THE EFFECTIVENESS OF AN ACCEPTANCE AND COMMITMENT THERAPY INTERVENTION FOR WORK STRESS ON INNOVATION

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ABSTRACT

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Work stress is a major concern in today’s workplace. Highly stressed workers report more problems related to productivity at work than their less stressed colleagues. Namely, innovation is impacted by work stress. Cognitive interference theory suggests that evaluation anxiety leads to increased levels of off-task thinking. In turn, attention is diverted from on-task thinking and performance (e.g., innovation) is impaired. Acceptance and Commitment Therapy (ACT) for work stress may be an effective intervention to increase innovation by diminishing the effects of off-task thinking through mindfulness and acceptance. To explore this idea, a community sample of 23 individuals will be randomly assigned to an ACT work stress intervention or a control group. The intervention will consist of two 3-hour sessions held one week apart. Acceptance, propensity to innovate, stress, work control, and cognitive interference will be assessed pre intervention, post intervention, and at one and three month follow ups. Analyses are expected to show that participants receiving the ACT intervention will demonstrate higher levels of acceptance and innovation and lower levels of stress, work control, and cognitive interference than control participants at post treatment, and acceptance and cognitive interference will mediate changes in innovation at post treatment.
I dedicate this to my wonderful family, my inspiration.
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Introduction

Work stress is a commonly occurring problem with significant consequences. According to a survey by Yale University (1990) 29% of workers report they feel “quite a bit or extremely stressed at work.” In 2009, the Bureau of Labor Statistics reported that there are about 146 million workers in America. This means approximately 40 million Americans are reporting significant levels of work related stress and the approximate financial cost of this workplace stress is $300 billion each year in absenteeism, diminished productivity, and stress-reduction (Duxbury & Higgins, 2001).

One important consequence of work stress is reduced employee innovation. For example, in a 2008 investigation by Borne, respondents reported that higher levels of work stress are inversely associated with their innovation at work. One possible explanation for the relationship between work stress and diminished innovation is cognitive interference. Cognitive interference is defined as increased levels of off-task thinking, which is triggered by anxiety or stress. This off-task thinking has been shown to impair performance on cognitive tasks (Sarason, 1984; Sarason, Sarason, & Pierce, 1990; 1995). To the extent that innovation is based on cognitive processing, it is logical to posit that elevated work stress reduces innovation via increased levels of cognitive interference.

A significant number of workers report they need help learning how to manage stress (Gallup Poll, 2000). Traditional interventions for work stress such typically focus on controlling or eliminating stressful thoughts and replacing them with alternative, more adaptive thoughts. These traditional interventions have resulted in modest reductions in psychological and physical symptoms related to stress (e.g. Murphy & Sauter, 2003; Saunders et al., 1996; Van der Klink et al., 2001; Collins, O'Brien, & Winterich, 2003). However, they have not been shown to improve innovation.

Traditional interventions may not improve innovation because efforts to control or eliminate stress-related thoughts may actually increase off-task thinking. That is, successful execution of
thought control techniques requires the individual to consistently monitor and then engage in efforts to modify stress-related thoughts. From a cognitive interference perspective, this process of monitoring and controlling thoughts would itself be considered off-task thinking. As a result, performance and innovation would be adversely affected.

A newly developed intervention, acceptance and commitment therapy (ACT) has been used as a work stress intervention (Bond & Bunce, 2000). Unlike traditional interventions, ACT encourages the worker to allow stress-related thoughts to occur without engaging in efforts to control them. ACT for work stress may be an effective intervention to increase innovation and decrease cognitive interference by diminishing the effects of off-task thinking through acceptance and mindfulness. In the following paragraphs a review of the literature will explore relationships between stress, cognitive interference, and diminished innovation.

Prevalence and costs of work stress in organizations

Since the early 1980’s, work stress has been listed among the top ten occupational health problems in the United States (Sauter, Murphy, & Hurrell, 1990) and workplace stress continues to grow. One-quarter of employees view their jobs as the number one stressor in their lives (Northwestern National Life Insurance Company, 1991). According to the Princeton Survey Research Associates (1997), three-quarters of employees believe the average worker has more on-the-job stress than they did a generation ago.

The relationship between work stress and negative health consequences is well-documented. Specifically, relationships have been observed between stress and cardiovascular disease, hypertension, gastrointestinal disorders, lower back pain, and diminished immunological functioning (Kasl, 1996; Theorell & Karasek, 1996; Markovitz, Matthews, Whooley, Lewis, & Greenlund, 2004; Linton, 2000). Additionally, work stress has been associated with various mental health outcomes,
including depression, anxiety, anger, marital distress, and job dissatisfaction (Cooper & Cartwright, 1994; Godin, Kittel, Coppieters, & Siegrist, 2005; Wiesner, Windle, & Freeman, 2005).

In addition to physical and psychological symptoms, work stress has been linked to problematic health and work behaviors. Specifically, relationships have been observed between stress and cigarette smoking, alcohol use, absenteeism, accidents, and poor job performance (Cooper & Cartwright, 1994; Fielding, 1989; Godin, Kittel, Coppieters, & Siegrist, 2005; Grunberg, Moore, Anderson-Connolly, & Greenberg, 1999). Overall, work stress has been shown to exert adverse impact across a variety of mental, physical health, and work related outcomes.

Innovation

West (1990) defines innovation as the intentional introduction of ideas, processes, and products or procedure, new to the relevant unit of adoption designed to significantly benefit the individual, group, organization or wider society. In research studies, the terms innovation and creativity are often used interchangeably however, some recent distinctions have been made. While creativity has to do with the production of novel and useful ideas (Mumford & Gustafson, 1988) innovation has to do with the production or adoption of useful ideas and idea implementation (Kanter, 1988; Van de Ven, 1986).

Innovation research is important to organizations because they must continually adapt to changing characteristics of production and the market (Scott & Bruce, 1994 in Huhtala & Parzefall, 2007). Over recent years, the focus of innovation research at the individual and organizational level has been on empirically establishing the antecedents of innovative work behaviors and developing better ways to support employees in these innovative endeavors (cf. Damanpour, 1991; Janssen et al., 2004). In this literature, innovation is typically viewed as the “end product” (Anderson, De Dreu, & Nijstad, 2004).
Many organizational and individual attributes influence innovation at work. A number of theorists have suggested that the organizational climate can channel attention and activities towards innovation (e.g. Amabile, 1988; Isaksen, 1987; Kanter, 1988). Specifically, organizations that are oriented toward innovation tend to support independent functioning of employees and their pursuit of new ideas (e.g., Kanter, 1983), have tolerance for diversity among employees (Siegel & Kaemmerer, 1978), and have adequate resources (e.g., equipment, facilities, and time; Amabile, 1988; Angle; 1989).

One factor that contributes to the organizational climate is leadership. Specifically, the quality of employee-supervisor relationship and interactions (Graen & Scandura, 1987) influence innovation. Research has shown innovative behavior is fostered by mature supervisor-employee interactions characterized by trust, mutual liking, support, and respect as opposed to interactions that are formal and impersonal. Additionally, in this mature interaction subordinates are encouraged by their supervisors and allowed greater autonomy and decision latitude. A 2005 study by Janssen, showed that employees who receive more supervisor support and have greater perceived influence, demonstrate more innovative behavior.

Individual attributes are also antecedents to innovation. Research on innovation at the individual level has focused on evaluating the relationship between innovation and intelligence, beliefs, commitments, goals, and personality (Barron & Harrington, 1981). One individual attribute, problem-solving style, may be based on two types of thinking, which may affect innovation differently. Associative thinking is based on habit, following a set of rules and disciplinary boundaries, and the use of rational and logic while bisociative thinking places an emphasis on imagery and intuition (Jabri, 1991). Bisociative thinkers have a propensity to process information
from different paradigms simultaneously and are more likely to generate novel problem solutions (Isaksen, 1987).

Another individual attribute, personality traits, are an antecedent to innovation. The personality trait, flexibility, has been associated with creative work behavior in several studies. In a study of scientists, scientists with more self-reported flexibility were associated with more creative achievement, compared to less flexible scientists (Feist, 1998).

As these studies have shown there are many potential factors, both individual and organizational that influence individual innovation. In line with the focus of innovation research, common workplace interventions intended to improve innovation have focused on manipulating the organizational climate and increasing support for innovative behavior. However, this type of intervention overlooks the majority of workplaces where the organizational climate is unalterable (Bond & Bunce, 2001). Thus there is a need for an intervention to improve innovation within this type of work environment.

Impact of work stress on innovation

The stress-performance relationship has been widely studied. Early researchers in this area sought to distinguish between “good” and “bad” levels of stress, where good stress is not too high. The level of stress relative to performance has often been conceptualized as an inverted U shaped relationship. Using this model, good stress is on the upward slope and bad stress on the downward slope of the inverted U. Although this model appears a natural explanation for the stress-performance relationship, research studies have not been supportive. The stress-performance relationship appears to be a linear (e.g., Lienert & Baumler, 1994; Teigen, 1994; Westman & Eden, 1996).

Other researchers focused on the distinction between types of stress (i.e., the demands of a stressor) (Selye, 1976; Lazarus & Folkman, 1984, Cavanaugh, Boswell, Roehling, & Boudreau,
The theory underlying this distinction between types of stress is that individuals appraise stressors as hindering and threatening or challenging (i.e., potentially promoting growth, gains or mastery) (Lazarus & Folkman, 1984).

The relationship of stressors to performance is complicated by two underlying mechanisms, 1) motivation and 2) emotional and cognitive effort. A positive relationship was found between challenge stressors and motivation. Challenge stressors are associated with high motivation because the effort expended on coping with these demands is believed to lead towards meeting the demands and valued outcomes. Whereas, hindrance stressors are associated with low motivation because individuals do not associate effort expended coping with these demands to lead towards meeting the demands.

Another mechanism underlying the stress-performance relationship is emotional and cognitive effort associated with the appraisal of and coping with stressors (Lazarus & Folkman, 1984), which can result in strain (e.g., fatigue and exhaustion). This effort used to cope with demands may reduce resources that could be used to focus on meeting the demands and valued outcomes. Thus both types of stressors can have a negative impact on performance through strains.

A meta-analysis of the stress and work performance literature supported differences between types of stress based on their impact on performance (Lepine, Podsakoff & Lepine, 2005). Additionally, mediation analysis revealed that challenge stressors had positive indirect relationships with performance through motivation and negative indirect relationships with performance through strains. Hindrance stressors were found to have negative indirect relationships with performance through motivation and strains (Lepine, Podsakoff & Lepine, 2005). Thus, the key to motivating employees and positively impacting work performance appears to be related to the perception of a stressor as a challenge.
Compared to the stress-performance relationship, the body of research associated with the stress-innovation relationship is considerably smaller. Table 1 provides a summary of investigations exploring the relationship between work stress and innovation. An examination of the studies presented in Table 1 indicates that there are two broad approaches to the evaluation of the work stress – innovation relationship.

One perspective, consistent with the stress-performance literature, involves conceptualizing work stress as an impediment to innovation (e.g. Borne, 2008; Lansisalmi & Kivimaki, 1999; Peelle, 1980) For example, a large scale study conducted by Lansisalmi and Kivimaki (1999) examined the relationship of occupational stress and innovative climate. Specifically, 1767 employees of health care organizations and from enterprises in the metal and retail industries completed innovation (assessed by the Organizational Health Survey, Phillips, 1988) and occupational stress (assessed by the Occupational Stress Questionnaire, Elo et al., 1992) questionnaires. The results showed that occupational stress was associated with a poor innovative climate. More specifically, occupational stress and innovative climate were negatively correlated, \( r = -.27, p < .001 \).

Another study conducted by Peelle (1980) examined the relationship between innovation attributes, measured by the Innovation Attributes Scale (Peelle, 1980) and role conflict and role ambiguity -- items on the Job Stress Scale. Participants were 84 teaching staff volunteers. The results showed a relationship between innovation attributes and role conflict/role ambiguity. Role conflict was negatively correlated with relative advantage of innovation (total relative advantage perceived by students and teachers), \( r = -.82, p < .001 \). Additionally, role ambiguity was negatively correlated with compatibility (perceived fit of the innovation with the abilities, practices, burdens, and time constraints of the teachers), \( r = -.67, p < .001 \). These studies demonstrate an inverse relationship of a stressful work environment on innovation.
Another approach, also consistent with the stress-performance literature, is that innovation may be viewed as a coping response to the experience of work stress (e.g. Bunce & West; 1994, Eaton, 1998; Lindquist, 2000). For example, a study conducted by Bunce and West (1994) indicated that innovation at work was perceived by health care professionals as an effective way of coping with occupational stress. More specifically, of the 333 health care professionals (community and hospital nurses, administration workers, and paramedics) surveyed 32% reported using an innovative coping response for occupational stressors. The innovation and the job stress measure used for this study were developed from the Firth-Cozens and Morrison’s (1987b) coding system.

A similar study was conducted by Lindquist (2000) who surveyed 124 Indiana public school principals. He showed that principals with no previous experience used innovation as a coping resource to reduce different components of job stress. The Work Environment Scale (Moos & Insel, 1974) was used to assess innovation (innovation is a subscale of this scale) and the Occupational Stress Inventory (Osipow & Spokane, 1987) was used to assess work stress. Among inexperienced principals, innovation was correlated with each of the following subscales of the Occupational Stress Inventory: role overload, \( r = -0.40, p < 0.01 \); role ambiguity \( r = -0.42, p < 0.01 \); boundary, \( r = -0.55, p < 0.01 \); responsibility: \( r = -0.29, p < 0.01 \); and role insufficiency, \( r = -0.43, p < 0.01 \). In sum, these studies demonstrated that when innovation was utilized as a coping technique perceptions of stress were lower.

As seen in these studies, a number of different measures of work stress and innovation have been used. Further, there appears to be a reliable inverse association between work stress and innovation. One interpretation of this inverse relationship work stress causes diminished innovation. An alternative interpretation is that is that workers engage in innovative behaviors as a strategy for reducing work stress. Both approaches are evidence based and make intuitive sense. Interventions
targeting the work stress may be relevant in work settings where the stressors (e.g., organizational climate, roles) are alterable. However, in settings where the stressors are inalterable like those in this study, an intervention focused on innovation as a way of coping with stress is more applicable.

**Mechanism possibly underlying the stress-innovation interaction: cognitive interference**

There are numerous mechanisms posited to underlie the stress-performance relationship. One approach is the individual’s cognitive reactivity to stress (i.e., intrusive thoughts and avoidant thinking) (Klein & Boals, 2001a, 2001b). Cognitive interference theory suggests that evaluation anxiety and, by extension work stress, lead to increased levels of off-task thinking which then impair performance on cognitive tasks (Sarason, 1984; Sarason, Sarason, & Pierce, 1990; 1995). An assumption underlying this theory is that there is a limited cognitive capacity available at any given time for executing a task (Baddeley, 1986). Thus, intrusive thoughts and images and the intentional suppression of these thoughts and images compete with on-task thinking and thereby reduce efficiency and overall performance (Sarason, 1975; Wine, 1971, 1982).

A 2001 study by Klein and Boals of young adults showed that stress-related intrusive and avoidant thinking was related to negative performance on working memory tasks. Furthermore, they demonstrated that a stress-reduction intervention improved working memory functioning by reducing self reported cognitive interference (Klein & Boals, 2001a, 2001b). This study supports the model used in the current study, that freeing up cognitive resources previously occupied by intrusive thoughts will allow individuals to cope with stress through innovative behaviors and thoughts. Thus cognitive interference theory, may explain the negative linear relationship between work stress and innovation.

Several investigators have evaluated cognitive interference theory. Most studies use self-reported cognitive interference and evaluate performance using cognitive tasks in a laboratory setting.
For example, Hammermaster (1989) examined the association between cognitive performance levels on the Wisconsin Cart Sorting Test, test anxiety measured by the Test Anxiety Scale, and cognitive interference measured by the Cognitive Interference Questionnaire. Two hundred and fourteen students enrolled in an introductory psychology or sociology courses participated in the study. Results indicated that individuals who experienced high levels of test anxiety, relative to individuals with lower test anxiety had significantly more cognitive interference and worse cognitive performance. Thus, off-task thinking accompanying anxiety was associated with poorer cognitive performance.

A study by Blankstein et al. (1989) also examined the relationship between cognitive interference and performance. In this study, the participants were 47 students enrolled in an undergraduate psychology course. Cognitive interference was measured by the Cognitive Interference Questionnaire and performance was measured by the number of anagram tasks solved. Results indicated that higher levels of Cognitive Interference Questionnaire were related to lower test performance.

