AN EXAMINATION OF PRODUCTIVE PROCESSING ACTIVITIES
IN THE EXPRESSIVE WRITING INTERVENTION

by

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Expressive Writing (EW) is a therapeutic intervention that involves writing about stressful experiences over several sessions using as much detail and references to emotion as possible. For individuals experiencing a wide range of psychological and physical symptoms, in response to an array of stressors, EW has been repeatedly shown to lead to positive outcomes. Not all participants experience these positive outcomes, however, and the questions of how EW works and why it can lead to disparate outcomes across participants remain. In an effort to address these questions, the present study turned to psychotherapy process research, which has revealed several in-session client cognitive and affective processes that are consistently linked with positive therapeutic change. The purpose of the present study was to examine whether these processes are also relevant to EW and can provide insight into how and why EW works. Twenty-eight individuals who experienced psychological trauma participated in an EW intervention. Measures of psychological and physical health were administered at baseline and one month follow-up. The Measure of Clients’ Productive Processing (MCPP; Watson & McMullen, 2008), an observer-rated measure, was used to assess participants’ engagement in several processing activities believed to be productive. The Linguistic Inquiry and Word Count (LIWC; Pennebaker, Booth, & Francis, 2007) was also used to examine word use related to affective processes and cognitive mechanisms. Partial correlations calculated between the MCPP, LIWC and
outcome provided some support for the notion that the expression of emotions at a moderate level of arousal, as well as actively exploring and developing new understanding, are productive processes in EW. These processes were most prominently linked with improvements in depressive symptoms, though some improvements in other psychological and physical symptoms were also revealed. Phase of the intervention emerged as important, with the most notable effects occurring in the mid and late phases. Productive descriptions of external experience, expressions of need, and evaluations were not found to be related to positive outcome following EW. Results are discussed in the context of the previous research, with consideration given to limitations, future directions and clinical implications.
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CHAPTER 1: LITERATURE REVIEW

In the expressive writing (EW) intervention, first developed by Pennebaker and Beall (1986), participants are instructed to write about traumatic or stressful life experiences over several writing sessions using as much detail and references to emotion as possible. For individuals experiencing an extremely wide range of psychological and physical symptoms, in response to an array of stressors, EW has been repeatedly shown to lead to positive outcomes (Frattaroli, 2006). Not all participants experience these positive outcomes, however, with varying results seen both within and between participant populations. In addition, although numerous explanations for why EW can be effective have been offered, no single proposed mechanism of action appears to be sufficiently comprehensive and ubiquitous (Pennebaker, 2004). In an effort to address the questions of how EW can be effective and why it may lead to disparate outcomes for different individuals, the present study turned to psychotherapy process research.

Psychotherapy process research involves “identifying, describing, explaining, and predicting the effects of the processes that bring about therapeutic change” (Greenberg, 1986, p. 4). In other words, process research examines the within- and post-session factors that help to explain why and how psychotherapy works (Greenberg & Pinsof, 1986; Greenberg & Watson, 2006) and can involve information from the perspective of the therapist, client and/or observers (Hill, Nutt, & Jackson, 1994). Process research is regularly integrated with outcome research so that the variables identified can be linked with specific outcomes (Greenberg & Pinsof, 1986). This allows researchers to specify not only whether a relationship exists between therapy and change in a client, but also the nature of that relationship (e.g., the specific activities that lead to change and how those activities operate;
Elliot, 2010). Knowing different ways that clients process emotions, for instance, gains practical relevance only through an understanding of the differential ways that these processes affect clients’ well-being or other important outcomes. The ability of process research to elucidate important processes within psychotherapy as well as link these processes with outcome makes it an ideal method to help integrate science and practice within psychology (Rhodes, 2011).

Process research in psychotherapy has revealed numerous microprocesses that are linked with positive outcome with regards to various indices of well-being. These so-called productive processes are not inherently associated with any particular treatment approach; rather, they represent in-session activities that form a complex set of factors which accumulate and build upon each other in order to influence outcome (Greenberg & Pinsof, 1986). These complex factors follow from both the rational and experiential modes of processing as well as the intimate relationship that exists between the two (Watson & Greenberg, 1996). Processing activities related to the description of external experiences, symbolization and expression of internal experiences, expressions of need and assertion, evaluations of the self and others, exploration and reflexive examination, and the development of insight and resolution have all been implicated as important to the process of change and resolution.

The vast majority of research into productive processes to date has focused on these processes within the psychotherapeutic context, which involves interaction between therapists and clients. Accordingly, research findings are influenced by factors such as the therapeutic bond, questions and direction from the therapist, dialogue between therapists and clients, and therapist facilitation of client engagement in processes that are believed (through
theory, research or both) to be productive. The EW intervention does not involve these interpersonal and interactive aspects and instead relies on participants’ cognitive and emotional processing alone to exact change. Despite the vast differences between psychotherapy and EW, a review of the theoretical and empirical literature on client processing in psychotherapy suggests that many of the same processing activities may influence outcome for EW participants. Accordingly, the present study examined essays generated through an EW intervention for survivors of trauma in order to determine whether the effectiveness of the intervention may be partially understood in the context of those processes.

To begin, the EW literature will be discussed in order to provide a comprehensive overview of the intervention and the considerable yet often inconsistent research findings. This review will focus on meta-analytic findings and is followed by a discussion of the variables that have been reported as having moderating and mediating effects on outcome. Second, the theoretical framework within which processing activities can be understood is discussed. Specifically, relevant theories of emotion will be reviewed, including both the sources and functions of emotions. Then, the dialectical constructivist perspective will be described as a model within which processing behaviours, based in both rational and experiential modes of processing, can be interpreted and understood. The Process Model of Expression and Nonexpression (Kennedy-Moore & Watson, 1999) will also be explained in order to elucidate the ways that individuals move from the experience to the expression of emotion and when this process can be beneficial. Finally, with a clearer understanding of how individuals process and express their experiences and emotions, processes that have been identified as productive and unproductive in the psychotherapeutic literature will be
reviewed. Both the theoretical and empirical literature pertaining to each process will be discussed along with evidence suggesting that these processes may also be relevant to the EW intervention.

**The Expressive Writing Paradigm**

In the present study, essays generated through an EW intervention for trauma survivors were examined to determine whether processing activities that have been found to be useful in psychotherapy could account for some of the reported improvements in symptomatology as a result of the EW task. This research follows an extremely rich program of empirical study originally built upon the work of Pennebaker and Beall (1986). In their seminal study, Pennebaker and Beall sought to empirically test whether the disclosure of information related to traumatic experiences could lead to positive changes in psychological and physical health. Their research was based upon theoretical and empirical writings which suggested that the inhibition of thoughts, feelings and behaviours (e.g., expression) related to traumatic experiences is associated with stress and stress-related diseases. Since the authors wished to examine how the divulgence of traumatic experiences was related to health, independent of social feedback (e.g., comparison, skills from others), they chose to have participants write about these experiences rather than talk about or discuss them with others.

Specifically, Pennebaker and Beall (1986) randomly assigned 46 undergraduate students to one of four conditions: (a) a control condition, in which participants were instructed to write about trivial topics as objectively as possible (e.g., a description of their shoes); (b) a trauma-fact condition, in which participants were instructed to recount the events of an upsetting experience in a narrative fashion without any reference to emotions; (c) a trauma-emotion condition, in which participants were instructed to write about the
emotions they had about an upsetting experience without describing what the experience entailed; and (d) a trauma-combination condition, in which participants were instructed to describe both the details of the traumatic experience as well as the emotions they had about it. Participants in all groups wrote about their respective topics for 15 minutes on each of 4 consecutive days.

Results indicated that, compared to those in the control and trauma-fact conditions, participants in the trauma-emotion and trauma-combination conditions (i.e., those who were instructed to reference their emotions) experienced significantly more negative mood and heightened physiological reactivity (e.g., increased heart rate and blood pressure) immediately following the writing sessions (Pennebaker & Beall, 1986). When assessed 4 months later, however, more positive effects began to emerge. Specifically, participants in the trauma-combination condition reported the least number of days their activities had been restricted due to illness, with those in the control condition reporting the most. Further, participants in the two emotion conditions reported larger reductions in health problems (e.g., ulcers, headaches, influenza, acne) than participants in the control and trauma-fact conditions. Since writing exclusively about the details of a traumatic event without reference to emotions was not associated with positive health outcomes, the authors speculated that the expression of emotion is crucial to the success of EW. This idea paved the way for future examinations of the intervention and laid the groundwork for a prolific area of empirical and theoretical study.

In the time since the publication of Pennebaker and Beall’s (1986) initial study, research into the use of EW has involved varied participant populations (e.g., community, individuals with medical ailments, individuals with mental health difficulties) and addressed
a wide range of outcome variables including subjective and objective physical health, mental health, performance, memory and satisfaction. This research has produced diverse and at times conflicting results, with some studies finding strong evidence for the usefulness of EW and others failing to find a link between EW and outcome. Due to the inconsistency of findings between individual studies, it is more appropriate to take a meta-analytic approach to understanding the effects of EW on outcome variables.

In a meta-analysis of 13 randomized-control studies investigating the use of EW with healthy participants (e.g., individuals drawn from college populations), for instance, Smyth (1998) reported a mean weighted effect size across all studies of \( d = .47 \) \((p < .0001)\). This suggests that participants assigned to EW groups experienced a 23% improvement in overall health compared to control groups. This finding is particularly relevant given that health outcomes were measured a minimum of one month after writing was completed. Smyth further reported that participants assigned to EW groups, compared to those assigned to control groups, experienced significant improvements in reported health (e.g., healthcare visits, self-reported symptoms; \( d = .42 \)), psychological well-being (e.g., happiness, anxiety; \( d = .66 \)), physiological functioning (e.g., blood pressure, liver function; \( d = .68 \)), and general functioning (e.g., grade point average, cognitive functioning; \( d = .33 \)). The intervention was not found, however, to lead to improvements in health behaviours (e.g., alcohol use, exercise; \( d = .03 \)). Overall, these findings provide support for the notion that the EW intervention can be effective in spurring positive change in healthy participants.

While Smyth’s (1998) meta-analysis produced preliminary support for the effectiveness of EW, the author’s sole focus on healthy participants limited the generalizability of the findings. Accordingly, Frisina, Borod, and Lepore (2004, 2006) set out
to determine whether the research into EW also pointed towards gains for participants suffering from mental or physical difficulties. For their analysis, nine studies were selected using the same inclusion criteria used by Smyth (1998), save for their focus on subjects who were considered psychiatrically or physically ill. Results of the meta-analysis revealed a relatively modest yet statistically significant effect size of $d = .19$ ($p < .05$) for overall health (Frisina et al., 2004, 2006). Interestingly, subsequent analyses revealed that EW interventions were successful in bringing about positive changes on measures of physical health ($d = .21$, $p < .01$), but not on measures of psychological well-being ($d = .07$). Despite these general findings, a closer look at individual psychological measures included in the analysis indicated that participants experienced significant improvements in symptoms of depression ($d = .56$), positive affect ($d = .55$), anxiety ($d = .39$) and sleep quality ($d = .68$), indicating that EW may have some helpful psychological effects. Frisina and colleagues speculated that the failure to exclude participants undergoing psychotherapy or receiving psychotropic medications may have confounded the results, citing several studies in which EW was found to improve psychiatric health in clinical populations (e.g., L’Abate & Baggett, 1997; L’Abate, Boyce, Fraizer, & Russ, 1992; Schoutrop, Lange, Hanewald, Davidovich, & Salomon, 2002).

