EVALUATION OF A COGNITIVE TOOL FOR ENHANCED PROBLEM-SOLVING

AND COPING

by

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Unpleasant or traumatic experiences can adversely affect an individual's life course, in part, as a result of excessive rumination over the traumatic event and undue worry about anticipated future events (Nolen-Hoeksema, Wisco & Lyubomirsky, 2008; Morrison & O'Connor, 2005). The potential toll of these chronic stressors is significant, and may dramatically diminish happiness, mental health, varied measures of physical health, and general well-being (Lyubomirsky & Tkach, 2004; Nolen-Hoeksema, 2004). Consequently, seeking guidance and improved coping methods represent common means of adapting to such difficult events. In prior work, a number of approaches have been developed to help individuals cope with rumination about traumatic past experiences (Frattaroli, 2006; Lyubomirsky, Sousa, & Dickerhoof, 2006; Smyth, 1998; Nolen-Hoeksema et al., 2008). Relatively few approaches, however, have specifically targeted excessive worry about future experiences (Nolen-Hoeksema et al., 2008), and even fewer have emphasized a careful planning-based approach that may enhance both present *and* future coping. The current study examined the potential benefit of the problem-based writing approach (Pennebaker, 1997), both alone, and in combination with a planning-based tool developed in our laboratory (ACED IT; Kreitler et al., 2009). Given the solid track record of the problem-based writing approach in helping individuals diminish harmful rumination, and the proven efficacy of ACED IT in promoting a long-term planning, we anticipate that the combination of these cognitive tools will provide a more effective means of coping than other approaches, even more so than a novel variant of the problem-based writing approach that places emphasis upon future coping.

An Obstacle to Coping: Rumination Over Past Traumatic Events

Individuals often search for meaning and understanding in the wake of a negative life experience (rumination) or prior to an anticipated event in the future (worry). Rumination has been described as 1) repetitive, inwardly directed thinking about emotions and 2) passive thinking regarding both cause and consequence of these emotions (for review, see Nolen-Hoeksema, 2008). Considerable evidence indicates that rumination over the past generates a multitude of aversive outcomes, including the following: protracted dysphoric mood, exacerbated negative affect, self-criticism, dependency, hopelessness, and interference with problem solving (Ciesla & Roberts, 2002; Flett, Madorsky, Hewitt, & Heisel, 2002; Lam, Smith, Checkley, Rijsdijk, & Sham, 2003; Robinson & Alloy, 2003). Ruminators also tend to display cognitive inflexibility (Davis & Nolen-Hoeksema, 2000; Ward, Lyubomirsky, Sousa, & Nolen-Hoeksema, 2003), and have a high risk for depression (Lam, Smith, Checkley, Rijsdijk, & Sham, 2003; Nolen-Hoeksema et al., 2005). Researchers have argued that people who ruminate chronically will often lose their social support, which may exacerbate depression (Nolen-Hoeksema & Davis, 1999). Given the high correlation between depression and anxiety, rumination may increase risk for anxiety disorders (Kocovski, Endler, Rector, & Flett, 2005; Fritz, 1999; Abbott & Rapee, 2004), in addition to depression. According to researchers, however, anxiety disorders are typically characterized by a different form of persistent thought: worry (Nolen-Hoeksema et al., 2008). The distinctions between rumination and worry are discussed below.

An Obstacle to Coping: Worry about Future Events

In addition to the difficulties presented by rumination, many individuals lack strategies for managing negative life events in the future, and, therefore, may often be troubled by worry.

Like rumination, worry can be harmful to individuals' well-being because it is marked by intrusive negative affect and imagery. According to the American Psychiatric Association (2000), worry is regarded as the central defining characteristic of generalized anxiety disorder, and is a common symptom reported by individuals suffering from anxiety disorders (Barlow, 2002). Worry is also correlated with cognitive inflexibility (Hazlett-Stevens, 2001), depression and anxiety (Barlow, 2002; Abbott & Rapee, 2004; Harrington & Blankenship, 2002). Although, worry and rumination are significantly correlated with each other (Muris, Roelofs, Meesters, & Boomsma, 2004; Watkins, Moulds, & Makintosh, 2005), research suggests that worrying differs from ruminating about the past in its cognitive focus (Nolen-Hoeksema, 1991). Worry engages cognitive effort to predict and defuse the threat, whereas rumination causes a loop of negative self-focus and problem-solving passivity (Nolen-Hoeksema et al., 2008). Similar to rumination, worry may effect a negative thought cycle, but differs in its effort to avoid a threatening event in the future. Worrying often feeds itself and fuels more worry (Watkins et al., 2005; Barlow, 2002). Individuals prone to worry typically feel a lack of control over events and difficulty in tolerating uncertainty (Dugas, Gagnon, Ladouceur, & Freeston, 1998). Hoyer, Gloster, & Herzberg (2009) found worry, in general, to be a strong predictor of emotional symptoms. This replicates previous findings by Muris, Roelofs, & Meesters (2004) who concluded that worry is a better indicator than rumination of an underlying vulnerability factor. Therefore, as with rumination, worry about future events poses a serious threat to an individual's ability to cope with difficult life events, and may produce a number of stress-related negative outcomes.

The Need for Coping and Planning Tools

Considerable evidence indicates that many individuals are at great risk for impulsive decision-making. Indeed, on any given night, newscasts are replete with instances of decision-

making gone awry (e.g., investment scandals, lack of congressional oversight, banking failures, environmental degradation, etc). Decisions leading to such imprudent behavioral responses may negatively impact one's life course trajectory. Whether the negative experience is a result of a personal decision, another's poor choice, chance factors, or some combination of above, the way that one responds to the negative event may differentially affect the outcome for one's well-being and health. Despite some initiatives targeted at effective decision-making, cognitive tools that assist both current and future problem solving would represent a much-needed advance. Findings suggest that constructive distraction (pleasant thoughts or activities) may help relieve the stress associated with problems, but this approach has been shown to be more effective with worry than with rumination (Nolen-Hoeksema et al., 2008). Further, some individuals may chronically attempt to distract themselves or suppress a mood or problem, which may hinder progress rather than help it (Beevers, Wenzlaff, Hayes, & Scott, 1999). Recent evidence suggests that Mindfulness Therapy (Segal, Williams, & Teasdale, 2002) helps to reduce rumination. This approach teaches people to notice their thoughts and feelings without applying value judgments or becoming entangled in them. Although, mindfulness therapy and other cognitive therapies may prove helpful in alleviating negative outcomes associated with rumination (Barber & DeRubeis, 1989), the need for professional guidance may preclude their use for many individuals. One method that is simple, requires little training, yet has proven successful in reducing rumination is problem-based writing (Pennebaker, 1996).

