccessful, and interferes with valued living. Zettle (2007) acknowledged that “experiential control in depression can also take the form of clients deliberately trying to induce certain desirable emotional states (p. 170)”, while also underscoring the futility of such efforts.

**Measuring Experiential Approach**

To address the gap between mere speculation about the possible noxious effects of experiential approach and examining them empirically, the Experiential Approach Scale (EAS) has been recently developed (Swails et al, 2016). As can be seen in Appendix A, the scale yielded two factor-derived subscales that were only modestly correlated with each other, suggesting two distinct ways of responding to positive private events such as happiness. The anxious clinging subscale appears to encompass fear and worry of losing happiness and other desired emotional states as exemplified by items such as “When I’m in a good mood, I worry that something will spoil it” and “My concern with losing good feelings prevents me from
enjoying them”. Experience prolonging, on the other hand, appears to reflect efforts to enjoyably sustain positive affective experiences as illustrated by items like “I do my best to stay happy all the time” and “If I am in a good mood, I try everything I can to stay that way”.

In a preliminary evaluation of the psychometric properties of the EAS, the anxious clinging subscale was positively correlated with an array of measures reflecting both general and specific forms of psychological distress such as worry, depression, and neuroticism, but inversely related to measures of subjective wellbeing. On the other hand, the experience prolonging subscale was either weakly or insignificantly correlated with psychological distress and suffering, but weakly and positively correlated with measures of subjective happiness (Swails et al., 2016). Two other findings further underscore the distinction between the two factor-derived subscales. First, anxious clinging was significantly related to a measure of attachment as viewed from the Buddhist perspective (Sahdra, Shaver, & Brown, 2010). This construct is regarded as a pathway to suffering, while its alternative, nonattachment, serves a mitigating function (e.g., Asanga, 2001). By contrast, the correlation with experience prolonging was insignificant and significantly lower than that between anxious clinging and attachment. Second, a regression predicting depression revealed anxious clinging as a risk factor of depressive symptoms, while experience prolonging served as a protective factor.

A seemingly therapeutically useful and more experientially-based way of distinguishing between the two dimensions of experiential approach has been provided by the “butterfly garden” metaphor and exercise as suggested by Swails et al. (2016). We visit a butterfly garden with the hope that one of them might land in the palm of our hand. If a butterfly visits us in this manner we can either prevent its departure by clasping our hand around it and crushing it in the process (anxious clinging), or keep our hand open and savor however long the butterfly lingers before flying away (experience prolonging).
The two EAS subscales at least so far appear to clearly measure distinct processes in an internally and temporally consistent manner. Perhaps of even greater relevance for possibly expanding the scope of experiential control, both are positively correlated with experiential avoidance as measured by the AAQ-II. Moreover, structural analyses with the EAS subscales and the AAQ-II provide support for a hierarchical model of experiential control, with experiential approach and experiential avoidance as first-order factors (Swails et al., 2016). To summarize, it appears that experiential approach can be meaningfully construed as another type of experiential control, but that the two forms it can take are differentially related to psychological rigidity and human suffering. While anxious clinging represents potentially dysfunctional ways of responding to happiness and other positive emotions, experience prolonging may even serve as a protective factor.

**Purpose of this Study**

As already reviewed, there is a considerable body of research examining how experiential avoidance as assessed by the AAQ-II moderates reactions to and performance during challenging exercises and tasks. The introduction of the EAS has now made it possible to investigate if levels of anxious clinging and/or experience prolonging also serve as moderating variables in responding to tasks designed to induce positive rather than negative affective experiences. The results of such research may not only provide possible further validation of the EAS, but also an opportunity to extend our understanding how experiential control as more broadly defined may contribute to psychological inflexibility and human suffering.

More specifically, the purpose of this study was to investigate the degree to which the subscales of the EAS moderate how a college student sample responds to an emotion-altering film. As such, its overall design and strategy paralleled those followed by experimental analogue studies reviewed earlier that have investigated experiential avoidance/acceptance as a moderating
variable. However, in contrast to such research, this study used a positive mood-induction procedure, as it appears to provide a better preparation to examine how desired private events are contacted and potentially sustained. Responses were compared to a control group exposed to a neutral, nonemotion-inducing film.

**Ways of Inducing Positive Affective States**

A good deal of research in the area of emotion-regulation has identified varying protocols, procedures, exercises, and tasks for inducing emotions more broadly, and positive affective states in particular. While a comprehensive overview of these means is beyond the scope of this project (for full discussion see Coan & Allen, 2007), a discussion of some of the broader ways of inducing positive affective states, followed by a rationale for the method used in this study, seems useful to consider. Protocols to induce positive emotions in the laboratory have included (a) films (e.g., Mauss et al., 2011), (b) images (e.g., Lang, Bradley, & Cuthbert, 2005), (c) instigated facial expressions (e.g., Levenson, Ekman, & Friesen, 1990), (d) self-statements (Velten, 1968), (e) music (e.g., Seibert & Ellis, 1991; Vastfjall, 2002), and (f) social interactions (e.g., Forgas, 1991; Levenson & Gottman, 1983; Schacter & Singer, 1962).

**Films.** A variety of available films have been used to induce a wide range of positively valenced emotions, such as amusement and happiness, with a sufficiently high degree of intensity (Rottenberg, Ray, & Gross, 2007). Films also have high potential to parallel real-world situations, such as watching a popular athlete win a competition (Rottenberg et al., 2007), thereby providing high ecological validity even in a laboratory setting (Tooby & Cosmides, 1990).

**Images.** A similar but distinct method of positive mood-induction involves the presentation of still images and/or evocative photographs. One of the most common methods is the International Affective Picture System (IAPS; Lang et al., 2005) that consists of a large set of
color photos designed to induce a wide range of emotions. For example, explicit images are included to elicit sexual arousal, while beautiful landscapes induce happiness (Bradley, Codispoti, Cuthbert, & Lang, 2001). With its large database of pictures, the IAPS has the advantage of being highly standardized (Bradley & Lang, 2007), but also has the drawback of the same image eliciting multiple emotions (Lang et al., 2005).

**Facial expressions.** The emotional impact of instigated facial expressions was first discovered inadvertently by researchers seeking to identify the specific muscles engaged in various expressions (Ekman & Friesen, 1978). This sparked a line of research utilizing protocols such as the directed facial task to induce emotions. In this task, participants construct various facial expressions through clear directions about how to do so (e.g., “raise your cheeks, part your lips and let your lip corners come up”; Ekman, Friesen, & Hager, 2002). While this protocol produces changes in emotional intensity with moderate effect sizes in both positively and negatively valenced emotions (Duclos & Laird, 2001), it has been criticized for affecting only a subset of the tested population (Kellerman & Laird, 1982; Laird & Crosby, 1974), and for exhibiting relatively weaker subjective levels of emotion compared to film (Rottenberg et al., 2007). Accordingly, it is perhaps not surprising that directed facial expressions has been a relatively underused technique for inducing positive emotion (Laird & Strout, 2007).

**Self-statements.** The commonly cited Velten (1968) procedure provides another way to induce emotion by prompting the participant to read positive self-referential statements (e.g., “If your attitude is good, then things are good, and my attitude is good”). While the Velten protocol is criticized for its limited effect on some participants (Clark, 1983), it set the stage for a number of related techniques (e.g., Seibert & Ellis, 1991). However, a common criticism of these induction procedures is that they primarily intensify existing moods (Blaney, 1986; Eich, Ng, Macaulay, Percy, & Grebneva, 2007) rather than initiate new affective states. In addition, critics
have argued that the Velten and similar procedures are high in demand characteristics (Clark, 1983).

**Music.** Music, including instrumental selections as well as those with lyrics, is well-known to arouse deep emotions and has been used in the laboratory for this purpose (Västfjall, 2002). Examinations of musical structure have identified certain elements (e.g., mode, tempo, pitch) that are thought to most likely induce positive emotions (e.g., Juslin, 2001). In addition, a number of compositions have been documented to effectively induce positive emotions (e.g., “Tennessee River” by Alabama in Terezis, 1993). However, there is high variability in reactions to music. For example, well-known pieces, while upbeat in nature, can be linked to negative events in a person’s life. Similarly, a personal preference or dislike for a particular musical element could contradict the intended reaction (Vjästfall, 2002). This may help account for the varied results found in the literature as some studies support the effectiveness of music in inducing positive moods (e.g., Parrott & Sabini, 1990, while others do not (e.g., Martin & Metha, 1997).