In an effort to update the evidence for EW subsequent to Smyth’s (1998) meta-analysis, Mogk, Otte, Reinhold-Hurley, and Kroner-Herwig (2006) undertook analysis of 30 randomized-control trials using EW as the experimental group. The majority of the studies included were based on non-clinical samples, with eight of the studies having previously been included in Smyth’s (1998) analysis. Mogk and colleagues (2006) failed to find significant differences in outcome between EW and control groups. The authors concluded
that there is “no reason to believe that emotional writing about stressful experiences in a structured setting – as used in the disclosure paradigm – is an effective tool for the reduction of health risks supposed to be the sequelae of emotional inhibition” (Mogk et al., 2006, p. 7). The generalizability of these results is supported by the authors’ inclusion of more studies than previous analyses as well as their use of relatively conservative methodology (e.g., correction formulas for small sample sizes). Mogk and colleagues did acknowledge, however, that under certain methodological conditions and with particular participants, positive outcomes may be possible. The authors did not speculate about what these conditions or who these participants might be.

Around the same time that Mogk and colleagues (2006) completed their meta-analysis, Harris (2006) analyzed 30 EW studies to determine the magnitude of the effects of EW compared to control conditions on health care utilization (i.e., the frequency of health care visits). Studies were included that used healthy samples, samples with pre-existing medical conditions and samples pre-screened for psychological criteria (e.g., psychological stress or diagnosis). Harris concluded that writing about stressful experiences caused significant reductions in health care utilization in healthy samples \( (g = .16, 95\% \text{ CI} = .06 \text{ to } .36) \) but not in the medical \( (g = .21, 95\% \text{ CI} = -.03 \text{ to } .43) \) or psychological \( (g = .06, 95\% \text{ CI} = -.12 \text{ to } .24) \) samples. In his interpretation of these findings, Harris noted that it is unclear whether a reduction in health care utilization is desirable and how it relates to actual health. Less health care utilization may indicate, for instance, avoidance of visiting a doctor due to heightened distress and, therefore, should not be considered a positive outcome. Accordingly, conclusive results regarding the usefulness of EW for improving health remained elusive.
Some clarity has been brought to the issue through a more comprehensive meta-analysis undertaken by Frattaroli (2006). Frattaroli examined the results of 146 published and unpublished studies that compared the effectiveness of EW interventions versus control groups. Analysis revealed an overall unweighted r-effect size of .075 ($d = .151$), suggesting significant benefit of EW over control. Frattaroli further divided her analysis into six outcome types, with significant unweighted r-effect sizes reported for psychological health ($r = .056, p < .001$), physiological functioning ($r = .059, p < .01$), reported health ($r = .072, p < .001$), subjective impact ($r = .159, p < .0001$) and general functioning/life outcomes ($r = .046, p < .01$). The sixth outcome type, health behaviours, was not significant ($r = .007$), which is consistent with the results of the previous meta-analyses completed by Smyth (1998) and Mogk and colleagues (2006). Based on these results, Frattaroli (2006) concluded that disclosure does have beneficial effects for participants and noted confidence in the true existence of the effect (including confidence in studies not used in her analysis) given her use of a random effects approach and the inclusion of data from almost 11,000 participants.

In her conclusions, Frattaroli (2006) acknowledged that the overall effect size determined through her meta-analysis was smaller than those previously obtained by Smyth (1998) and Frisina and colleagues (2004), and is also considered small by some conventions (e.g., Cohen, 1988). She speculated that this may have been influenced by her inclusion of a large number of unpublished studies (48% unpublished) which tend to have smaller effect sizes (Frattaroli, 2006). Ultimately, she argued that “the effect should nevertheless still be considered important, and experimental disclosure should still be considered a worthwhile activity” (Frattaroli, 2006, p. 851). In support of this conclusion, Frattaroli reasoned that the practical importance of an effect depends largely on its relative costs and benefits and not
solely on its effect size (Glass, McGraw, & Smith, 1981, as cited in Frattaroli, 2006).

Considering that EW is free, can be completed independently, is non-invasive, is subjectively perceived by participants as helpful, and can be used by those without access to more traditional interventions (e.g., psychotherapy), even a small positive effect size may point to a worthwhile intervention.

Frattaroli (2006) also suggested that, when considering whether the effect size found in her meta-analysis should be deemed important, one should take into account the sizes of effects found in comparable research domains. She reported, for instance, that the medical community considers taking a daily aspirin following a heart attack in order to prevent future attacks to be extremely valuable despite its small r-effect size of .034 (Rosenthal, 1994, as cited in Frattaroli, 2006). She also described that those in the education community have contended that r-effect sizes as small as .050 should be considered important when it comes to gains in learning and achievement (Lanahan, McGrath, McLaughlin, Burian-Fitzgerald, & Salganik, 2005, as cited in Frattaroli, 2006). Frattaroli further noted that one large meta-analysis of psychotherapy (Smith & Glass, 1977, as cited in Frattaroli, 2006) revealed an r-effect size of .322. While this is considerably larger than the r-effect size of .075 found in her study, she contended that the EW effect size is still impressive given that psychotherapy is often a time consuming, expensive and difficult to access endeavor.

Finally, Frattaroli (2006) pointed out that that the overall r-effect size of .075 represents an average across all studies examined in her meta-analysis, which included studies that did not use optimal conditions (these conditions are discussed later in this chapter). When only the eight studies that used optimal conditions were included in the
analysis, the overall r-effect size increased to .200, offering preliminary support for the idea that EW has a more robust effect when administered optimally.

A research program undertaken by Denise Sloan and colleagues has provided some further support for this idea (e.g., Epstein, Sloan, & Marx, 2005; Sloan & Marx, 2004a; Sloan, Marx, & Epstein, 2005; Sloan, Marx, Epstein, & Dobbs, 2008; Sloan, Marx, Epstein, & Lexington, 2007; Sloan, Marx, & Greenberg, 2011). In particular, significant improvements in psychological and physical symptoms following EW, in comparison to control conditions, have been found more consistently than in earlier studies. While Sloan and colleagues have tended to rely on college participants, they generally require that at least some degree of distress related to traumatic experiences is endorsed. The conditions under which these studies have been designed relate to Frattaroli’s (2006) stated optimal conditions and were matched in the present study.

Although a thorough discussion of how specific psychological variables are affected by EW interventions is beyond the scope of this discussion, it is important to note that null findings have been consistently reported when EW is used with bereaved populations (e.g., Bower, Kemeny, Taylor, & Fahey, 2003; O’Conner, Allen, & Kaszniak, 2005; Range, Kovac, & Marion, 2000; Stroebe, Stroebe, Schut, Zech, & can den Bout, 2002). It has been suggested that this is because symptoms associated with bereavement differ from other forms of trauma (Stroebe et al., 2002). Stroebe and colleagues further stated that EW does not appear to accelerate the normal process of bereavement, nor does it attenuate the symptoms associated with more complicated grief reactions (e.g., longer duration). As a result of the empirical literature suggesting that EW is not effective for bereaved individuals, participants
who reported trauma symptoms related to bereavement were excluded from the present study.

Overall, research into EW has produced mixed and often contradictory results. Meta-analyses comparing the use of EW and control conditions have also failed to provide a clear answer, with some concluding that evidence does not support the effectiveness of EW (Harris, 2006; Mogk et al., 2006) and others concluding that it does (Frattaroli, 2006; Frisina, Borod, & Lepore, 2004; Smyth, 1998). It does appear, however, that EW can be effective when administered under certain conditions with certain populations. Perhaps an understanding of these conditions could help to elucidate the variable meta-analytic findings and provide insight into why and for whom EW can be effective. A discussion of these conditions, by way of moderating variables identified in the research literature, follows.

Moderating Variables in Expressive Writing

The question of whether EW can be helpful, and to what degree, has been addressed through numerous randomized-control studies. Though the results have been mixed, it is clear that EW can lead to positive changes at least for some people some of the time. Accordingly, researchers turned their attention to potential moderators in their efforts to identify optimal EW conditions (e.g., Baikie, 2008; Harris, 2006; Hevey, Wilczkiewicz, & Horgan, 2012; Kraft, Lumley, D’Souza, & Dooley, 2008; Lepore & Smyth, 2002; Lu & Stanton, 2010; Norman, Lumley, Dooley, & Diamond, 2004; Poon & Danoff-Burg, 2011; Sloan & Marx, 2004a; Smyth, 1998; Smyth & Pennebaker, 2008; Wagner, Hikler, Hepworth, & Wallston, 2010). Many of these studies identified variables that moderate the effects of EW on outcome. Frattaroli’s (2006) meta-analysis, however, provides the most comprehensive discussion of moderating variables to date. Specifically, she reviewed variables that moderate
overall outcomes as well as those related to psychological health, reported health and subjective impact of EW. She grouped potential moderators into several categories including report information (e.g., published versus unpublished studies), setting (e.g., location of disclosure), participants (e.g., ethnicity), methodological (e.g., payment), and treatment (e.g., number of disclosure sessions). Since Frattaroli’s analysis of moderators is the most recent and based upon the most studies (published and unpublished), her results are the focus of this section and are presented next.

**Report Information.** Published studies had significantly larger overall effect sizes than unpublished studies (published, \( r = .095 \); unpublished, \( r = .054 \)), as well as for reported health (published, \( r = .141 \); unpublished, \( r = .064 \); Frattaroli, 2006). A marginally larger effect size was also found for published studies on subjective impact (published, \( r = .213 \); unpublished, \( r = .123 \)). Frattaroli reasoned that these differences likely reflect a bias towards the publication of studies with larger effect sizes.

**Setting Variables.** Studies that required participants to have physical ailments had significantly larger reported health effect sizes than those that did not have this requirement (health criteria, \( r = .131 \); no health criteria, \( r = .054 \); Frattaroli, 2006). This may have been due to a floor effect acting on those without physical health problems. Studies that required participants to have previous traumatic experiences also had marginally larger subjective impact effect sizes than those that did not have this requirement (trauma criteria, \( r = .226 \); no trauma criteria, \( r = .129 \)). Interestingly, studies which required participants to meet psychological health inclusion criteria did not have larger effect sizes than those that did not. Frattaroli noted that this may be because those deemed “psychologically healthy” may have had mild psychological symptoms (e.g., depressed mood) that could improve following
disclosure, thus reducing floor effects. Further, studies that did not draw participants from college populations had marginally larger psychological health effect sizes than those that drew exclusively from college populations (nonstudents, $r = .092$; students, $r = .036$). This contradicts Smyth’s (1998) finding that college participants experienced more improvement in psychological health compared to their non-student counterparts. Frattaroli (2006) suggested that this may be due to the lack of variation in location of disclosure in the studies included in Smyth’s (1998) analysis.

With regards to location of disclosure, studies that had participants write at home had significantly larger psychological health effect sizes than those that had participants write in more controlled setting such as a laboratory (home, $r = .122$; not home, $r = .034$; Frattaroli, 2006). Privacy during writing, compared to studies where others were present during writing, also had larger overall effect sizes (private, $r = .085$; not private, $r = .034$) and psychological health effect sizes (private, $r = .069$; not private, $r = .028$). Frattaroli speculated that this was due to increased comfort and relaxation associated with being alone and unobserved.