Another study by Yee et al (2004), examined the association of intrusive thoughts and performance in an internet search task. Participants completed an information search on the internet and then completed the Cognitive Interference Questionnaire, a 22 item self report measure designed to measure the degree to which people experienced various types of intrusive thoughts while working on a specific task, and a self assessment questionnaire on their search performance. A significant main effect for the type of intrusion was observed which indicated that individuals who experienced higher levels of self-evaluative intrusive thoughts were more likely to indicate a desire to change their search strategy if given the opportunity and individuals with higher levels of self evaluative cognitive
interference were less satisfied with their search performance. Thus perceptions of performance were negatively related to cognitive interference.

Additional studies show that intrusive thoughts can divide attention, create cognitive overload, and cause people to perform poorly on complex tasks, especially under challenging (i.e., stressful) conditions (Sarason, 1984; Sarason et al., 1986). Thus overall, the literature supports the assertion that intrusive thoughts triggered by anxiety and stress adversely affect performance on cognitive tasks. Given that innovation can be thought of as an index of cognitive performance, it is reasonable to posit that intrusive thoughts, triggered by work stress, would adversely affect it as well. Conversely, it may be reasonable to posit that the reduction or elimination of intrusive thoughts and concerted efforts to control these thoughts may improve innovation, even when stressors remain (e.g., Coy, O’Brien, Tabaczynski, Northern, & Carels, 2009; Northern, 2010).

Work stress interventions and innovation

Traditional work stress management interventions include a wide range of programs such as the provision of educational materials, time management seminars, conflict resolution training, meditation, biofeedback, relaxation, and cognitive-behavioral skills training (Murphy & Sauter, 2003). However, the most widely used and empirically supported form of stress management is the cognitive behavioral therapy.

Cognitive behavioral therapy (CBT) interventions for work stress aim to assist clients in identifying, challenging, and replacing problematic thoughts (e.g., “I am useless at my job” to “I am a capable worker”). During these interventions, therapists use techniques that include challenging irrational thoughts, labeling cognitive distortions, thought replacement, thought stopping, relaxation training, problem solving skills, and time management skills (Freeman, Pretzer, Fleming & Simon, 1990). The goal of CBT interventions is to help clients eliminate or reduce unwanted, problematic
thoughts. The underlying assumption of CBT interventions is that undesirable thoughts cause stress and negative mental health consequences, and that psychological symptoms will dissipate as undesirable thoughts attenuate (Beck et al., 1979). According to these approaches, direct cognitive change is necessary for clinical improvement (Hayes et al., 2006).

Cognitive behavioral therapy interventions for work stress have consistently resulted in moderate improvements in psychological symptoms (e.g., depression and anxiety) and modest improvements in physical or work stress symptoms. Additionally, it would seem reasonable to predict that reducing stress would result in increased innovation. However, work stress interventions aimed at stress reduction have been shown to be minimally effective at creating improved work productivity and they have not shown to improve innovation as of yet (Collins, O'Brien, & Winterich, 2003).

An alternative intervention approach for work stress, labeled acceptance and commitment therapy (ACT) has been developed and recently evaluated. In contrast to the “healthy normality” assumption of CBT, ACT assumes that the psychological processes of a normal human mind are often destructive and create psychological suffering. Thus in ACT it is normal to experience intrusive thoughts. Thus the ACT treatment model emphasizes changing the function of thoughts rather than their content or frequency (McCracken, Vowles, & Eccleston, 2005). One of the core theories of ACT states that psychological distress is caused by avoidance and unsuccessful attempts to control negative experiences, which impede an individual’s ability to act in accord with personal values (Hayes, Strosahl, and Wilson, 2003). In encouraging acceptance of thoughts and reactions, particularly unwanted ones, ACT helps the individual get in contact with the "self-as-context", or the sense of self that observes and experiences yet is distinct from personal thoughts, feelings, and sensations. ACT also aims to help individuals identify their personal values and take action on them, with the hope of making life more purpose-driven and meaningful. Overall, ACT can be summarized
into six core components that promote psychological flexibility: (1) cognitive defusion, (2) acceptance, (3) contact with the present moment, (4) observing the self, (5) values, and (6) committed action.

Research on ACT for work stress has focused primarily on acceptance and cognitive defusion processes, often achieved through mindfulness based interventions. In applying ACT-based concepts to innovation in the workplace, researchers recognize individuals who are chronically stressed experience persistent aversive work conditions that are difficult to control. Inability to control these conditions often results in significant psychological distress and physical and psychosocial disability. Many workers also engage in avoidance behaviors in response to work stress, which has been shown to predict absenteeism and decreased work performance. Additionally, workers may believe destructive thoughts such as “I am no good at this job.

Recent support for ACT interventions for work stress comes primarily from studies conducted in the United Kingdom. Bond & Bunce (2000) evaluated the effectiveness of an ACT-based worksite intervention designed to increase acceptance. Workers of a large media organization received three half day sessions: two on consecutive weeks and a booster session three months later. Results demonstrated that the ACT intervention group experienced significantly less depression, better general mental health, and increased ability to be innovative at work (introduce improved methods of doing things at work) relative to a waitlist control group. These improvements ranged from a medium (depression) to a large (general mental health, propensity to innovate) magnitude of effect. These results showed that the ACT intervention for work stress significantly increased innovation.

Furthermore, and of particular interest, was the mechanism by which these significant results occurred. Acceptance accounted for a significant proportion of the change in work innovation. That
is, when acceptance was controlled for in the analyses, the effect size for innovation was reduced by 12 percent. However, the effect size did not diminish when accounting for frequency of negative thoughts. This suggests that ACT worked primarily through workers’ ability to accept undesirable thoughts and feelings, not by changing or challenging them.

**Summary and Integration**

Work stress is a common experience that appears to increase off-task thinking and impair performance. One model that may explain this relationship, cognitive interference theory, suggests that everyone has limited cognitive capacity available at any given time for executing a task. Thus work stress leads to off-task thinking that competes with on-task thinking, thereby reducing efficiency and overall performance. One intervention for work stress, CBT has not been demonstrated to have a significant impact on innovation. This may be because CBT encourages the monitoring and controlling of off-task cognitions. The effort expended on monitoring and modifying cognitions may inadvertently increase off-task thinking. Alternatively, ACT promotes disengagement from control efforts and may thereby reduce off-task thinking and cognitive interference. This model is supported by preliminary evidence that ACT works to improve innovation even in stressful work settings.

This study aims to evaluate the effects of an ACT intervention on work related outcomes. A second aim is to evaluate the extent to which acceptance and cognitive interference may operate as mechanisms associated with changes in innovation.

**Hypotheses**

*Hypothesis 1.* Employees who participate in the ACT intervention will report significantly more acceptance and innovation at post treatment relative to employees in a waitlist control group. These changes will be maintained at one-month and three-month follow up sessions.
**Hypothesis 2.** Employees who participate in the ACT intervention will report significantly less stress, work control, and cognitive interference and stress after participating in the intervention relative to employees in a waitlist control group. These changes will be maintained at one-month and three-month follow up sessions.

**Hypothesis 3.** Cognitive interference and acceptance will mediate changes in innovation at posttest, one-month and three-month follow up sessions.
Method

Participants

Participants were 23 individuals recruited from Northwest Ohio (primarily counselors and faculty and staff from BGSU) via local newspaper advertisements, community bulletin boards, online community health bulletin boards, and emails sent to corporate and university email accounts offering a free stress management program. Interested participants contacted researchers conducting this study and are received more information about the program and were invited to set up a two-hour initial assessment session. Next, participants were randomly assigned to either an ACT intervention condition or a waitlist control condition. Participants were offered either continuing education credits or $10 per lab appointment as compensation for their participation. This study is part of a larger study being conducted by the MAP Lab (Schwetschenau, 2008).

Measures

Below are descriptions of measures that were utilized in the present study. Please refer to Appendix A for questionnaire items.

Demographic Characteristics. The Demographics Characteristics Questionnaire (Schwetschenau, 2008) is an 11-item self-report inventory used to assess as age, gender, marital status, education, job title, and job tenure. Additionally, participants were asked to report the number of times they have visited a doctor and missed work due to illness over the course of the last year (see Appendix A).

Acceptance and Action Questionnaire II (AAQ-II). The AAQ-II (Bond, 2003) is a 10-item measure that was used to assess the degree to which an individual fuses with thoughts, avoids feelings, and is unable to act in the presence of difficult private events (e.g. “I try to suppress thoughts and feelings that I don’t like by just not thinking about them”). Each item is rated on a scale
ranging from “never true” (1) to “always true” (7), with higher scores indicating greater psychological flexibility. The AAQ-II has adequate criterion-related, predictive, and convergent validities (Bond & Bunce, 2003; Hayes et al, 2004). The internal consistency of this questionnaire in the present study was .90.

_Cognitive Interference Questionnaire (CIQ)._ The CIQ (Sarason & Stoops, 1978; I. Sarason, Sarason, Keefe, Hayes, & Shearin, 1986) is a 22 item self report measure designed to measure the degree to which people experienced various types of intrusive thoughts while working on a specific task. The first ten items measure frequency of task-related intrusive thoughts (e.g. “I thought about how I should work more carefully”). Eleven additional items measure frequency of test-irrelevant intrusive thoughts (e.g. “I thought about personal worries”). The final item provides a global rating of mind-wandering experiences while working on a task. This scale has been reported to have good internal consistency with Cronbach alphas ranging from .71-.91 (Pierce et al., 1998).

A factor analysis of the questionnaire showed items fall into two relatively homogenous groups with one factor measuring task-related interference and the other measuring off-task interference. Task-Related Interference accounted for 44.4% of the covariance, items 1-10 loaded positively on this factor, with the exception of item 8. The loadings ranged from .39 to .68 and eight of the loadings were greater than .40 (Sarason et al., 1986). Items 11-21 showed positive loadings on off-task interference, ranging from .39 to .69 (only 1 loading was less than .40), and accounted for 55.6% of the variance. The single mind-wandering item loaded .53 on off-task interference.

The sample used to assess the psychometric properties of this scale was 23 male and 47 female undergraduate college students. The students completed the packet of questionnaire measures of cognitive interference following two course examinations and a questionnaire session as a part of a larger study of college student adjustment to college (Pierce et al, 1997). This sample
Typically this measure is used in an experimental (i.e. laboratory) setting, where the study participant is given a task and upon completion of the task, immediately completes the CIQ. For this study, the instructions were altered, asking participants to contemplate tasks that they were typically given to perform at work (on a daily basis). They will be asked to respond to items on the CIQ, based upon their recall of their thoughts while working on these typical work tasks that occurred, during the prior week.

*Daily Stress Inventory (DSI).* The DSI (Brantley, Jones, & Rapport, 1987) is a 58-item self-report measure in which participants rate whether or not a particular stressor has occurred in the past 24 hours. The stressors assessed include interpersonal conflict, personal competency, cognitive stressors, environmental hassles, and varied stressors. In addition to rating the frequency, participants also rated perceived feelings of stress associated with each item. Each item is rated on a scale ranging from “not stressful” (1) to “caused panic” (7). This scale is correlated with several self-report (e.g. State-Trait Anxiety Scale) and objective measures of stress (cortisol levels) and adequate convergent validity has been established (Brantley et al., 1997). The internal consistency of this scale in the present study is .95.

*Propensity to Innovate (PTI).* The PTI (Bumingham & West, 1995) is a five-item self-report measure that assesses general attitudes toward seeking out new and improved ways of innovating and creating change at work (e.g., "I try to introduce improved methods of doing things at work", and “I suggest new working methods to the people I work with”). Each item is rated on a scale ranging from
“strongly disagree” (1) to “strongly agree” (5), with the higher numbers indicating a higher level of agreement.

The sample used to evaluate this measure were 59 employees drawn from all levels of an oil company based in the United Kingdom. The average age of participants fell within the category of 30-39 years of age. At the time of the study, the organization was undergoing cultural change, moving from a heavily bureaucratic form to a more organic form. Team members were asked to complete a questionnaire on their perceptions of team climate. The groups were also observed over several meetings and recordings were made of the interactions that took place. Questionnaires were administered once subsequent to the group observations (Bumingham & West, 1995).

A study by Bunce and West (1995) suggests that PTI is a good predictor of innovation at work. The internal consistency of this scale was acceptably high at time 1 and time 2 with Cronbach alphas of .75 and .80 respectively.

Work Locus of Control Scale (WLCS). The WLCS (Spector, 1988) is a 16 item scale that was used to assess an individual’s beliefs about jobs in general (e.g. “On most jobs people can pretty much accomplish whatever they set out to accomplish”). Each item is rated on a scale ranging from “disagree very much” (1) to “agree very much” (6), with the higher numbers indicating a higher external locus of control. This scale is related to other work variables including job performance and job satisfaction and counterproductive behavior and organizational commitment (Spector, 1988). The internal consistency of this scale generally ranges from .80 to .85.

Procedure

The two hour initial assessment session was conducted one week before the intervention either at BGSU or the employees’ workplaces. During this session, participants were asked if they
were able to attend the intervention dates, given a written informed consent, and signed an informed consent for the lab records.

Following the informed consent process, the participants completed the pre-treatment questionnaires, which took approximately 60 minutes to complete, and participated in a laboratory evaluation of physiological cardiovascular reactivity which is a component of a larger study that was being completed by the Mindful Behavior Therapy and Psychophysiology Lab. Post-treatment questionnaires were be collected online one week after the intervention was completed. Follow-up questionnaires were completed one month and three months after the intervention was completed. The one month follow up was completed in the lab or at the employee worksite whereas the three month follow up questionnaires were completed online. All items were administered at pre-intervention, post-intervention, and both follow-ups, unless otherwise indicated. Please refer to Appendix A for questionnaire items.

**Treatment Conditions**

*ACT Condition.* Thirteen participants were randomly assigned to an ACT condition. The ACT intervention was originally developed by researchers in the UK to reduce negative consequences of worksite stress (Bond & Bunce, 2000). The protocol was revised by researchers in the BGSU MAP Research Group (See Appendices B, C). Main revisions included adaptation of language that United States populations may be unfamiliar with and inclusion of additional metaphors to convey ACT concepts covered in the protocol.

The ACT intervention was conducted at employees’ workplaces or at the Bowling Green State University (BGSU) Mindfulness and Psychophysiology (MAP) Laboratory. The intervention uses a group-based format with a maximum of 8 participants per group. The intervention is divided into two 3-hour sessions on consecutive weeks.
The revised protocol was piloted in the summer of 2006 with two groups of undergraduate research students. After minor revisions, the protocol was piloted again with BGSU graduate students in February of 2007. The revised protocol was then evaluated by Bond who confirmed it was consistent with the original protocol.

The major components of the intervention include increasing mindfulness, reducing cognitive fusion, and defining values and creating goals. The increase in mindfulness (acceptance) is a critical component in freeing up cognitive resources while the value driven behavior is more directly related increasing behavioral activation.

*Wait list control group.* Ten participants were randomized to the wait list control group. They completed measures at the same time points as the ACT intervention group, and were offered the ACT intervention after a one month follow up period.

*Therapists*

Graduate students in the BGSU MAP Research Group provided the ACT intervention. All therapists conducting this intervention participated in a two day intensive workshop that provided instruction on how to conduct ACT interventions or received training from a graduate student who attended this workshop. Additionally, the graduate students met before and after each session to discuss the content of the session. Lastly, the graduate students were supervised by a licensed psychologist, who has also been trained in ACT, with whom they were in regular contact throughout the study to discuss issues of implementing the intervention.

*Treatment Integrity and Validity Checks*

Treatment integrity was assessed by undergraduate research assistants. They listened to audiotapes of the intervention sessions and rated the content on an evaluation form outlining the key points of the intervention.
If a session was determined to be significantly out of compliance with the protocol (i.e., less than 75% of the required content is omitted), then data from that group would be deleted from the study. Between-group comparisons were used to ensure that the ACT intervention and waitlist control groups did not significantly differ on any sociodemographic variable or dependent measure prior to treatment.

**Missing Data**

Missing values were replaced with an individual’s mean score of endorsed items on that measure. Missing values on the Cognitive Interference Questionnaire were replaced with an individual’s mean score of endorsed items on that subscale (task relevant 1-10, task irrelevant 11-21, and the global score 22 was calculated taking an average rating across 1-21). Missing values on the Daily Stress Inventory frequency column were interpreted as not occurring and were scored as “0.”
Results

Demographic and Outcome Variable Comparisons

Initial analyses were conducted to evaluate possible differences between the ACT intervention group and waitlist control group on sociodemographic variables. The results revealed that the intervention participants were not significantly different than control participants on any demographic variable (see Table 2).