Some researchers in an effort to enhance the impact of both have combined music and self-statements such as the mood-modification technique (MCI) of Eich and Metcalfe (1989). This protocol, when inducing happiness, involves playing either “merry” music while participants are instructed to contemplate elating thoughts about personally relevant people (e.g., loved ones), places (e.g., beautiful scenery), or events (e.g., personal successes). It has been demonstrated to induce changes in emotion in as many as 87% of participants across a summary of seven studies on the MCI (Eich et al., 2007).

**Social interactions.** Perhaps the most intuitive method of inducing emotion in the laboratory involves facilitating social interactions. This method as famously used by Schacter and Singer (1962) demonstrated that confederates can effectively alter the mood of participants
in certain situations. A variety of modernized protocols also have used confederates to alter emotions. For example, Masters, Carlson, and Rahe (1985) elicited positive emotions in participants by having them compare their performance on a valued task to a confederate’s poorer performance. An inherent challenge in using such protocols is their standardization (Aronson, Brewer, & Carlsmith, 1985). While staged social interactions can produce emotional reactions of high intensity, they also raise ethical concerns about the necessary elaborate and deceptive cover stories involved, as well as the resulting interpersonal conflicts that sometimes emerge (Harmon-Jones, Amodio, & Zinner, 2007).

**Preferred method for this project.** Among the different means of inducing positive emotions, films were used in this project for three reasons. First, films have the potential to produce positive emotions at a higher level of intensity relative to other induction procedures (Ellard, Farchione, & Barlow, 2012; Rottenberg, Gross, Wilhelm, Najmi, & Gotlib, 2002). In addition, there is substantial evidence that films elicit a range of reactions, including subjective experience of emotion, physiological changes, and observable affect (Karama et al., 2002; Palomba, Sarlo, Angrilli, Mini, & Stegagno, 2000). Second, the ability to standardize the use of films sets them apart from the use of protocols using confederates acting out scripted emotion-eliciting scenarios. Third, films also appear to have higher ecological validity than other protocols, such as making facial expressions. Virtually all participants have viewed commercial films designed to elicit a wide range of emotions. By contrast, being directed to make exaggerated facial expression is more likely to be experienced as unnatural and forced (Rottenberg et al., 2007).

This project compared reactions to a film designed to induce happiness and one designed to be emotionally neutral. The positive film depicts a popular figure skater winning a gold Olympic medal and has reliably increased subjective ratings of happiness in prior research.
exploring the impact of valuing happiness on positive mood induction (Mauss et al., 2011). The neutral film was a noncommercial screen saver recommended by Rottenberg and his colleagues (2007) for use as a control condition in mood induction research.

**Ways of Assessing Emotion**

A range of specific means of assessing emotion have been proposed and used owing in large part to varied definitions and interpretations of emotion appearing in the literature (Gross, 2014). It should also be noted that many researchers use the terms mood and emotion differently depending on their intensity and duration. Mood is often defined as more stable with a longer duration than emotions, which are viewed as transient and generally of greater intensity (e.g., Gray & Watson, 2007; Watson, 2000). Rather than offering a comprehensive review of these issues that would be beyond the scope of this project, a conceptualization of emotion informed by common themes cutting across varying definitions of it was adopted.

One of these core features of emotion is its multifaceted nature. Emotion is widely accepted as a whole-organism experience encompassing changes in subjective experience, behavior, and physiology (Mauss, Levenson, McCarter, Wilhelm, & Gross, 2005). Another common feature refers to *when* it occurs as emotion emerges when someone attends to and evaluates a situation (Scherer, Schorr, & Johnstone, 2001). Therefore, this project views emotion as a “full-body” experience (consisting of a subjective experience, physiological changes, and alterations in observable behavior) that is transient in nature and that occurs in reaction to specific situations. There are several means to assess emotion that vary depending on whether they target the subjective experiences (e.g., Watson, Clark, & Tellegen 1988; Gottman & Levenson, 1985), physiological changes (e.g., Ekman et al., 2002; Gottman, McCoy, Coan, & Collier, 1995) or alterations in observable behavior (e.g., Wilson, Macleod, & Campbell, 2007) that are part of emotional reactions.
**Subjective experience.** Methods of assessing the subjective experiential dimension of emotion rely on self-report scales and ratings. Some of these measures are limited to assessing discrete emotions, such as happiness (e.g., Lyubomirsky & Lepper, 1997), while others focus on positively-valenced emotion more broadly (e.g., Watson, Wiese, Vaidya, & Tellegen, 1999). Proponents of assessing emotion via self-report argue that its subjective nature can only be evaluated by asking individuals about their experiences (Lyubomirsky & Lepper, 1997). In addition, self-report measures are easy to administer (Ruef & Levenson, 2007), and while the psychometrics of specific measures of positive emotion vary somewhat, they generally display adequate levels of internal and temporal stability as well as sufficient convergent and divergent validity (Gray & Watson, 2007). Drawbacks to assessing emotion by self-report include concerns about demand characteristics and social desirability (Sallis & Saelens, 2000), although measures can vary in considerably in their susceptibility to each (Chan, 2009).

Self-report scales ask questions or pose statements about emotion with response options including likert-style answers or checklists. Self-report measures such as the Subjective Happiness Scale, present statements (e.g., “compared to most of my peers I consider myself to be . . .”) that participants answer with likert-style ratings (i.e., 1 (less happy) to 7 (more happy) scale; Lyubomirsky & Lepper, 1997). Other self-report instruments focus more on the assessment of affective states than on the trait-like nature of emotional dispositions. For example, participants who complete the Depression Adjective Checklist are asked to simply indicate which of a number of both positive and negative emotions and mood states are being experienced at that moment (Lubin, 1965, 1981).

Unfortunatelty, the reliability of such state-like measures may be limited by the time required for their completion and the transient nature of emotional reactions. Ongoing self-ratings that track moment-to-moment changes in affective experiences may be one means of
potentially addressing this concern. For example, the affect rating dial contains numbers ranging from 1 (very negative) to 9 (very positive) that can be adjusted by the participant throughout an emotion assessment procedure to provide constant data collection (Gross & Levenson, 1995). Continuous ratings, however, are not without their own downside as some researchers argue that active monitoring of positive emotional states as they occur is inherently distracting and may negatively impact the positive hedonic state (e.g., Schooler, Ariely, & Loewenstein, 2003).

**Physiological changes.** Tracking physiological changes that occur in the body as a consequence of emotion primarily involves the assessment of facial muscle activation either by electromyographic (EMG) readings (e.g., Cacioppo, Petty, Losch, & Kim, 1986; Hess, Philippot, & Blairy, 1998) or trained observers (e.g., Ekman, Friesen, & Hager, 2002). During EMG assessment, electrodes are placed on a participant’s face and changes in certain muscle groups are monitored during the emotion-eliciting event. To address concerns about demand characteristics, researchers sometimes place dummy electrodes on the head and torso to divert attention away from the face (Cacioppo et al., 1986). Facial EMG readings as a method of assessing emotion are documented to effectively distinguish valence of emotions more reliably than untrained observers (Cacioppo et al., 1986). In addition, some researchers favor facial EMGs over self-report in measuring emotion (Hazlett & Hazlett, 1999), although it appears to be less reliable with people that show blunted affect such as those with depressive symptoms (Gehricke & Shapiro, 2000).

Several different observational systems have been proposed as an alternative or complement to EMG in reading emotions from a person’s face. For example, the facial action coding system breaks down complex facial expressions into specific action units that are thought to indicate specific emotions (Ekman & Friesen, 1978). According to this system, the raising of
the cheeks along with activation of the *orbicularis oculi* and *pars orbitalis* muscles can be indicative of happiness (Ekman, Friesen, & Hager, 2002). Proponents of this method value its alternative to the subjectivity of self-report measures as it is not limited by individuals’ perceptions and memories of their own emotion (Cohn, Ambadar, & Ekman, 2007). A limitation, however, lies in the potentially low reliability of this method even among highly trained raters. Even with extensive training, interrater reliability using the contemporary form of the facial action coding system only ranges between .49 - .83 for the various action units (Sayette, Cohn, Wertz, Perrott, & Parrott, 2002).

**Observable behavior.** A final way to assess emotions is by noting changes in overt behavior and task performance. Although these tasks provide another useful perspective on affect, they are more often used to assess moods rather than emotions and are consequently primarily employed in research surrounding mood disorders (Wilson et al., 2007). For example, low mood has been assessed with computerized Stroop tasks as those who perform the task slower are thought to be more dysphoric and susceptible to depression (Bradley, Mogg, Miller, & White, 1995). While most of these approaches have been used to assess negative emotions and moods as well as vulnerability to various affective disorders, some have been developed to assess positive emotions. For example, participants presented with abstract polygons are asked to evaluate their preference of them. Because liking is associated with more positive moods, a greater preference compared to others in a given sample is thought to be indicative of relatively more positive emotion (Mauss et al., 2011; Mayer & Hansen, 1995).