**Participant Variables.** In her analyses of participant variables, Frattaroli (2006) used both a between- and within-study approach. Variables examined using the between-study approach, however, did not reveal any significant participant variables that moderate outcome.

With regards to the within-study analyses, participants with higher levels of stress experienced greater benefits for overall effect size ($r = .102$) and reported health effect size ($r = .187$; Frattaroli, 2006). Participants in poorer physical health also experienced larger effect sizes for reported health compared to their healthier counterparts ($r = .101$). Further, pessimistic participants had larger effect sizes for psychological health ($r = .340$) and
reported health \((r = .157)\) than participants with a more optimistic outlook. Mood, neuroticism, alexithymia and emotional inhibition were not found to act as moderators, which Frattaroli suggested may be related to the small number of studies examining these variables as well as to the lack of data needed to compute accurate effect sizes.

Frattaroli (2006) noted that, in contrast to Smyth’s (1998) findings, men were not found to benefit more from EW on any of the outcome variables. This is listed as an important topic for future study. Frattaroli (2006) also expressed surprise that ethnicity did not moderate outcome in EW, though she stated that this may have been due to a lack of ethnic variability in the studies examined (72% Caucasian participants across studies).

**Methodological Variables.** The number of participants included in studies was found to moderate outcome, with studies using more participants having smaller psychological health effect sizes \((r = -.181; \text{Frattaroli, 2006})\). This may indicate that several unpublished studies with small effect sizes and/or small sample sizes were missing from the meta-analysis. Studies in which participants were paid also had larger subjective impact effect sizes than studies in which no compensation was provided \((\text{paid, } r = .167; \text{unpaid, } r = -.006)\). Additionally, the length of the follow-up period moderated outcome, such that studies with follow-up periods of less than one month had larger overall effect sizes \((\text{less than one month, } r = .111; \text{one month or more, } r = .064)\) and psychological health effect sizes \((\text{less than one month, } r = .110; \text{one month or more, } r = .035)\). This suggests that negative moods following EW are rapidly replaced by benefits, but that these benefits tend to reduce over time.

**Treatment Variables.** Writing for at least three sessions was associated with marginally larger overall effect sizes \((\text{less than three session, } r = .040; \text{three or more sessions, } r = .064)\).
\( r = .082 \), psychological health effect sizes (less than three sessions, \( r = .007 \); three or more sessions, \( r = .063 \)), and subjective impact effect sizes (less than three sessions, \( r = .019 \); three or more sessions, \( r = .173 \); Frattaroli, 2006). Further, writing for at least 15 minutes was associated with larger overall effect sizes (less than 15 minutes, \( r = -.007 \); 15 minutes or more, \( r = .080 \)) and reported health effect size (less than 15 minutes, \( r = -.132 \); 15 minutes or more, \( r = .078 \)).

With regards to time elapsed since the occurrence of the trauma (or other event written about), writing about more recent events had larger overall effect size (\( r = -.283 \)), psychological health effect size (\( r = -.323 \)) and reported health effect size (\( r = -.289 \); Frattaroli, 2006). As well, studies which asked participants to discuss previously undisclosed information prior to writing showed marginally larger psychological health effect size than studies which did not (instructed to disclose, \( r = .092 \); not instructed to disclose, \( r = .042 \)).

Studies that included directed questions or disclosure examples in the instructions showed marginally larger overall effect sizes (questions/examples, \( r = .090 \); no questions/examples, \( r = .052 \)) and significantly larger psychological health effect sizes (questions/examples, \( r = .094 \); no questions/examples, \( r = .011 \); Frattaroli, 2006).

Finally, whether there was an audience of disclosure moderated psychological health, such that studies where there was no audience showed marginally larger effect sizes (audience, \( r = .050 \); no audience, \( r = .178 \); Frattaroli, 2006). Frattaroli reported that this was in contrast to previous studies that directly manipulated audience of disclosure (Kunkel, 2001; Raval, 2000), though she noted that this effect may have been caused by the relationship between audience of disclosure and location of disclosure.
Overall, it appears as though there is a large number of variables that moderate outcome in EW interventions. A review of these variables provides some insight into the questions of when, for whom and under what conditions the benefits of EW may be experienced. The larger question of why EW can be beneficial, however, remains elusive and has been the subject of much debate. The mechanisms of action proposed to be at work in EW are presented next in an effort to address this question.

**Mechanisms of Action in Expressive Writing**

Although there is considerable evidence to suggest that EW can have positive effects on well-being, relatively little is known about why or how these effects come about. In fact, numerous explanations that purport to clarify the mechanism (or mechanisms) of action underlying EW have been put forth, each based on both theoretical hypotheses and empirical data. While many of these explanations have their merits, Pennebaker (2004) acknowledged that “no single theory appears to account for the effectiveness of the writing paradigm” (p. 138). In fact, he argued that it is unrealistic to expect the power of writing to ever be explained by a single theory given the vastly different participants, methodologies and outcome measures used across EW studies. This idea is echoed by Sloan and Marx (2004b), who contend that the benefits of disclosure through EW likely come as the result of a combination of mechanisms and that an integration of theories might provide a more comprehensive explanation. A brief review of some of the most common of these mechanisms is provided next. While this is not an exhaustive list, more thorough reviews (e.g., Kennedy-Moore & Watson, 1999; Lepore & Smyth, 2002b; Pennebaker, 2004; Sloan & Marx, 2004b; Smyth, Nazarian, & Arigo, 2008) support the notion that there is no clear and simple explanation for why EW can be effective. Several of the proposed mechanisms of
action hint at productive processing activities that participants engage in during writing and will be significantly expanded and explored later in that context.

One suggested explanation for the benefit of EW is that exposure to traumatic memories through the intervention can serve to habituate individuals to their anxiety responses (Kloss & Lisman, 2002; Sloan & Marx, 2004b; Sloan, Marx, & Epstein, 2005). This is based on the idea that exposure to previously avoided distressing stimuli (e.g., thoughts about a traumatic experience) in a safe environment will lead to this habituation and, subsequently, allow individuals to learn new information about their responses, the meaning of those responses and their ability to tolerate them (Foa & Kozak, 1986; Foa, Steketee, & Rothbaum, 1989). Related to this, disclosure can elicit and enhance positive emotional reflection as individuals gain a sense of mastery and control over their distressing feelings (Kennedy-Moore & Watson, 1999; King, 2001; King & Miner, 2000).

Another possible explanation for the process underlying EW is that it can help to organize traumatic memories through the development of a coherent narrative, thus allowing for more effective cognitive integration (Park & Blumberg, 2002; Pennebaker, 1997; Pennebaker & Seagal, 1999; Sloan & Marx, 2004b; Smyth, True, & Souto, 2001). This relates to Horowitz’s (1986) idea that individuals’ internal models (e.g., “I am safe and in control”) are disrupted by traumatic experiences, lead to cognitive incongruencies and, subsequently, cause distorted and distressful cognitions (e.g., “I am unsafe and have no control”). Accordingly, it is argued that some reconciliation between prior beliefs and new information obtained through traumatic experiences occurs through EW and allows recovery to take place.
Further, it has been theorized that the inhibition of emotions causes stress, which can lead to negative physiological symptoms and stress-related diseases (Kennedy-Moore & Watson, 1999; Pennebaker, 1990, 1995; Pennebaker & Beall, 1986). Accordingly, the release of these emotions through disclosure is thought to decrease the “work” involved with this inhibition and mitigate or reverse its damaging effects. This idea has received some support within the empirical literature, with some studies reporting improvements in physiological outcomes following EW (e.g., Greenberg, Wortman, & Stone, 1996; Lowe, 2006). Results are inconsistent, however, and it has been argued that, while reductions in emotional inhibition may explain some of the benefits of EW, it is at best an incomplete theory (Sloan & Marx, 2004b).

The idea that EW can have a positive impact on interpersonal functioning and support has also been posited as a mechanism through which emotional disclosure can be helpful (Kennedy-Moore & Watson, 1999). This may be because emotional expression, even in the absence of others, involves imagined audiences and can allow individuals to improve their abilities to label, evaluate and express emotions to others. This can include changes in the language used to describe experiences to others as well as changes in friends themselves (Pennebaker & Graybeal, 2001). When interpersonal expression does take place and others respond positively (e.g., with acceptance) individuals may be less likely to inhibit their emotions, may view their emotions as less distressing and may increase their positive reflection (Kennedy-Moore & Watson, 1999).

Finally, it has been posited that the generation of insight and increases in self-understanding are important processes in self-disclosure (Kennedy-Moore & Watson, 1999; Pennebaker, 1993; Pennebaker, Mayne, & Francis, 1997; Pennebaker & Seagal, 1999;
Rivkin, Gustafson, Weingarten, & Chin, 2006; Schwartz & Drotar, 2004). This can include cognitive insight, such as gaining new self-understanding by going beyond immediate experiences and linking conceptual information across time and situations (Pascual-Leone & Greenberg, 2007). It can also include emotional insight, which refers to “the ability, through self-reflection, to recognize, accurately label, and understand one’s emotional experience” (Kennedy-Moore & Watson, 1999, p. 63). This involves being closely attuned to inner experience and requires consideration of the subjective meaning of feelings. The generation of insight has been repeatedly linked with positive outcome and may help to explain the benefits of the EW intervention.

Clearly, no definitive answer has been offered that can explain why EW has so often been found to be effective in improving psychological and physical symptomatology in participants. In fact, several disparate explanations each appear to have merit and may play a role in bringing about positive change. Combined with the variable results seen across participant populations, settings and methodologies, the question of why and for whom EW works remains confusing and difficult to answer with confidence. The present study sought to shed light on this problem by looking to the cognitive and emotional processing activities that participants engage in during the EW intervention. Perhaps participants’ engagement in certain activities can confer benefit regardless of their demographics or the specific conditions of EW. The psychotherapeutic process literature points to several processing activities that may fill this role. Before a discussion of what these specific processing activities may be, it is first important to gain a more general understanding of what emotions are, how they are processed, how they integrate with cognitions, and how individuals move...
from awareness, to experience, to expression. These ideas are discussed next to provide a foundation upon which productive and unproductive processing activities in EW can be built.

**Emotions, Dialectical Constructivism and the Process Model**

At the heart of the EW intervention is the expression of emotions. Since the initial study by Pennebaker and Beall (1986), it has been touted as the activity that leads to change. Emotional expression, however, doesn’t “just happen;” the journey from emotional arousal, to awareness, to experience and to expression is complex. The present study looks at the ways in which particular qualities of this journey might influence psychological and physical outcomes in those participating in EW. In order to fully appreciate how these qualities may be influential, it is crucial to first be aware of what emotions are and the purposes they serve. Theories of emotion are varied and numerous, historically growing out of traditions including evolutionary, psychophysiological, neurological, psychodynamic and cognitive (Plutchik, 2000). Aside from the central role they play in our understanding of health and disease in the field of psychology, emotions are featured prominently in a range of diverse fields including philosophy, theology, and the arts (Plutchik, 1991). Reviews of emotional theories have suggested that there are as many as 30 different approaches (Strongman, 1987), some focused narrowly on specific emotional processes (e.g., physiological changes in response to particular emotions), while others attempt to explain emotions in their entirety (Plutchik, 2000). According to Plutchik (1991), existing theories of emotion tend to focus on one of three general concerns: subjective feelings and introspections, overt expressions, or physiology and neurology. Despite the plethora of theories, many with considerable empirical support, there remains “no single, integrating, comprehensive theory of emotions which have relevance to all these areas of concern” (Plutchik, 1991, p. 4). A brief review of
some of the more popular theories is provided next, followed by an examination of contemporary emotional theory and its ability to integrate the three areas of concern. An understanding of these theories will provide a context for exploring the ways in which processing activities during EW can be influential.