Next, means and standard deviations for all outcome variables were calculated and independent samples t-tests were conducted to assess pretreatment differences between the ACT intervention group and waitlist control group. As seen in Table 3, significant between-group differences were observed for the task-relevant cognitive interference subscale indicating that the control group participants reported higher levels of cognitive interference.\(^1\)

Bivariate Correlations

Bivariate correlations of all variables are presented in Tables 4 (pre and posttreatment) and 5 (one month and three month follow-up). At pretreatment, acceptance was significantly negatively correlated with stress, \((r(21) = .43, p = .04)\) and work control, \((r(21) = .75, p < .001)\) and positively correlated with innovation, \((r(21) = .64, p < .001)\). At one month follow up, acceptance continued to be negatively correlated with work control, \((r(21) = .44, p = .04)\). At three month follow up, acceptance continued to be negatively correlated with work control, \((r(21) = .48, p = .02)\).

At pretreatment, innovation was negatively correlated with work control \((r(21) = .57, p < .001)\). At post treatment, \((r(21) = .58, p < .001)\), one month follow-up, \((r(21) = .53, p = .01)\), and three month follow-up, \((r(21) = .49, p = .02)\), innovation continued to be negatively correlated with work control.
At pretreatment, task irrelevant cognitive interference was positively correlated with stress ($r(13) = .58, p = .02$). At posttreatment, total cognitive interference was positively correlated with stress, ($r(13) = .75, p < .001$). In addition, the two cognitive interference subscales were positively correlated with stress, task irrelevant, ($r(13) = .79, p < .001$) and task relevant, ($r(13) = .60, p = .02$).

In summary, higher levels of acceptance and innovation were associated with lower levels of perceived work control across time. Additionally, higher levels of cognitive interference were associated with higher levels of perceived stress.

Hypothesis Testing

**Hypothesis One: Evaluation of Treatment Effects on Acceptance and Innovation**

It was hypothesized that employees who participated in the ACT intervention, relative to control group participants would report: (a) more acceptance, (b) more innovation, (c) less stress, (d) less work control, and (e) less cognitive interference after treatment. Separate two (treatment/control) by four (pre/post/one-month follow-up/three-month follow-up) repeated measures analyses of variance were used to test treatment outcomes for acceptance, innovation, stress, and work control. The results of the repeated measures $2 \times 4$ ANOVAs are presented in Table 6. Cognitive interference was evaluated using a $2$ (treatment/control) by $2$ (pre and posttreatment) repeated measures analyses of variance (due to the late addition of this variable to the study and the drop out rate at one and three month follow-ups, only pre and posttreatment analyses using cognitive interference as a dependent variable had a sufficient number of participants for analyses ($n = 15$). The results of the repeated measures $2 \times 2$ ANOVA are presented in Table 6.

**Acceptance**

There was a marginally significant interaction of treatment condition and time for acceptance, ($F(3,63) = 2.68, p = .09$) and a significant main effect of time for acceptance², ($F(3,63) =$
The effect sizes fell into the medium range, ($\eta^2 = .10$, $\eta^2 = .15$). To further explore the marginally significant interaction of time and treatment condition for acceptance, repeated measures 1 x 4 ANOVAs were conducted for the treatment group, then the control group. A repeated measures 1 x 4 ANOVA for the treatment group for acceptance was significant, ($F(3,36) = 2.98, p = .04$). A repeated measures 1 x 4 ANOVA for the control group for acceptance was also significant, ($F(3,36) = 3.69, p = .02$). Since the ANOVAs for acceptance were significant, paired samples t-tests between time points were conducted for the treatment and control groups.

Within the treatment group, all pairwise t-tests were tested for significance using the Bonferroni correction which required a $p$-value of .008 to maintain a family-wise error rate of .05. For the treatment group, results indicated that acceptance at the three-month follow-up was significantly higher than acceptance at pretreatment, ($t(12) = -3.66, p < .008$) and marginally higher than at posttreatment, ($t(12) = -3.11, p = .01$) and one month follow-up ($t(12) = -2.23, p = .05$). None of the other pairwise comparisons were significant; pretreatment and posttreatment, ($t(12) = -.42, p = .68$), pretreatment and one month follow-up, ($t(12) = .21, p = .84$), posttreatment and one month follow-up, ($t(12) = .52, p = .61$). For the control group, similar of follow-up comparisons were conducted. Using the Bonferroni correction, these pairwise comparisons were marginally significant (pretreatment and posttreatment, ($t(9) = -1.96, p = .08$), pretreatment and one month follow-up, ($t(9) = -3.18, p = .01$), pretreatment and three month follow-up, ($t(9) = -2.07, p = .07$)). The remaining pairwise comparisons were not significant (posttreatment and one month follow-up, ($t(9) = -.86, p = .41$), posttreatment and three month follow-up, ($t(9) = .11, p = .92$), and one month follow-up and three month follow-up, ($t(9) = .65, p = .53$)).

Between-group t-tests were also conducted at each time point. At pretreatment, there was no significant difference between the treatment and control group, ($t(21) = .81, p = .43$). At
posttreatment, there was no significant difference between the treatment and control group, ($t(21) = -.22, p = .83$). At one month follow-up, there was no significant difference between the treatment and control group, ($t(21) = -.91, p = .37$). At three month follow-up, there was no significant difference between the treatment and control group, ($t(21) = 1.31, p = .21$).

**Innovation**

There was a significant main effect of time for innovation, ($F(3,63) = 2.89, p = .05$). The effect size fell into the medium range ($\eta^2 = .12$). There were no significant main effects of treatment condition or treatment by time interactions. To further explore the significant main effect of time, paired samples t-tests among all time points were conducted using the Bonferroni correction ($p = .008$). T-tests for posttreatment to three month follow-up posttreatment, ($t(22) = 2.45, p = .02$) and one month follow-up to three month follow-up, ($t(22) = 2.37, p = .03$) were marginally significant. The other pairwise comparisons were not significant (pretreatment to posttreatment, ($t(22) = -1.06, p = .30$), pretreatment to one month follow-up, ($t(22) = -.58, p = .57$), pretreatment to three month follow-up, ($t(22) = 1.80, p = .09$), posttreatment to one month follow-up, ($t(22) = .40, p = .69$)). Overall, innovation at three month follow-up was significantly lower than innovation at posttreatment and one month follow-up.

**Hypothesis Two: Evaluation of Treatment Effects on Stress, Work Control, and Cognitive Interference**

**Stress**

The interaction of treatment condition and time for stress was not significant, ($F(3,63) = .19, p = .90, \eta^2 = .01$). There were no significant main effects of treatment condition or time.
Work Control

The interaction of treatment condition and time for work control was not significant, \(F(3,63) = .96, p = .42, \eta^2 = .04\). There were no significant main effects of treatment condition or time.

Cognitive Interference

There was a marginally significant 2 x 2 interaction of treatment condition and time for the total cognitive interference score, \(F(1,13) = 3.78, p = .07\). This effect size associated with this comparison fell into the medium range \((\eta^2 = .23)\). To further explore the marginally significant interaction of time and treatment condition for acceptance, paired samples t-tests among time points were conducted for both the treatment and control groups. Within the treatment group, the pre-post pairwise comparison was not significant \((t(12) = -1.04, p = .34)\). Similarly, within the control group the pre-post pairwise comparison was not significant \((t(9) = 1.71, p = .13)\).

Between-group t-tests were also conducted at each time point. At pretreatment, there was no significant difference between the treatment and control group, \((t(13) = -1.98, p = .07)\). At posttreatment, there was no significant difference between the treatment and control group, \((t(13) = -1.01, p = .33)\).

The interaction of treatment condition and time for task relevant cognitive interference was not significant, \(F(1,13) = 2.48, p = .14, \eta^2 = .16\). However, there was a significant main effect of treatment condition, \(F(1,13) = 4.59, p = .05\). Overall, task relevant cognitive interference for the treatment group was significantly lower than task relevant cognitive interference for the control group.

The interaction of treatment condition and time for task irrelevant cognitive interference was not significant, \(F(1,13) = 2.49, p = .14, \eta^2 = .16\). There were no significant main effects of treatment condition or time.
Hypothesis Three: Cognitive Interference and Acceptance as Mediators of Outcomes

Cognitive Interference

It was also hypothesized that cognitive interference would mediate pre-post changes in outcomes and acceptance would mediate posttreatment changes in innovation outcomes. This hypothesis was tested in accordance with the regression procedure developed by Baron and Kenny (1986). According to this method, the magnitude of mediation is determined by the reduction of the effect of the predictor on the outcome once the mediator variable is added to the model. Four steps need to be fulfilled in order to establish mediation. First, it must be shown that the initial variable is correlated with the outcome variable (i.e., that an effect exists that may be mediated). Thus, to satisfy Step 1 of the mediation procedure, treatment condition needs to be linked with innovation change. This relationship will be established in the testing of Hypothesis 2. If this relationship is significant then the criteria for Step 1 of the mediation procedure is fulfilled.

In Step 2, it must be demonstrated that the initial variable is related to the mediator. Thus, regression was used to test this step, with treatment condition predicting cognitive interference change. If condition significantly predicts cognitive interference change, then Step 2 is satisfied.

In Step 3, the mediator must affect the outcome variable while controlling for the effects of the initial variable. Thus, to test Step 3, condition was entered first, followed by cognitive interference change, with innovation change as the dependent variable. If cognitive interference change significantly predicts innovation change, when controlling for condition, then Step 3 is satisfied.

For the final step in the mediation procedure, to establish partial mediation, one must demonstrate that the effect of the initial variable on the outcome variable is reduced in magnitude once the mediator is controlled for. To test this step, cognitive interference change is entered in the
first step of the regression equation, followed by condition with innovation change as the dependent variable. If the results indicate that the variance accounted for is reduced, but there is still significant prediction, this suggests partial mediation.

To establish full mediation, one must demonstrate that the effect of the initial variable on the outcome variable is not significant once the mediator is controlled for. To test this step, cognitive interference change is entered in the first step of the regression equation, followed by condition with innovation change as the dependent variable. If the results indicate that condition no longer significantly predicts innovation change, when controlling for cognitive interference change, this suggests full mediation.

The first set of analyses evaluated whether treatment effects on innovation change were mediated by cognitive interference change (see Table 7). The independent variable was the treatment condition (ACT treatment condition vs. control), the dependent variable was innovation change (posttreatment PTI – pretreatment PTI), and the mediating variable was cognitive interference change (posttreatment CIQ – pretreatment CIQ). In the first step, simple regression was used to evaluate the effect of treatment on innovation change. Step one was not significant, ($\beta = -0.17, p = 0.44$). In step 2, simple regression was used to evaluate the effect of treatment on cognitive interference change. Step two was not significant, ($\beta = -0.47, p = 0.07$). Step three evaluated the effect of cognitive interference change on innovation change, while controlling for the effects of treatment condition. Step three was not significant, ($\beta = -0.24, p = 0.47$). Finally, step four evaluated the effect of treatment on innovation change, while controlling for the effects of cognitive interference change. Step four was not significant, ($\beta = -0.20, p = 0.55$). Mediation was not observed for this model.

This hypothesis was also tested in accordance with the regression procedure to test mediation developed by Sobel (1982). First, linear regression was used to compute the raw regression
coefficient for the association between treatment condition and cognitive interference change ($B = -10.32$ and standard error 5.31, with $p = .07$). Linear regression was also used to compute the raw regression coefficient for the association between cognitive interference change and innovation change, controlling for treatment condition ($B = -.07$, and standard error, .09, with $p = .47$). These regression coefficients and standard error terms were then entered into a Sobel test calculator (Soper, 2010). Results indicated that cognitive interference change did not significantly mediate the relationship between treatment condition and innovation change (Sobel test statistic = .72, $p = .47$).

Acceptance

The next set of analyses evaluated whether treatment effects on innovation were mediated by acceptance at posttreatment (see Table 8). The independent variable was the treatment condition (ACT treatment condition vs. control), the dependent variable was innovation change (posttreatment PTI – pretreatment PTI), and the mediating variable was acceptance change (posttreatment AAQ-II - pretreatment AAQ-II). In step one, simple regression was used to evaluate the effect of treatment on innovation change. Step one was not significant, ($\beta = -.17$, $p = .44$). In step 2, simple regression was used to evaluate the effect of treatment on acceptance change. Step two was not significant, ($\beta = .27$, $p = .21$). Step three, evaluated the effect of acceptance change on innovation change, while controlling for the effects of treatment condition. Step three was not significant, ($\beta = -.07$, $p = .77$). Step four evaluated the effect of treatment on innovation change, while controlling for the effects of acceptance change. Step four was not significant ($\beta = -.15$, $p = .52$). Mediation was not observed for this model.

The next set of analyses evaluated whether treatment effects on innovation were mediated by acceptance at posttreatment using the regression procedure to test mediation developed by Sobel (1982). The same variables were used in these analyses. In step one, linear regression was used to
evaluate the effect of treatment on acceptance change. Step one was not significant, (raw regression coefficient = 3.73, and standard error = 2.89, with \( p = .21 \)). In step 2, linear regression was used to evaluate the effect of acceptance change on innovation change, controlling for treatment. Step two was not significant, (raw regression coefficient = -.03, and standard error = .10, with \( p = .77 \)). The regression coefficients and standard error were entered into a Sobel test calculator. While controlling for the mediator, acceptance change, the relationship between the independent variable, treatment condition, and the dependent variable, innovation change, was not significant (Sobel test statistic = - .29, \( p = 1.23 \)). Mediation was not observed for this model.
Discussion

The overall purpose of this study was to examine the effectiveness of an acceptance and commitment therapy (ACT) intervention in work stress populations for innovation. It was hypothesized that employees who participated in the ACT intervention would report significantly and more acceptance and innovation and diminished stress, work control, and cognitive interference, relative to employees in a waitlist control group at post-treatment. Changes would be maintained at one month and three month follow-up. Changes in the level of acceptance and cognitive interference were expected to predict the relationship between treatment effects and improved innovation outcomes.

**Intervention Effectiveness**

The prediction that ACT participants would show significant improvements in acceptance and innovation compared to participants in the waitlist control participants was partially supported. Specifically, the marginal interaction of treatment condition and time for acceptance indicated that there was a significant increase in acceptance for the treatment group at three month follow-up whereas the control group did not significant change across. This may indicate that the intervention has an “incubation effect” such that changes in acceptance occurred after participants become more skilled at using ACT principles. It may be that these sorts of incubation effects may be a function of treatment participants developing increased ability to use skills taught in therapy combined with a diminishing placebo effect experiences by the control group.

There was a significant main effect of time for innovation. However, follow-up analyses showed that the effect was the result of a significant decrease in innovation from posttreatment and one month follow-up to three month follow-up. There were no significant main effects of treatment condition or treatment by time interactions for innovation. The magnitude of change across time on
the PTI measure was quite small, and it appears that the principal reduction occurred from the one month to three month follow-up. It is not clear what factors may have led to these changes in perception of innovation opportunities in the workplace. It is possible that after participating in this study for one month with minimal or no perceived improvement in innovation at work, this high stress population (teachers and mental health workers), may have become discouraged with their progress and discontinued the application of these techniques at work. Alternatively, this reduction in innovation occurred simultaneously as acceptance increased for the treatment group. As individuals began to accept the inalterable nature of their work, they may have ceased using innovation as a coping strategy at work.

The second hypothesis, participants in the ACT group would experience significant reductions in stress, work control, and cognitive interference compared to participants in the waitlist control group was not supported. There was a marginal interaction of treatment condition and time for cognitive interference. However, follow-up analyses showed that the interaction was the result of an increase in cognitive interference for the treatment group and a decrease in cognitive interference for the control group from pretreatment to posttreatment. At pretreatment, significant between-group differences were observed for the task-relevant cognitive interference subscale, indicating that the control group participants reported higher levels of cognitive interference however, there was no significant interaction of treatment and time for task-relevant cognitive interference. This indicates that the observed differences between groups at pretreatment continued and posttreatment.

The third hypothesis, that improvements in innovation would be mediated by acceptance and cognitive interference was also not supported. This is contrary to prior research conducted by Bond and Bunce (2000) who demonstrated that participants who received an ACT based intervention for work stress experienced improved outcomes as a partial function of increased acceptance.
The differences in findings observed in this investigation and Bond and Bunce (2000) may be attributable to methodological and statistical aspects of the studies. From a methodological standpoint, the current investigation did not offer a third session at 3 month follow-up and while the intervention was offered at the worksite during work hours for some participants other participants completed the intervention off-site, on their personal time. Another limitation of the current investigation was that the outcome variables were measured following each session, when participants may have been emotional or fatigued due to the session, as opposed to completing them prior to the session.

Both studies shared some methodological limitations. These studies relied on the participants’ self report of outcome measures. However, constructs such as innovation may not be well assessed by self report measures, causing individual’s perceived innovation to be different from their actual innovation. Additionally, in the current investigation all of the therapists attended a two day workshop on ACT however, not all therapists had been trained to the same degree or had experience using ACT in a clinical setting prior to this intervention. This lack of experience could have resulted in a lack of significant differences across many outcomes variables between the treatment and waitlist control group. The training of therapists in the Bond and Bunce (2000) study was not discussed. Another limitation of these studies is the lack of specific examples and discussion facilitated in the intervention related to work specific scenarios or stressors. This addition may have improved application of these concepts to the workplace.