**Preferred methods of assessment for this project.** Because of the multifaceted nature of emotion, the current project employed multiple methods of assessing positive affect while being mindful of not placing an undue burden on participants. Due to this concern as well as technological and practical considerations, assessing emotion-related physiological changes were
not monitored. To do so would have required either sophisticated equipment, such as a polygraph, or rather extensive training of potentially obtrusive observers to discern fairly subtle changes in the facial muscles of participants. This project, however, assessed the other two dimensions of emotional reactions (i.e., changes in subjective experience and observable behavior) commonly evaluated in mood-induction research.

Alterations in subjective emotional experience were assessed via self-report scales and those involving more overt behavior were measured with the use of an implicit evaluation task. Both of these methods were easily administered with no training necessary and provide reliable and valid means of assessing the impact of emotion-inducing films (Mauss et al., 2011; Tsai, Levenson, & Carstensen, 2000).

The subjective experiential dimension of emotion was assessed by the administration of three self-report measures, with each described in greater detail in the next chapter. The Positive and Negative Affect Scales (PANAS see Appendix C; Watson et al., 1988) was used to assess changes in the overall valence of participant mood states following the film presentations. The other two measures are brief rating scales that were only administered after the two films to assess subjective reactions of participants to any change in their affective state. One of these, the Desire to Sustain Elation Scale (DSES see Appendix D; Gird, 2011), asks participants to indicate how much they would like to maintain any shift in mood, how much effort they would put into doing so, and how distressed they will be when any elevation in their mood dissipates. The Subjective Units of Pleasure Scale (SUPS see Appendix E; Gird, 2011) consists of one question asking participants to rate how pleasurable any change in their mood was.

Emotionally-related behavior was evaluated with an implicit measure administered after the film presentations and developed by Mauss and her colleagues (2011) that involves evaluating two polygons. Based on Mayer and Hanson (1995), Mauss et al., (2011) reasoned that
participants who evaluated the polygons more highly relative to their peers were likely to be in a more positive mood.

**Overview of Data Analyses and Specific Hypotheses**

This project explored the ability of the EAS subscales to moderate the impact of happiness-inducing and emotionally neutral films on related subjective affective experiences and overt behavior. The data were analyzed using a canonical correlation analysis (CCA). This test is multivariate as it creates synthetic variables from sets of predictor and criterion variables. These synthetic variables are correlated with standardized coefficients revealing standardized weights of both measured and unobserved variables (Tabachnick & Fidell, 2013). The set of predictor variables in this study consisted of the independent variable of film condition and quasi independent variables of Anxious Clinging and Experience Prolonging. The set of criterion variables included the dependent measures of the PANAS, DSES, SUPS and polygon ratings.

CCA was chosen over other analyses such as regression models or ANOVAs for two reasons. First, CCA is a multivariate technique allowing one single test to be conducted on several predictor and criterion variables, which greatly reduces the risk of a Type I error by accounting for correlations between both the predictor and criterion variables. Even multiple regressions must be conducted several times to explore the impact on multiple criterion variables (Sherry & Henson, 2005). Second, the ability to aggregate multiple criterion variables may better capture the reality of their relationship. In the event there are multiple causes or multiple effects between predictor and criterion variables, CCA is likely better suited to explore these outcomes than a series of regression models or an ANOVA (Sherry & Henson, 2005).

Hypotheses examined by this study can be organized into broad predictions of the model as a whole and more specific ones concerning the relative contribution and direction of each individual measure. Broadly speaking, the synthetic predictor and criterion variables were
expected to be significantly related. More specific hypotheses were explored one measure at a time, including predictions regarding relative magnitude of effect sizes and the direction of relationships.

**Film condition.** The two films used in this project had not been previously compared with each other. However, previous research suggests that the happy film induces positive emotions (Mauss et al., 2011), while the neutral film leads to hedonically neutral affective reactions. For this reason, film condition was hypothesized to have a positive relationship with the criterion measures that reflect more positive affect (i.e., PAS). Furthermore, due to the intended impact of the happy film in *inducing* positive emotion, film condition was expected to be the largest contributor among all predictor variables in accounting for variance in criterion measures.

**Anxious Clinging.** This EAS subscale has documented positive correlations with self-report indices of psychological distress, such as depression, and negative associations with positively valenced measures, such as subjective happiness and satisfaction with life (Swails et al., 2016). Therefore, Anxious Clinging was expected to be negatively related to the synthetic criterion variable and with measures of positive affect in particular. Because this subscale has been more strongly related with both positively and negatively valenced psychological variables than Experience Prolonging (Swails et al, 2016), it was expected to make a greater contribution to the CCA model.

**Experience Prolonging.** In general, the effects of Experience Prolonging were anticipated to be the inverse of those for Anxious Clinging, albeit less powerful. This expectation is based on previous findings of a mild positive correlation between Experience Prolonging and a trait measure of happiness (Swails et al., 2016).
**Criterion variables.** As previously stated, the set of measures that contributed to the synthetic criterion variable included the PANAS, DSES, SUPS, and polygon ratings. The PANAS measures reflective of positive affect (i.e., PAS and hedonic balance) were expected to be positively related to the synthetic predictor variable. Positive relationships, but of smaller effect sizes, were also anticipated between the synthetic predictor variable and the SUPS and polygon ratings. It seemed unlikely that a similar relationship with the predictor variable would extend to all of the DSES items, however, as only the first three assess an effort or desire to sustain positive shifts in mood. The last item, by contrast, is reflective of dissatisfaction with the end of a positive mood. Therefore, the first three items of the DSES were expected to be more positively related to the model and the final item of the DSES to be negatively related to the model.
CHAPTER 3
METHODOLOGY

Participants

Participants were undergraduate students at Wichita State University recruited through the online SONA system who were at least 18 and were sufficiently able to read and respond to questions in English. Individuals \( N = 1231 \) who completed an omnibus, online screening battery of questionnaires, including the EAS, and who indicated an interested in being contacted about their eligibility for other projects, were invited to participate in the study proper with 171 agreeing to do so. The screening battery within which the EAS was embedded was administered at an earlier time and in a different context to minimize demand characteristics. However, in order to minimize time since completion of the screening survey, invitations for the study proper were sent to eligible participants in the order in which they completed it.

Of the 171 students who participated in the study, data were retained for 138. As seen in Table 1, the majority of participants were female (73.9%) and White (65.2%) with a mean age of 22 (SD = 5.7). Participant dates of birth and demographic variables from the screening survey and a background questionnaire (see Appendix A) administered at the time of the study proper were used for matching purposes. Unfortunately, this was not possible for 10 participants due to missing dates of births. Because missing data violates the relatively sensitive assumptions of CCAs (Sherry & Henson, 2005), another 22 participants were excluded for this reason. Lastly, one participant was removed for failing a postfilm validity question. Because participant dismissals occurred after their random assignment to film conditions, the final number of participants in each was unequal (see Table 1).

Measures of Moderating Variables
The two subscales that comprise the EAS served as moderating variables and were completed by all participants as part of the initial screening battery.

**Anxious Clinging.** This 11-item subscale (see Appendix B) reflecting fear or worry of losing happiness and other desired emotional states was identified via a factor analysis of the EAS (Swails et al., 2016). Example items include, “When I’m in a good mood I worry that something will spoil it” and, “I wonder why my good moods are fleeting”. Responses are scored on a 7-point Likert-type scale (“never true” to “always true”) with higher scores indicative of more anxious clinging. While the subscale is recently developed and not yet widely disseminated, a preliminary evaluation of its psychometric properties is promising. Anxious Clinging previously demonstrated high internal (αs from .91 -.94) and test-retest reliability, as well as satisfactory levels of convergent and discriminant validity (Swails et al., 2016). Internal consistency (α = .95) for the current sample was also high.