Problem-Based Writing: Past vs. Future

A large and expanding literature posits that writing about past traumatic experiences is beneficial for health and well-being (for reviews, see Frattaroil, 2006; Niederhoffer & Pennebaker, 2002), leading to diminished negative affect, distress, depression over time, as well

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as other beneficial effects (Dominquez et al., 1995; Murray & Segal, 1994). Problem-based writing involves expressing in words the thoughts and feelings related to a distressing or traumatic event in the past. The writing task is typically repeated in three to five sessions. Problem-based writing has proven efficacious in raising test scores and grade point averages (Cameron & Nicholls, 1998; Dalton & Glenwick, 2009), improving working memory capacity (Klein & Boals, 2001), and reducing health care visits (Baddeley & Pennebaker, 2009; Dalton & Glenwick, 2009). Problem-based writing facilitates emotional release, leading to improved coping processes and diminished rumination (Pennebaker, Colder, & Sharp, 1990; Lyubomirsky, Sousa, & Dickerhoof, 2006), as well as physiological and behavioral advantages (Gross & Levenson, 1999). Pennebaker (1993) posits that problem-based writing disinhibits the impact of emotionally distressing issues, and allows individuals to devote more cognitive resources to other tasks.

In contrast to the literature on problem-based writing over past trauma, work on future-oriented problem-based writing is relatively sparse. In fact, to our knowledge, no studies in the literature have examined the effects of unstructured problem-based writing about traumatic events in the future. A study conducted by Mann (2001), however, asked HIV-infected female participants to write about a positive future, and subsequently examined optimism levels thought to affect health-related behaviors such as adherence to medication regimens. The results indicated that HIV-infected women that were initially low on optimism and wrote about a positive future showed significantly increased optimism, whereas women initially scoring high on optimism reported a resultant drop in optimism following the writing exercise, compared to control participants. Although, these findings suggest the possibility that, under the right

circumstances, writing about a positive future may lead to beneficial outcomes, it is uncertain how unstructured writing about a *negative* future event may impact participants.

Typically, problem-based writing is done free form on a blank sheet of paper, with no guiding instructions other than to write freely about the issues in the past. Can freely writing about a plan for coping with a negative future reduce worry? Although the lack of structure facilitates emotional release, this may not be sufficient to promote the types of cognitions necessary for creating a workable plan for how to successfully cope with a future traumatic event. As opposed to problem based writing over a past experience, writing one's thoughts and feelings regarding a negative future event may produce relatively less favorable results. Indeed, writing about a future traumatic experience without structural guidance may actually trigger more worry about the future, though this possibility has not been addressed. In the current experiment, past-and future-oriented problem-based writing serve as a comparison for a structured problem-solving intervention.

Conceptual Frameworks That Provide Bases for Facilitating Problem-Solving and Planning

To ameliorate the potential limitations of problem-based writing, two key theoretical frameworks have been incorporated in the development of a cognitive tool constituting a major focus of the current study to guide individuals through effective problem solving and future planning: 1.) decision stages (Robbins & Judge, 2007), and 2.) a multiple perspective strategy (Atha-Weldon & Dansereau, 2006; Hall & Davis, 2007).

Decision tools that promote systematic decision-making have been shown to improve logical problem-solving and enhance vocational maturity and choice certainty (Mau & Jespen, 1992). These tools are typically based on a standard decision-making model (Robbins & Judge 2007) that includes five broad stages. The first stage is to *Define the Situation,* which allows for

acknowledgment and a clear understanding of the current situation. Defining the situation encourages an analysis of the decision dilemma. The second stage is to *Generate Alternatives*. Brainstorming possible choices or directions can increase both the number and quality of alternatives (Hall & Davis, 2007). This can be accomplished by taking into account others' recommendations for the best solution to the dilemma. Utilizing this strategy of multiple perspective-taking may provide options that were not formerly given consideration. Stage three is *Evaluate Alternatives*. It has been shown that examining strengths and weaknesses of generated alternatives can facilitate the selection of a rational choice (Halpern, 1996). The fourth stage is *Selection*. At this stage, individuals select from among their generated choices, after careful consideration of each option and the varied recommendations from others. The final stage is *Action*. After an individual has made his or her decision, he or she must act upon it, so the invested time and decision analysis is not wasted. Each of these five stages in decision-making has been captured in the tool employed in the present study.

An additional theoretical framework used in the development of the tool is the use of a perspective taking strategy that involves the adoption of other points of view. This has long been viewed as critical for effective social interaction (Feffer & Suchotliff, 1966). It was expected that the processing of decision dilemmas would benefit from the use of personal perspectives in the form of a "decision team." The Decision Team is a direct extension of the Thought Team strategy, in which students mentally refer to familiar people for guidance (Atha-Weldon & Dansereau, 2006).

In addition to the multiple perspectives approach, it was hypothesized that well-known ethical perspectives would be helpful in evaluating alternatives. Common perspectives (Velasquez et al., 1988) that have been described and taught in ethics courses include: Virtue,

Rights, Justice/Fairness, Common Good, and Utilitarian. The Virtue perspective focuses on

common ideals such as honesty, caring, tolerance, loyalty, patience and courage. The Rights

perspective focuses on the protection of the basic rights of those involved in the dilemma. The

Justice/Fairness approach suggests all human beings should be treated equally or, if unequally,

then fairly based on some standard that is defensible. This perspective dictates that when

developing a course of action, it should be determined whether or not individuals are equals. If

not, fair choices that consider equality should be created. For example, the Justice/Fairness

approach advocates parents treating their own children differently (e.g., more love, more

financial support) than other children. The Common Good perspective focuses on societal

impacts, such as clean air, safety, and healthcare, and even supports decisions that may infringe

on individual rights in order to reach community goals. The Utilitarian perspective aids

evaluation of alternatives in cost/benefit terms. Each of these five approaches is designed to

broaden an individual's view in the development and analysis of alternative courses of action

(Velasquez et al., 1988).

ACED IT: A Cognitive Tool Centered on Planning for Future Events

Combining the foregoing frameworks enabled the development of the cognitive tool

utilized in this study. ACED IT is a cognitive tool denoted by an acronym that stands for Assess,

Create, Evaluate, Decide, Implement, and Test. It is a pre-structured map that guides individuals

to represent possible choices, as well as the strengths and weaknesses of each choice, by using a

"fill-in-the-space" format to organize the written information (Dansereau, 2005). ACED IT has

been explored in several ethical decision-making workshops developed to provide mid-level

managers with general decision-making and problem-solving skills. Feedback from the

participants indicated high satisfaction with ACED IT and intent to use this strategy with future

decision dilemmas. Based on this feedback, and upon the outcome of focus groups with college students, it was anticipated that the ACED IT might profitably be used with a variety of populations.