From a statistical standpoint, the current investigation had a much smaller sample size (cognitive interference (n = 15) at pre and posttreatment and all variables (n = 23) at pre/post/one month follow up) than the Bond and Bunce study (N=90), resulting in low statistical power which
increases the probability for Type II error. There were several variables that may have reached significance given a larger sample.

Although there were no treatment effects for work control, work control and acceptance were significantly inversely correlated at pretreatment, one month and three month follow-up. This finding is contradictory to research that demonstrated that acceptance and work control are positively associated (Bond & Bunce, 2003; Bond & Bunce, 2006). However, this finding lends support to the model used in this study that acceptance (of work conditions as they exist) may simultaneously entail diminished perceptions of control (i.e., of work conditions that are existentially uncontrollable for many workers).

Acceptance and innovation were significantly positively correlated at pretreatment. This is consistent with previous research in which participants of an ACT intervention showed improvements in innovation where acceptance accounted for a significant proportion of the change in innovation (Bond & Bunce, 2000). Acceptance of work stressors may free up cognitive resources from thoughts about stressors and efforts to gain work control, and these resources are available to be used for innovation.

Cognitive interference and stress were significantly positively correlated at pretreatment (task irrelevant cognitive interference only) and posttreatment. One model that may explain these relationships is cognitive interference theory which suggests that there is a limited cognitive capacity available for executing tasks. Thus, when an individual is exposed to stressors, there may be more off-task thinking which competes with on-task thinking. As a result of more off-task thinking, an individual may then experience their work as more stressful because they may be less effective and efficient in their position.
Overall, at pretreatment, acceptance may be related to reduced sense of control (e.g., acceptance of inevitable stress on the job) and reduced preoccupation (i.e., cognitive interference) with control which is, in turn, associated with perceptions of lower stress and a greater sense of propensity to innovate.

**Summary and Future Directions**

In summary, the ACT intervention for work stress in this study resulted in marginally significant improvement in acceptance for the treatment group across time. Also there were some promising relationships between acceptance and work control, acceptance and innovation, cognitive interference and stress, and innovation and work control.

Future researchers may want to explore the use of more tailored interventions for work including a focus on work related examples and discussions. Additionally, considerations may be made when creating an intervention for the existing time demands on the highly stressed workers, which may have prohibited the participation of some workers. Similarly, future studies may evaluate the effects of a treatment outcome study comparing CBT to ACT for work stress. Based on prior research, CBT interventions may be beneficial for short term stress reduction while ACT interventions may be beneficial for sustained stress reduction across time (Bond & Bunce, 2000). Finally, ACT for work stress interventions should be assessed with a variety of populations.
References


Footnotes

¹ To follow up on these pretreatment treatment group differences hypothesis tests were run using cognitive interference and cognitive interference subscales as covariates. None of the analyses yielded results that substantially altered interpretation of data. Consequently, hypothesis tests were conducted without using cognitive interference as a covariate so that a larger sample size could be used.

² To further explore the significant main effects of time for acceptance paired samples t-tests between all time points were conducted. A t-test comparing pretreatment to posttreatment acceptance was not significant, ($t(22)=-1.64, p \geq .05$). The next t-test comparing pretreatment to one month follow-up was not significant, ($t(22)=-1.08, p \geq .05$). A t-test comparing pretreatment to three month follow-up was significant, ($t(22)=-4.06, p \leq .01$). The next t-test comparing posttreatment to one month follow-up was not significant, ($t(22)=-.19, p \geq .05$). The next t-test comparing posttreatment to three month follow-up was significant, ($t(22)=-2.22, p \leq .05$). The next t-test comparing one month follow-up to three month follow-up was not significant, ($t(22)=-1.71, p \geq .05$). Overall, acceptance at pretreatment and posttreatment was significantly negatively correlated with acceptance at three month follow-up.
### Table 1
*Studies Evaluating the Work Stress – Innovation Relationship*

<table>
<thead>
<tr>
<th>Authors</th>
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<th>Innovation Measure</th>
<th>Work Stress Measure</th>
<th>Results</th>
<th>Discussion</th>
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<tr>
<td>Borne, J.E. (2008)</td>
<td>88 community college counselors</td>
<td>Innovation Scale (INN) (Borne, 2008)</td>
<td>Job Stress (JS) Scale (Borne, 2008)</td>
<td>$r = -.36^{**}$</td>
<td>INN and JS demonstrated a small negative correlation. Counselors who perceived the administration as more receptive to innovation had lower work stress.</td>
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<tr>
<td>Bunce, D. &amp; West, M. (1994)</td>
<td>333 health care professionals (community and hospital nurses, administration workers, and paramedics)</td>
<td>Developed from the Firth-Cozens and Morrison’s (1987b) coding system</td>
<td>Developed from the Firth-Cozens and Morrison’s (1987b) coding system</td>
<td>32% of workers reported using an innovative coping response to occupational stressors</td>
<td>The study indicated that innovation at work, used as a coping response was perceived by health care professionals as an effective and important way of dealing with occupational stress.</td>
</tr>
<tr>
<td>Eaton, D.G. (1998)</td>
<td>224 full-time faculty from the Houston Community College District (3 campuses)</td>
<td>School-Level Environmental Questionnaire (SLEQ) (Rentoul &amp; Fraser, 1983)</td>
<td>School-Level Environmental Questionnaire (SLEQ) (Rentoul &amp; Fraser, 1983)</td>
<td>Participatory Decision Making: $\beta = .23^{**}$</td>
<td>The Participatory Decision Making (PDM) Scale has a significant, high positive correlation with the Innovation (INN) Scale. The PDM Scale had a moderate positive effect on job stress. When faculty were able to participate in decision making processes of the college, they reported less stress. INN approached significance.</td>
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<td>Reference</td>
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<td>Lindquist, C.A. (2000)</td>
<td>124 Indiana public school principals (71 newly assigned, no previous principalship experience and 53 newly assigned with previous principalship experience)</td>
<td>Innovation is a subscale of the Work Environment Scale (Moos, R. &amp; Insel, P., 1974) and Occupational Stress Inventory (Osipow, S.H. &amp; Spokane, A.R., 1987)</td>
<td>Correlation of innovation to OSI subscales (no previous experience, experienced)</td>
<td>Principals with no previous principalship utilized innovation as a coping resource to reduce different components of job stress.</td>
<td></td>
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<tr>
<td>Pamperin, B. (1982)</td>
<td>171 certified school social workers employed by local Wisconsin school districts in the 1981-82 school year</td>
<td>“What kind of person are you?” (Torrance &amp; Khatena, 1970)</td>
<td>Items used from the Role Conflict and Role Ambiguity Scale (Rizzo, House, &amp; Lirtzman, 1970)</td>
<td>Role conflict: $r = .21^*$</td>
<td>Role conflict was positively correlated with creativity, which could mean that creative individuals are more likely to be sensitive to problems. No significant correlation between role ambiguity/creativity.</td>
</tr>
<tr>
<td>Peelle, E.E. (1980)</td>
<td>84 teaching staff</td>
<td>Innovation Attributes</td>
<td>Job Stress (Peelle, 1980)</td>
<td>Role conflict, role</td>
<td>Role conflict: findings demonstrate a</td>
</tr>
</tbody>
</table>
volunteers from elementary or junior high schools from 2 counties in Michigan (7 school districts) (Peelle, 1980)

Relative advantage:
- $r = -0.80^{***}$ and $r = -0.52^{**}$

Compatibility:
- $r = -0.82^{***}$, $-0.67^{***}$

Complexity:
- $r = 0.76^{***}$, $0.59^{***}$

strong relationship between innovation attributes and role conflict. Relative advantage of innovation (total relative advantage perceived by students and teachers) and compatibility correlated negatively with role conflict, however complexity was positively related.

Role ambiguity: The relationship of innovation attributes (less strong) and compatibility correlated negatively with role ambiguity, while complexity had a strong positive relationship.

*Note.* $p \leq 0.05$, $** p \leq 0.01$, $*** p \leq 0.001$. 
Table 2
Demographic Characteristics of the Sample

<table>
<thead>
<tr>
<th>Categorical Demographic Variables</th>
<th>Intervention N</th>
<th>Control N</th>
<th>$\chi^2$</th>
<th>$P$</th>
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<tbody>
<tr>
<td>Gender</td>
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<td>.80</td>
<td>.37</td>
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<tr>
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<td>0</td>
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<td>10</td>
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<td>Marital Status</td>
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</tr>
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<td>Bachelors Degree</td>
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<td>4</td>
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<td>Graduate School</td>
<td>4</td>
<td>3</td>
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<td>Employment</td>
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<td>Full time</td>
<td>13</td>
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</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>&lt; 50</td>
<td>8</td>
<td>5</td>
<td>.31</td>
<td>.58</td>
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<tr>
<td>&gt; 50</td>
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</table>

Note: N=23
Table 3
Means and Standard Deviations for all Variables at Pretreatment, Posttreatment, One Month Follow-up, and Three Month Follow-up

<table>
<thead>
<tr>
<th>Variable</th>
<th>Intervention</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>Acceptance (AAQ-II)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pretreatment</td>
<td>50.85</td>
<td>9.35</td>
</tr>
<tr>
<td>Posttreatment</td>
<td>51.62</td>
<td>6.40</td>
</tr>
<tr>
<td>One month follow-up</td>
<td>50.23</td>
<td>9.28</td>
</tr>
<tr>
<td>Three month follow-up</td>
<td>56.38</td>
<td>8.19</td>
</tr>
<tr>
<td>Cognitive Interference (CIQ)</td>
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<td></td>
</tr>
<tr>
<td>Pretreatment</td>
<td>45.57</td>
<td>19.50</td>
</tr>
<tr>
<td>Posttreatment</td>
<td>49.14</td>
<td>21.75</td>
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<tr>
<td>Cognitive Interference Irrelevant (CIQ)</td>
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<td></td>
</tr>
<tr>
<td>Pretreatment</td>
<td>25.14</td>
<td>12.13</td>
</tr>
<tr>
<td>Posttreatment</td>
<td>25.42</td>
<td>11.62</td>
</tr>
<tr>
<td>Cognitive Interference Relevant (CIQ)</td>
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<td></td>
</tr>
<tr>
<td>Pretreatment</td>
<td>17.71</td>
<td>6.90</td>
</tr>
<tr>
<td>Posttreatment</td>
<td>20.14</td>
<td>9.55</td>
</tr>
<tr>
<td>Daily Stress Inventory (DSI)</td>
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<td></td>
</tr>
<tr>
<td>Pretreatment</td>
<td>3.57</td>
<td>1.02</td>
</tr>
<tr>
<td>Posttreatment</td>
<td>3.15</td>
<td>1.02</td>
</tr>
<tr>
<td>One month follow-up</td>
<td>3.27</td>
<td>1.35</td>
</tr>
<tr>
<td>Three month follow-up</td>
<td>3.09</td>
<td>1.04</td>
</tr>
<tr>
<td>Propensity to Innovate (PTI)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pretreatment</td>
<td>23.77</td>
<td>3.09</td>
</tr>
<tr>
<td>Posttreatment</td>
<td>24.85</td>
<td>3.63</td>
</tr>
<tr>
<td>One month follow-up</td>
<td>24.92</td>
<td>3.59</td>
</tr>
<tr>
<td>Three month follow-up</td>
<td>22.15</td>
<td>4.65</td>
</tr>
<tr>
<td>Work Locus of Control (WLCS)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pretreatment</td>
<td>45.77</td>
<td>11.83</td>
</tr>
<tr>
<td>Posttreatment</td>
<td>44.08</td>
<td>10.99</td>
</tr>
<tr>
<td>One month follow-up</td>
<td>43.85</td>
<td>11.52</td>
</tr>
<tr>
<td>Three month follow-up</td>
<td>42.69</td>
<td>13.21</td>
</tr>
</tbody>
</table>

Note: *p ≤ .05, **p ≤ .01
Table 4  
*Bivariate Correlations at Pre and Posttreatment*

<table>
<thead>
<tr>
<th>Variable</th>
<th>AAQ-II</th>
<th>CIQ Total</th>
<th>CIQ (Task Irrelevant)</th>
<th>CIQ (Task Relevant)</th>
<th>DSI</th>
<th>PTI</th>
<th>WLCS</th>
</tr>
</thead>
<tbody>
<tr>
<td>AAQ-II</td>
<td>.64**</td>
<td>- .22</td>
<td>- .22</td>
<td>-.21</td>
<td>- .43*</td>
<td>.64**</td>
<td>- .75**</td>
</tr>
<tr>
<td>CIQ</td>
<td>- .13</td>
<td>.83**</td>
<td>.96**</td>
<td>.95**</td>
<td>.50</td>
<td>.05</td>
<td>.18</td>
</tr>
<tr>
<td>CIQ (Task Irrelevant)</td>
<td>- .28</td>
<td>.97**</td>
<td>.81**</td>
<td>.84**</td>
<td>.58*</td>
<td>.11</td>
<td>.22</td>
</tr>
<tr>
<td>CIQ (Task Relevant)</td>
<td>.06</td>
<td>.94**</td>
<td>.81*</td>
<td>.70**</td>
<td>.36</td>
<td>.02</td>
<td>.11</td>
</tr>
<tr>
<td>DSI</td>
<td>- .09</td>
<td>.75**</td>
<td>.79**</td>
<td>.60*</td>
<td>.50*</td>
<td>- .15</td>
<td>.39</td>
</tr>
<tr>
<td>PTI</td>
<td>.28</td>
<td>- .07</td>
<td>- .06</td>
<td>- .03</td>
<td>- .06</td>
<td>.74**</td>
<td>- .57**</td>
</tr>
<tr>
<td>WLCS</td>
<td>- .06</td>
<td>.07</td>
<td>- .02</td>
<td>.14</td>
<td>.05</td>
<td>- .58**</td>
<td>.58**</td>
</tr>
</tbody>
</table>

*Note.* Coefficients above the diagonal represent intercorrelations at pretreatment, those below at posttreatment, and those in bold on the diagonal are test-retest correlations. *p ≤ .05, **p ≤ .01. AAQ-II = Acceptance and Action Questionnaire II, CIQ = Cognitive Interference Questionnaire, DSI = Daily Stress Inventory, PTI = Propensity to Innovate, WLCS = Work Locus of Control Scale.
Table 5
Bivariate Correlations at One and Three Month Followup

<table>
<thead>
<tr>
<th>Variable</th>
<th>AAQ-II</th>
<th>DSI</th>
<th>PTI</th>
<th>WLCS</th>
</tr>
</thead>
<tbody>
<tr>
<td>AAQ-II</td>
<td>.36</td>
<td>-.01</td>
<td>.11</td>
<td>-.44*</td>
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<tr>
<td>DSI</td>
<td>-.38</td>
<td>.67**</td>
<td>-.08</td>
<td>.11</td>
</tr>
<tr>
<td>PTI</td>
<td>.31</td>
<td>-.24</td>
<td>.71**</td>
<td>-.53**</td>
</tr>
<tr>
<td>WLCS</td>
<td>-.48*</td>
<td>.22</td>
<td>-.49*</td>
<td>.86**</td>
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</tbody>
</table>

Note. Coefficients above the diagonal represent intercorrelations at one month follow-up, those below at three month follow-up, and those in bold on the diagonal are test-retest correlations. *p ≤ .05, **p ≤ .01. AAQ-II = Acceptance and Action Questionnaire II, DSI = Daily Stress Inventory, PTI = Propensity to Innovate, WLCS = Work Locus of Control Scale.
Table 6
Repeated Measures (2x4) ANOVA for Work Related Outcomes