**Theories of Emotion**

One of the earlier attempts at emotional theory, put forth separately by James and Lange in the late 19th century, conceptualized emotions as subjective states that follow from physiological arousal and sensation (Strongman, 1996). More specifically, they posited that an emotion eliciting stimulus is directly followed by physiological changes, and that the experience of these changes is what is thought of as emotion (Plutchik, 1994). This was in contrast to the prevailing “common sense” belief at the time that physiological changes were driven by emotional experience. Later, based largely on his medical research into the supposed intimate connections between physiology and emotion, Walter Cannon proposed an opposing view of emotions that focused on the role of neurological factors (Strongman, 1996). According to his theory, an emotion eliciting stimulus produces hypothalamic arousal that, in turn, causes both physiological arousal and subjective emotional experience. These earlier arguments of “what comes first” eventually gave way to more complex theories of emotion that sought to explain both the source and function of emotions.

Among the more modern theories of emotion, some have highlighted the role of emotions in motivation (Plutchik, 1991). Tomkins (1970, 1980), for instance, suggested that when biological needs arise they are followed by motives designed to address those needs (e.g., when faced with a dangerous situation, the need for safety is followed by the motivation to escape). He argued that a discrete set of innate emotions, each linked with
particular subcortical areas, follow this motivation and serve an amplification function (e.g., fear amplifies the motivation to flee). Emotions, thus, make motivation more salient and harder to ignore. Izard (1972, 1991) echoed this idea, contending that emotions follow directly from drives and other innate processes and are not mediated by cognition. In fact, it is suggested by both theorists that “the affect system provides the primary blueprints for cognition, decision, and action” (Tomkins, 1980, p. 142). Izard (1972, 1991) further noted that emotions are critically connected with facial expressions, which are in turn connected with genetically-based subcortical programs. Motivational theories such as these, though stressing the instinctive qualities of emotion, still acknowledge that emotions are strongly influenced by learning and socialization (Plutchik, 1991).

Theories of emotion can also be found within the psychoanalytic tradition (Plutchik, 1991). Freud, the father of psychoanalysis, considered emotions to be a form of energy that required expression (Plutchik, 2000). This expression could be direct and conscious (e.g., yelling at someone who wronged you) or indirect and unconscious (e.g., dreaming of breaking things after you have been wronged). The repression of these emotions (and emotionally charged memories) was viewed as the cause of most psychological symptoms and disorders. Sandor Rado (1969), one of Freud’s contemporaries, subscribed to the psychoanalytic view of emotions but added his own multilevel theory (Plutchik, 2000). In particular, he theorized that there are four levels of psychological control: the hedonic level, which refers to feelings of pleasure and pain that guide behaviour in all animals; the brute-emotional level, which involves the basic emotions (e.g., fear, love) that guide behaviour in more subtle ways; the emotional-thought level, in which emotions are subjected to some overt thought and are more mixed (e.g., jealousy); and the unemotional thought level, in
which emotion is absent and events are processed using solely intellectual processes. Rado, thus, viewed emotions largely as drivers of behaviour while still acknowledging the role of repression and expression in psychological disorder. Brenner (1974) built on these ideas, adding that emotion is the sense of pleasure or pain (or both) combined with the conscious and unconscious ideas associated with those sensations (Plutchik, 2000). Defense mechanisms, a prominent process in psychoanalysis, were believed to arise as one method for dealing with painful emotions.

While psychoanalytic approaches to emotion often acknowledge the role of intellect, cognitive theories of emotion emphasize it. Schachter (1964), for instance, suggested that cognitive factors are the primary determinants of emotional experience. He argued that physiological arousal follows from an emotion eliciting stimulus, which is then interpreted in the context of the situation; it is this interpretation that is believed to guide emotional experience. If an individual is faced with an assailant, for instance, he would first experience physiological arousal such as rapid heart rate and sweating. The individual, experiencing this arousal, would likely label his emotion as fear given the perceived danger. If this same arousal occurred when the individual is derided by a friend, contrarily, he may label his emotion as anger. While Schachter’s theory may have exaggerated the role of cognition in the experience of emotion, it has had a strong influence on other cognitive theories of emotion (Strongman, 1996). Lazarus (1991) also put forth a theory of emotion that emphasizes cognitive appraisals of the harms and benefits of interactions with the environment. He posited that emotions follow from the personal meanings we attach to such interactions and depend on what is important to an individual’s motivations and goals (Plutchik, 2000). Further, he stated that emotions could co-occur due to competing goals and
that each emotion is matched with a particular action tendency (e.g., fleeing when scared).

The important role of appraisals in the experience of emotion has also been touted by others including Frijda (1986) and Ellsworth (1991), and they are integral parts of cognitive approaches to psychotherapy (Strongman, 1996).

Finally, evolutionary theories of emotion are rooted in the idea that emotions have some kind of survival value and are often intimately connected with biological bases of behaviour (Strongman, 1996). Frijda (1986), for instance, considers emotions to have evolved to help individuals respond to emergencies related to well-being. In order to do so, emotions are involved in the appraisal process and organize appropriate action. In Frijda’s view, emotions are rapid and require minimal information processing. Plutchik’s (1980) psychoevolutionary theory also considers emotions to be mechanisms of survival, adding that they serve a communication function and have a basis in genetics. He further notes that emotions can be viewed as derived from inferences made based on evidence including knowledge of the stimulus (both through nature and nurture). Plutchik’s theory speaks to both the instinctual and cognitively-mediated qualities of emotion, but focuses on the functional aspect of emotional experience and expression (i.e., survival).

As mentioned, these approaches to an understanding of emotion are a very small sample of the numerous theories that have been put forth. In addition to the motivational, psychoanalytic, cognitive and evolutionary theories reviewed, for instance, Strongman (1996) also discusses phenomenological, behavioural, physiological, developmental and social theories, as well as numerous approaches to specific emotions. While an exhaustive review of these theories is beyond the scope of this discussion, a contemporary emotional theory proposed by Greenberg and colleagues (Greenberg, 2011; Greenberg, 2002;
Contemporary Emotional Theory

Leslie Greenberg and his colleagues (Greenberg, 2002, 2011; Greenberg et al., 1993; Greenberg & Paivio, 1997; Greenberg & Safran, 1987) have produced an extensive body of work dealing with emotions in psychotherapy. While their main focus is on how awareness and expression of emotions can stimulate therapeutic change, they provide an emotional framework that integrates many different theoretical approaches in helpful ways. Rather than touting one particular view, they discuss how aspects of evolution, physiology, motivation, cognition and other areas come together to shape our emotional lives. In doing so, they touch upon the three areas of general concern mentioned earlier: subjective feelings and introspections, overt expressions, and physiology and neurology.

Sources of Emotion. Within this contemporary emotional theory, sources of emotion are not limited to a single process; they are believed to be numerous and can include a combination of neurochemical, physiological, psychological and other information (Izard, 1991). Further, they follow from a synthesis of several levels of information processing (Watson & Greenberg, 1996). Greenberg and colleagues (Greenberg, 2002, 2011; Greenberg et al., 1993; Greenberg & Paivio, 1997; Greenberg & Safran, 1987) emphasize the particular importance of individuals’ automatic appraisals of situations, a psychological process, in the generation of emotion. They posit that some of these appraisals are instinctual, allowing for
rapid emotional reactions to relatively simple sensory information. These “gut responses” promote biologically adaptive responses and are thought to occur when a stimulus is particularly intense or when an individual is extra sensitive to a stimulus due to past experience. When someone hears an unexpected and extremely loud noise, for instance, she may instinctively and rapidly appraise the situation as dangerous and subsequently experience fear. This will shift her attention to the fear-inducing stimulus and prepare her to respond in ways that are likely to increase safety (e.g., fleeing). An individual may act in such a rapid and instinctive way, even when a noise is not particularly intense, if she has had past experiences in which she learned that noises are often indicative of danger (e.g., during war). Greenberg and colleagues suggest that appraisals can also occur more slowly and deliberately, where the resultant emotions are mediated by thought and influenced by social and cultural context. Unlike the more instinctive appraisals, this process is believed to occur more often when the situation does not involve high stress or personal sensitivity. An individual who tells an inappropriate joke, for instance, might feel shame only when she realizes that the joke was overheard by a nearby child and notices the alarmed look on the face of the child’s parent. Accordingly, emotions in this theory are believed to arise from sources that are both conscious and unconscious as well as both instinctual and cognitive.

Neuroscientist Joseph LeDoux (1986, 1993, 1995, 1996), based on his studies of emotions (particularly fear) and brain circuitry, outlined a dual-pathway system of processing that parallels the levels of appraisals posited by Greenberg and colleagues (Greenberg, 2002, 2011; Greenberg et al., 1993; Greenberg & Paivio, 1997; Greenberg & Safran, 1987). Specifically, LeDoux claimed that emotional information is processed in the amygdala via two different pathways within the limbic system. The fist, dubbed the “low road,” involves
the transmission of stimulus information to the thalamus and then directly to the amygdala. This pathway is relatively direct and short, rapidly triggering emotional response without cognitive processing. These responses are seen as adaptive, as they avoid time consuming higher-level processing and allow individuals to respond quickly (Greenberg & Paivio, 1997). The representation of the stimulus, however, may be somewhat limited in its complexity (Bordi & LeDoux, 1994). The direct thalamic pathway to the amygdala is analogous to the rapid and instinctive appraisals outlined by Greenberg and colleagues. The second pathway, dubbed the “high road,” also involves the transmission of stimulus information to the thalamus (Romanski & LeDoux, 1993). Rather than being direct, however, this information is thought to pass through several other cortical areas before reaching the thalamus. This thalamo-cortico-amygdala pathway is longer and less direct than the thalamic pathway and, thus, is slower (LeDoux, 1986, 1993, 1995, 1996). The benefit of this pathway is that it can better process complex stimuli and the subsequent emotional experience is influenced by cognitive processes. Accordingly, analysis of a situation and more refined decisions about action are possible. In this way, the thalamo-cortico-amygdala pathway is akin to Greenberg and colleagues’ slow and deliberate appraisals.

In the cases of both LeDoux’s (1986, 1993, 1995, 1996) dual-pathway model, and Greenberg and colleagues’ (Greenberg, 2002, 2011; Greenberg et al., 1993; Greenberg & Paivio, 1997; Greenberg & Safran, 1987) instinctive and cognitive appraisals, it is believed that the emotional brain centres “receive and process input earlier than do the planning and decision-making centres, which by the time they process the same input have already been oriented toward it in a particular way by information from the emotion centres” (Greenberg & Paivio, 1997, p. 15). Greenberg and Paivio (1997) argue, however, that while emotion
might precede cognition in motivating action, these two processes interact and integrate to such an extent that it is almost impossible to experience one without the other. LeDoux and colleagues (LeDoux, 1995; LeDoux, Farb, & Romanski, 1991) also discuss the integration of information from both pathways, proposing that they converge within the lateral nucleus of the amygdala.