Relevant Prior Research: Problem-Based Writing vs. ACED IT

Preliminary Studies. Kreitler, Dansereau, Barth, and Ito (2009) conducted a study with undergraduate students to examine the reported effectiveness of ACED IT. Session one included random group assignment (ACED IT and comparison), and testing for individual differences. The comparison group engaged in unstructured problem-based writing. In session two, participants were given specific instructions to briefly describe three past dilemmas that gave them difficulty. They were then asked to select the decision that provided the most difficulty, and to re-work it using the ACED IT procedure or problem-based writing approach, depending on group assignment. Next, participants completed a decision-making questionnaire and an ethical perspectives questionnaire. Findings revealed that extraverted students reported a greater tendency to change an earlier decision and indicated a marginally greater satisfaction with ACED IT than did introverts. More specifically, regardless of the processing method used (ACED IT or comparison), extraverts were more likely than introverts to change their prior decision. The results also suggested that extraverts were more satisfied with ACED IT, compared to introverts, whereas their responses were similar to those of introverts when using the comparison method. The elements of ACED IT may have provided the extraverts with additional guidance as to how to re-process an earlier decision.

A subsequent study was conducted with a similar design as above, except researchers utilized three groups (ACED IT, problem-based writing, and no treatment), as opposed to two groups. Another key difference included asking participants to complete their tasks based on a

personal change they would like to implement in their current lifestyle. For example, participants in the ACED IT group planned out how they would implement a desired personal change utilizing the map, participants in the problem-based writing group wrote about the desired change, and those in the no treatment group completed an unrelated questionnaire. Following these tasks, all participants completed two questionnaires regarding future decision-making and personal change. Results indicated that these college students reported greater positive expectations for future decision-making after utilizing the problem-solving tool than did those in a problem-based writing group or in a no treatment group. The results also found that college students reported greater intentions of implementing positive lifestyle change after using the tool than did those in the other comparison groups.

Yet an additional experiment helped provide pilot work for the present study. Three groups were utilized: an ACED IT combined with writing group, a writing along group, and a control comparison. In session one, participants experienced one of two manipulations: participants in the writing alone and ACED IT groups were asked to write about their worst life experience for 20 minutes. Participants in the control condition were asked to complete an unrelated questionnaire while the other groups wrote. Two days later in session two, participants in the writing condition were given 20 minutes and the same writing instructions as they were given in session one. Participants in the ACED IT group were given a sample map and asked to complete ACED IT, by mapping out their strategy for future coping regarding a difficult life experience, and allotted 20 minutes. Participants in the no treatment condition were given an unrelated questionnaire. Four weeks later, participants returned and completed the Life Satisfaction, Transient Affect, Health, and Coping Questionnaires. Findings replicated and extended previous work demonstrating the efficacy of ACED IT (Kreitler et al., 2009). After 4

weeks, participants in the ACED IT and problem-based writing alone groups reported improved

mental health, improved role functioning, diminished pain, and a greater likelihood to include

others in future coping when compared with those given no treatment. Contrary to expectations,

however, the findings revealed no significant differences between the ACED IT and writing

groups on these outcome variables. However, there was a significant effect for the outcome

variable, coping revision. Participants in the ACED IT group reported a significantly greater

likelihood to revise their future coping plans than those given no treatment, whereas this benefit

was not present for the problem-based writing group. No other differences were significant.

General Objectives and Design

Previous research suggests that utilizing either problem-based writing about a past

traumatic event or ACED IT as a tool for problem solving results in beneficial outcomes. To

our knowledge, however, no studies have investigated future-oriented problem-based writing,

or combining problem-based writing about a past traumatic event with a structured cognitive

tool, such as ACED IT. As opposed to the short-term measures in the pilot study, differences

on long-term measures of psychological well-being and long-term positive affect were

investigated. Moreover, a measure of extraversion was included to attempt a replication of

prior work. The current research seeks to determine which method of processing challenging

events is most beneficial to individuals' well-being and anxiety. The specific hypotheses tested

are categorized below in terms of broad categories of dependent variables measured.

Psychological Well-Being

It was hypothesized that two consecutive sessions of past-oriented problem-based writing

would provide better psychological benefits, as a result of diminished anxiety, than past- and

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future-oriented sessions of problem-based writing or the combined approach utilizing ACED IT.

Coping with Past Events

It was also predicted that two consecutive sessions of past-oriented problem-based writing would diminish rumination better than past- and future-oriented sessions of problem-based writing or the combined approach utilizing ACED IT.

Coping with Future Events

With their emphasis on future-related planning and coping, past- and future-oriented sessions of problem-based writing and the combined approach, were hypothesized to provide more benefit for future coping intentions than two sessions of past-oriented problem-based writing or a no treatment condition.

Involvement of Others

Given the prior work evaluating the efficacy of the ACED IT in decision-making, we hypothesized that the combined approach would render participants in the ACED IT condition more likely to include others in their future coping than would all other groups.

Extraversion

Finally, in light of previous findings in studies utilizing ACED IT, it was predicted that extraverts would benefit more from ACED IT methodology than would introverts.

Method

Participants

The participants were 168 undergraduate psychology students at Texas Christian University. Participants volunteered to participate in this research to fulfill a course requirement or receive extra credit for a class (115 females, 53 males; average age = 19.53 years, SD = 2.96).

Participants were randomly assigned to one of four conditions: Problem-based writing-past followed by problem-based writing-past (Past; $n = 43$), problem-based writing-past followed by ACED IT (ACED IT; $n = 40$), problem-based writing- past followed by problem-based writing-future (Future; $n = 42$), and a no Treatment condition ($n = 43$). Post hoc power analysis indicated adequate statistical power (.89; see Cohen, 1988).

Measures

Descriptive Data. A questionnaire requesting information about each participant's gender, date of birth, and e-mail address was administered to participants.

Extraversion. The Big Five Inventory (BFI; John & Srivastava, 1999) was administered to assess individual personality differences. The BFI is a 44-item measurement that assesses the Big Five personality traits (neuroticism, extraversion, openness, agreeableness, and conscientiousness). Items were scored using a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree). A composite score was computed by averaging the eight extraversion items.

Problem Severity. The Problem Severity Questionnaire (Lyubomirsky et al., 2006) asked participants to list the most troubling experience of their life, and rate how upsetting the experience was for them. It consists of five questions (e.g., "How upsetting was this experience for you?") which are rated on a 7-point Likert scale (1 = not at all, 5 = very much). A composite score was computed by averaging the five items.