**Experience Prolonging.** Experience Prolonging is a second subscale identified in factor analyzing the EAS (Swails et al., 2016). Its seven items (see Appendix B) assess attachment to positive affective experiences with higher scores indicative of greater efforts to do so. Items are rated in the same manner as those on Anxious Clinging and includes “When I’m feeling good I try to do whatever I can to hang on to it.” The subscale demonstrates adequate levels of temporal stability, but different relationships than Anxious Clinging with various criterion variables. While Anxious Clinging is at least moderately correlated with both measures of psychological distress and positive affect-related measures (inversely so), such as subjective happiness and satisfaction with life, Experience Prolonging at most is only weakly related to both sets of variables (Swails et al., 2016). This subscale’s internal reliability was acceptable in this sample (α = .79) and comparable to previously reported levels (αs from .82 -.85; Swails et al., 2016).
Measures of Dependent Variables

Three self-report measures and one performance-related measure were obtained to assess the impact of the two film conditions. Only the Positive and Negative Affects Schedule were administered both before and after the film presentations while the remaining three measures were collected postfilm.

**Positive and Negative Affects Schedule (PANAS).** The PANAS (see Appendix C) is a checklist of 10 positively valenced feelings and emotions (e.g., “excited”, “inspired”) and 10 negatively valenced ones (e.g., “ashamed”, “hostile”) that participants rate on a 5-point Likert style scale (“very slightly” to “extremely”) to reflect how much they experience each at that moment (Watson et al., 1988). This instrument yields three separate scores including Positive Affect Schedule (PAS), Negative Affect Schedule (NAS), and hedonic balance. PAS comprises the sum of all positively valenced emotions and can range from 10 -50 with higher scores indicative of greater experience of positive affect. NAS consists of the sum of all negatively valenced emotions with higher scores representing greater experiences of negative affect. Lastly, hedonic balance is calculated by dividing PAS by NAS and indicates the ratio of positive to negative emotions (e.g., Mauss et al., 2011). Hedonic balance scores above 1 indicate more positive affect than negative affect and scores below 1, the opposite (Watson et al., 1988).

Both PAS and NAS demonstrate comparable and acceptable levels of internal reliability with nonclinical (α = .86 and .87, respectively) as well as clinical samples (α = .85 and .91, respectively; Watson et al., 1988). The current sample also indicated acceptable to high levels of internal reliability at both pre and postfilm administrations of the PAS (α = .90 and .94, respectively) and NAS (α = .80 and .78, respectively). Because the PANAS was administered as a state measure, its temporal stability is not pertinent for the purposes of this project. Support for the convergent validity of the PANAS has been provided by correspondence between the scores.
of individuals and peer ratings of their affective states (Watson & Clark, 1994) as well as significant correlations in particular between NAS and measures of anxiety and depression (Watson et al., 1988). Relatedly, the PANAS has also shown satisfactory discriminant validity in accurately identifying those with either anxious or depressive symptoms within both clinical (Dyck, Jolly, & Kramer, 1994) and subclinical community samples (Watson et al., 1995).

**Desire to Sustain Elated States (DSES).** This 4-item measure (see Appendix D) assesses subjective reactions to increases in hedonic states and was developed by Gird (2011) to reflect the impact of euphoric mood induction procedures. The first three questions are closely related as they pertain to efforts or desires to further increase positive affect (e.g., “How much would you like to continue any positive shift in mood you may have experienced”), while the last item refers to negative reactions to diminishing positive mood (“If you noticed that your mood was no longer positive how distressed would you be?”). The internal reliability of the 4-item version of the DSES for this sample was marginal ($\alpha = .68$), but improved to an acceptable level ($\alpha = .83$) with removal of the last item. For this reason, two separate dependent variables were derived from the DSES: (a) scale reflecting efforts and/or desire to increase positive affect composed of items 1 - 3, and (b) reactions to loss of positive mood as assessed by item 4.

**Subjective Units of Pleasure (SUPS).** The SUPS was also designed by Gird (2011) to assess subjective pleasure experienced following a mood induction. It was adapted from the Subjective Units of Disturbance Scale (SUDS, Wolpe & Lazarus, 1968) and contains one question (see Appendix E) that participants respond to on a scale of a 1 (“not at all pleasing”) to 100 (“completely pleasing”).

**Polygon ratings.** This procedure (see Appendix F; Mauss et al., 2011) is an implicit measure of emotions that asks participants how much they like two polygons on a scale of 1 (“not at all”) to 10 (“very much”). Given that positive feelings tend to be associated with more
positive judgments (Mayer & Hanson, 1995), higher ratings of the figures purportedly are indicative of more positive affect. This measure was created and utilized by Mauss and her colleagues (2011) and was found to distinguish between participants who received a positive versus a negative mood induction. Although the internal reliability of ratings across the two different shapes was at least marginally acceptable in prior research ($\alpha = .67$), it was substantially lower the current study ($\alpha = .49$). For this reason, the two ratings were treated as separate variables rather than added together.

**Film Conditions**

Participants were randomly assigned to view one of two films. Each lasted 2.5 min and were presented to participants seated before a 9 x 12 computer monitor. Along with the following instructions:

You will be shown a short film and afterwards asked to answer several question about your reactions to the film as well as opinions and evaluation of it. Please pay close attention to the film so you can knowledgably and honestly answer these questions. To assist you in this, we ask that you turn off your cell phones as well as any other electronic devices, or put them on silent at this time. A research assistant will be in the room while you complete the study in case you have any concerns about as it progresses. Please direct any questions you may have to the assistant.

**Happy film.** This clip depicting a popular figure skater winning a gold Olympic medal in front of an audience was utilized by Mauss and her colleagues (2011) to induce a happy mood in participants. A validity check verified that this film induced a higher level of positive affect as assessed by self-report than a neutral film clip used in a pilot study.

**Neutral film.** This clip depicting a screensaver of lighted sticks appearing and disappearing across the screen has been shown to have minimal impact across a wide range of
discrete emotions, including amusement, anger, confusion, disgusts, embarrassment, fear, happiness, interest, sadness, and surprise (Rottenberg et al., 2007).

**Procedure**

Upon agreement to participate, students were scheduled for a specific time to report to a research laboratory located within the Department of Psychology. Informed consent was obtained (see Appendix G) followed by completion of a background questionnaire (see Appendix A) presented via computer to verify information for each participant that was also culled from the online survey. Also, three questions (items 6 – 8) were included in the questionnaire about movie-viewing habits to support the rationale of the study presented in the consent form and to minimize demand characteristics by masking its true focus.

Participants next completed an online, prefilm administration of the PANAS prior to being randomly assigned to one of the two film conditions. After watching the film, all participants responded to an online administration of a second PANAS, DSES, SUPS, and the polygon ratings counterbalanced for order. Lastly, a Film Opinion survey specific to each film (see Appendix H) was administered for the purpose of verifying that participants sufficiently attended to the films and to further obscure the true purpose of their presentation. As previously mentioned, one participant was removed from further analyses due to an incorrect answer to the validity question (see Appendix H, Neutral Film Version, Question 3). The chosen answer (“Geometrically similar shapes change shape during the film”) was deemed conceptually different from the correct one (“Geometrically similar shapes of different colors move across the screen”). It should be noted, however, that four other participants with a different incorrect answer to the validity question (“Geometrically different shapes move across the screen”) were retained because it was judged to be sufficiently similar to the correct answer. Finally, participants were debriefed (see Appendix I) before being dismissed in a manner that continued
to mask the purpose of the study and thereby minimized demand characteristics among subsequent participants. The entire protocol took 10 - 15 min.
CHAPTER FOUR

RESULTS

Participants in the two film conditions did not differ from each other in age, gender, race/ethnicity, whether or not English was their primary language, or in EAS scores. They also did not significantly differ from each other in their prefilm mood state as assessed by the PANAS (see Table 2), suggesting that the random assignment of participants served its intended purpose.

In order to investigate demographic differences as a function of the EAS subscales, participants were divided along a median split for both Anxious Clinging and Experience Prolonging. Low and high respondents on both subscales did not differ from each other in age, gender, race/ethnicity, or whether or not English was their primary language. Additionally, a 2 (anxious clinging: high vs. low) X 2 (experience prolonging: high vs. low) ANOVA revealed no interaction effects on any of the previously mentioned demographic variables.

A CCA was conducted using film condition, Anxious Clinging, and Experience Prolonging as the predictor variables and the following six different measures as the predicted or criterion variables: (a) hedonic balance change scores from the PANAS (calculated as posthedonic balance – prehedonic balance), (b) the first three items of the DSES that reflect efforts to increase positive affect, (c) the fourth item of the DSES that assesses distress over loss of positive mood, (d) SUPS, (e) liking rating for polygon shape 1, and (f) liking for polygon shape 2 (see Table 2 for descriptive statistics). Use of the change score for hedonic balance provided an efficient way to include all data provided by the PANAS. Correlations between predicted variables are displayed in Table 3, indicating that hedonic balance change scores, DSES items 1-3, and SUPS were all moderately related to each other.