<table>
<thead>
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<th>Df</th>
<th>P</th>
<th>Partial η²</th>
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<td>AAQ-II</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group</td>
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<td>1,21</td>
<td>.75</td>
<td>.01</td>
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<tr>
<td>Time</td>
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<td>3,63</td>
<td>.02</td>
<td>.15</td>
</tr>
<tr>
<td>Time x Condition</td>
<td>2.28</td>
<td>3,63</td>
<td>.09</td>
<td>.10</td>
</tr>
<tr>
<td>CIQ (Total)</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group</td>
<td>2.52</td>
<td>1,13</td>
<td>.14</td>
<td>.16</td>
</tr>
<tr>
<td>Time</td>
<td>.36</td>
<td>1,13</td>
<td>.56</td>
<td>.03</td>
</tr>
<tr>
<td>Time x Condition</td>
<td>3.78</td>
<td>1,13</td>
<td>.07</td>
<td>.23</td>
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<tr>
<td>CIQ (Task Relevant)</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group</td>
<td>4.59</td>
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<td>.05</td>
<td>.26</td>
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<tr>
<td>Time</td>
<td>.00</td>
<td>1,13</td>
<td>.98</td>
<td>.00</td>
</tr>
<tr>
<td>Time x Condition</td>
<td>2.48</td>
<td>1,13</td>
<td>.14</td>
<td>.16</td>
</tr>
<tr>
<td>CIQ (Task Irrelevant)</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group</td>
<td>1.10</td>
<td>1,13</td>
<td>.31</td>
<td>.08</td>
</tr>
<tr>
<td>Time</td>
<td>1.97</td>
<td>1,13</td>
<td>.18</td>
<td>.13</td>
</tr>
<tr>
<td>Time x Condition</td>
<td>2.49</td>
<td>1,13</td>
<td>.14</td>
<td>.16</td>
</tr>
<tr>
<td>DSI</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Group</td>
<td>.66</td>
<td>1,21</td>
<td>.43</td>
<td>.03</td>
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<tr>
<td>Time</td>
<td>1.43</td>
<td>3,63</td>
<td>.24</td>
<td>.06</td>
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<td>Time x Condition</td>
<td>.19</td>
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<td>.90</td>
<td>.01</td>
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<tr>
<td>PTI</td>
<td></td>
<td></td>
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<tr>
<td>Group</td>
<td>1.21</td>
<td>1,21</td>
<td>.28</td>
<td>.05</td>
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<tr>
<td>Time</td>
<td>2.89</td>
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<td>.04</td>
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<td>Time x Condition</td>
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<td>.51</td>
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<tr>
<td>Group</td>
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<td>1,21</td>
<td>.78</td>
<td>.00</td>
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<tr>
<td>Time</td>
<td>.19</td>
<td>3,63</td>
<td>.90</td>
<td>.01</td>
</tr>
<tr>
<td>Time x Condition</td>
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<td>3,63</td>
<td>.42</td>
<td>.04</td>
</tr>
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</table>

Note: n=23 for all variables except CIQ, n=15. Repeated measures (2x4) ANOVAs were conducted for all work related outcomes except CIQ (total, task relevant, and task irrelevant), (2x2) ANOVAs were conducted. * p ≤ .05, ** p ≤ .01
Table 7
*Hierarchical regression of treatment condition and cognitive interference predicting innovation*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Beta</th>
<th>t</th>
<th>Df</th>
<th>P</th>
<th>R²</th>
<th>Adjusted R²</th>
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</thead>
<tbody>
<tr>
<td>Step one (treatment innovation)</td>
<td>-.17</td>
<td>-.78</td>
<td>1,21</td>
<td>.44</td>
<td>.03</td>
<td>-.02</td>
</tr>
<tr>
<td>Step two (treatment cognitive interference)</td>
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<td>-1.94</td>
<td>1,13</td>
<td>.07</td>
<td>.23</td>
<td>.17</td>
</tr>
<tr>
<td>Step three (cognitive interference + treatment innovation)</td>
<td>-.24</td>
<td>-.76</td>
<td>2,12</td>
<td>.47</td>
<td>.05</td>
<td>-.11</td>
</tr>
<tr>
<td>Step four (treatment + cognitive interference innovation)</td>
<td>-.20</td>
<td>-.62</td>
<td>2,12</td>
<td>.55</td>
<td>.05</td>
<td>-.11</td>
</tr>
</tbody>
</table>

*Note: n=23 for all variables except CIQ, n=15. *p* ≤ .05, **p** ≤ .01*
Table 8
Hierarchical regression of treatment condition and acceptance predicting innovation

<table>
<thead>
<tr>
<th>Variable</th>
<th>Beta</th>
<th>t</th>
<th>Df</th>
<th>P</th>
<th>R²</th>
<th>Adjusted R²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step one (treatment innovation)</td>
<td>-.17</td>
<td>-.78</td>
<td>1,21</td>
<td>.44</td>
<td>.03</td>
<td>-.02</td>
</tr>
<tr>
<td>Step two (treatment acceptance)</td>
<td>.27</td>
<td>1.29</td>
<td>1,21</td>
<td>.21</td>
<td>.07</td>
<td>.03</td>
</tr>
<tr>
<td>Step three (acceptance + treatment innovation)</td>
<td>-.07</td>
<td>-.30</td>
<td>2,20</td>
<td>.77</td>
<td>.03</td>
<td>-.06</td>
</tr>
<tr>
<td>Step four (treatment + acceptance innovation)</td>
<td>-.15</td>
<td>-.66</td>
<td>2,20</td>
<td>.52</td>
<td>.03</td>
<td>-.06</td>
</tr>
</tbody>
</table>

Note: n=23 for all variables except CIQ, n=15. *p ≤ .05, **p ≤ .01
Figure 1
*Means for Acceptance at Pretreatment, Posttreatment, One Month Follow-up, and Three Month Follow-up*
Figure 2
Means for Innovation at Pretreatment, Posttreatment, One Month Follow-up, and Three Month Follow-up
Figure 3
Means for Cognitive Interference at Pretreatment and Posttreatment
Appendix A

Demographic Inventory

The following questions ask for you to provide a wide range of information about yourself such as: health history, family background, age, etc. As always, your responses to these questions will be kept completely confidential. We ask that you be as honest as possible throughout the survey.

1. What is your age? _________

2. What is your gender?
   Male
   Female

3. What is your marital status:
   Single
   Co-habiting with a Partner
   Married
   Separated
   Divorced
   Widowed

4. What is the highest grade or year you finished and got credit for in regular school or college?
   Less than grade school (8th grade)
   Some high school (between grades 8-11)
   High school graduate
   One or two years of college
   Three to four years of college
   College graduate
   Post-Graduate Education

5. What is your employment status at the present time?
   Employed full-time
   Employed part-time
   Not employed

6. If employed, how many hours do you work each week?

   Hours/week __________

7. How long have you been employed with your present company?

   ____________

8. What is your job title?
9. How many times during the **past year** have you visited a doctor because of illness? (do not include dentists or eye doctors)

Number of visits ____________

10. How many times during the **past year** have you visited a doctor for a general checkup? That is, **not** because of a specific illness or condition? (do not include dentists or eye doctors)

Number of checkups ____________

11. During the **past year**, how many days of work have you missed because of illness?

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

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<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 seldom 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. It's OK if I remember something unpleasant. 1 2 3 4 5 6 7
2. My painful experiences and memories make it difficult for me to live a life that I would value. 1 2 3 4 5 6 7
3. I'm afraid of my feelings. 1 2 3 4 5 6 7
4. I worry about not being able to control my worries and feelings. 1 2 3 4 5 6 7
5. My painful memories prevent me from having a fulfilling life. 1 2 3 4 5 6 7
6. I am in control of my life. 1 2 3 4 5 6 7
7. Emotions cause problems in my life. 1 2 3 4 5 6 7
8. It seems like most people are handling their lives better than I am. 1 2 3 4 5 6 7
9. Worries get in the way of my success. 1 2 3 4 5 6 7
10. My thoughts and feelings do not get in the way of how I want to live my life. 1 2 3 4 5 6 7
Cognitive Interference Questionnaire

Instructions: This questionnaire concerns the kinds of thoughts that go through people's heads at particular times, for example, while they are working on a task. The following is a list of thoughts, some of which you might have had while doing the task on which you have just worked. Please indicate approximately how often each thought occurred to you while working on it by choosing the most appropriate number beside each statement.

<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></td>
<td>Never</td>
<td>Once</td>
<td>A few times</td>
<td>Often</td>
<td>Very often</td>
</tr>
<tr>
<td>1.</td>
<td>I thought about how poorly I was doing.</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>2.</td>
<td>I thought about what the experimenter would think of me.</td>
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<tr>
<td>3.</td>
<td>I thought about how I should work more carefully.</td>
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<tr>
<td>4.</td>
<td>I thought about how much time I had left.</td>
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<tr>
<td>5.</td>
<td>I thought about how others have done on this task.</td>
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<tr>
<td>6.</td>
<td>I thought about the difficulty of the experiment.</td>
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</tr>
<tr>
<td>7.</td>
<td>I thought about my level of ability.</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>8.</td>
<td>I thought about the purpose of the experiment.</td>
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</tr>
<tr>
<td>9.</td>
<td>I thought about how I would feel if I were told how I performed.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10.</td>
<td>I thought about how often I got confused.</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>11.</td>
<td>I thought about other activities (for example, assignments, work)</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>12.</td>
<td>I thought about members of my family.</td>
<td></td>
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<tr>
<td>13.</td>
<td>I thought about friends.</td>
<td></td>
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<tr>
<td>14.</td>
<td>I thought about something that made me feel guilty.</td>
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</tr>
<tr>
<td>15.</td>
<td>I thought about personal worries.</td>
<td></td>
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</tr>
<tr>
<td>16.</td>
<td>I thought about something that made me feel tense.</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>17.</td>
<td>I thought about something that made me feel angry.</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18.</td>
<td>I thought about something that happened earlier today.</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>19.</td>
<td>I thought about something that happened in the recent past (last few days, but not today).</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>20.</td>
<td>I thought about something that happened in the distant past.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>21.</td>
<td>I thought about something that might happen in the future.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Please choose the number on the following scale which best represents the following question.

<table>
<thead>
<tr>
<th>Not at all</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>Very Much</th>
</tr>
</thead>
<tbody>
<tr>
<td>22.</td>
<td>The degree to which you felt your mind wandered during the task you have just completed.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Below are listed a variety of events that may be viewed as stressful or unpleasant. Read each item carefully and decide whether or not that event occurred within the past 24 hours. If the event did occur, circle the “Y” response. Then, circle the number from 1 to 7 that best corresponds with the amount of stress the event caused you (see numbers below). Please answer as honestly as you can so that we may obtain accurate information.

1-occurred but was not stressful
2-caused very little stress
3-caused a little stress
4-caused some stress
5-caused much stress
6-caused very much stress
7-caused me to panic

<table>
<thead>
<tr>
<th>Did the Event Occur?</th>
<th>Level of Stress</th>
</tr>
</thead>
<tbody>
<tr>
<td>Y</td>
<td>N</td>
</tr>
<tr>
<td>1</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>2</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>3</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>4</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>5</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>6</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>7</td>
<td>1 2 3 4 5 6 7</td>
</tr>
</tbody>
</table>

Did the Event Occur? Level of Stress

Y = Yes, N = No

1-occurred but was not stressful
2-caused very little stress
3-caused a little stress
4-caused some stress
5-caused much stress
6-caused very much stress
7-caused me to panic
<table>
<thead>
<tr>
<th></th>
<th>Event Description</th>
<th>Y/N</th>
<th>1 2 3 4 5 6 7</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>Unable to complete a task</td>
<td>Y/N</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>9</td>
<td>Was unorganized</td>
<td>Y/N</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>10</td>
<td>Criticized or verbally attacked</td>
<td>Y/N</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>11</td>
<td>Ignored by others</td>
<td>Y/N</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>12</td>
<td>Spoke or performed in public</td>
<td>Y/N</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>13</td>
<td>Dealt with rude waiter/waitress/salesperson</td>
<td>Y/N</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>14</td>
<td>Interrupted while talking</td>
<td>Y/N</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>15</td>
<td>Was forced to socialize</td>
<td>Y/N</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>16</td>
<td>Someone broke a promise/appointment</td>
<td>Y/N</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>17</td>
<td>Competed with someone</td>
<td>Y/N</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>18</td>
<td>Was stared at</td>
<td>Y/N</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>19</td>
<td>Did not hear from somebody you expected to hear from</td>
<td>Y/N</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>20</td>
<td>Experienced unwanted physical contact (crowded, pushed)</td>
<td>Y/N</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>21</td>
<td>Was misunderstood</td>
<td>Y/N</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>22</td>
<td>Was embarrassed</td>
<td>Y/N</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>23</td>
<td>Had your sleep disturbed</td>
<td>Y/N</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>24</td>
<td>Forgot something</td>
<td>Y/N</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>25</td>
<td>Feared illness/pregnancy</td>
<td>Y/N</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>26</td>
<td>Experienced illness/physical discomfort</td>
<td>Y/N</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>27</td>
<td>Someone borrowed something without your permission</td>
<td>Y/N</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>28. Your property was damaged</td>
<td>Y  N</td>
<td>1  2  3  4  5  6  7</td>
<td></td>
</tr>
<tr>
<td>29. Had minor accident (broke something, tore clothing)</td>
<td>Y  N</td>
<td>1  2  3  4  5  6  7</td>
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</tr>
<tr>
<td>30. Thought about the future</td>
<td>Y  N</td>
<td>1  2  3  4  5  6  7</td>
<td></td>
</tr>
<tr>
<td>31. Ran out of food/personal article</td>
<td>Y  N</td>
<td>1  2  3  4  5  6  7</td>
<td></td>
</tr>
<tr>
<td>32. Argued with significant other</td>
<td>Y  N</td>
<td>1  2  3  4  5  6  7</td>
<td></td>
</tr>
<tr>
<td>33. Argued with another person</td>
<td>Y  N</td>
<td>1  2  3  4  5  6  7</td>
<td></td>
</tr>
<tr>
<td>34. Waited longer than you wanted</td>
<td>Y  N</td>
<td>1  2  3  4  5  6  7</td>
<td></td>
</tr>
<tr>
<td>35. Interrupted while thinking/relaxing</td>
<td>Y  N</td>
<td>1  2  3  4  5  6  7</td>
<td></td>
</tr>
<tr>
<td>36. Someone “cut” ahead of you in line</td>
<td>Y  N</td>
<td>1  2  3  4  5  6  7</td>
<td></td>
</tr>
<tr>
<td>37. Performed poorly at a sport or game</td>
<td>Y  N</td>
<td>1  2  3  4  5  6  7</td>
<td></td>
</tr>
<tr>
<td>38. Did something that you did not want to do</td>
<td>Y  N</td>
<td>1  2  3  4  5  6  7</td>
<td></td>
</tr>
<tr>
<td>39. Unable to complete all plans for today</td>
<td>Y  N</td>
<td>1  2  3  4  5  6  7</td>
<td></td>
</tr>
<tr>
<td>40. Had car trouble</td>
<td>Y  N</td>
<td>1  2  3  4  5  6  7</td>
<td></td>
</tr>
<tr>
<td>41. Had difficulty in traffic</td>
<td>Y  N</td>
<td>1  2  3  4  5  6  7</td>
<td></td>
</tr>
<tr>
<td>42. Money problems</td>
<td>Y  N</td>
<td>1  2  3  4  5  6  7</td>
<td></td>
</tr>
<tr>
<td>43. Store lacked a desired item</td>
<td>Y  N</td>
<td>1  2  3  4  5  6  7</td>
<td></td>
</tr>
<tr>
<td>44. Misplaced something</td>
<td>Y  N</td>
<td>1  2  3  4  5  6  7</td>
<td></td>
</tr>
<tr>
<td>45. Bad weather</td>
<td>Y  N</td>
<td>1  2  3  4  5  6  7</td>
<td></td>
</tr>
<tr>
<td>46. Unexpected expenses (fines, traffic ticket, etc.)</td>
<td>Y  N</td>
<td>1  2  3  4  5  6  7</td>
<td></td>
</tr>
<tr>
<td>47. Had confrontation with an authority figure</td>
<td>Y  N</td>
<td>1  2  3  4  5  6  7</td>
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<tr>
<td>48. Heard some bad news</td>
<td>Y</td>
<td>N</td>
<td>1</td>
</tr>
<tr>
<td>49. Concerned over personal appearance</td>
<td>Y</td>
<td>N</td>
<td>1</td>
</tr>
<tr>
<td>50. Exposed to feared situation or object</td>
<td>Y</td>
<td>N</td>
<td>1</td>
</tr>
<tr>
<td>51. Exposed to upsetting TV show, movie, book</td>
<td>Y</td>
<td>N</td>
<td>1</td>
</tr>
<tr>
<td>52. “Pet peeve” violated (somebody failed to knock, etc.)</td>
<td>Y</td>
<td>N</td>
<td>1</td>
</tr>
<tr>
<td>53. Failed to understand something</td>
<td>Y</td>
<td>N</td>
<td>1</td>
</tr>
<tr>
<td>54. Worried about another’s problems</td>
<td>Y</td>
<td>N</td>
<td>1</td>
</tr>
<tr>
<td>55. Experienced narrow escape from danger</td>
<td>Y</td>
<td>N</td>
<td>1</td>
</tr>
<tr>
<td>56. Stopped unwanted personal habit (overeating, smoking, nail biting)</td>
<td>Y</td>
<td>N</td>
<td>1</td>
</tr>
<tr>
<td>57. Had problem with kid(s)</td>
<td>Y</td>
<td>N</td>
<td>1</td>
</tr>
<tr>
<td>58. Was late to work/appointment</td>
<td>Y</td>
<td>N</td>
<td>1</td>
</tr>
</tbody>
</table>

Any stressor that we missed? List below.