Rumination. The Ruminative Response Scale (RRS; Nolen-Hoeksema & Morrow, 1991) was administered to measure dispositional tendencies to ruminate. The RRS consists of 22 items (e.g., "I go away alone and think about why I feel this way") which are scored using a 5-point Likert scale (1 = not at all, 5 = very much). A composite score was computed by averaging the 22 items.

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Worry. The Penn State Worry Questionnaire (PSWQ; Meyer, Miller, Metzger, & Borkovec, 1990), a 16-item inventory, was given to participants to assess trait worry and capture the general, excessive, and uncontrollable characteristics of pathological worry (e.g., "My worries overwhelm me"). Items were scored using a 5-point Likert scale (1 = not at all typical of me, 5 = very typical of me). A composite score was computed by averaging the 16 items.

Anxiety. The 40-item State Trait Anxiety Instrument (STAI) was administered to measure anxiety symptoms (Spielberger, 1983). The 40 items are divided into two groups: 20 items are formed to record current anxiety symptoms (state anxiety) and the remaining 20 items are scored to record usual anxiety symptoms (trait anxiety). The STAI state scale is scored on a 4-point Likert scale (1 = not at all to 4 = very much) for the first 20 items, and (1 = nearly always to 4 = nearly never) for the remaining 20 items. Composite scores were computed by averaging the 20 items assessing trait anxiety, and the 20 items assessing state anxiety.

Trauma. The Trauma questionnaire (adapted from Blanchard, Jones-Alexander, Buckley, and Forneris, 1996), a 17-item questionnaire, was administered to participants to assess trauma (e.g., "I feel as if my future will somehow be cut short"). The trauma scale consists of three major subscales: Re-experiencing Trauma, Avoidance, and Hyperarousal. All items were scored using a 5-point Likert scale (1 = not at all, 5 = extremely). Composites were created by averaging separately the scores of each subscale.

Coping. The Proactive Coping Inventory (Greenglass et al., 1999; Greenglass, 2002) was utilized to asses coping. On a 4-point scale (1 = not at all true, 4 = exactly true), participants will rate items describing general coping reactions (e.g., ''I like challenges and beating the odds''). The Proactive Coping Inventory consists of six major subscales: Proactive Coping, Reflective Coping, Strategic Planning, Preventive Coping, Instrumental Support Seeking, and Emotional

Support Seeking. All items were rated on the same 4-point Likert scale (1 = not at all true, 4 = completely true). Composites were created by averaging separately the scores of each subscale.

The Coping Process Evaluation Questionnaire is a 19-item questionnaire designed to model the Decision Process Evaluation Questionnaire (Kreitler et al., 2009). It was administered to assess participants' current and future coping strategies (e.g., "I intend to be more thoughtful when coping with difficult experiences in the future"). Items were scored using a 7-point Likert scale (1 = not at all, 7 = very much). Composite scores were created utilizing a factor analysis (See preliminary analyses).

Transient Affect. Participants completed the Positive and Negative Affect Schedule (PANAS; Watson et al., 1988), which lists 20 adjectives. Ten adjectives reflect PA (e.g., proud, interested, alert) and 10 reflect NA (e.g., nervous, irritated, afraid). Participants rated their current experience of each item (e.g., "how do you feel right now?") by using a 5-point scale (1 = very slightly or not at all, 5 = extremely). Composites for PA and NA were created by averaging separately the scores of the adjectives denoting PA and those denoting NA.

Psychological Well-Being. For a multidimensional assessment of well-being, participants completed the Psychological Well-Being Scale (PWB; Ryff, 1989), an 84-item assessment of positive functioning. The PWB consists of six major subscales: Autonomy, Environmental Mastery, Personal Growth, Positive Relations with Others, Purpose in Life, and Self-Acceptance. All PWB items are rated on the same 6-point Likert scale (1 = strongly disagree, 6 = strongly agree). Composites were created by averaging separately the scores of each subscale.

Experimental materials

ACED IT. Participants in the ACED IT condition completed the pre-structured map (Kreitler et al., 2009) that guides participants to visually represent the possible choices for

solving a problem, as well as the strengths and weaknesses of each choice, by using a "fill-in-the-space" format to organize the written information (see Figure 1).

Problem-based writing (past event). Students were asked to write about a worst life experience in their past during sessions 1 and 2. Participants received several sheets of blank paper and were given the following instructions, adapted from Pennebaker and Francis (1996):

> I would like for you to write about your deepest thoughts and feelings regarding a
> *past* significant life experience you highlighted on the questionnaire. In your
> writing, I'd like you to really let go and explore your deepest emotions and
> thoughts about this past event. You might tie your topic to your relationships with
> others, including parents, significant others, friends, or relatives, to your past,
> your present, or your future, or to who you have been, who you would like to be,
> or who you are now. Don't worry about using complete sentences or being
> logical. Just write whatever comes to your mind about this experience.

Problem-based writing (*future event*). Students were asked to write about a worst life experience in the future during sessions 2. Participants received several sheets of blank paper and were given the following instructions, adapted from Pennebaker and Francis (1996):

> I would like for you to write about your deepest thoughts and feelings regarding a
> *future* significant life experience you highlighted on the questionnaire. In your
> writing, I'd like you to really let go and explore your deepest emotions and
> thoughts about this future event. You might tie your topic to your relationships
> with others, including parents, significant others, friends, or relatives, to your
> past, your present, or your future, or to who you have been, who you would like to

be, or who you are now. Don't worry about using complete sentences or being

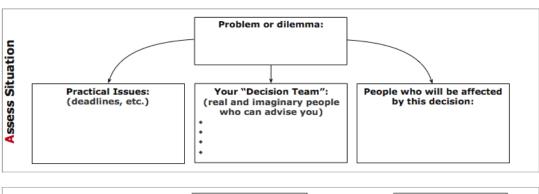logical. Just write whatever comes to your mind about this experience.

Procedure

 Session One. Informed consent was obtained. Individually numbered colored folders that

held experimental materials for the four groups were randomly distributed as students entered the

lecture hall. Participants were asked to follow the instructions in their folders and were allowed

to ask the experimenter questions for clarification. All participants were given the Demographic

form, and the Problem Severity questionnaire followed by the Big Five Factor Inventory.

Participants in the three manipulation conditions completed problem-based writing on a past

event for 20 minutes. Those in the control condition were asked to complete an unrelated

questionnaire. Following the completion of these tasks, participants were reminded to return two

days later for session two.