The CCA produced three functions with squared canonical correlations ($R^2_C$) of .364, .028, and .015 for each successive function. Collectively, the full model across all
functions was statistically significant with Wilks’s $\lambda = .609$, $F(18, 365.35) = 3.895$, $p < .001$. Because Wilks’s $\lambda$ indicates variance unexplained by the model, $1 - \lambda$ yields the effect size in an $r^2$ metric as $\eta^2$. In this case, the large effect size of .391 indicates that the model explained about 39.1% of the variance shared between the two variable sets.

The three functions produced by the canonical correlation were analyzed in a hierarchical fashion through dimension reduction analysis. Only the first function that accounted for 36.4% of the variance was independently significant. The remaining two functions were not included in further analyses because neither explained a statistically significant amount of shared variance between the variable sets.

The standardized canonical function coefficients, structure coefficients, and squared structure coefficients for the first function are displayed in Table 4 for the predictor and criterion variables, respectively. According to the recommendation of Sherry and Henson (2005), only variables with structure coefficients of at least .45 were considered as relevant in interpreting this function. As seen in Table 4, the measure that made the greatest contribution to the synthetic criterion variable was an increase in the ratio of positive to negative affect as assessed by the hedonic balance change score from the PANAS. Also making relevant, albeit secondary contributions to the synthetic criterion variable, were motivation to sustain positive mood as assessed by the first three items of the DSES and subjective pleasure resulting from change in mood as evaluated by the SUPS. While below the cutoff recommended by Sherry and Henson (2005), it seems worth noting that the structure coefficient of DSES item 4 nonetheless contributed to 12% of the variance in the synthetic criterion variable, and as expected, was negatively related to the model. The two polygon ratings were irrelevant.

As also seen in Table 4, the only variable of relevance in predicting variability in the synthetic criterion variable was film condition. It should be noted that the negative structure
coefficient of -.924 reflects a large effect size (.854) that resulted from the way in which the two film conditions were encoded (i.e., happy = 0, neutral = 1). Consequently, the only significant function identified by the canonical correlation reflects that the happy film was more impactful than the neutral film in inducing an overall shift in mood that participants found pleasurable and would like to sustain. The findings concerning DSES item 4 also suggest that participants presented with the happy film reported greater distress over dissipation of the positive mood it induced. Unexpectedly, the two EAS subscales were inconsequential.
CHAPTER FIVE

DISCUSSION

The main focus of this study was to investigate the moderating impact of two contrasting experiential approach strategies in regulating positive emotions (Anxious Clinging and Experience Prolonging) on positive mood induced by a happy film. Although, the happy film condition as anticipated made the largest contribution to the CCA model, it unexpectedly was the only predictor variable of the three that was relevant. As additional predictor variables, Anxious Clinging was hypothesized to moderate reactions in such a way that higher scores would predict lower levels of induced positive affect, while Experience Prolonging was expected to be positively related to increases in positive mood. Furthermore, it was expected that the relative moderating impact of Anxious Clinging would be greater than that of Experience Prolonging.

As summarized in Table 4, the CCA indicated that the signs of the structure correlations between the two EAS subscales and the synthetic predictor variable were as expected. Also as anticipated, the absolute value of the correlation for Anxious Clinging was greater than that of Experience Prolonging, although not significantly so. More importantly, however, and contrary to what had been hypothesized, neither EAS subscale made a significant contribution to positive mood induction. The failure to obtain such expected findings in this study could have potentially occurred for several reasons, including, but not necessarily limited to those involving: (a) attenuated levels of experiential approach, (b) when and how experiential approach was assessed, (c) the research design employed, (d) the mood induction procedure used, and (e) the type of positive affective state that it may have elicited. In what follows, each of these factors will be discussed separately in some detail and the implications for further research on positive emotion regulation considered.
Experiential Approach Levels and Variability

One possible explanation for the failure of any expected moderating effect for either Anxious Clinging or Experience Prolonging is that their levels and/or variability of scores may have been attenuated. However, just the opposite evidently occurred for Anxious Clinging. Comparisons revealed that the mean and variance of this subscale in this study (see Table 1) were both significantly greater than those from three other samples of college students surveyed in developing the EAS (Swails et al., 2016). However, no similar significant differences were found in Experience Prolonging scores. These collective results suggest that the absence of a moderating effect for the EAS subscales cannot in effect be attributed to a type of floor effect. That is, the levels of both Anxious Clinging and Experience Prolonging were not so low that the impact of each should have been inconsequential, provided participants actively engaged in the type of emotion regulation that each purportedly reflects.

Assessment of Experiential Approach

The possibility that participants did not engage in the strategies assessed by the EAS would seem to provide a more plausible explanation for the unexpected findings concerning its subscales. This may have occurred for at least two reasons. First, the EAS was administered in a context that differed in both place and time from participation in the study proper. It was completed along with several other and unrelated questionnaires as part of an online screening battery. While doing so may have minimized any demand characteristics, it may have also reduced the likelihood that participants were primed to implement the type of emotional regulation strategies assessed by the EAS. Moreover, the battery was completed at least 3 days prior to participation in the study proper and in some instances as long as 2 years. Even under optimal circumstances, the correspondence between responses on a questionnaire and the behaviors it seeks to evaluate and be predictive of is likely to degrade over time. One obvious
way to minimize these contextual variables would be to administer the EAS at the time of the film presentation. To address possible demand characteristics, however, it would seem advisable to counterbalance the order in which the two events would occur.

A second factor that may account for the lack of expected moderating effects for the EAS subscales may involve the dispositional nature of the instrument. The EAS is more of a trait-like than state measure that asks respondents to reflect on how they typically respond to positive affective states as opposed to what they are doing in any given moment. Unfortunately, how someone says they generally behave in most situations may be only weakly related to how they specifically act in this particular one. Unfortunately, this study’s protocol did not ask participants about the degree to which they either anxiously clung to and/or mindfully prolonged any increase in positive mood during and immediately after the presentation of the happy film. Including such monitoring in future research would be helpful in at least determining whether participants regulate positive emotions in a manner consistent with their EAS scores, but would presumably have little impact on whether they actually do so. To maximize this, the strategies that have been developed and employed in investigating the impact of experiential avoidance in laboratory research could be extended to experiential approach.

**Research Design Considerations**

As previously discussed, this study paralleled some of the early investigations of experiential avoidance as a moderating variable. For example, college students reporting high levels of experiential avoidance have performed in predictably different ways than those reporting lower levels on tasks designed to induce discomfort (Zettle et al., 2005, 2012; Zettle, et al., 2007). The findings of such correlational research, however, were also corroborated with those from experimental laboratory studies with both clinical (e.g., Levitt et al., 2004) and subclinical/convenience samples (e.g., Feldner et al., 2003). For example, Kohl et al. (2013),
found that college students taught acceptance persisted longer on a protocol in which they were subjected to uncomfortably hot temperatures than their peers taught cognitive restructuring. This same methodology could be applied to experiential approach and would represent the natural progression of studying its impact in moving from correlational to experimental designs.

To investigate experiential approach experimentally, differing instructions to participants to engage in either anxious clinging or experience prolonging during and immediately after a positive mood induction procedure could be manipulated as independent variables. This experimental strategy presumably should increase the likelihood that participants will actually engage in the two forms of experiential approach rather than relying upon them to do so as occurs in correlational studies like this project. To establish internal validity, however, the type of monitoring described earlier still would have to be undertaken as a manipulation check to verify that participants actually followed the instructions.

**Mood Induction Potency**

The film designed to induce positive affect appeared to perform as expected in displaying a large effect size on changes between pre- and post-PANAS scores. While it is thus apparent that the happy film induced a significant elevation in positive mood, it is not clear whether this increased level was optimal for evaluating the impact of Anxious Clinging and Experience Prolonging in responding to it. That is, the level of induced mood may have in effect been either too low or too high.

If the induced positive mood level was too low, a threshold for engaging in either one of the emotion regulation strategies may not have been met. Perhaps those who are otherwise predisposed to manage positive affective states by anxiously clinging to them or responding to them in a more mindful way fail to actively do so until an elevation in mood reaches a certain critical level. To reinvoke the ‘butterfly garden” metaphor, there may be insufficient time to
either seek to capture or merely enjoy the butterfly if its visit is too short. Neither response might also occur if the butterfly lands on the palm of one’s hand, but shows no signs of leaving, raising the converse possibility that the level of positive mood induced by the happy film may have been too elevated. To more fully investigate these possibilities, a program of parametric research potentially could be undertaken provided an array of procedures could be identified that reliably induce differing levels of positive mood. It may be that any moderating effects that Anxious Clinging and Experience Prolonging might have on positively induced mood are, in turn, moderated by its level.