<p>| | | | | | | |</p>
<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>59. ___________________________</td>
<td>Y</td>
<td>N</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>60. ___________________________</td>
<td>Y</td>
<td>N</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>
Propensity to Innovate

Instructions: Please indicate your level of agreement to the right of each statement, using a number from the following scale:

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Disagree</td>
<td>Disagree</td>
<td>Slightly Disagree</td>
<td>Slightly Agree</td>
<td>Agree</td>
<td>Strongly Agree</td>
</tr>
</tbody>
</table>

1. I try to introduce improved methods of doing things at work.

2. I have ideas which would significantly improve the way the job is done.

3. I suggest new working methods to the people I work with.

4. I contribute to changes in the way my department works.

5. I am receptive to new ideas which I can use to improve things at work.
**Work Locus of Control Scale**  
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The following questions concern your beliefs about jobs in general. They do not refer only to your present job.

<p>| | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. A job is what you make of it</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>2. On most jobs, people can pretty much accomplish whatever they set out to accomplish</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>3. If you know what you want out of a job, you can find a job that gives it to you</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>4. If employees are unhappy with a decision made by their boss, they should do something about it</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>5. Getting the job you want is mostly a matter of luck</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>6. Making money is primarily a matter of good fortune</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>7. Most people are capable of doing their jobs well if they make the effort</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>8. In order to get a really good job, you need to have family members or friends in high places</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>9. Promotions are usually a matter of good fortune</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>10. When it comes to landing a really good job, who you know is more important than what you know</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>11. Promotions are given to employees who perform well on the job</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>12. To make a lot of money you have to know the right people</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>13. It takes a lot of luck to be an outstanding employee on most jobs</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>14. People who perform their jobs well generally get rewarded</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>15. Most employees have more influence on their supervisors than they think they do</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>16. The main difference between people who make a lot of money and people who make a little money is luck</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>
Appendix B

Overview of Acceptance and Commitment Therapy Intervention Components

Session 1
• Discuss and develop rules about confidentiality and levels of disclosure
• Discuss symptoms or signs of work stress or stress in general
• Discuss ways individuals have tried to control feelings of stress and level of success
• Discuss control agenda and why it does not work within the body
• Introduce willingness and acceptance as alternative to control
• Identifying stress buttons
• Homework

Session 2
• Discuss homework assignment
• Review acceptance as alternative to control
• Introduce cognitive defusion
• Discuss self as context
• Discuss values/Clarify values
• Discuss value based actions/Fill out Values Assessment Ratings Form
• Public pledge to committed value based action
Appendix C

Acceptance and Commitment Therapy Intervention Protocol

**Training Session 1 – Week 1**

Confidentiality:
We have a really unique opportunity here to work together both on the things that you struggle with and those things that are most important and valuable to you. One important way that we can create a space that makes this possible is to support one another with some common commitments…

1) **We commit to keeping the content of these workshops private.** So…as facilitators, we will not disclose what you say to anyone outside of this. Likewise, as co-workers it is important for you to honor one another by keeping the content of disclosures private.
   a. If you wish to share aspects of your experience of this workshop with a spouse, that is fine, but we ask that you leave your discussion to that…your own experience. This will allow us to have enough trust in this room to do the kind of work that we want to do together.

2) **We commit to showing up psychologically when we are willing**
   a. To the extent that you are willing to be actively engaged and present with the material, please do this. Note that “Showing up” and “Being engaged with the material” are different than disclosure…in fact it is not necessary to disclose to do this work.
   b. Again, we want to be really clear that this is optional. If you are not willing to be engaged and present with the material and your experience of it, that is your choice. This brings us to the part that is not optional…

3) **We commit to creating a space for others to ‘show up’ psychologically (not optional)…all of the other commitments really fold into this one…**
   a. **Confidentiality.** It is important, because trust in confidentiality makes it possible for people to feel willing to share themselves more fully.
   b. **Not Rescuing.** We will listen to the experience of other people. We will not rescue people. If someone is struggling or having difficult feelings, we will allow space for this. Often we try to comfort people because we feel uncomfortable with pain. In this space, we will allow people to feel what they feel without trying to change it.

4) **We Commit to the possibility [note: possibility] that this workshop could be transformational and facilitate a powerful shift in the way you view and live your life.**

These commitments are so important that we ask that you use your time for other things if you cannot abide by them. If you are not prepared to make this sort of commitment at this time, that is completely fine. We will not evaluate or judge this decision; instead we can all appreciate your willingness to be honest about this. For the next few minutes take some time to reflect on whether you are ready to make this commitment with the group today. If you are not, please use this time to excuse yourself. [pause - - allow time for people to leave]
What is stress?
First, the participants are asked, “What are your symptoms or signs of stress?”, and their responses are noted on a whiteboard. After several people provide some examples, an overhead projector slide of various signs of stress is presented. This slide notes many physical (e.g., sleep loss), mood (e.g., irritability), thinking (e.g., poor memory), and action signs (e.g., crying) of stress. After these are read out and questions are dealt with, it is noted that these signs of stress are relevant to the individual and that they center on mental and physical well-being, but it is also noted that the organization, as a whole, may also show signs of stress, and that these signs center on organizational ineffectiveness, employee turnover, and absenteeism. An overhead projector slide of organizational signs of stress is then displayed, and there is a brief discussion and question segment on these organizational signs of stress.

What causes work stress?
The participants are told that there are two sources of work stress: work/organizational-related factors and individual characteristics. The latter are discussed first, and they are displayed on an overhead projector. They include personality (e.g., optimistic vs. pessimistic), pre-existing psychological well-being (e.g., history of anxiety or depression that predates the current job), social support (e.g., good friends and/or a helpful partner), and home-based factors (e.g., a bad partnership or noisy neighbors). These factors are discussed briefly and then an overhead projector slide of work-related sources of stress (taken from Cooper & Marshall, 1976) is displayed, comprising factors intrinsic to the job (e.g., long hours and work overload), role in the organization (e.g., conflicting job demands, or lack of clear objectives or duties), relationships at work (e.g., those with superiors, subordinates, and colleagues), career development (e.g., job security, retirement, and stagnation), and organizational structure and climate (e.g., lack of freedom and autonomy).

The participants are told that these workshops will not focus on changing the individual or work-related sources of stress; rather, they will focus on changing how individuals react to these types of stressful events. The participants are then told the following:

Kitchen sink metaphor
“Consider for a moment that you are a bathroom or kitchen sink. The sources of stress that we have just discussed are like taps that can pour water (or stress) into a sink, and the more taps that flow, the more water there is that is pored into the sink. Now, under most circumstances, the sink will become overwhelmed with water and overflow, causing damage. The goal of these stress management sessions is not to stop the water from flowing, but rather, to help you unplug your sinks so that the stress that you encounter will not overwhelm you.”

Beginning ACT
Since most people believe that undesirable thoughts and emotions (e.g., negative psychological content) interfere with effective and enjoyable living, the participants have probably spent a great deal of effort trying to eradicate this content, and, first of all, examples of this eradication effort are elicited from the participants. For example, they may have tried to avoid, change, justify, rationalize, deny, ignore, or tolerate their psychological content. In order to elicit these examples, the trainer asks a question, such as, “How have you tried to deal with your (anxiety, unhappiness, worries [e.g., unwanted psychological content])?” It is likely that the participants will respond to this question by
listing a number of popular and culturally reinforced methods. These might include alcohol, relaxation training, religion, meditation, avoidance, social reassurance, distraction, positive thinking, analyzing the situation, and maybe even psychotherapeutic techniques that involve changing one’s beliefs.

And...how has that worked?

ACT facilitates a contest between two main players. On the one hand, there is the mind of the participants. By “mind” it is meant a set of rules and constructions that order the world (e.g., “Men should be hard as nails”). On the other hand, there is the direct experience of each participant; for example, the participants have directly contacted certain contingent relationships in the world; that is, in a given situation, if I do X, then Y will occur. These contingent relationships and one’s “mind” are in fundamental conflict. The goal of ACT is to “blow” the trainees’ minds, so that their experiences can play a greater role in their lives (i.e., so that they can more often make direct contacts with contingencies of reinforcement). To accomplish this goal, the concept of “workability” is stressed; that is, the participants are told, “Ask yourself: have your rules delivered? If you do what your mind tells you (if you follow your verbal constructions), are the consequences you actually experience in line with those rules?” If the answer is “yes”, then it is unlikely that the participants display cognitive, emotional, physiological, and behavioral stress symptoms. Since, for many, the answer is not “yes”, it is likely that their “mind” has not been very beneficial in helping them to alter the impact of their unwanted emotions, cognitions, and physiological sensations (i.e., their negative experiences).

To determine how helpful their mind has been, the trainer asks how the participants’ favored experiential avoidance strategies have assisted them in altering the form of, frequency of, or susceptibility to their negative experiences.

“Incredible isn’t it? I mean, if we had a doctor that was treating us for an illness for several years and he tried different kinds of drugs, and he increased and decreased dosages, and nothing worked, we would get rid of him, right? But, your mind keeps telling you to go back and try something different, even though your experience is telling you otherwise. I mean, what else can you do but go along with what your mind tells you to do? But, maybe we are coming to a point in which the question will be, “which will you go with? Your mind or your experience?” Up to now, the answer has been “your mind”, but just notice what your experience tells you about how well that has worked”.

Conversations such as these are conducted with several members of the group, and it is always emphasized that listening to one’s mind is not always effective in relieving the effects of stress, worry, unhappiness, etc. (and it’s not even always effective in helping people to achieve the goals that they wish to accomplish.) After three of these conversations, the trainer speaks as follows:

“Isn’t it interesting? We do what our mind tells us to do about our thoughts and feelings, but it doesn’t seem to help. In fact, it can even make us feel worse. Why is this the case? Well, human language has given us a tremendous advantage, because it allows us to break things down into parts and to plan action. And it works pretty well. If we just look at the majority of our existence that goes on in the world outside of us, it works terrifically. Look at all the things, for example, that animals are faced with and you’ll see we do pretty well. Just look around this room, almost everything we see in
here wouldn’t be here without human language and human rationality: the plastic chair, the lights, our clothes, the television. So, we are warm, it won’t rain on us, we have electricity, with regard to the stuff with which animals struggle, we are in good shape, really. You give a dog or a cat all these things: warmth, shelter, food, social stimulation, and they are about as happy as they can be.

So, some of the most important things in our life have been done with human language. In a very significant way, we human beings realize this, and this realization is encapsulated in a pervasive rule that most all of us buy into: if you don’t like something, figure out how to get rid of it and get rid of it. For example, if you’re hungry, you can get rid of your hunger by going to the kitchen and getting food. If your trashcan is full and you don’t want your house to smell, you can take out the trash.

Now, this rule works extremely well for most of our life. But, not in the world inside ourselves. And that’s a pretty important part, because that is where satisfaction, contentment, and happiness lie. I don’t want you to take my word for this. Examine your own life and experiences. When looking within yourself, isn’t the rule actually, if you don’t want it, you’ve got it?

For example, [refer to a participant from the group] this woman struggles with worry, she’s not willing to have it. But, if it is really, really important not to worry, and if you then start to worry, that is something to worry about. Let’s put a name to this phenomenon. Let’s say in the world outside our body, deliberate, purposeful control works great. So, figure out how to get rid of what you want to get rid of and do it. But in the areas of consciousness, your life history, self, emotions, thoughts, feelings, behavioral predispositions, memories, attitudes, bodily sensations, and so on, such control often isn’t helpful. In this world, the solution isn’t deliberate control, the problem is control. If you try to avoid your own history, your own worries, your own anxiety or depression, and their triggers, you are in a no-win struggle. See, what I am saying here is that we can’t control our thoughts and feelings or anything that happens within us, in our mind, in our body.

Polygraph metaphor:

Consider this, suppose I had all of you hooked up to the best polygraph that’s ever been built. This is a perfect machine, the most sensitive ever made. When you are all wired up to it there is no way that you can be stressed or anxious without the machine knowing it. So, I tell you that you have a very simple task here: all you have to do is stay relaxed. If you get the least bit anxious, however, I will know it. Now, I know you want to try hard and I want to give you an incentive to do so, so I also happen to have a .44 magnum pistol, which I’ll hold to your head. If you just stay relaxed, I won’t blow your brains out, but if you get nervous (and I’ll know it because you’re wired to this perfect machine), I’m going to kill you. So just relax! What do you think would happen? Guess what you’d get? BAM! How could it be otherwise? The tiniest bit of anxiety would be terrifying. You’d be thinking, ‘Oh my God! I’m getting anxious! Here it comes!’ Bam! You’re dead. How could it work otherwise?

You, of course, have the perfect polygraph already hooked up to you: it’s called your nervous system. It is better than any machine humans have ever made. You can’t really feel something and not have your nervous system in contact with it, almost by definition. And, you’ve got something more powerful and more threatening than any gun- your own self-esteem, self-worth, the workability of your life. So, you actually are in a situation that is very much like this. You’re holding the gun to your head and saying, relax! Or don’t worry, or snap out of this unhappiness. So, what you get then is- BAM! More worry, more anxiety, more unhappiness, and you throw in a little humiliation, self-doubting and feelings of inadequacy.
Here’s another way to think of what we’re talking about. If I hold a gun to your head and tell you to vacuum the floor, you could do it. You would be able to control your behavior outside of your body. However, it’s different when I hold a gun to your head and tell you not to be anxious, you wouldn’t be able to control your thoughts and feelings, what happens inside your body. So, see if this isn’t true for you, people’s thoughts and emotions cannot be effectively nor always, controlled by their own thoughts and other people’s instructions. Sadly, even pleasant thoughts and emotions can’t be verbally controlled.

**Love metaphor:**

Consider this: What if I pointed out a person to each of you and said that if you fall in love with that person within two days, I’ll give you $10 million. Could you do it? Could you fall in love on command, in order to earn lots of money? What If you came back in two days and said, I did it, pay me the money!” and I said, “Sorry, it was a trick: I don’t have that kind of money.” What are you going to do? If you really can fall in love that way, it wouldn’t matter if I tricked you, and you wouldn’t be angry because you’re in love. In other words, it’s not just getting rid of emotions that is difficult, but it is equally difficult to create them, even ones you like, in any kind of controllable, highly predictive deliberate way.

**Willingness as an Alternate Strategy**

We’ve seen how trying to control our thoughts, feelings, and other products of our mind is not a reliable or even helpful strategy for reducing our problems. But, what is the alternative? Pause. Discuss if somebody offers an answer. It’s willingness - willing to have an emotion or thought and not get rid of it, or alter it. If you are willing, then you can escape the inevitable consequences of control. However, if you refuse to have an emotion or thought, usually you’ve got it. The control strategy doesn’t work and this strategy itself results in an increase in the events it is designed to prevent or avoid. That is, the more you don’t want to be anxious, the more anxious you will probably become.

**Clean verse Dirty Discomfort:**

One way to think of different outcomes of willingness and control is through clean versus dirty discomfort. Clean discomfort is the discomfort that we all experience in our lives as a function of living. Clean discomfort varies in level; it might be relatively low at times, as when we feel irritated at someone for putting us down, or it may be high, as when we have a major argument with our partner or we lose a job. Life serves up painful events, and our painful reactions to them are natural and entirely acceptable. It is when we are unwilling to accept these natural reactions—the clean discomfort—that we wind up with what we term dirty discomfort. Dirty discomfort is emotional pain created by our efforts to control the normal, natural clean discomfort that we experience. That is, when we are trying to avoid, control, or get rid of the clean discomfort, a whole new set of painful feelings, emotions, and thoughts appear. This dirty discomfort is an unnecessary addition of pain on top of pain: fear of fear, guilt over guilt, shame over guilt, blame over fear, or blame over unhappiness. Can the group brainstorm an example from work of how clean discomfort can be compounded by dirty discomfort?

This simple, additive process results in an increased likelihood that people will use control/avoidance strategies, and thus, carry on a vicious circle of trying to increase control and, therefore, increase pain.
Acceptance, or willingness, involves moving in the opposite direction: towards the pain, rather than away from it; towards the emotions, thoughts, and feelings that we dislike.