**Functions of Emotion.** Contemporary emotional theory conceptualizes emotions as universal phenomena that are fundamentally adaptive in nature (Greenberg, 2011). They are thought of as adaptive, rather than rational or irrational, in the sense that they are subjectively experienced signals that serve to increase our chances of survival; they act as the bridge between our biological processes and the external world (Greenberg & Paivio, 1997; Kennedy-Moore & Watson, 1999). Important to note is that, while emotions are fundamentally adaptive, specific emotional experiences may be adaptive or maladaptive (Greenberg, 2002). Such is the case when an individual develops oversensitivity to certain stimuli based on past experience. Among the purported adaptive functions of emotions, identifying goals and organizing individuals for action are perhaps the most important (Elliot, Watson, Goldman, & Greenberg, 2004; Frijda, 1986; Greenberg, 2002; Paivio & Pascual-Leone, 2010). These goals and the actions that propel individuals towards them are thought to be designed to alter the relationship between the individual and the environment in ways that positively influence survival. Positive emotions, for instance, may generally promote exploratory behaviour, keep individuals open to experience and encourage proactivity (Greenberg & Paivio, 1997). Particular positive emotions can generate more specific goals such as when joy and love generate goals of social contact and prepare us for cooperation. Negative emotions (i.e., emotions that are experienced as negative) are larger in number and
more differentiated than positive emotions, with each theorized to have its own action
tendency. Accordingly, at a fundamental level, emotions can help individuals to set goals and
then motivate and prepare them for actions towards them (Greenberg & Paivio, 1997).

In addition to providing the initial impetus towards adaptive action, emotions are also
purported to provide individuals with information about themselves and their priorities
(Greenberg & Paivio, 1997; Kennedy-Moore & Watson, 1999). They may allow us to
identify and attend to significant situations, inform us of our reactions to situations and
evaluate the significance of situations to our well-being (Greenberg & Paivio, 1997).
Similarly, emotions can provide a measure of internal congruence and unmet needs and serve
to motivate us towards the resolution of inconsistencies (Paivio & Pascual-Leone, 2010).
Accordingly, in addition to the identification of goals, emotions can also bring these goals
into conscious awareness in a manner that produces self-insight and a “unifying wholeness,”
thus providing us with important information about who we are (Elliot et al., 2004). Positive
emotions may even become ends in themselves, motivating individuals to engage in
behaviours and seek situations that promote perpetuation of the feeling (Greenberg & Paivio,
1997).

According to Greenberg and colleagues (Greenberg, 2002; Greenberg & Paivio,
1997; Kennedy-Moore & Watson, 1999; Paivio and Pascual-Leone, 2010), emotions also
serve interpersonal functions. They can, for instance, act as a signalling system by informing
others of our internal experiences, intentions and action tendencies. This can occur through
subtle expressions (e.g., facial movements) or through more overt forms of expression such
as verbal. Thus, in addition to self-regulation, emotions also may play an important role in
the regulation of others (Greenberg & Paivio, 1997; Kennedy-Moore & Watson, 1999). As
opposed to emotional experience (i.e., physiological arousal and subjective experience),
emotional expression can be viewed as adaptive or maladaptive, depending on several
intrapersonal and interpersonal variables.

Importantly, while emotions are believed to be crucial in motivation, goal-setting and
regulation of the self and others, they do not dictate the means through which goals are
attained (Greenberg & Paivio, 1997). Cognitive processes are needed in order to plan and
execute actions, reflexively examine initial emotional appraisals and integrate cultural and
contextual information (Greenberg & Paivio, 1997; Izard, 1993; Kennedy-Moore & Watson,
1999). Essentially, while emotion can help to identify what is important and prepare us to act,
“thinking or reason is needed to further analyze the situation, to validate or correct our
automatic appraisals and apprehensions of pattern, and to plan and decide what actions to
actually execute” (Greenberg & Paivio, 1997, p. 15). Adaptive responses, thus, follow from
the integration of emotion and reason.

In sum, contemporary emotional theory posits that emotions are fundamentally
adaptive, serve to increase self-knowledge, and then sync that knowledge (e.g., of our needs)
with the external environment. While emotions are cast as distinct from cognitions, it is
evident that they are intimately and inexorably integrated with them. It follows that, in order
to gain insight into productive processes operating in the EW intervention, cognitive
processes must be considered alongside emotional ones. The dialectical constructivist
perspective, discussed next, exemplifies this view.

The Dialectical Constructivist Perspective

The dialectical constructivist perspective (Epstein, 1994; Neimeyer & Mahoney,
1995; Pascual-Leone, 1990, 1991) is based on the notion that individuals process information
in two fundamentally distinct yet parallel ways, with “one variously labeled intuitive, automatic, natural, nonverbal, narrative, and experiential, and the other analytical, deliberative, verbal, and rational” (Epstein, 1994, p. 710). This perspective dovetails nicely with LeDoux’s (1986, 1993, 1995, 1996) dual-pathway model and Greenberg and colleagues’ (Greenberg, 2002, 2011; Greenberg et al., 1993; Greenberg & Paivio, 1997; Greenberg & Safran, 1987) instinctive and cognitive appraisals. During this discussion, the former process will be referred to as “experiential,” while the latter process will be referred to as “rational.”

According to Epstein (1994), these two modes of processing are evident parts of everyday life and, to some extent, part of most people’s intuitive knowledge. He points, for instance, to the common belief that individuals’ thinking is transformed when they are emotionally aroused (e.g., the inability to “think straight” when over-aroused) and the conventional distinction made between the “head” and the “heart.” He also discusses the idea that immediate, unconscious and automatic interpretations of events can dramatically influence everyday emotional experience. When an individual is chastised by another, for instance, he might immediately feel shame (about his supposed transgression) or anger (at the unwarranted discipline) depending on his immediate construal of the situation. Epstein argues that the speed of these types of emotional responses “suggests a mode of information processing that operates by different principles from a more deliberative, analytical type of thinking” (p. 710). Further evidence for the experiential mode of processing, as distinct from the rational mode, is derived from observation and research that individuals often find their irrational thoughts to be more compelling than their rational ones even when the irrationality is evident. Epstein illustrates this point by highlighting the prevalence of irrational fears (e.g.,
being afraid of non-poisonous spiders despite knowing that they are harmless), advertising that uses images to appeal to emotion over rationality (e.g., associating cigarette smoking with “manliness”), superstitious thinking and religious beliefs.

Epstein (1994) also points out that a variety of theories, derived from disparate schools of thought and supported by considerable empirical research, converge on the idea that automatic and intuitive processing systems are distinct from abstract and analytical ones. He notes that such divisions of the mind were first postulated by Freud, who distinguished between primary (i.e., unconscious) and secondary (i.e., logical reasoning) processes. While Freud’s original ideas have lost favour in the scientific community, Epstein highlights credible multiple processing theories derived from psychoanalytic, experiential-cognitive, developmental, social-cognitive, narrative, and experiential views. Though each of these theories differ in the specific nature of the processing systems (as well as the names given to them), it is suggested that each identifies what could be considered a rational system. Epstein also argues that, while the nature of the secondary (or tertiary, in some cases) system differs considerably between the theories, the concept of an experiential system is the most fitting. In support of this assertion, he contends that an experiential system effectively integrates ideas from the varying theories (e.g., it incorporates systems and subsystems proposed by others) and fits best with evidence of nonrational processing in everyday life. Further, he reasons that the presence of an experiential system is compatible with an evolutionary perspective. Specifically, it is unreasonable to think that the capacity for abstract reasoning would replace (rather than be added to) a lower-order but effective system that evolved over an extremely large time span.
While Epstein (1994) laid some of the groundwork for the dialectical constructivist view of information processing, other theorists and researchers have refined and extended his work. Watson and Greenberg (1996), in their discussion of dialectical constructivism in experiential therapy, for instance, submit that the experiential and rational processes are each made up of their own dialectic syntheses. In the experiential process, the first process is believed to involve information gained through the bodily felt sense which includes sensory, perceptual, imaginal and representational data. In the second process, this information is represented in language. Accordingly, the experiential process is comprised of subjective inner experiences (conscious and unconscious) as well as the symbolization of that experience. It is a “bottom-up” approach to knowledge and is generally thought of as the emotional process (Greenberg & Pascual-Leone, 1995; Watson & Greenberg, 1996). The dialectical synthesis purported to be at play within the rational process first includes symbolized experience. Through symbolic representation, individuals are able to develop representations of their idiosyncratic ways of experiencing the world as well as their behavioural patterns derived from important emotional experiences. The second process, reflexive examination, “involves clients in consciously scrutinizing, questioning, and evaluating their experience and behaviour, as well as their current needs, goals, and values, in the light of antecedents and consequences” (Watson & Greenberg, 1996, p. 256). This is a “top-down” approach to knowledge that allows a coherent identity to form through the explanation of symbolized experience.

The experiential and rational processes result in two streams of consciousness: an internal, biological, affective stream and an external, linguistic, cultural stream (Greenberg, 2011). The dialectical constructivist perspective holds that meaning is created through the
synthesis of these two streams, where information from both systems is recognized, symbolized and integrated (Greenberg & Pascual-Leone, 2001; Greenberg et al., 1993; Greenberg & Watson, 2006; Watson & Greenberg, 1996). More specifically, individuals continually integrate emotions into ever-changing self-organizations (e.g., confidence, insecurity) that result from gut feelings or the bodily felt sense (Greenberg, 2011). These tacit feelings are attended to and overtly symbolized, leading to the generation of coherent and comprehensive meaning. Subsequently, conscious experience can take place, providing valuable information about the self and leading to the construction of personal meaning and identity (Greenberg, 2011; Greenberg & Pascual-Leone, 1995). The personal meanings that are generated also influence how experiential information is processed in the future, making self-knowledge and meaning a circular and ongoing endeavor.

When it comes to the application of the dialectical constructivist view to clinical psychology, there are several important implications. Epstein (1994) specifies that changes in the experiential system are the main objective of therapy, noting three general methods for achieving this objective:

(a) using the rational system to influence the experiential system (e.g., disputing irrational thoughts, as in cognitive therapy), (b) learning directly from emotionally significant experiences (e.g., through “working through” in real life, and through constructive relationships with significant others, including therapists), and (c) communicating with the experiential system in its own medium, namely fantasy. (p. 721)

These methods are relevant to several therapeutic approaches including emotion-focused therapy (Elliot et al., 2004; Greenberg et al., 1993; Watson & Greenberg, 1996; Watson & Rennie, 1994) cognitive-behavioural therapy (Guidano, 1995; Mahoney, 1991; Neimeyer, 1993), and narrative therapy (Lyddon, 1995; Neimeyer, 1995).
Overall, the dialectical constructivist approach forms the theoretical framework for the present study. In part, this is due to its ability to incorporate numerous empirically-supported theories of information processing (as discussed by Epstein, 1994), as well as to cut across therapeutic orientations. Importantly, dialectical constructivism does not presume that either the rational or experiential mode of processing is fundamentally more influential than the other. Instead, it takes into account the differences between experiential and rational processes while highlighting the ways in which they integrate to influence and inform personal meaning and identity. Examining processing in the EW intervention from the dialectical constructivist view allows for experiential and rational processes to be considered both alone and together in their influence on outcome. Thus, the questions of “why” and “how” the intervention works can be addressed more comprehensively and without assuming that either process is primary or more relevant to well-being. As mentioned earlier, however, the EW intervention is not simply a processing activity, but a fundamentally expressive one. Accordingly, knowing how individuals process information is only part of the story; how do we ultimately end up expressing (or not expressing) emotions and what factors can affect this process? The Process Model of Expression and Nonexpression (Kennedy-Moore & Watson, 1999), presented next, provides insight into this question by describing how emotional and rational information relate to and influence emotional expression as well as circumstances within which expression can be adaptive or maladaptive.