**Type of Positive Affect**

The parametric research just described is likely to be more illuminating provided that all procedures involved are inducing the same affective state. Unlike with unwanted emotions, until recently, relatively little attention has been paid to distinguishing among discrete positive mood states (Shiota et al., 2017). Instead “positive emotion” has been used as an umbrella term referring to an array of distinct positive affective experiences that may differ from each other in several salient ways (e.g., McCullough, Kilpatrick, Emmons, & Larson, 2001; Shiota et al., 2017; Tracy & Robins, 2008). Shiota and her colleagues (2017) recently proposed that positive emotions in general emerged as part of the human experience due to their survival value for our species. Unlike negative emotions, positive emotions are united by a shared function to manage how an organism responds to *opportunities* (Shiota et al., 2017). From this perspective, what lead to the development of the following nine discrete positive emotions were more specific and contextually-defined fitness-related needs: (a) enthusiasm, (b) liking/pleasure, (c) contentment, (d) pride, (e) sexual desire, (f) attachment love, (g) nurturant love, (h) amusement, and (i) awe. For example, the particular selection pressures for the development of a biological system
supporting amusement are thought to differ from those that were foundational for pride or attachment love.

Defining positive emotions in terms of their function and neural supporting systems as opposed to subjective desirability, underscores the necessity to explore them as distinct phenomena. To some extent, this project and the development of the EAS itself can be seen as at least in part reflecting what might be regarded as a long-standing type of uniformity myth concerning positive emotions. Perhaps not surprisingly, negative affective states that are experientially avoided, at least initially, were likewise viewed in a similar undifferentiated way (i.e., Hayes et al., 2004; Bond et al., 2011). For example, one item from the AAQ-II states, “My painful memories prevent me from having a fulfilling life” (Bond et al., 2011) without specifying the affective state(s) (e.g., sorrow, guilt, regret, etc.) surrounding such recollections. In this way, efforts to assess experiential approach with the EAS currently may be at a similar stage to where investigations of experiential avoidance with the AAQ-II were a decade ago. If so, further research on positive emotional regulation may benefit from the development of more contextualized measures of experiential approach.

Since the development of the AAQ-II, contextualized versions of it have been created to assess more focused experiential avoidance of unwanted and unpleasant internal events such as social anxiety (MacKenzie & Kocovski, 2010), stigmatized thoughts (Levin, Luoma, Lillis, Hayes, & Vilardaga, 2014), suffering of tinnitus (Westin, Hayes, & Andersson, 2008), chronic pain (McCracken, Vowles, & Eccleston, 2004) and substance abuse (Luoma, Drake, Kohlenberg, & Hayes, 2011). These more contextualized versions of the AAQ-II have typically been more predictive of clinically-relevant phenomena than more global measures of experiential avoidance. For example, the Social Anxiety – Acceptance and Action Questionnaire (MacKenzie & Kocovski, 2010) was more predictive of social anxiety than the parent generic version of the
AAQ (Hayes et al., 2004), and the Tinnitus Acceptance Questionnaire (Westin et al., 2008) outperformed an earlier generic version of the AAQ (Hayes et al., 2004) in predicting treatment outcomes of tinnitus.

Developing more contextualized measures of experiential approach might prove to be equally productive in further investigating positive emotion regulation. The EAS, for example, could be adapted to specific emotions and mood states such as contentment, pride, joy, or even sexual desire. As currently constituted, the only specific affective states referenced by its items are happiness (3 times) and love (once). All others are more generic (e.g., “feelings I enjoy” or “good mood”). A nonspecific item like “When I’m in a good mood, I worry that something will spoil it” could be adapted to any positive mood state by specifically referencing it (e.g., “When I’m feeling content, I worry that something will spoil it.”

Laboratory mood induction experiments using contextualized versions of the EAS would need to ideally also administer equally specific outcome measures capable of assessing discrete positive emotions. In this respect, it is worth noting that the PANAS that served as the primary outcome measure in this project, has been criticized for not adequately capturing differing moods (Shiota et al., 2017). The video shown to induce positive affect in this study was referred to as a “happy film.” However, it is unclear if this is the only emotion it may have elicited, and even if it was limited to happiness, whether the PANAS is sufficiently sensitive to reflect meaningful changes in it. Given the depiction of an ice skater winning a gold medal for this country, it seems likely that some unknown proportion of the participants may have experienced pride as a more dominant emotional reaction. If so, do PANAS hedonic balance change scores equally reflect induced pride and happiness? Somewhat similar concerns also extend to the impact of the neutral film. It was found to dampen overall positive mood in participants, but it is unclear what range of affective states this may have included. Because no measures specific to various mood
states were administered, it is ultimately unclear which positive emotion(s) the so-called “happy film” may have induced.

To summarize, it is unclear if (a) the EAS assessed how participants typically regulate the same positive mood induced by (b) the “happy film,” and if (c) the PANAS reflected changes in this same affective state. In retrospect, to the extent that not all three of these elements may have been targeting the same discrete positive emotion(s), the failure to obtain the predicted moderating effects for Anxious Clinging and Experience Prolonging should perhaps not be all that surprising.

**Concluding Remarks**

By and large the overall expected findings of this study, and particularly those involving the possible moderating roles of Anxious Clinging and Experience Prolonging in positive emotion regulation, were not realized. However, sometimes not finding what had been predicted in projects like this one may be just as instructive, informative, and ultimately prove as useful as when hypothesized results do emerge. To the extent that this is also applicable to this project, it seems fruitful to briefly summarize and reflect on what such a “take-home message” might be. Perhaps the most valuable lesson that was learned further underscores the importance of context in better understanding the impact of both functional and dysfunctional experiential approach strategies in regulating positive emotions. It may be, for example, that the “pursuit of happiness” is neither something to be heralded as an “unalienable right” nor scorned as unfettered hedonism run rampant, depending on how it impacts psychological flexibility in the time, place, and situation in which it occurs.
REFERENCES


APPENDIX A

Background Questionnaire

1. What is your gender?
   ____ Male  ____ Female

2. What is your age? __________

4. Please indicate with which one or more of the following racial groups you identify
   ____ American Indian or Alaskan Native
   ____ Asian
   ____ Black or African American
   ____ Native Hawaiian or Other Pacific Islander
   ____ Hispanic or Latino/Latina
   ____ White

5. Is your primary language English? ______ Yes ______ No

6. In an average month, how many movies will you watch? __________

7. What’s your preferred method for watching movies?
   A. Netflix
   B. Movie Theatres
   C. Hulu
   D. Redbox
   E. Other __________

8. What’s your favorite genre of movie?
   A. Comedy
   B. Romantic
   C. Romantic Comedy
   C. Drama
   D. Thriller
   E. Horror
   F. Action
   G. Sci-fi
   H. Fantasy
APPENDIX B

Experiential Approach Scale (EAS)

Below you will find a list of statements. Please rate how true each statement is for you by selecting the option following each item.

Anxious Clinging Subscale

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>never true</td>
<td>very seldom true</td>
<td>seldom true</td>
<td>sometimes true</td>
<td>frequently true</td>
<td>almost always true</td>
<td>always true</td>
</tr>
<tr>
<td>1.</td>
<td>When I’m in a good mood, I worry that something will spoil it.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>2.</td>
<td>When I experience positive emotions, I worry about them fading.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>3.</td>
<td>My concern with losing good feelings prevents me from enjoying them.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>4.</td>
<td>When I’m feeling “on top of the world”, I’m afraid to let go of it.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>5.</td>
<td>When things are going well, I expect something bad to happen.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>6.</td>
<td>I wonder why my good moods are fleeting.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>7.</td>
<td>When I care about someone, I think I will lose him or her.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>8.</td>
<td>I wish I could understand why my happiness doesn’t stay longer.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>9.</td>
<td>When I am having fun, I feel that the experience will not last.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>10.</td>
<td>I feel unsettled when good things happen in my life.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>11.</td>
<td>During my better moments, I expect something will happen and ruin them.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>
Experience Prolonging Subscale

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>never true</td>
<td>very true</td>
<td>seldom true</td>
<td>sometimes true</td>
<td>frequently true</td>
<td>almost always true</td>
<td>always true</td>
<td></td>
</tr>
</tbody>
</table>

1. I try to hang on to feelings I enjoy. 1 2 3 4 5 6 7
2. I do my best to stay happy all the time. 1 2 3 4 5 6 7
3. I do my best to make my good moods last a long time. 1 2 3 4 5 6 7
4. If I am in a good mood, I try everything I can to stay that way. 1 2 3 4 5 6 7
5. If I could figure out why I am happy, I could make it occur more often. 1 2 3 4 5 6 7
6. When I’m feeling good, I try to do whatever I can to hang on to it. 1 2 3 4 5 6 7
7. When I love someone, I can’t get enough of it. 1 2 3 4 5 6 7
APPENDIX C

Positive and Negative Affect Schedule (PANAS)

This scale consists of a number of words that describe different feelings and emotions. Read each item and then mark the appropriate answer in the space next to that word. Indicate to what extent you feel this way right now, that is, at the present moment. Use the following scale to record your answers.