**Quicksand metaphor:**
Consider this, suppose you were caught in quicksand. Naturally, you’d try to get out. But, almost everything you’ve learned about how to get out of places will create problems for you: if you try to walk, jump, climb, or run through the quicksand, you just sink in deeper, because you end up pushing down on the sand. If you struggle, wiggle, push with your hands, or crawl, you sink in deeper. Often, as people sink, they panic and start flailing about, and down they go. In quicksand, the only thing to do is to create as much surface area as possible, to stretch out on the quicksand, getting in full contact with what you’ve been struggling with, but without more struggle. That will be hard, not hard in the sense of effortful; no, I mean hard as in tricky. It is tricky because your mind is telling you to struggle but using this strategy is counterproductive. But let’s not be too hard on your mind, as it has been taught that this control strategy works, and it can’t see anything else to do. Furthermore, the mind has learned this control strategy so well that you can’t just tell the mind to stop using the control strategy and expect that it will.

Now, we are going to practice some acceptance strategies; strategies that encourage you to get into full contact with your bodily sensations, thoughts, and emotions, without struggling with them; without trying to control them; that is, without trying to make them go away or avoid them.

**Willingness Exercise I: “Just Noticing”**

*Clouds in the Sky*

I’d like each of you to sit comfortably and close your eyes while we do an exercise. I am going to ask you to “just notice” various things that happen inside your body and mind. Your goal in this exercise is to act as if you were watching a film or TV, that is, your goal is to “just notice” what is occurring in your body; it is not to change it, avoid it, or struggle with it in any way: it is just to notice it. Remember, you are watching a film or a TV; you are an audience member; you are not the director who controls what will be on the screen; your role is not that of the editor who takes away scenes that he or she thinks should not be seen or experienced; and your role is not that of the producer, who finances the film and decides whether or not it will appear at all. Rather, your job again is just “to notice” what is actually shown on screen, what your body and mind provide you with.

Now, I’d like you to notice your breathing - see how your breath comes into your body, streams down into your lungs and goes back out of your body again. Remember, do not change how you are breathing, but just notice how you do it. [This breathing observation continues for about 2 minutes. Meanwhile, the trainer says things like, “if you find your mind drifting away to other things just gently bring it back to just noticing your breathing”]

Now, I would like you to notice a bodily sensation that you may have right now. Maybe it’s a cramp, a tingling sensation, or a pleasant “warmth” in a muscle. Perhaps it may be in your legs, your arms, your neck, or your back. What I would like you to do is to focus on that bodily sensation, and without trying to stop it or alter it in any way, see whether the sensation stays the same or changes in any way. If it does change, just notice how it changes; if it does not change, notice that as well. [During the next two minutes or so, the trainer says things like “if you find your mind drifting away to other things, just gently bring it back to just noticing your bodily sensations.”]

Now, I’d like you to imagine yourself walking through a quiet, comfortable valley that is green and lush. The temperature and amount of sunshine is just how you like it. As you are walking
through this valley, you see a patch of green grass on a hill and you decide to climb up the hill. You find a perfect spot and sit down on the hill. While sitting there, I’d like you to look into the sky and notice how blue the sky is. I’d also like you to notice how a group of white, fluffy clouds moves across the sky, gently passing overhead. On these clouds, I’d like you to place any thoughts that you have and let the clouds hold your thoughts. Maybe the clouds will carry your thoughts across the sky away from your sight, or maybe the clouds will remain still over your head. Do not try to control the clouds. If you worry about how quickly the clouds are moving across the sky, or if they are moving at all, take that thought and put it onto a cloud.

[During the five minutes that this part of the exercise is down, the trainer says things like, “If you find this difficult to do, that’s all right just put that thought on a cloud. If your mind wanders from the clouds and the sky, just bring it gently back to the clouds and place another thought on a cloud. If you are wondering whether or not you are doing the exercise “correctly”, place that thought on a cloud and watch it in the sky. Don’t worry if one cloud is moving faster than another, just notice that they’re moving at their natural pace]

Now, I would like you to picture this room in your mind, see where in the room you are sitting, and imagine what you will see when you open your eyes, and, when you are ready, open your eyes.

[The trainer then asks, “how was this exercise for you?” If it does not come up during the discussion, the trainer next asks, “how does this exercise relate to what we have been discussing?” As should be evident, this “just noticing” exercise begins to show the participants how they can view and watch their thoughts and bodily sensations without having to alter them or stop them. The trainer also notes that this exercise is useful to do when people start to feel stress. Now, let’s spend some time talking about our personal signs of stress.]

**Identifying “Stress Buttons”**

The participants are now asked to list on a piece of paper the various “stress buttons” that they have. They are told that these are situations, thoughts, emotions, or sensations that cause them stress. For example, it may be that office confrontations, thoughts of failure, unhappiness, concern, or shallow breathing trigger a stress reaction. Discuss with participants that these stress reactions typically elicit a feeling of unwillingness in most people. Ask participants what people do when they’re unwilling to have the negative feelings. If it doesn’t come up, explain that most react with control strategies.

Before they start writing down these “stress buttons”, the participants are asked to share, with the group, examples of their own triggers, in order to model what is expected. After several people have identified some of their own stressors, questions are elicited, and then participants write down their own “stress buttons.”

“Now that we know what elicits negative feelings in each of us, let’s practice being willing to experience negative feelings.”

**Willingness Exercise II: Face-to-Face**

“This exercise consists simply of looking at another person for about two minutes. Yet, it may seem longer when you actually do it. What the exercise will consist of, if you are willing to do it, is getting a couple of chairs and pulling them close together. Your job is simply to be with the other person. You don’t have to say anything or do anything or communicate anything, just be with the other person, experience the other person. Now, your mind will tell you all sorts of reasons why you can’t do this: it will make you feel strange, or maybe you will have a desire to laugh or maybe you’ll be worrying
about how your breath smells or you’ll be bored or distracted. But the purpose of the exercise is simply to notice these things, to experience everything that you think and feel, and to notice how you sort of come-and-go from being not at all present to experiencing the other person.” [As the participants do this, the trainer says things like, “See if you can stay with the reality that there is another person over here, looking at you. See if you can let go of the sense of wanting to do this “right”. If you find yourself thinking about this, or evaluating it, just notice that you’re doing that and then come back into the room and get in touch with the exercise. See if you can connect with the experience of discomfort in simply being present to another person.” After the exercise, the participants’ reactions are processed, and, if it has not already come up, the participants are asked, “How does this exercise relate to what we have been discussing?]

**Homework:**

For homework, participants are asked to do the following:

1. Notice, in the week between sessions, how cognitive avoidance, cognitive struggle, and a lack of awareness of what they are thinking (or cognitive fusion) promotes stress, when their “stress buttons” have been pressed.
2. Spend at least 10 minutes each day doing the “just noticing” exercise.

These two homework assignments are written down on paper and handed out to the participants at this time. Any questions regarding the homework are taken and answered.

**Training Session II – Week 2**

- Review: personal information and content discussed is confidential
- Can leave any time, for any reason, without being reported to anyone
- Discussion of homework:
  - What participants noticed, during the previous week, concerning the relationship between avoidance, struggle, and stress, particularly in the areas related to their stress buttons.
  - Any problems related to “just noticing”

**Right versus Wrong:**

“What if a miracle were to happen, and suddenly all of the stuff that you’ve been struggling with, everything that makes you stressed, would just cease to be a problem, without any changes in the situation around you? For example, your “unreasonable” deadlines and “difficult” case loads did not change, but now they do not cause you to feel stressed. That is, you said that you were stressed because of your stressful caseloads, and they are still not any better, but you are no longer stressed. What happened? Were you wrong in thinking that your caseloads made you feel so bad?

I’m not saying that you have to believe me, but consider for a moment the possibility that you yourself, independent of anyone or anything else, have the ability to make your life bigger, richer, less stressful. You can start right now without anything in your environment changing. Now, I want to be clear that I am not saying that you are to blame for the stress or painful emotions that you have been feeling, but I am saying that you are responsible; that is, you are able to respond to stressful situations, such as difficult caseloads, in a manner that can lead you to have a richer more stress-free life. **The point here is to help the participants see that they can turn away**
from the justifications that they have been giving for their stress: the deadlines that they have, or their difficult caseloads]

You may think that what I am saying is garbage, and if you do, that’s okay, tell me, and we can discuss it. Often, wanting to be right about something involves having a justified reason for being stressed (e.g. the reason why you are stressed: your unreasonable deadlines). But you have a choice between doing what works for you and enhancing your life, or on the other hand, being right. If you strive to be right, you make decisions, act, and behave in ways that help you to be right (e.g. My deadlines are unreasonable so I’ll continue to be stressed and unhappy); but, in doing that, you only care about and focus on being right. Your ability to live a full, meaningful life loses out to your greater “need” to be right. So the choice is this: are you going to be right, or are you going to be alive? If you’re striving to be right, your life gradually deadens; if you’re striving to live your life fully, your desire to be right will eventually fade into the background. Does anyone have an example of how being right can rob people of a more effective, and stress-free life?

What we’re talking about can be compared with a traditional psychology experiment that uses a rat in a maze. If an experimenter puts some food at the right side of the maze, the rat will run around and eventually learn to find the food there every time. Now, if the experimenter moves the food to the left side of the maze. At first the rat will run over and over again to the right side where the food no longer is; but eventually, the rat will begin to run in a different direction and will learn to find the food on the left. Now, people are not like rats, because, sometimes, people will keep running to the right for the rest of their lives. What they tell themselves may be things like, “it used to be here!” and “it’s not fair! It should still be here!” and “It never used to work this way!” Also, people can tell themselves “Things shouldn’t have changed!” and, “They never said that I would be expected to do this!” In the interest of being right these people never learn to do something different, something that would work better for them in their lives.”

How does the concept of willingness play into this concept? What would be the hardest thing about giving up being right?

But

I’d like to talk about the word “but” for a moment. It’s a funny little word that can draw us into a struggle with our thoughts and feeling when we use it to explain our behavior in terms of private events (i.e. thoughts and feelings). For example, “I love my partner, but I get so angry at him/her”. In this example, we end up putting one set of private events (e.g. loving my partner) against another (e.g. feeling angry). “But” literally means what comes after the word “but” contradicts what comes before it. So, in our example, we are saying that being angry at my partner contradicts loving him/her. The word “but” originally came from the words “be out”. In other words, we are saying “Anger be out love”. As you can see, “but” is literally a call to fight. It pulls us into the war zone with our own thoughts and feelings, which makes us more stressed.

Let’s consider some examples of this “call to arms”: “I want to help my clients, but I am overwhelmed with work” or “I want to do a good job at work, but I am anxious right now.” Notice that although both say, “One internal event (e.g. anxiety) contradicts another internal event (e.g. wanting to do a good job)”, what the person actually experienced in both cases was two things: for example, anxiety and wanting to do a good job. The part of the sentence after the but, or be out, isn’t a description of what happened- it is a proscription, or a rule to follow, about how private events, thoughts, and feelings should go together. This proscription is one of the problems
with language that we are trying to change. Let’s go back to the first example “I love my partner but I get so angry at him/her”. In this example, does it seem like these two experiences are truly contradictory? Or is the sentence a description of how you are feeling? Have you ever been angry at someone you loved? Did you still love them in spite of your anger? What would happen if the word “but” is replaced by the word “and”? Would the statement reflect your experience more accurately? So, in our examples, isn’t it more accurate to say, “I love my partner and I get angry at him,” or to say “I want to do a good job at work and I am anxious right now.” Both things are true: loving your partner and being angry; and wanting to do a good job at work and being anxious. So, I’d like everyone to be aware of this when you use the word “but” and then substitute it for the word, “and”. This switch may make you more sensitive to one of the ways that language can pull us into a struggle with our thoughts and feelings, creating more stress.

What are people’s thoughts on all of this?

The Observer Exercise

If you would, I’d like you all to close your eyes and follow my voice. Just relax. For a moment now, turn your attention to this room. Picture the room; picture yourself in this room. Now, begin to settle into yourself. Notice any sensations that are happening in your body. Notice any emotions that you are having. Notice any thoughts that you are having. Now, bring your attention to the part of you that was able to notice the bodily sensations, feelings, and thoughts. This part is the observer part of you. As the observer, hear and follow this.

My body is constantly changing. My body may find itself in different conditions of health or sickness. It may be rested or tired; strong or weak. It started out as a baby and grew continuously, and will continue to change and gradually grow old. I may lose part of my body. I may become fat or thin. Yet, through all of this, the part of me that is observing my body has been constant. I have been me my whole life. Thus, I have a body, yet I don’t experience that I am my body. When my body changes, I am still me. Focus your attention on this central concept. Allow yourself experience this, not just as a thought, or belief, or point of view. Think of all the ways that your body has changed, all of the situations it has been in, while you have remained constant. [a period of silence follows]

Now, consider this: I have roles to play, and yet I am not my roles. My roles are many and constantly changing. Sometimes I’m in the role of a worker, a family member, or a friend. I play some roles all the time. If I were to try not to, then I would be playing the role of not playing a role. Even now, part of me is playing a role- the role of an employee in a ______________. Yet, all the while, the observer, the part of me I call “I”, is watching, I can play my constantly changing roles, yet all the while I can be there, as a constant, steady observer of it all. So, I have roles, and yet I am not my roles. Allow yourself experience this. You know that this part of you is there, you’ve known it all along, although sometimes you may forget it; it is how you have experienced your life roles, and you are simply allowing yourself to realize that you are observing your own roles.

Now, still as the observer, consider this. I have many emotions. My emotions are countless, contradictory, changing. They may swing from love to hatred, from calm to anger, from stressed
to relaxed, and yet I have been here through all these changes and contradictions. Even now, I am experiencing emotions-interest, boredom, embarrassment, relaxation. And, throughout, I am capable of observing it all. Though a wave of emotion may come over me, it will pass in time. The observer part of me knows that I am having this emotion and yet I am not this emotion. The emotions that I experience are constantly changing, but the observer remains constant through it all, noticing the changes. Thus, I have emotions, but I am not my emotions. Allow yourself to experience this central concept: I have emotions, but I am not my emotions. So, think of things you have liked, and don’t like any longer, of fears that you once had that are now resolved. Yet, despite these emotional changes, you experience yourself as a constant. You are there through it all [A period of silence]

Finally, let’s turn to what may be the most difficult area: your own thoughts. Consider this: I have thoughts, but I am not my thoughts. My thoughts are constantly changing. In my life, I have gained new ideas, new knowledge, and new experience. I can think something falsely and then find out the truth and think something entirely different. Sometimes my thoughts are foolish and make little sense. Sometimes thoughts come up automatically, from out of nowhere. Yet, all the while, the observer part of me is seeing these thoughts. The observer part of me knows that I have thoughts, and yet, I am not my thoughts.

Allow yourself to experience this. Notice that even as you realize this your stream of thoughts continues to flow. Indeed, you may get caught up with your thoughts, yet in the instant that you realize that, you also realize that a part of you is standing back, watching it all. So now, watch your thoughts for a few moments. Notice that you can watch your thoughts. Notice that you can even observe yourself watching your thoughts. [A period of silence follows]

So, you are not just your body, your thoughts, your feelings, your roles. These things are the content of your life, while you are the arena, the context, the space in which they unfold. As you see that, notice how you can distance yourself from the things you’ve been struggling with, and putting up with. You’ve been trying to change your roles, to get rid of your “bad” feelings, to control your mind; and the more you do that, the worse it gets, the more entangled you become: the less you are even “there”. You’ve been trying to change the content of your life, but you don’t have to change your roles, thoughts, feelings, and memories before your life can work, as these things are not you anyway; so, why struggle with them? Instead, why not focus your efforts on doing things, right now, that will help you to achieve the goals and dreams that you have for yourself [A few minutes of silence to follow].

Now, again, picture yourself in this room, and now picture the room [describe the room]. When you are ready to come back into the room, open your eyes.

What were people’s experiences of this exercise? [T: try to reinforce participants’ experiences of the observer. Ask participants’ about their experience with the observer]

T: This exercise demonstrates, among other things, that you, the observer you, can take a direction in your work, in your life, regardless of what your thoughts and feelings are saying to you. The observer you, the true you, can see what is there, feel what is there, and still say, “This is what I need to do to get to my life moving towards my goals and dreams”.
The “Milk, Milk, Milk” Exercise
T: Lets do another exercise. I’m going to ask you to say a word. Then you tell me what comes to mind. I want you to say the word, “milk”. Say it once.
P: Milk
T: What came to mind when you said milk?

[Listen for responses; prompt participants to talk about their experience of milk—prompt for the psychological experience of milk. 
For example: 
- Did any imagine what milk looks like? If so – ask participant to elaborate
- Could anyone taste milk? If so ask participant to describe this
  - Could anyone imagine what a gulp of milk is like?
- Did anyone think of any sounds associated with milk? Ask participants to elaborate ]

T: Right, when you said the word milk, you could…see it, taste it… (use participants description of milk. Example: …you could almost see it and taste it…you can imagine what it might feel like to drink a glass. Cold, creamy, coats your mouth, goes glug, glug when you drink it. )

Let’s see if this fits: what shot through your mind where things about actual milk, and your experience with it, and all of that happened when we just said and thought the word “milk”. Incredible isn’t it? We weren’t looking at or drinking any milk. Yet we were able to experience milk psychologically. You and I were seeing it, tasting it, feeling, and all these experiences were prompted by the word milk- not the actual thing.