 Session Two (2 days after session one). Participants in the Past group were asked to write

about the same topic for another 20 minutes, as they did in session 1. Participants in the Future

group read the instructions for problem-based writing (future event) and wrote for 20 minutes.

Participants in the ACED IT condition were asked to complete ACED IT, regarding the difficult

life event they wrote about in session one, in the 20 minutes allotted time. Participants in the no

treatment condition were given an unrelated questionnaire. Next, all participants completed the

Psychological Well-Being (12 minutes), Long-term Affect (8 minutes), Trauma (6 minutes),

Anxiety (8 minutes), Rumination (10 minutes) and Coping questionnaires (12 minutes), and were

reminded to return four weeks later.

Figure 1

ACED IT

Assess ◆ Create ◆ Evaluate ◆ Decide ◆ Implement ◆ Test

An Ethical Decision-Making Strategy

Assess Situation

Problem or dilemma:

Practical Issues: (deadlines, etc.)	**Your "Decision Team":** (real and imaginary people who can advise you) ◆ ◆ ◆ ◆	**People who will be affected by this decision:**

Create Choices

Brainstorm with your "Decision Team"	**Take a break to let the rest of your brain chime in.**

(Briefly describe each choice)→	**CHOICES**					
	A:	**B:**	**C:**	**D:**	**E:**	**F:**

Evaluate Choices Using Filters

Short-term positives outweigh negatives. (Us 0-3 scale below to rate each statement and see worksheet before rating)						
Long-term positives outweigh negatives.						
It is practical. I can pull this off.						
Totals: Any unacceptable?						

NOT AT ALL (0)   SOMEWHAT (1)   PRETTY MUCH SO (2)   VERY MUCH SO (3)

Decide

See if any of your ratings would cause you to eliminate choices. Check totals, and DECIDE.

(Over)

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Your Decision:
(Briefly describe and modify if necessary.)

Implement Decision

Steps I need to take:	Possible Problems:	Solutions:

Looks OK?

❏Yes   ❏No

Implement Decision.

♦
♦
♦

Test
(come back to this later)

How did it work out?

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Session Three (4 weeks after session one). All participants completed the Psychological Well-Being, Long-term Affect, Trauma, Anxiety, Rumination, and Coping questionnaires, followed by a full debriefing.

<div align="center">Results</div>

Preliminary Analyses

A principal components factor analysis with a varimax rotation was conducted on the items in the Coping Process Evaluation Questionnaire (See Table 1). Three factors emerged from the analysis. Factor scores were formed by averaging items that loaded greater than .5. The first factor, labeled Coping confidence, included confidence about coping with problems similar to the one chosen (.82), confidence in future coping (.74), satisfaction with future coping (.67), effective future coping perception (.66), and ability to cope with problems in the future (.55). The second factor, labeled Intent to Include Others, included the following items: seeing value of considering others' points of view in coping with difficult experiences (.89), ability to teach others about how to cope with difficult experiences (.81), and desire to help others with their coping (.81). The third factor, labeled Coping Revision, included intent to change coping strategies (.87), satisfaction with coping now versus before (.81), and extent to which coping strategies will be changed (.80). Further, a 4 (ACED IT vs. Past vs. Future vs. No Treatment) x 2 (Extraversion: High vs. Low) mixed MANOVA was conducted on all the dependent measures, to assess potential effects of this personality difference. The results of this analysis yielded no significant main effects or interactions of extraversion. Consequently, extraversion was excluded from future analyses.

The primary analyses were separated into four conceptual categories to focus on the

hypotheses concerning psychological well-being, coping with the past, coping with the future,

and involvement of others. Composites for all measures were created using the same methods as

previous researchers.

Table 1
*Factor Loadings Based on a Principle Components Analysis with Varimax Rotation for the
Coping Process Questionnaire*

Measure and variable	factor loading
Coping Confidence	
I feel confident coping with problems similar to the one I chose to describe	.82
I intend to face future problems with more confidence	.74
I plan to be more satisfied with my future coping methods	.67
I see myself as being effective with future coping	.66
I feel more confident about my ability to cope with future problems	.55
Intent to Include Others	
I see value of considering others' points of view in coping with difficult experiences	.89
I feel I can teach others about how to cope with difficult experiences	.81
I have the desire to help others with their coping	.81
Coping Revision	
I intend to change my coping strategies	.87
I am more satisfied with my coping now versus before	.81
I am likely to change my coping strategies	.81

Note. Internal consistency for each of the scales was examined using Cronbach's alpha. The alphas were .73 for
Coping Confidence (5 items), .77 for Intent to Include Others (3 items), and .82 for Coping Revision (3 items).

Psychological Well-Being

A 4 (ACED IT vs. Past vs. Future vs. No Treatment) x 2 (Time 1 vs. Time 2) mixed

MANOVA was conducted on the Psychological Well-Being subscales and State Anxiety (See

Table 2). The main effect for experimental condition was significant, indicated by Wilks'

Lambda, $F(21, 480) = 1.68$, $p < .05$, as was the main effect for Time, $F(7, 158) = 9.00$, $p < .01$.

Significant univariate main effects for Time were obtained for State Anxiety, $F(1, 164) = 15.46$,

$p < .01$, Personal Growth, $F(1, 164) = 29.83$, $p < .01$, Positive Relations, $F(1, 164) = 14.29$, $p < .01$, and Purpose In Life, $F(1, 164) = 68.07$, $p < .01$. Participants reported more anxiety at Time 1 ($M = 2.03$, $SD = .52$) than at Time 2 ($M = 1.82$, $SD = .52$). Participants reported more personal growth at Time 2 ($M = 5.11$, $SD = 1.52$) than at Time 1 ($M = 4.51$, $SD = .95$). They also reported more positive relations at Time 2 ($M = 5.01$, $SD = 1.72$) than at Time 1 ($M = 4.60$, $SD = 1.09$), and more purpose in life at Time 2 ($M = 4.99$, $SD = 1.68$) than at Time 1 ($M = 4.09$, $SD = 1.74$). No other univariate effects of Time were found and no univariate effects for condition were found.

Table 2

4 (condition) x 2 (time) Multiple Analysis of Variance for Psychological Well-Being Subscales and State Anxiety

Source	df	F	p
Time			
State anxiety	1	15.46**	.00
Personal growth	1	29.83**	.030
Positive relations	1	14.29**	.00
Purpose in life	1	68.07**	0
Wilks' Lambda	21	1.68*	.03

Note. *p* <.05. **p* <.01. There were no significant univariate effects for condition

Coping with Past Events

A 4 (ACED IT vs. Past vs. Future vs. No Treatment) x 2 (Time 1 vs. Time 2) mixed

MANOVA was conducted on the Rumination questionnaire, and the Re-experiencing Trauma

and Avoidance subscales (See Table 3). The main effect for condition was significant, indicated

by Wilks' Lambda, $F(9, 492) = 2.91$, $p < .01$, as was the main effect for Time, $F(3, 162) = 3.26$,

$p < .05$. Significant univariate main effects for Condition were obtained for Rumination, $F(3,$

$164) = 5.33$, $p < .05$, Re-experiencing Trauma, $F(3, 164) = 3.64$, $p < .05$, and Avoidance, $F(3,$

$164) = 5.58$, $p < .05$.