1 very slightly  2 a little  3 moderately  4 quite a bit  5 extremely

_____ interested  _____ irritable
_____ distressed  _____ alert
_____ excited  _____ ashamed
_____ upset  _____ inspired
_____ strong  _____ nervous
_____ guilty  _____ determined
_____ scared  _____ attentive
_____ hostile  _____ jittery
_____ enthusiastic  _____ active
_____ proud  _____ afraid
APPENDIX D

Desire to Sustain Elation Scale (DSES)

Please answer these specific questions on a scale of 0 to 100, where 0 = Not at all and 100= Completely.

<table>
<thead>
<tr>
<th>Question</th>
<th>0 to 100</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. How much would you like to continue any positive shift in mood you may have experienced?</td>
<td>_______</td>
</tr>
<tr>
<td>2. If it were within our power to sustain or continue how you are feeling right now, how much would you want us to do so?</td>
<td>_______</td>
</tr>
<tr>
<td>3. If it were within your power to sustain or continue how you are feeling right now, how hard would you try to do so?</td>
<td>_______</td>
</tr>
<tr>
<td>4. If you noticed that your mood was no longer positive, how distressed would you be?</td>
<td>_______</td>
</tr>
</tbody>
</table>
APPENDIX E

Subjective Units of Pleasure Scale (SUPS)

Please answer the following question on a scale of 0 to 100, where 0 = Not at all and 100= Completely.

1. If you have noticed any changes in your mood during the phase of this project that you just completed, please rate the degree to which you find these changes to be pleasing to you. How pleased do you feel as a result of any changes in your mood?  

<table>
<thead>
<tr>
<th></th>
<th>0 to 100</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>If you have noticed any changes in your mood during the phase of this project that you just completed, please rate the degree to which you find these changes to be pleasing to you. How pleased do you feel as a result of any changes in your mood?</td>
</tr>
</tbody>
</table>
APPENDIX F

Polygon Ratings

To what degree do you like the following shapes on a scale of 1 to 10, where 1 = “not at all” and 10 = “very much”.

Shape 1

Shape 2
APPENDIX G

Consent Form

Purpose: You are invited to participate in a study that will examine your evaluation and opinion of a short film as well as your reactions to it. Films have long been used as one means of influencing our attitudes, opinions, and emotional reactions. We hope to better understand this process with an eye towards designing films that may be even more impactful and influential. Because we have reason to believe that the influence of films may vary based on certain demographic and background variables, such as gender and age, you will be asked to disclose such information about yourself.

Participant Selection: You were invited to participate in the current study because you are at least 18 years of age and indicated an interest in doing so in completing the College Student Survey VII. There will be at least 136 participants in this study.

Explanation of Procedures:
• If you decide to participate, you will first complete a brief online survey to obtain some background and demographic information and verify you are at least 18 years of age and eligible to participate in this study. (2 minutes).
• Next, you will be asked to complete another brief, online questionnaire that is designed to assess your current mood. (3 minutes).
• You will then view a short film. (2.5 minutes).
• Following the film, you will be asked to answer a number of questions on a computerized survey designed to assess your evaluation and opinion of it in addition to other reactions to it. (5 minutes).
• Finally, you will be debriefed about your participation during which you may ask questions about it. (5 minutes).

Discomfort Risk: Because the film is not designed to induce unpleasant moods or other types of discomfort, it is anticipated that you will experience no appreciable psychological distress as a consequence of viewing it and participating in this study. While some of the questionnaires you will be asked to answer about the film may ask you to reflect on your emotional reactions to it, it is expected that any minimal discomfort you may encounter as a result will be fleeting. During the study you are free to skip any questions you feel uncomfortable answering and you may discontinue your participation at any time without penalty. Furthermore, in the event that you feel any emotional distress or discomfort, below is the contact for the Wichita State University Counseling and Testing Center.

Wichita State University Counseling and Testing Center
1845 Fairmount
Wichita, KS 67260-0091
(316) 978-3440

Compensation or Treatment: Wichita State University does not provide medical treatment or others forms of reimbursement to persons injured as a result of or in connection with participation in research activities conducted by Wichita State University or its faculty, staff, or
students. If you believe that you have been injured as a result of participating in the research covered by this consent form, you can contact the Office of Research and Technology Transfer, Wichita State University, Wichita, KS 67260-0007, telephone (316) 978-3285.

**Benefits:** Your participation in this project is one of several opportunities available to you through which you may earn extra credit or research participation points within a psychology course you may be taking. Apart from this, there are no clear personal benefits that you can reasonably expect to receive through your participation in this research project. However, it is our hope that research findings from this project can be used in ways that will improve our understanding of how films can influence our attitudes, opinions, and feelings.

**Confidentiality:** You will not be asked to provide any personally identifying information and any and all information you provide in your responses to any questionnaires or during the interview and other facets of this project will remain confidential. Research records will be maintained a minimum of three years after the research is completed and the study has been closed. All of your responses will be stored in a password-protected computer within a locked faculty laboratory. Any information obtained in this study in which you can be identified will remain confidential and will be disclosed only with your permission. The amount of credits you earn through your participation can be determined by your instructor through the SONA system, which also keeps your information confidential. Your instructor will be notified of your participation in this project for you to receive credit for any research participation.

Every effort will be made to keep your study-related information confidential. However, in order to make sure the study is done properly and safely there may be circumstances where this information must be released. By signing this form, you are giving the research team permission to share information about you with the following groups:

- Office for Human Research Protections or other federal, state, or international regulatory agencies;
- The Wichita State University Institutional Review Board;
- The sponsor or agency supporting the study.

The researchers may publish the results of the study. If they do, they will only discuss group results. Your name will not be used in any publication or presentation about the study.

**Refusal/Withdrawal:** Participation in this study is entirely voluntary. Your decision whether or not to participate will not affect your future relations with Wichita State University and/or the Department of Psychology. If you agree to participate in this study, you are free to withdraw from the study at any time without penalty.

**Contact:** If you have any questions about this research, please ask the experimenter. If you have additional questions throughout the course of this project, we will be glad to answer them. Also, any questions can be directed to: Dr. Robert D. Zettle, Professor, Department of Psychology, Office 411 JB, Phone: (316) 978-3081, email: robert.zettle@wichita.edu; or Jeffrey Swails, Phone: (316)-978-5008, Doctoral Candidate, Department of Psychology, email: jaswails@shockers.wichita.edu. If you have questions pertaining to your rights as a research
subject, or about research-related injury, you can contact the Office of Research and Technology Transfer at Wichita State University, Wichita, KS 67260-0007, (316) 978-7064.

You are under no obligation to participate in this study. Your signature below indicates that:

• You have read (or someone has read to you) the information provided above
• You are aware that this is a research study
• You have had the opportunity to ask questions and have had them answered to your satisfaction
• You have voluntarily decided to participate

You are not giving up any legal rights by signing this form. If you would like, you will be given a copy of this consent form to keep.

____________________________________
Printed Name of Participant

____________________________________  _________________
Signature of Participant                        Date

____________________________________  _________________
Witness Signature                                Date
APPENDIX H

Film Opinion Survey

Happy Film Version

Please answer these specific questions on a scale of 0 to 100, where 0 = Not at all and 100 = Completely.

1) Please rate how much you enjoyed the film. ______

2) Please rate how interesting you found the film to be. ______

Please select your answer from the available choices.

3) Which of the following statements best describes what happened in the film.
   
   a. An Olympic competitor looks around at the audience stand before competing.
   b. An Olympic competitor gets support from her family prior to completing a routine.
   c. An Olympic competitor performs very well and wins the Gold medal in her sport.
   d. An Olympic competitor watches other performances in her sport.