The Process Model of Expression and Nonexpression

According to Kennedy-Moore and Watson (1999) emotions are comprised of four distinct components rather than being a unitary phenomenon. Specifically, emotional arousal refers to the physiological response to a stimulus, emotional experience refers to the
subjective felt sense of emotion, emotional *reflection* refers to cognitions related to emotion, and emotional *expression* refers to the automatic or deliberate behavioural responses to emotion. The Process Model of Expression and Nonexpression (herein referred to as the “Process Model”), outlined by the authors, lays out a series of steps through which individuals pass that describe how the components of emotion are processed and the effects of this processing on emotional expression. Rooted within the dialectical constructivist perspective, each of these cognitive-evaluative steps both influences affective experience and is driven by it. The Process Model is relevant to the EW intervention (and the present study), as it provides a glimpse into the processes at work *before* a participant ever puts pen to paper. Information pertaining to why, how and when individuals express emotions, as well as the consequences of expression, may shed light on the reasons that expression in the context of EW is beneficial for some but not for others. Further, these factors relate directly to how emotions are being processed and thus provide potential clues as to what types of processing may be productive. The five steps of the Process Model are presented next.

In step one of the Process Model, known as the prereflective reaction, an individual initially perceives an emotion-eliciting stimulus (Kennedy-Moore & Watson, 1999). Engagement in cognitive and emotional processing follows, though this remains outside of awareness. Subsequently, physiological changes that signal the presence of the stimulus (i.e., arousal) occur and alert the individual to a situation that may be important and deserve attention or action. To illustrate, take a situation in which two close friends, Ashley and David, are sitting in a crowded restaurant. Ashley reveals to David that she has taken a job overseas and will be permanently relocating. In the prereflective reaction, David
automatically appraises the situation as important and experiences affective arousal in the form of bodily signals.

In the second step of the Process Model, individuals consciously perceive their affective responses (Kennedy-Moore & Watson, 1999). Awareness of distress arises at this point and individuals may become overtly aware of their idiosyncratic physiological reactions; they begin to interpret their bodily sensations as indicative of emotional experience. At this step, David might become overtly aware that he is distressed and detect that his heart is racing and he feels dizzy.

The affective responses experienced by an individual are labelled and interpreted in step three of the Process Model (Kennedy-Moore & Watson, 1999). Here, individuals begin to perceive their initial (i.e., physiological) responses as indicative of emotional experience. This entails a cognitive analysis of the response that is situated within a particular context and informed by internal cues. When individuals are successful at this step, they are able to differentiate their emotional experience and become aware of a complex (and at times conflicting) array of emotions that contribute to their response (e.g., recognizing that feeling “bad” involves feeling jealous, angry and betrayed). With this information, it becomes increasingly possible to respond to and cope with a situation effectively. David, for example, may begin to interpret his physiological arousal in the context of the news he has been given by Ashley. He may consciously recognize that Ashley’s relocation means that they will not be able to see each other often and might even lose touch completely. Noting that he has few other friends, David may label his emotions as sadness. He might also become aware that he feels angry and betrayed that Ashley made this decision without consulting him.
In the fourth step of the Process Model, individuals use their personal values and beliefs to evaluate whether a particular emotional response is acceptable (Kennedy-Moore & Watson, 1999). The perceived validity of one’s feelings, as well as whether they are perceived as socially acceptable and desirable, can influence whether individuals decide to express their emotions and the manner in which the expression is enacted. David may, for example, note that feelings of sadness when someone important moves away are normal and expected. He might even believe that these feelings are desirable as they are indicative of a close relationship.

Finally, in step five of the Process Model, individuals take their perceived social contexts into account in order to determine whether expression is the appropriate course of action (Kennedy-Moore & Watson, 1999). If the emotions and those to whom the expression is directed are deemed acceptable, then emotional expression can take place. Since David believes that sadness is acceptable, and even desirable, he might choose to let Ashley know that he is sad to hear the news. Though the restaurant is crowded, David may take the opportunity to tell her how it feels to be losing such a close friend. David’s expression may be even more likely if Ashley herself expresses sadness, as this would provide some evidence that his emotional experience is appropriate to the social context.

**Disruptions in the Process Model of Expression and Nonexpression.** The preceding description of the Process Model presents the ideal way that individuals may pass through the various steps. Of course, cognitive and emotional processes do not always proceed in optimal ways. In this regard, Kennedy-Moore and Watson (1999) point to disruptions that can occur at each step that can affect the nature of emotional expression as well as the subsequent effects on well-being. They note that these blocks can be dispositional
(i.e., part of enduring personality characteristics) or situational (i.e., resulting from contextual or other temporary factors). An understanding of blocks in the Process Model may help to reveal why EW participants can differ in the nature of their expressions and, subsequently, experience varying effects on well-being. In the same way that the “ideal” steps of the Process Model imply how emotional processing and expression may be beneficial, blocks point to processing and expression that may not allow for these benefits or even lead to worsening of psychological and physical symptomatology. Blocks at each stage of the Process Model are detailed next.

At step one of the Process Model, a disruption can occur when an individual experiences a minimal affective reaction in response to a stimulus (Kennedy-Moore & Watson, 1999). This may be indicative of a high threshold of distress and a general tendency to experience mild emotional reactivity (Larsen & Diener, 1987). To return to the example described earlier, David may experience minimal prereflective reaction in response to Ashley’s news because David does not often experience intense emotions. Reactions such as this can relate to an individual’s temperament (i.e., innate personality qualities) or to a particular cognitive style (e.g., a tendency to focus on positive aspects of a situation). Minimal prereflective reactions may also follow from situational factors that render inert a stimulus that would normally be emotionally important (Kennedy-Moore & Watson, 1999). If David felt as though Ashley was having a negative influence on his life, for instance, the news of Ashley’s moving may not be particularly distressing. While minimal prereflective reaction may lead to nonexpression, Kennedy-Moore and Watson argue that this is usually not detrimental as there are unlikely to be emotions that need to be expressed. In fact, low
emotional reactivity may be suggestive of healthy adjustment as this may point to an ability to effectively deal with stressful life events (Wortman, Sheedy, Gluhoski, & Kessler, 1992).

A block can occur at the second step of the Process Model when individuals defend themselves from negative emotions by denying the presence of the emotions altogether (Kennedy-Moore & Watson, 1999). This “motivated lack of awareness” (Kennedy-Moore & Watson, 1999, p. 15) can occur when individuals feel threatened by their emotions and, subsequently, do not acknowledge the implications of a stimulus or event. David, for instance, may convince himself that Ashley moving away is a good thing since he will have more time to dedicate to his family. In doing so, he might deny that he feels sad or angry. Although this type of response can be helpful in the short-term (e.g., by allowing an individual to remain focused on an important task), it is maladaptive when the emotional impact of a truly important event is denied as it prevents individuals from responding to their emotions in adaptive ways (Kennedy-Moore & Watson, 1999). Motivated lack of awareness can be situation specific or can represent a more generalized tendency to evade negative emotional experiences. The latter case is often associated with a repressive coping style, in which individuals inhibit negative emotions as well as negative self-relevant information (Myers, 2010; Weinberger, Schwartz, & Davidson, 1979).

At the third step of the Process Model, Kennedy-Moore and Watson (1999) posit that blocks relate to a lack of skill in the labelling and interpretation of emotional experience. Individuals may recognize that they are experiencing an emotion but be unable to articulate what that emotion is. Similarly, they might be somewhat aware of an emotion but lack skill in differentiating complex emotions into component parts. David, for example, may notice that he feels upset but be unable to further differentiate and label this feeling as a mix of
sadness, anger and betrayal. From a dispositional perspective, this lack of skill can be associated with a personality trait known as alexithymia (Taylor, Bagby, & Parker, 1991, 1997), which, among other things, refers to difficulties identifying and describing subjective feelings. Further, more active blocking of emotions may occur at this step of the Process Model through what is referred to as “emotional substitution” (Kennedy-Moore & Watson, 1999, p. 85) or a “secondary reactive emotion” (Elliot et al., 2004, p. 29). This involves replacing a threatening emotional reaction with a more easily accepted one; instead of denying the presence of emotion, the emotion is interpreted as something more tolerable. In the case of David, he may interpret his anger as sadness, which he perceives as more bearable. Blocks at this step are usually detrimental as individuals are unlikely to gain the insight needed to cope with or respond to their emotional experience in productive ways (Kennedy-Moore & Watson, 1999).

At the fourth step of the Process Model, where individuals evaluate their emotional response, a block may occur when they perceive their emotions as shameful or otherwise unacceptable (Kennedy-Moore & Watson, 1999). Again, this may be related to particular emotions in particular contexts (e.g., anger towards good friends) or can reflect a more dispositional tendency to view emotions as unacceptable (Allen & Hamsher, 1974; Joseph, Williams, Irwin, & Cammock, 1994). David, for instance, may believe that it is shameful and selfish to feel angry that Ashley is moving since the move is positive for Ashley; he may generally hold the view that when good things happen to friends one must always feel happy for them. From a dispositional perspective, David may believe that it is never acceptable to feel angry. In either case, David is unlikely to express his anger. Kennedy-Moore and Watson (1999) posit that nonexpression due to evaluation of emotions as unacceptable may
or may not be detrimental. Specifically, they note that individuals who do not express for this reason, but who are aware of and label their emotions, may still be able to cope with them adaptively. Alternatively, this type of nonexpression may require very significant effort and negatively affect functioning.

Finally, a block at step five of the Process Model can happen when individuals judge their emotions as inappropriate to the audience or context, or when they lack the opportunity to express altogether (Kennedy-Moore & Watson, 1999). This type of suppression can be detrimental when it reflects a recurrent lack of opportunity for expression (e.g., due to lack of close friends), especially when expression is otherwise desired (Pennebaker, 1992). Conversely, suppression can be adaptive when the circumstances truly are not conducive to the overt expression of emotions (Kennedy-Moore & Watson, 1999). David, for instance, may choose not to express his anger towards Ashley because they are in a crowded restaurant and he doesn’t want to disturb other diners. This would represent a situational block, as David may decide to express his anger once they leave the restaurant. A more global block might occur if Ashley had to leave right after dinner and David had no other close friends with whom he felt he could share his emotions.

Overall, while the Process Model is presented in a series of linear steps, Kennedy-Moore and Watson (1999) stress that the process does not necessarily progress in such an orderly and expected way. They point to research, for example, that reveals that individuals may express emotions after little to no processing (Epstein, 1990; LeDoux, 1996). This idea, which is referred to as “expressive leakage” (Kennedy-Moore & Watson, 1999, p. 11), suggests that expressive behaviours can occur during or after any step of the model, especially when the emotional reaction is strong. Further, evidence suggests that individuals
often process and express their emotions repeatedly, refining their emotional understanding along the way (Rimé, Mesquita, Philippot, & Boca, 1991). Accordingly, Kennedy-Moore and Watson (1999) added feedback loops to their model, whereby later steps can cause individuals to revisit and reevaluate earlier steps. Finally, the authors state that expression and nonexpression are not absolute and that these behaviours should be thought of as falling along a continuum.