Table 3

4 (condition) x 2 (time) Multiple Analysis of Variance for Rumination
Questionnaire, and the Re-experiencing Trauma and Avoidance Subscales

Source	df	F	p
Condition			
Rumination	3	5.33*	.02
Re-experiencing trauma	3	3.64*	.02
Avoidance	3	5.58**	.01
Wilks' Lambda	9	2.91**	.01
Time			
Rumination	1	7.01**	.01
Wilks' Lambda	21	1.68*	.02

Note. *$p < .05$. **$p < .01$. There were no other significant main effects or univarite
effects.

A significant univariate main effect for Time was also obtained for Rumination, $F(1, 164) =$ 7.01, $p < .05$. Based on a LSD post hoc test, participants in the ACED IT group ($M = 2.08$, SD =.58) reported less rumination than participants in the Future group ($M= 2.30$, $SD = .69$). Participants in the Past group ($M = 1.93$, $SD = .41$) reported less rumination than participants in the Future group ($M = 2.30$, SD = .69) and participants in the No Treatment group ($M = 2.16$, SD = .59). Additionally, participants in the Past group ($M = 2.01$, $SD = .78$) reported less tendency to re-experience trauma than participants in both the Future group ($M = 2.38$, $SD = .59$) and the No Treatment group ($M = 2.41$, $SD = .94$). Further, participants in the ACED IT group ($M = 2.00$, SD =.72) reported less avoidant behavior than participants in the Future group ($M= 2.29$, $SD =$ .63). Participants in the Past group ($M = 1.83$, SD = .77) reported less avoidant behavior than participants in the Future group ($M = 2.29$, $SD = .63$) and participants in the No Treatment group ($M = 2.15$, $SD = .95$). Finally, participants reported less rumination at Time 1 ($M = 2.04$, SD =.91) than at Time 2 ($M = 2.20$, $SD = .81$). No other significant effects were found.

Coping With Future Events

A 4 (ACED IT vs. Past vs. Future vs. No Treatment) x 2 (Time 1 vs. Time 2) mixed MANOVA was conducted on the Proactive Coping subscales and the Coping Revision subscale (See Table 4). The main effect for experimental condition was significant, indicated by Wilks' Lambda, $F(18, 483) = 2.59$, $p < .05$. A significant univariate main effect for condition was obtained for Coping Revision, $F(3, 164) = 3.51$, $p < .05$. Based on a LSD post hoc test, participants in the ACED IT group ($M = 4.38$, SD =1.29) reported a greater likelihood to revise their coping method than participants in the Future group ($M = 3.69$, SD =1.10) and the No Treatment group ($M = 3.92$, SD =1.52).

Table 4

4 (condition) x 2 (time) Multiple Analysis of Variance for Proactive Coping
Subscales and the Coping Revision Subscale

Source	df	F	p
Condition			
Coping revision	3	3.51*	.02
Wilks' Lambda	18	2.59**	.00

*Note. *p <.05. **p <.01. No other significant main effects or univariate effects were found.

Moreover, participants in the Past group ($M = 4.30$, $SD = 1.18$) reported a greater likelihood to revise their coping method than participants in the Future group ($M = 3.92$, $SD = 1.10$).

Involvement of Others

A 4 (ACED IT vs. Past vs. Future vs. No Treatment) x 2 (Time 1 vs. Time 2) mixed MANOVA was conducted on the Coping Process subscale (Intent to include others), and on a Psychological Well-Being subscale (emotional support-seeking; See Table 5). The main effect for experimental condition was significant, as indicated by Wilks' Lambda, $F(6, 326) = 3.46$, $p < .05$. Significant univariate main effects for Condition were obtained for Intent to Include Others, $F(3, 163) = 4.22$, $p < .05$ and Emotional Support-Seeking, $F(3, 163) = 2.94$, $p < .05$. Based on a LSD post hoc test, participants in the ACED IT group ($M = 5.68$, $SD = 1.03$) reported a greater likelihood to include others in their future coping than participants in the Past group ($M = 5.36$, $SD = .93$), Future group (M = 5.22, SD = 1.14) and the No Treatment group ($M = 5.12$, $SD = 1.10$).

Table 5

4 (condition) x 2 (time) Multiple Analysis of Variance for a Coping Process
Subscale and Psychological Well-Being
Subscale

Source	df	F	p
Condition			
Intent to include others	3	4.22**	.00
Emotional support-seeking	3	2.94*	.03
Wilks" Lambda	6	3.46**	.01

*Note. *p <.05. **p <.01. There were no other significant main effects or univariate effects.

Additionally, participants in the ACED IT group (*M* = 3.44, *SD* = .87) reported a greater

likelihood to seek emotional support from others in their future coping than participants in the

Past group (*M* = 3.22, *SD* =.98), Future group (M = 3.18, SD = .75) and the No Treatment group

(*M* = 3.18, *SD* =.86).

Discussion

Given the proven efficacy of problem-based writing, typically conducted as a past-oriented

procedure, it was hypothesized that two such consecutive sessions of problem-based writing

would lead to improved psychological well-being, diminished anxiety, and decreased

rumination. Alternately, administration of past-oriented session followed by a *future*-oriented

session or ACED IT would provide better benefit for *future* coping. Although all of the

experimental treatments were expected to result in more positive expectations for coping with

future challenges, it was predicted that the ACED IT methodology (including the decision team) would, more than for any other group, lead to greater likelihood of the inclusion of others in future coping strategies.

The findings partially confirmed these hypotheses. Indeed, considerable support was found for the hypothesis that past-oriented problem based writing diminished rumination about past events. However, despite this effect, no evidence was found for diminished anxiety or enhanced psychological well-being. Further, as hypothesized, including ACED IT in the treatment condition resulted in greater likelihood of including others in future coping strategies than was observed for any of the other groups. On the other hand, only limited support was observed for the hypothesis that all experimental treatment conditions would benefit participants, and no support was found for the efficacy of the future-oriented problem based writing group on any of the dependent measures. These findings are discussed in greater depth below.