4) To what extent do you believe that this film could be useful in motivating athletes (please circle your answer on a scale of 1-4)?

   1      2      3      4

   Not at all useful   Extremely Useful
Neutral Film Version

Please answer these specific questions on a scale of 0 to 100, where 0 = Not at all and 100= Completely.

1) Please rate how much you enjoyed the film. _____

2) Please rate how interesting you found the film to be. _____

Please select your answer from the available choices.

3) Which of the following statements best describes what happened in the film.
   
   a. Geometrically different shapes move across the screen.
   b. Geometrically similar shapes of the same color move across the screen.
   c. Geometrically similar shapes of different colors move across the screen.
   d. Geometrically similar shapes change shape during the film.

4) To what extent do you believe that this film could be useful in inspiring artists (please circle your answer on a scale of 1-4)?

   1  2  3  4

   Not at all useful  Extremely Useful
APPENDIX I

Debriefing Form

Thank you for participating in this research project. It is our hope that your participation will help us better understand how films affect attitudes, opinions, and emotional reactions. We’re especially hopeful that a better understanding of how individuals such as yourself respond to various films will be helpful in increasing the ability of psychologists to design them in ways such that they are more likely to have their intended impact.

It is our intent to have a number of additional students like yourself participate in this project before it is completed. For this reason, we ask that you not discuss nor disclose certain details about your participation in this project with your classmates and other students who may be future participants in this study. Your cooperation in this matter is much appreciated and will ensure that your participation as well as that of your classmates in this project may help advance our scientific understanding and treatment of emotional suffering.

Due to the ongoing nature of the project, we are unfortunately unable to provide you with any individual results at the moment, and we are likewise unable to summarize at this point in time what the ultimate findings of this project are or will be. However, once the results of this study are finalized, we would be happy to share them with you. If interested, please provide us with a way of contacting you and we will do so once this project has been completed and its findings analyzed. In the interim, any questions or comments you might have about this project may be directed to its principal investigator or co-investigator listed below.

Principal Investigator: Co-Investigator:
Dr. Robert D. Zettle, Professor Jeffrey Swails
Department of Psychology Phone: (316) 978-5008
Office: 411 Jabara Hall email: jaswails@shockers.wichita.edu
Phone: (316) 978-3081
Email: robert.zettle@wichita.edu Fax: (316) 978-3086

Your participation will be verified to the Sona Systems administrator. Thank you again for your valuable participation. You are welcome to keep this statement.
Table 1

*Summary of Participant Characteristics by Film Condition*

<table>
<thead>
<tr>
<th>Film Condition</th>
<th>Happy ($N = 67$)</th>
<th>Neutral ($N = 71$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean Age (Standard Deviation)</td>
<td>21.5 (.47)</td>
<td>22.4 (6.5)</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>45 (67%)</td>
<td>57 (80%)</td>
</tr>
<tr>
<td>Male</td>
<td>22 (33%)</td>
<td>14 (20%)</td>
</tr>
<tr>
<td>Race</td>
<td></td>
<td></td>
</tr>
<tr>
<td>American Indian/Alaskan Native</td>
<td>1 (1.5%)</td>
<td>0</td>
</tr>
<tr>
<td>Asian</td>
<td>9 (13.4%)</td>
<td>8 (11.3%)</td>
</tr>
<tr>
<td>Black or African American</td>
<td>9 (13.4%)</td>
<td>4 (5.6%)</td>
</tr>
<tr>
<td>Native Hawaiian or Pacific Islander</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>White</td>
<td>43 (64%)</td>
<td>47 (66.2%)</td>
</tr>
<tr>
<td>Hispanic</td>
<td>7 (10.4%)</td>
<td>13 (18.3%)</td>
</tr>
<tr>
<td>Other</td>
<td>1 (1.5%)</td>
<td>2 (2.8%)</td>
</tr>
<tr>
<td>Primary Language</td>
<td></td>
<td></td>
</tr>
<tr>
<td>English</td>
<td>61 (91%)</td>
<td>65 (92%)</td>
</tr>
<tr>
<td>Other</td>
<td>6 (9%)</td>
<td>6 (8%)</td>
</tr>
<tr>
<td>EAS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anxious Clinging</td>
<td>36.5 (14.9)</td>
<td>39.0 (15.5)</td>
</tr>
<tr>
<td>Experience Prolonging</td>
<td>34.6 (6.6)</td>
<td>35.6 (6.2)</td>
</tr>
</tbody>
</table>

*Note.* Participants were able to select more than one race/ethnicity option.
Table 2

*Descriptive Statistics of Dependent Variables*

<table>
<thead>
<tr>
<th>Film Condition</th>
<th>Happy Film</th>
<th>Neutral Film</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pre</td>
<td>Post</td>
</tr>
<tr>
<td><strong>Measures</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PANAS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PAS</td>
<td>29.3 (8.3)</td>
<td>32.0 (9.7)</td>
</tr>
<tr>
<td>NAS</td>
<td>12.4 (4.1)</td>
<td>11.5 (3.5)</td>
</tr>
<tr>
<td>Hedonic Balance</td>
<td>2.5 (0.8)</td>
<td>2.9 (1.0)</td>
</tr>
<tr>
<td>DSES</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Items 1-3</td>
<td>197.7 (74.7)</td>
<td>151.1 (78.9)</td>
</tr>
<tr>
<td>Item 4</td>
<td>37.2 (30.4)</td>
<td>47.4 (31.6)</td>
</tr>
<tr>
<td>SUPS</td>
<td>55.0 (30.2)</td>
<td>30.8 (24.8)</td>
</tr>
<tr>
<td>Polygon Liking Ratings</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shape 1</td>
<td>3.2 (2.5)</td>
<td>3.2 (2.4)</td>
</tr>
<tr>
<td>Shape 2</td>
<td>4.2 (2.8)</td>
<td>4.0 (2.7)</td>
</tr>
</tbody>
</table>

*Note.* Nonparethetical data are means; parenthetical data are standard deviations.
Table 3

*Bivariate Correlations Between Predicted/Criterion Variables*

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Hedonic Balance change score</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. DSES Items 1-3</td>
<td>0.459**</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. DSES Item 4</td>
<td>-0.111</td>
<td>0.089</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. SUPS</td>
<td>0.535**</td>
<td>0.595**</td>
<td>-0.099</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>5. Polygon Liking Shape 1</td>
<td>0.030</td>
<td>0.094</td>
<td>0.019</td>
<td>0.132</td>
<td>-</td>
</tr>
<tr>
<td>6. Polygon Liking Shape 2</td>
<td>0.020</td>
<td>0.111</td>
<td>0.035</td>
<td>0.109</td>
<td>0.324**</td>
</tr>
</tbody>
</table>

*p < .01.*
Table 4  
*Standardized Coefficients and Effect Sizes for First Function*

<table>
<thead>
<tr>
<th>Covariate</th>
<th>Standardized Canonical Function Coefficients</th>
<th>Structure Coefficients</th>
<th>Squared Structure Coefficients</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Standardized Canonical Function Coefficients</td>
<td>Structure Coefficients</td>
<td>Squared Structure Coefficients</td>
</tr>
<tr>
<td>Predictor Variable Set</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Film Condition</td>
<td>-0.929</td>
<td><strong>0.924</strong></td>
<td>0.854</td>
</tr>
<tr>
<td>Anxious Clinging</td>
<td>-0.265</td>
<td>-0.247</td>
<td>0.061</td>
</tr>
<tr>
<td>Experience Prolonging</td>
<td>0.354</td>
<td>0.214</td>
<td>0.046</td>
</tr>
<tr>
<td>Criterion Variable Set</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hedonic Balance Change Score</td>
<td>0.778</td>
<td><strong>0.942</strong></td>
<td>0.887</td>
</tr>
<tr>
<td>DSES Items 1-3</td>
<td>0.073</td>
<td><strong>0.525</strong></td>
<td>0.276</td>
</tr>
<tr>
<td>DSES Item 4</td>
<td>-0.249</td>
<td>-0.347</td>
<td>0.120</td>
</tr>
<tr>
<td>SUPS</td>
<td>0.195</td>
<td><strong>0.677</strong></td>
<td>0.458</td>
</tr>
<tr>
<td>Polygon Liking Shape 1</td>
<td>-0.094</td>
<td>-0.014</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Polygon Liking Shape 2</td>
<td>0.091</td>
<td>0.096</td>
<td>0.009</td>
</tr>
</tbody>
</table>

*Note.* Structure coefficients $\geq |.45|$ are in bold.