Now, here is the little exercise, if you’re willing to try it. It’s a little silly, but I am going to do it with you so we can all be silly together. What I am going to ask you to do is to say the word “milk” out loud, rapidly, over and over again and then notice what happens. Are you willing to give it a try? Let’s go. Say “milk” over and over again. [Trainer periodically interjects comments like: “As fast as you can tell I tell you to stop. Faster! Keep going faster! Do this for enough time that you cannot hear the word milk anymore]

T: OK, now stop. Did you notice what happened to the psychological aspects of milk that were here a few minutes ago?

[Solicit participant responses]

T: Right, the creamy, cold, gluggy stuff [or use participants descriptions from above] just went away. The first time you said it, it was as if “milk” were really meaningful; it was almost solid. But, when you said it again and again, you begin to loose the meaning and the words milk, milk, milk were reduced to sounds. So, when you say things to yourself, in addition to any meaning behind those words, isn’t it also true that these words are just words? The words are just smoke; there isn’t anything solid to them.
For example, consider the words, “I feel so stressed”. Just the word stress can evoke the psychological experience of stress. But, isn’t also true that you can say: stress, stress, stress, stress, just like milk, milk, milk. What’s the difference? When you have a thought or feeling, it looks as though its more than what you’ve experienced it to be. It creates an illusion that it is what it says it is. But, no matter what the words are, they are just that: words. They are just symbols we experience.

Of course, they’re related to things; its not that the words are meaningless or will ever be meaningless, I don’t mean that.

What I mean is that when the illusion shows up, looking solid, you are not actually experiencing the real thing, that is, thinking “stress” is not the same thing as experiencing stress; saying milk isn’t the same as taking a sip of milk. In both cases, you are having a thought, isn’t it possible to accept the thought as just a thought.

Saying the word “milk” or “stress” doesn’t mean that milk or stress are near you. So, the problem isn’t the word stress, the problem is that you think the word is real, that it is not just an illusion, and so you struggle against it. Is anyone willing to try something with me?

[Exercise: write the phrase “I am stressed” on a piece of paper. Have the participant hold the paper in his/her hand]

T: Now [to participant] try to get rid of this stress, try to push it away. [T pushes back against it]. While you are doing this, try to move around the room. Still try to get rid of the stress. [Could ask p to do more things- e.g. talk to other participants, write her name on a piece of paper, etc…]

What happens? What was it like trying to do other tasks while struggling against stress?

Now, try it this way: [T: tape the word onto p’s back- or have them put it in their pocket]. Now, try to move around the room. [have the participant try the same tasks as before].

What’s the difference? In both cases you still had the words “I am stressed”. But, when you weren’t struggling with them, you were able to do what you wanted to do.

So, isn’t it true that you can have the thought as just a thought, and not have to struggle against it?

[at this point, questions and comments are invited]

Pen in hand

During _________________________ workshop, we’ve talked about being willing to experience our thoughts and feelings as they are, that is, thoughts and feelings, and not what they say they are (e.g. life-limiting stress, terrible things that must be avoided).

Pen in the hand:
T: Let’s try a little demonstration. Can I have a volunteer? [Approaches volunteer]. In order to demonstrate this valuable lesson to the group, I need to jab this pen in your hand. Would it be ok if I did that?

P: No—that’s not ok.
T: Let’s say that, by some miracle, you have the power to stop all the hunger in the world. Only you have this ability- to make sure that everyone in the world gets food. But, in order to make that happen, you have to be willing to let me put this pen in your hand. Would it be ok for me to jab this pen in your hand now?

P: Yes....

T: Isn’t it interesting that we can be willing to say yes to the most painful or extraordinary circumstance if we are doing for a purpose?

Based upon this concept of willingness, I would like you to consider a very important question: out of the place from which there is a distinction between you and “that” (“that” meaning the stuff you struggle with), are you willing to feel that, think that, experienced that as it is, not as it says it is, and do what works for you in the situation? This question is the core of what we have been doing. It is a question that we can never stop asking ourselves, because willingness, is not an outcome, it is a process. Willingness is a choice, to do something, and, in that context, to have happen whatever it is that is going to happen.

To be willing can often be like facing a giant monster. The monster is made up of all the things that stress you out. Let’s look at this monster for example (pull out a Lego-monster). Imagine that this monster contains all the stress that you current feel. [Point to the different pieces and assign stressors to each from what participants have described]. It is almost impossible to face the entire monster willingly. However, if you start to disassemble him into his individual pieces [pull off pieces and name them off, place them in different areas], the monster doesn’t seem as scary does he? Isn’t it easier to face up to the monster if we disassemble him into all the individual stressors and experiences that he is made up of?

The exercise that we are now going to do, if you are willing to do it, is intended to help you give up the struggle with emotional discomfort and disturbing thoughts by disassembling them. It is also designed to give you the experience of the natural ebb and flow of willingness to realize that it is not something that you will “get” and “have” forever.

Now, if you are willing, get comfortable and relaxed, shut your eyes, and think of a specific feeling or situation that you are currently struggling with and that is important to you. Perhaps this is something that you have been avoiding or that you have been struggling with for a while.

Try to get in touch with the feeling or situation that you’ve chosen. Pour yourself into that experience [pause, allow participants to get into their experience]. Notice first if there are any bodily sensations that are associated with what you’ve chosen. As you think about it, just gently notice what your body is feeling, what your body is doing, and if you notice some specific reactions just pull it up and look at it. [Pause]
Now, spend some time letting go of the struggle with that specific bodily feeling. The goal is not that you like the feeling, but that you are willing to have it and not struggle with it. Good. Now, I want you to look for another bodily sensation attached to this situation.

[The trainer asks the participants to repeat the procedure for bodily sensations three times]

Now, notice whether there are any emotions associated with the feeling or situation that you selected. Just gently put yourself in the situation and notice whether there are any emotions that appear and, if so, gently turn your attention to the first emotion that you noticed. Spend some time trying to let go of the struggle with that emotion. [Pause]

[This formula is repeated three times for emotions, thoughts, and behavioral predispositions (e.g. wanting to run away). After each repetition the participants are told “good” in response to their efforts to give up the struggle with each reaction]

**THE MASTERS YOU SERVE**

To live a valued life is to act in the service of what you value. It was Bob Dylan who wrote, “You’ve got to serve somebody.” The question is: Who (or what) will you serve? Your experience and your current psychological dilemmas have probably shown you that living in the service of pain reduction is no way to live at all. Understanding this can be a scary place to be in some ways. If you can really be about whatever you choose, how do you know what you want to do?

Right now, at this very moment, you have all the tools you need to make meaningful and inspiring life choices for yourself. You not only have the opportunity, but the actual ability to live in the service of what you value. This doesn’t mean all of the conditions are right for this; it does not mean that you can do it all right now; this is not a guarantee about outcome. But, it does mean you have what you need to choose a direction.

**ATTENDING YOUR OWN FUNERAL**

When people die, what is left behind is what they stood for. Think of someone who is no longer alive but whose life you look up to and admire. Think of your heroes. Now see if it isn’t true that what they stood for is now, after their passing, most important. [facilitator personal example?] What’s important is not their material possessions or their inner doubts. The values reflected in their lives are what is important.

You have only so much time on this earth, and you don’t know how much. The question “Are you going to live, knowing you will die?” is not fundamentally different then these questions: “Are you going to love, knowing you will be hurt?” Or, “Are you going to commit to living a valued life knowing you will sometimes fail?” The potential for pain and the sense of vitality you gain from these experiences go together. If your life is truly going to be about something, it helps to look at it from the perspective of what you would want the path your life leaves behind to mean.

One of the foundations for avoidance is our verbal awareness that life on this planet is finite. If you could live your life so that it is actually about what you would choose to have it be about from here until it is over, what would be evident? That is, what would be clear about the kind of life you led?
This is not a prediction, a guess, or description. The question is not about what you’ve done or expect to do. We ask this question in the form of what you would hope those close to you will see. But, this is not a question about social approval; rather, if your values mean something, they will be evident. We are asking only this: What would be evident if you could freely choose what your life stood for?

You may only whisper this question to yourself, but since this is a choice, we are asking you open yourself up to you own yearning to be about something. If your life could be about anything; if it were just between you and your heart; if no one would laugh or say it is impossible; if you were bold about your innermost aspirations, what would you want to be about? And to be that – so powerfully- that it was evident to those around you?

Take a moment now to settle in and become fully part of this experience. [Keep in mind that if you are willing to do this exercise, it can be a powerful and emotional experience. It is not about “facing your death”; It is about facing your life]. Part of what often prevents people from embracing a valued life is that any value carries with it knowledge of how finite our lives are. Avoiding that knowledge means you can’t really, fully be about anything, and see if that’s not too high a price to pay.

Now close your eyes and settle into yourself. Notice your breathing. - - - -

[Meditation instruction] Now, imagine, that you’ve died, but by some miraculous circumstance you are able to witness your own funeral in spirit form. Think about where it would be and what it would be like. Take a few minutes to visualize a clear picture of your future funeral service.

Imagine that a family member or friend is there who has been asked to stand up and say a few words about what you stood for in your life; about what you cared about; about the path you took. In a moment, I’ll have you write this eulogy in two ways.

To prepare, take a moment to notice what you are afraid might be said if the struggle you are currently engaged in continues to dominate your life, or even grows. Suppose you back off from what you really want to stand for, and instead, continue to live your life in the margins, whatever that means for you. Picture your family member or friend. What might he or she say? When you are ready, open your eyes and write it down, word for word.

Allow ~5 mins...

Important Prompt: “Nothing that you write will be shared, you will not be asked to share it with the group or anyone else. You do not even need to read it yourself when you are through”

Prompt: “If you get stuck, write about what is stuck”

Now, set your pencil down, it is okay if you aren’t finished. Allow yourself to stay connected with your experience.

Now, suppose you could see inside this person’s head in that moment. If no censoring was going on, no playacting, and this person’s thoughts were visible to you, what else would be said (this time privately to himself or herself) that might not have been said publicly. Write it down, word for word.

Allow ~ 3 mins

Prompt: remember, you will NOT be asked to share this, so use this opportunity to be bold and explore what else might be said.
That eulogy was a description of what you fear, and perhaps a description of where your past path has been leading you. If you didn’t like writing what you wrote channel that pain into the next process.

Now, close your eyes and settle back into yourself. Notice the position of your body. Notice your breath as you inhale…..exhale. Your eulogy doesn’t have to be like that. Imagine that from here forward you’ll live your life connected to that which you most value. This doesn’t mean that all of your goals will be magically attained; it means the direction you are taking in your life is evident, clear, and manifest.

(slower) Now, imagine who’s at your funeral. Certainly, your spouse, children, and closest friends would be there. Perhaps people from work, class, or church (to the extent possible facilitator should personalize this list). There are no limits. If you have old friends or have lost contact with people whom you would like to see there, don’t worry about it. They can all make it to this imagined service. Think of all of the important people in your life and place them in that space. Look at them. See their faces. Watch them watching you funeral.

Now imagine that someone (you can pick which one) gives a eulogy about you that reflects what all of these people might see if your life had been true to your innermost values. Imagine what you would most want to have manifest in your life. This is not a test. You won’t be judged on this and no one else need ever know what you are thinking.

While you get a clear idea about this, take a few minutes and think about what you would want to hear in your eulogy about how you lived your life. Be bold! This is not a prediction. This is not self-praise. Let these words reflect the meaning you would most like to create, the purposes you would most like to reveal about the time you spent on this planet. Picture your family member or friend preparing to speak about you. What might he or she say? Write it down, word for word:

Allow ~4 minutes
Prompt: not shared

Set your pencils down. It’s okay if you are not finished. Besides the strangeness of watching your own funeral, what else came up for you in this exercise? [Allow participants to discuss their experiences]

If you really reached for it, you might see inside the words you wrote something of what is already inside you. Can you see some of that which you want to manifest/make happen in your life?

The way you would want to be remembered once your life is over should give you a very good idea about what you value now. We don’t know what anyone would say at your funeral, but we do know that your actions today can make a profound difference in how you live works from here. It is not your [insert client relevant concerns here - - i.e. examples of thoughts, feelings, bodily sensations] that your loved ones will remember you by, but the choices you make and the actions you take each day of your life. Couldn’t that begin today? Couldn’t that begin now?

Let’s see if we can use this method of looking back at your life to dig out what you hold dear, one more time. [co-facilitator: distribute tombstone worksheet] Let’s try to distill all of this down to a shorter version.

When people are buried, an epitaph is often written. They say things like, “Here lies Sue, She loved her family with all her heart.” If this headstone was yours, what inscription would you like to see on it? How would you most like your life to be characterized? Again, this is neither a description nor a prediction; it is a hope; an aspiration; a wish. What would you like your life to stand for?
Think about it for a moment, and see if you can distill your innermost values into a short epitaph and write it out on your tombstone.

Allow ~2minutes.

Letting go of the struggle, in order to achieve your values and goals

I am going to give everyone a few minutes to think about the next exercise after I introduce it.

If you are willing, I would like to go around the room and ask you each share one thing that you value, what engaging in your struggle (whatever form it takes for you) has cost you - - -how has it interfered in your life. Then, I would like you each to commit publicly to let go of the struggle and instead commit to do something else, something consistent with your valued path. I only want you to make such a commitment, if you are really prepared to choose to give up this struggle, to allow yourself to have experiences, even difficult ones, in the service of creating a valued life. We will share this one at a time and support one another until everyone has had the opportunity. For this public commitment ceremony you can use the following structure to help you.

[facilitator discusses each of the 5 aspects of the presentation of values….give explanations to clarify what is being solicited…for instance for the “I am going to ___” line say something like, “Take a minute right now to think of some concrete action, something you can do in the next week in the service of this value…it doesn’t have to be the only thing you do, or the perfect thing, just pick one thing that you can commit to doing.” ]

Committed action in session
Solicit willingness…
Have participants stand up and sharing the following. (coached)
Facilitator
1. Stand up next to participant and provide coaching when needed (e.g., helping clarify goals)
2. Ask participants to leave behind anything they may have written to assist them…ask them to trust that they will be able to speak from their experience (you will help if they get stuck). Also, the format for sharing should be on poster paper in back of room as a reminder.
3. when each new participant steps to the front of room…help them orient to present moment through prompts [“take a moment to take a stand for yourself here, with us witnessing you, settle into yourself, look up and into the eyes of all of these people here to share this with you”]
4. Prompt participants that are witnessing to put their full attention on the person that is sharing. [Put your full attention on ______. Witness her/him standing with her/his value. There is no need to understand the particulars about what is shared. Allow yourself to just appreciate that it is shared, that someone is in front of you in this way.]

What I value is _____________________
What I have been doing is ________________
What it has cost me is ________________
I’m through with that.
I am going to ________________________ (clear, concrete, specific)

[prompt that the committed action should be something that can be completed in the next one week]

**Closing**
Remind of confidentiality…
Also remind people to respect the fact others may not want to discuss what happened during the workshop even with other workshop participants. To honor this, be sure to ask permission before following up with anyone about things that you learned about them in this context.
Appendix D

Treatment Integrity Checklist

Session 1

_______ Confidentiality
_______ Introduction of group members

• Struggle

_______ Symptoms and signs of stress
_______ Stress related to work
_______ Kitchen sink metaphor

• Introduction to ACT

_______ How thoughts can lead to suffering – evolution
_______ How do people deal with stress? [control strategies]
_______ Workability: How has that worked?
_______ Mind versus experience

• Control is the problem

_______ Advantage of human language
_______ Control doesn’t work for private events (i.e., thoughts, feelings)
_______ Control related to work stress
_______ Polygraph metaphor
_______ Love metaphor

• Willingness

_______ Willing to have an emotion or thought without trying to change it
_______ Clean vs. dirty discomfort
Quicksand metaphor

Willingness to have thoughts and feelings related to work stress (balloon exercise, index card exercise)

Clouds in the sky metaphor

Identifying “stress buttons” (situations, emotions, thoughts, sensations that lead to struggle)

Assignment of homework

Session 2

Review Confidentiality

Review homework

• Building Acceptance by Defusing Language

Right vs. Wrong

Rat in a maze metaphor

“But” exercise

• Self as Context

The Observer exercise

• Cognitive Defusion

Milk, milk, milk exercise

• Values

Pen in hand metaphor

Imagine your memorial service

Letting go of the struggle to achieve values and goals

Committed action in session (participants stand up and commit in front of group)

• Closing

Reminder of confidentiality