Psychological Well-Being

As noted previously, we hypothesized that participants who completed two sessions of past-oriented problem based writing would show greater psychological well-being than participants in all other groups. Contrary to our prediction, participants in the past-oriented problem-based writing group did not report greater psychological well-being than participants in the other groups, as no differences between conditions were found for any of the psychological well-being subscales. Past-oriented problem-based writing failed to diminish state anxiety, as assessed by the STAI. However, unexpectedly, participants in all groups, students in control and experimental conditions alike, reported less anxiety, improved personal growth, greater positive relations, and a greater purpose in life, when assessed at Time 2, as compared with reports four weeks earlier for the initial assessment obtained at Time 1. Although it might prove tempting to

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raise the specter of potential experimental demand in explanation of these findings, it is worth noting that only four of the six psychological well-being subscales showed the effect of Time. As an alternate, more plausible hypothesis, these findings are consistent with the literature suggesting that college students report progressively improved psychological well-being as they transition through college. For example, Shepard, Nicpon, and Doobay (2009) found increases in self-concept, happiness, and satisfaction, when comparing self-ratings of self-concept before and after the first semester of college (a good portion of our participant pool consisted of college freshman that had just entered their first semester of college at time 1). Another study found a decrease in reactivity to negative events from the first to second semester, suggesting that as people become acclimated to a given environment, negative events may elicit smaller decreases in psychological well-being (Nezlek, 2007). Indeed, in a more temporally rigorous experiment, Segerstrom et al. (1998) asked undergraduate participants to provide daily measures of their psychological well-being, as well as daily positive and negative events that occurred, during the first and second semesters of an academic year. Their findings showed a significant decrease in reactivity to negative events for four of the five measures of daily well-being. The present study extends these findings by showing changes within the same semester.

Coping with Past Events

 Although past-oriented problem-based writing failed to perform up to expectations for enhancing psychological well-being, it proved efficacious for coping with difficult past events. Indeed, in line with the original hypotheses, the findings showed that participants that completed two sessions of past-oriented problem-based writing reported less rumination and avoidant behavior than participants that completed future-oriented problem-based writing or control questionnaires. Additionally, participants in the past-oriented problem-based writing were also

less likely to report a tendency to re-experience trauma than those who completed a future-oriented session or control questionnaires. These findings are consistent with other published findings indicating that problem-based writing ameliorates maladaptive rumination and buffers against past trauma (Sloan, Marx, Epstein, & Dobbs, 2008; Sloan & Marx, 2004). In a way similar to their peers in the past-oriented problem-based writing group, participants who completed one session of past-oriented problem-based writing followed by ACED IT also reported less rumination and avoidant behavior than participants who completed future-oriented problem-based writing, but were not significantly different from the group given no treatment. Some researchers have invoked theories such as the disinhibition theory or cognitive- processing theory in attempted explanation of the mechanisms behind the efficacy of past-oriented problem-based writing. The data, however, fail to support theoretical predictions based on these ideas (see Frattaroli, 2006, for review). For example, if the former theory could account for the efficacy of past-oriented problem-based writing, one would expect individuals that have "inhibited" difficult memories for a longer period of time to reap greater benefit from the procedure than would individuals who have experienced trauma more recently. Further, one could reasonably expect greater effects of the procedure for males over females, as males are less likely to give voice to their negative feelings than are their female counterparts. Evidence for such an effects are lacking. As for making a case for cognitive processing theory, one might reasonably expect specific sets of instructions informed by cognitive theory, or more time given for cognitive processing to provide greater benefit to participants. They do not. Offering at least some hope of understanding the mechanisms behind the benefits of problem-based writing, the self-regulation theory argues that the emotional disclosure that comes as part of the writing procedure allows individuals to express and control their emotions, which then provides an improved, stronger

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sense of self-efficacy for emotional regulation. The literature has shown some support for this theory, with a small number of studies reporting increases in self-efficacy and decreases in depression. Certainly, much remains to be ascertained regarding the theoretical underpinnings behind the well-established efficacy of past-oriented problem-based writing.

Coping with Future Events

It was expected that individuals who, along with receiving the initial past-oriented problem-based writing procedure, completed ACED IT or a session of future-oriented problem-based writing would report more favorable outcomes for measures of future coping (e.g., preventive coping, proactive coping) relative to those who completed two sessions of past-oriented problem-based writing or control questionnaires. Partial support for this prediction was found for the outcome variable coping revision. Participants that completed ACED IT reported a greater likelihood to revise their future coping strategies than did participants in the future-oriented problem-based writing group and the group given no treatment. It seems likely that the planning methodology that is an integral part of ACED IT provided significant benefit to future coping strategies. Despite the initial hypotheses, however, no similar effects were found for participants given the future-oriented problem-based writing approach. Indeed, the results surprisingly indicated that participants who completed two sessions of past-oriented problem-based writing reported a greater likelihood to revise their future coping strategies than participants that completed a session of future-oriented problem-based writing.

Involvement of Others

It was hypothesized that participants who completed ACED IT as part of their experimental condition would report a greater likelihood to include others in their future coping than participants in all other groups. The findings supported this hypothesis. ACED IT participants

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reported a greater likelihood to include others in future coping and to seek out emotional support

from others than participants in all other groups. Given the putative importance of multiple

perspectives in coping (Atha-Weldon & Dansereau, 2006; Hall & Davis, 2007), these results

suggest that ACED IT may be a valuable enhancement to problem-based writing. The elements

of ACED IT provided students with guidance as to how to incorporate opinions from respected

others into their thoughts and intentions for future coping. These findings contribute to the

literature by extending ACED IT to the arena of future coping. There are key similarities here to

past results found with ACED IT. For example, in one study (Kreitler et al., in review)

participants that completed ACED IT reported a greater likelihood to include others in their

future decision-making. Given the proclivity of most individuals to make hasty and often poor

decisions, the potential utility of this tool is readily apparent. An established theoretical

framework that may prove helpful in explaining the beneficial effects of ACED IT is the social

integration theory. This theory suggests that disclosure affects the way people interact with their

social world, which, as a result, improves general well-being. To test this idea, future research

could examine whether participants assigned to the ACED IT condition would be more likely to

report past trauma to friends, along with subsequent testing for a hypothesized improvement in

social relationships in the days and weeks following the procedure.