Emotional Venting

The Process Model offers a framework within which individuals perceive, experience, process and evaluate their emotions in response to a precipitating stimulus (Kennedy-Moore & Watson, 1999). Whether individuals express their emotions, and the nature of this expression, depends on the various ways in which they progress (and re-progress) through the steps. Again, as was discovered as early as Pennebaker and Beall’s (1986) initial study, emotional expression is an essential part of successful EW interventions. Is the expression of emotions, however, the ultimate goal? Similarly, is expression always a positive endeavor? If this is the case, it would have implications for the examination of which processing activities could be considered productive in EW (i.e., ones that lead to expression). Before moving on to a discussion of particular processing activities, these questions need to put to the empirical test.

The idea that “letting off steam” through the expression of negative emotions is a positive activity has enjoyed popularity in both academic and lay communities. These so-called “hydraulic” models of emotions posit that, without the expression of negative emotions, individuals are likely to experience psychological and physical symptoms of distress (Gross, 1998; Kennedy-Moore & Watson, 1999; Kosmicki & Glickauf-Hughes,
1997; Nichols & Efran, 1985; Straton, 1990). Importantly, these models assume that the expression of negative emotion is directly responsible for changes in emotional experience and arousal as opposed to it being a process mediated by other mechanisms (e.g., cognitive or interpersonal; Kennedy-Moore & Watson, 1999). Based on this assumption, hydraulic models also suggest that the beneficial effects of distress expression should be experienced during or immediately after the expression takes place. Further, more intense expression should be associated with more positive effects. In the following discussion, these assumptions will be together referred to as “the venting hypothesis,” a term coined by Kennedy-Moore and Watson (1999). In their critique of the venting hypothesis, Kennedy-Moore and Watson discuss emotional expression as a sign of coping and distress as well as research into emotional experience, arousal and expression in anger and crying.

**Emotional Expression as a Means of Coping.** Within the empirical literature there is some support for the notion that the expression of emotions acts as a coping mechanism in the way that the venting hypothesis would suggest. Kennedy-Moore and Watson (1999), for instance, point to research that examined the relationship between facial expression and autonomic responses. Specifically, studies using between-subject approaches have revealed that individuals who show more overt facial expressions tend to experience less autonomic arousal than their less expressive counterparts (Jones, 1950, 1960; Lanzetta & Kleck, 1970; Notarius & Levenson, 1979). A possible explanation for these findings is that people who are more expressive are more secure in their emotional experiences while those who are less expressive suffer due to the exertion required to control their emotions (Kennedy-Moore & Watson, 1999). Accordingly, it may be the case that the act of emotional expression through
facial movements causes decreases in the physiological indicators of distress, an idea consistent with the venting hypothesis.

Additional support for the venting hypothesis can be found in the research literature on personality and coping (Kennedy-Moore & Watson, 1999). Individual differences in expressivity, for instance, are purported to be partially accounted for by variations in the modulation of the “set of behavioral, experiential, and physiological emotional response tendencies that together facilitate adaptive responding to perceived challenges and opportunities” (Gross, 1998, p. 225). In other words, different people have different abilities and tendencies when it comes to whether they express emotions as well as how, when and to whom (Watson, McMullen, Prosser, & Bedard, 2011). Investigations into personality traits associated with the modulation of emotions have tended to support the notion that emotional expression serves a coping function (Kennedy-Moore & Watson, 1999). Rationality and Antiemotionality, a personality trait in which individuals block emotional experience and consciously suppress the expression of emotions to others, for instance, has been linked with negative consequences including higher incidence and risk of death from cancer and other ailments (Bleiker, van der Ploeg, Hendriks, & Adèr, 1996; Grossarth-Matichek, Bastiaans, & Kanazir, 1985; Grossarth-Matichek, Eysenck, & Vetter, 1988; Quaner-Blaznik, 1991). These studies have been criticized, however, for their use of a retrospective approach (Hirokawa, Nagata, Takatsuka, & Shimizu, 2004). Kennedy-Moore and Watson (1999) further identify Emotional Control (i.e., control of the expression of anger, anxiety and depressed mood; M. Watson & Greer, 1983) and Self-Concealment (i.e., active concealment of negative personal information from others; Larson & Chastain, 1990) as personality traits that support the notion that the venting of emotions is beneficial while their concealment is harmful.
Finally, Kennedy-Moore and Watson (1999) put forth evidence from psychotherapy research that lends support to the venting hypothesis. They specifically point to the work of Stiles (1987, 1995), who noted that therapists often associate good therapeutic process with high levels of disclosure and that disclosure is a core psychotherapeutic process. While this is consistent with the venting hypothesis, Kennedy-Moore and Watson (1999) note that, “by disclosing, clients may be using therapy effectively to process and assimilate their experience” (p. 32) rather than disclosure itself being a marker of well-being.

Thus, there exists evidence that emotional expression can be an effective means of coping with distress. Research that focuses on facial expression, personality traits associated with emotional expression, and psychotherapy process all provide some support for the venting hypothesis. Within each of these research domains, however, evidence suggests that, in addition to emotional expression as a means of coping, it is also a sign of distress (Kennedy-Moore & Watson, 1999). In the next section, these three areas of research will be returned to within this context.

**Emotional Expression as a Sign of Distress.** In their discussion of research into facial expression and autonomic response, Kennedy-Moore and Watson (1999) argue that, while the inverse relationship between expression and arousal has been reported in studies using a between-subjects approach, the opposite has been found when a within-subjects approach is used. In fact, Cacioppo and colleagues (1992) indicated that weak to moderate positive within-subjects correlations between facial expressiveness and autonomic arousal have been found in the same studies that reported a negative correlation using a between-subjects approach (e.g., Buck, Miller, & Caul, 1974; Zuckerman, Klorman, Larrance, & Spiegel, 1981). This suggests that, at an individual level, those who express more distress
through their facial expressions also experience more distress and are more highly aroused (i.e., expression as a sign of distress). Cacioppo and colleagues (1992) further reported that, according to the venting hypothesis (which they refer to as emotional discharge), individuals who inhibit expression should experience an increase in autonomic response, while those who amplify their expressions should experience a decreased response (since their emotions have a readily available means of output). A number of studies conducted by Lanzetta, Cartwright-Smith, and Kleck (1976), however, produced opposite results. In these studies, individuals were instructed to either avoid or exaggerate facial expressiveness in anticipation of an electric shock. Results revealed that the avoidance of expression lowered skin conductance (a measure of arousal) while exaggeration heightened skin conductance. Accordingly, within the facial expression literature there exists evidence that directly contradicts the venting hypothesis and supports the idea that expressiveness can also be indicative of distress experience (Kennedy-Moore & Watson, 1999).

When it comes to personality and coping, it was mentioned that individuals differ in emotion modulation and that related personality traits have tended to be consistent with the venting hypothesis (Kennedy-Moore & Watson, 1999). In additional to modulation, however, individual differences in expressivity have also been found to be partially accounted for by variations in the initial activation of emotional response; some individuals tend to express readily in response to a diverse array of stimuli whereas others appear to require strong stimuli before expression occurs (Gross, 1998). Research concerning personality traits associated with the strength of the initial emotional reaction provides support for the role of emotional expression as a sign of distress. More specifically, individuals who possess personality traits that cause them to be more easily distressed by precipitating stimuli also
tend to express these emotions more regularly (Kennedy-Moore & Watson, 1999). To illustrate, Kennedy-Moore and Watson point to the example of Negative Affectivity. Negative Affectivity refers to a disposition towards feeling negative emotions (e.g., anxiety, sadness and anger), perceiving situations as stressful and having a negative view of self, others and the world (Clark & Watson, 1991; Watson & Clark, 1984). Individuals high in negative affinity, because they experience relatively high levels of distress, also tend to express their distress often (Kennedy-Moore & Watson, 1999). Rather than serving a coping function, this has been found to be associated with negative intrapersonal consequences (e.g., physical illness; Watson & Pennebaker, 1989) and interpersonal consequences (e.g., social conflict; Clark & Watson, 1991). Accordingly, frequent expression in individuals high in Negative Affectivity appears to signify increased emotional distress, which contradicts the venting hypothesis (Kennedy-Moore & Watson, 1999).

As with research into facial expression and personality traits, research into disclosure in psychotherapy also provides reason to believe that disclosure is a sign of distress (Kennedy-Moore & Watson, 1999). Stiles (1987, 1995), for instance, highlighted the fact that several psychotherapy studies revealed a correlation between high levels of distress and high levels of disclosure (e.g., Burchill & Stiles, 1988; Stiles, 1981). He also noted that studies linking psychotherapy disclosure with outcome are “inconsistent and generally unimpressive” (Stiles, 1995, p. 78). Accordingly, while distress expression may at times be a productive psychotherapeutic behaviour, evidence suggests that it is also indicates the experience of distress.

Based on the accumulated evidence regarding facial expression, personality traits and disclosure in psychotherapy, Kennedy-Moore and Watson (1999) conclude that the
“expression of negative feelings is both a sign of distress and a possible means of coping with that distress,” which they refer to as “the paradox of distress expression” (p. 28). While the venting hypothesis acknowledges expression as a coping strategy it fails to acknowledge its role as a sign of distress and is thus an insufficient and incomplete theory. Research into anger and crying, discussed next, more directly addresses whether emotional expression does invariably lead to positive effects as the venting hypothesis would suggest. Again, considering the central role that emotional expression plays in the EW intervention, knowing whether the simple act of expression is itself necessarily beneficial provides clues as to what types of processing should be considered productive.

**The Expression of Anger and Crying.** In their discussion of the venting hypothesis, Kennedy-Moore and Watson (1999) pay special attention to the experience, arousal, expression and interpersonal consequences of anger and crying, since these represent areas of expression that have been traditionally viewed as linked to hydraulic models. Empirical research, however, has produced contradictory results; some studies provide support for the idea that these forms of expression are beneficial while others reinforce the notion that expression is detrimental, only beneficial under certain circumstances, or beneficial due to mediation by other processes. With regards to anger, for instance, expression has been linked with negative consequences including reduction of the threshold for future aggression (Berkowitz, 1983), increased likelihood of future aggression (Bresin & Gordon, 2013), intensification and prolonging of angry feelings (Bushman, 2002; Bushman, Baumeister, & Stack, 1999; Tavris, 1984), increased intensity of future aggression (Verona & Sullivan, 2008), and keeping of angry thoughts more active in memory (Bushman, 2002). Further, the expression of anger has been associated with negative physiological markers such as
cardiovascular reactivity (Siegman, 1994; Siegman, Anderson, & Berger, 1990) as well as negative interpersonal consequences (Keinan, Ben-zur, Zilka, & Carl, 1992). While there is some evidence that the expression of anger can be beneficial (e.g. Murray, 1985), it is often asserted that these benefits are mediated by other processes. In general, the venting of anger alone has been viewed as unhelpful at best and harmful at worst (Kennedy-Moore & Watson, 1999; Lohr, Olatunji, Baumeister, & Bushman, 2007; Olatunji, Lohr, & Bushman, 2007).