Extraversion and ACED IT

Despite the original hypothesis, extraverts appeared to garner no additional benefit from the

utilization of ACED IT versus any other methodology, when compared with their introverted

peers. These findings are inconsistent with an earlier study that examined the utility of ACED IT

and indicated that extraverts reported a preference for ACED IT over problem-based writing

(Kreitler et al., 2009). The reasons for this are currently unclear. One possible explanation behind

the discrepancy is that the experimental procedures for these studies were different in key ways. For example, in the first study, only single sessions of ACED IT or problem-based writing were administered to participants, whereas in the current study, participants in the problem-based writing condition experienced back-to-back sessions, while for those in the ACED IT condition, problem-based writing preceded the ACED IT exercise. Moreover, the dependent measures differed significantly for the two studies; in the initial study, the utility of ACED IT was examined in the context of decision-making. ACED IT might plausibly offer unusual benefit to extraverts on some dependent measures, but not on others. Further research is needed to resolve the discrepancy between ACED IT studies.

Study Limitations and Future Directions

The findings of this study offer some interesting and potentially useful possibilities for benefiting college students and others facing difficulties with coping, worry, and rumination. However, some limitations of the experimental approach or data interpretation should be addressed. First, although some of the original hypotheses were confirmed by the experiment, others were not. One such instance of the category was the surprising lack of any beneficial effects for the future-oriented problem-based writing method. Although it was hypothesized that future-oriented problem-based writing would result in enhanced future coping, more positive expectations for future coping, and generally improved mental health and well-being, future-oriented problem-based writing failed to confer any of the hypothesized benefits, and participants in this group were no better off than those given no treatment on many of the measures examined in this study. The reason for the lack of effects for this treatment is unclear. One possibility is that merely writing about a traumatic event that "may happen" in the future is not only non-therapeutic, but may itself trigger worry or anxiety.

Another possibility lies in the instructions this group was given. In order to render a proper comparison between the future-oriented problem-based writing group and the group given ACED IT (and to a lesser degree with the group that received two sessions of past-oriented problem-based writing), it was necessary to have the future-oriented group complete the past-oriented problem-based writing exercise first. Unfortunately, this meant that the future-oriented problem-based writing group was the only experimental condition that did not address the same negative event more than once. Therefore, it is difficult to determine whether the lack of effect for this experimental methodology was due to an inherent deficiency of the technique or to writing about two different challenging events, rather than writing about a single event twice.

At least two possibilities might explain why this could harm outcome measures for participants utilizing this approach. First, by writing about a given challenging event in the past only once, they were possibly unable to come to an adequate resolution of the problem or may achieve inadequate emotional release. For example, Pennebaker's original procedure typically involves three to five sessions of problem-based writing (Pennebaker, 1996). A single such session may prove insufficient. A second explanation could lie in that participants in this experimental condition were faced with two difficult events to write about, as opposed to one. Indeed, these two potential explanations may not be mutually exclusive, as being forced to write about yet another potentially negative event in the future, prior to emotional and/or cognitive resolution of the past event, may negate any potential benefit from either past- or future-oriented problem-based writing methodology. Future experiments are likely needed to clarify this point.

Furthermore, another concern with interpreting the data arises from another difference in treatment methodology. The ACED IT form itself includes a brief example (meant as instruction to the user) of how one might utilize ACED IT to cope with a difficult life event. A key part of

problem-based writing is the "unstructured" writing, and it would, therefore, be inappropriate to include a written example for either past- or future-oriented problem-based writing. It is unclear if this written example had an effect in itself. To at least partially address this concern, the ACED IT forms completed by participants were examined. It was determined that participants did not copy any parts of the example in their own writings.

Another concern is common to all self-report studies. Although the participants themselves are undoubtedly an impartial resource for information about their own cognitions, any data consisting of self-report measures require vigilance, lest demand, perceived desirability, or response biases affect the outcome. However, the lack of a significant difference in some comparisons and its presence in others lend confidence that the participants gave appropriate consideration to their responses. Regardless, future research would be strengthened by using independent and objective means of assessment, such as overt behavioral or health measures (e.g., numbers of health care visits, assays of salivary cortisol, etc.).

Lastly, can the generalizability of the results extend beyond a student sample? The modest life experience of the student population could potentially influence (for better or for worse) the nature of the statistical effects, making it difficult to predict the impact the varied treatment conditions utilized in this experiment might have on individuals that have considerably more or less life experience, or differences in other key variables. Researchers seeking to elucidate these potential differences would benefit from assessing ACED IT, and other cognitive tools, in a variety of populations.

Concluding Remarks

The research suggests that the ACED IT, a systematic problem-solving tool, is perceived as worthwhile and beneficial for problem-solving and coping. Utilization of the core elements

within ACED IT led to reports of a greater likelihood to revise future coping methods, a greater likelihood of including others in future coping, and improved participant intention to seek emotional support when coping with a difficult life event in the future. These findings contribute to the literature by indicating that a combination of systematic writing and perspective-taking produces self-reported gains in coping and problem solving.

In addition to these findings, prior reports of the utility of past-oriented problem-based writing in coping with difficult past events were replicated. Individuals given two sessions of past-oriented problem-based writing reported diminished rumination, anxiety, avoidant behavior, and indicated that they were less likely to re-experience past trauma. Further, the potential efficacy of a future-oriented problem-based writing was tested and found lacking.

In summary, this study extended prior work utilizing the ACED IT and problem-based writing methodologies by combining the two approaches, and explored the potential efficacy of a novel future-oriented problem-based writing methodology. Past-oriented problem-based writing and ACED IT methodologies show benefit and offer, both separately and in conjunction, potentially useful cognitive tools for individuals facing difficult life circumstances.

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ABSTRACT

EVALUATION OF A NOVEL TOOL FOR ENHANCED PROBLEM-SOLVING
AND COPING

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Many individuals have difficulty with problem-solving and coping, a phenomenon often

exacerbated by excessive rumination over past trauma, and worry about the future. The present

study examined the impact of a "fill-in-the-node" spatial display that guides participants

through a systematic written examination of alternatives and action plans for managing

difficult experiences in the future. The use of this cognitive tool will be combined with a

session of problem-based writing (Pennebaker, 1996), a method commonly used to cope with

past traumatic experiences. A group given the combination of one session of problem-based

writing followed by a second session using the cognitive tool ACED IT was compared with a

group receiving two sessions of past-oriented problem-based writing, a group given an initial

session of past-oriented problem-based writing followed by a session of *future*-oriented

problem-based writing, and with a group given no treatment. The results revealed that

participants that completed two sessions of past-oriented problem-based writing reported less

rumination and avoidant behavior than participants that completed future-oriented problem-

based writing or control questionnaires. Additionally, participants in the past-oriented problem-

based writing were also less likely to report a tendency to re-experience trauma than those who completed a future-oriented session or control questionnaires. Finally, participants that completed ACED IT reported a greater likelihood to revise their future coping strategies and include others in future coping than participants in all other groups.