As with anger, Kennedy-Moore and Watson (1999) argue that crying can be a beneficial form of expression but that it is not an end in itself as the venting hypothesis would suggest. Research into crying has produced mixed results. Specifically, crying has been found to be associated with negative physiological effects including aversive arousal (i.e., physiological distress including rapid heart rate; Cornelius, 2001; Gross et al., 1994), impaired immune functioning (Labott et al, 1990) and more frequent physical health problems as individuals age (Labott & Martin, 1990). Crying has also been linked with negative psychological effects including increased reported distress (Cornelius, 2001) and increased vulnerability to mood disturbance (Martin & Labott, 1991). Interpersonally, crying may be viewed as a sign of weakness (especially in men; Crester, Lombardo, Lombardo, & Mathis, 1982). Several researchers, contrarily, have documented positive consequences of crying. Physiologically, for instance, crying has been linked with the release of stress-related biochemical toxins (Frey, 1985; Frey, Hoffman-Ahern, Johnson, Lykken, & Tuason, 1983), increased respiratory sinus arrhythmia (associated with emotion regulation capacity; Hendriks, Rottenberg, & Vingerhoets, 2007) and movement towards homeostasis in the nervous system (Efran & Spangler, 1979; Gross, Fredrickson, & Levenson, 1994). Positive psychological effects of crying have also been found, including decreased negative affect and
depression (Frey et al., 1983; Kraemer & Hastrup, 1986). Further, crying has been reported to have positive interpersonal consequences such as alerting others that an individual is in need of help (Labott, Martin, Eason, & Berkley, 1991). In light of these mixed results, Kennedy-Moore and Watson (1999) take the position that crying can be beneficial, but that this is dependent on several factors other than the presence of crying itself. This is echoed by Labott (1991), who asserted that “the assumption that crying is either good or bad is overly simplistic” and added that “crying may be positive when it is accompanied by appropriate cognitive changes and negative when not” (p. 240). Thus, the venting hypothesis again emerges as a somewhat useful yet incomplete theory of emotional expression.

Following their review of the expression of distress, Kennedy-Moore and Watson (1999) rejected what they termed “the myth of emotional venting” (p. 25) and concluded that the expression of negative emotions is only adaptive when it leads to some kind of distress resolution. Speaking to the complexity of this point, Whelton (2004) states how the effectiveness of aroused and expressed emotions “depends on what the emotion is, how it is expressed, by whom, to whom, when, under what conditions, what the underlying therapeutic issue is, how the expression is followed up and all the panoply of relevant circumstantial detail” (p. 60). This conclusion supports the notion that how individuals process their emotions and other information prior to expression in the EW intervention is more important than whether they express at all. In fact, as is evident from the review, the expression of emotions may signal distress rather than be indicative of the process of change and resolution. Overall, the mechanisms of action at work in EW remain unclear; if the expression of emotion itself isn’t necessarily beneficial, then what determines whether it is? Similarly, why do some participants in EW appear to benefit from expression while others do
not? In the following section, these questions will be directly addressed through an exploration of processing activities that have been shown in the theoretical and empirical literature to be associated with productive processing, beneficial change and improved psychological and physical functioning.

**Productive Versus Unproductive Processing**

Thus far a review of the EW literature provides support for the idea that it can be effective in spurring improvements in psychological and physical symptomatology in a wide variety of participants. An examination of moderating and mediating variables, however, reveals that the effectiveness of the intervention varies considerably between participants, and that there remains no universally accepted theory of why it works at all. Additionally, theories of emotion have been discussed with the purpose of more clearly defining what emotions are, their functions, and the ways that they work alongside and integrate with cognitions. This highlighted the general “behind the scenes” processing activities that individuals engage in (including in the EW intervention), setting the stage for the identification and exploration of more specific processing activities that may be at work. This was followed by a look at the ways in which individuals move from the perception of an emotion eliciting stimulus all the way through expression, with a focus on both ideal and disrupted ways that this process can play out. Finally, the idea that the simple act of expression is beneficial in and of itself (i.e., emotional venting) was debunked through a look at the evidence that supports and refutes this idea. If expression itself is not necessarily the “active ingredient” in the EW intervention, then a closer look at *why* expression can be beneficial is justified, as is a consideration of how individuals process cognitive and emotional information prior to and following expression. The following section aims to more
directly address the original research question posed in the present study: Given the variable results found and explanations offered for the EW intervention, what we know about emotions (sources, function, experience, expression and the role of cognitions), and the idea that expression alone is not beneficial in and of itself, what processes might help account for the effectiveness of the EW intervention, and why is it beneficial for some participants but not for others?

Process (and process-outcome) research relating to both psychotherapy and EW provide some insight into possible answers to these questions. As mentioned earlier, process research looks directly at the processes that occur during and after an intervention that may be linked with the success or failure of that intervention. A thorough review of processes at work in psychotherapy and EW, covering both theory and research, points towards several specific processing activities that clients engage in that are often productive (i.e., associated with positive outcomes), as well as others that are generally not productive or sometimes even detrimental. These activities are presented next.

**Description of External Experience**

The description of external experiences involves relaying details about people, places, things and events in one’s life. The description of external experiences is considered to be an important part of many psychotherapeutic approaches including those that focus on cognitions (Wright, Basco, & Thase, 2006), emotions (Elliot et al., 2004) and narrative creation (White, 2011). In most EW interventions, including the one used in the present study, participants recount the details of traumatic experiences. Are these descriptions helpful? Further, are there particular ways of describing these experiences that are indicative
of processing that is more productive than other ways? These questions are explored next, with attention to both psychotherapy and other disclosure activities.

In the psychotherapy research literature, the interpersonal (i.e., between therapist and client) utility of these descriptions is often highlighted. It has been reported, for instance, that the description of external experiences helps clients and therapists to gain a shared understanding of client experience (Angus, Lewin, Bouffard, & Rotondi-Trevisan, 2004; Watson, Goldman & Greenberg, 2007) and fosters empathic understanding and intuition in therapists (Angus & Kagan, 2007; Greenberg & Ruchanski-Rosenberg, 2002; Watson et al., 2007; Watson & Greenberg, 2009). Further, the description of external experiences has been found to help therapists identify difficulties in clients’ processing within context (Watson et al., 2007). More specifically, having detailed knowledge of clients’ experiences (e.g., important life events) can allow therapists to “see the emotional triggers, as well as the ways in which clients have learned to respond and cope with early environments” and “can provide a compass to direct therapists to the salient events and possible emotion schemes that may be causing difficulty for their clients” (Watson et al., 2007, p. 197). Essentially, the description of external experiences can facilitate therapists’ immersion within clients’ worlds.

Intrapersonally, many of the benefits of the description of external experiences follow from the idea that it can evoke episodic memories and, subsequently, the identification of important and idiosyncratic aspects of those memories (Elliot et al., 2004; Watson, 1996). This may include identification of relevant parts that were previously disregarded (e.g., because they were not associated with strong emotion; Rice, 1974), those that were particularly troubling (Elliot, Davis, & Slatick, 1998) and those that relate to personal identity (Angus & Greenberg, 2011). Further, by symbolizing past experiences in words,
Bucci (1995) posited that referential connections are made between those experiences and present experiencing. These connections are believed to foster emotional arousal and the recollection and re-experiencing of emotions associated with the memories, allowing for their symbolization and examination; they help bring the past into the present (Bucci, 1995; Elliot et al., 2004; Watson, 1996; Watson & Rennie, 2004). This is particularly important to emotion-focused therapies, as it is seen as crucial to not only think about emotions but to experience those emotion in the present (Greenberg, 2008). Similarly, since emotions are often activated when describing external experiences, individuals may be exposed to painful feelings associated with traumatic events, an important part of habituation (Paivio & Pascual-Leone, 2010). These descriptions can further help to incorporate objective and accurate information into the fear structure and modify pathological elements such as conditioned associations (Foa, 2011).

From a cognitive perspective, description of external experiences can allow for rational processing of the event within context (Paivio & Pascual-Leone, 2010). While the events themselves are real lived experiences, they “can be re-examined at each step in order to recognize the perceptual trigger, the immediate construals made, the affective responses, and the self-relevant personal meaning implications of these construals and affective responses” (Greenberg et al., 1993, p. 145). In this case, rather than being an end in itself, the description of external experiences may help individuals to gain a more objective view of these experiences, mark the beginning of the reflexive processing of emotion, and advance the integration of individuals’ narrative and emotional lives (Angus, 2012; Watson et al., 2007). Within cognitive-behavioural therapy, for instance, focusing on well-defined and detailed events can help clients to more effectively identify their emotions and automatic
thoughts and to generate realistic evidence for and against those thoughts (Wright et al., 2006).

The recounting of external experiences also may confer benefit more directly through its role in the creation of narrative (Klein & Boals, 2001; Pennebaker, Mayne, & Francis, 1997; Pennebaker & Seagal, 1999; Ramirez-Esparza & Pennebaker, 2006; Smyth, True, & Souto, 2001). In particular, detailed descriptions of events can help to organize fragmented stories into coherent and organized narratives (e.g., with a beginning, middle and end) that are situated within a specific time and historical context (Herman, 1997). Subsequently, these narratives may cause traumatic or otherwise difficult stories to progressively diminish their prominence in conscious thought and permit individuals to gain a sense of control over their experiences (Danoff-Burg, Mosher, Seawell, & Agee, 2010; Klein, 2002). This may be because “traumatic memories that are not simplified into a narrative structure may be stored as sensory perceptions, obsessional ruminations, or behavioral re-enactments, as in the case of posttraumatic stress disorder” (Danoff-Burg et al., 2010, p. 342). The positive psychological and physical health benefits of narrative formation have been documented by several researchers within the EW literature. Describing difficult events using a narrative structure, for instance, has been linked with improved physical symptoms and reduced healthcare visits (Gidron et al., 2002), reduced symptoms of posttraumatic stress (Guastella & Dadds, 2008) and fewer restricted activities (Smyth et al., 2001). Controlled studies that experimentally manipulated narrative structure (i.e., one group instructed to use specific narrative structure in EW and another given typical EW instructions), however, have suggested that the use of narrative structure in EW does not confer additional benefits over EW alone (Danoff-Burg et al., 2010; Graybeal, Sexton, & Pennebaker, 2002). Despite the
variable results, evidence from the narrative (e.g., Angus, Levitt, & Hardtke, 1999; Angus & McLeod, 2004) and emotion-focused (e.g., Watson et al., 2007) literature provides some additional support for the idea that narrative structure in the description of events can be beneficial.

**Productive Description of External Experience.** While the description of external experiences has often been linked with positive outcome, not all description is created equally. In fact, research suggests that certain qualities of description are associated with productive processing, while others are not. Specifically, Bucci (1985, 1995) argued that more active and direct referential connections are made when events are described using vivid, concrete, specific and imagistic language. She noted that this is related to the evocation of immediate experience as well as positive psychotherapeutic change. Based on this notion, she created the Referential Activity Scale (RAS) which can be used to assess these factors within clients’ descriptions of external events (with higher scores indicating more concrete, specific, clear and imagistic language). Empirical studies that employed the RAS have provided some support for Bucci’s assertion. Watson (1996), for instance, examined referential activity in 12 participants undergoing brief experiential-client-centred therapy. She reported that higher RAS scores were associated with better subsequent exploration and differentiation of inner experiences, as well as subjective reports of re-experiencing emotions similar to those present during the described event. Watson also found that sessions scored highly on the RAS were associated with higher degrees of resolution (of problematic reactions). This is consistent with the notion that vivid, concrete and specific language can improve access to episodic memory and the attendant emotions and, subsequently, lead to positive treatment outcome. Other studies that have used the RAS and similar measures have
provided further support for this idea (e.g., Angus & Hardtke, 1994; Angus, Hardtke, Pederson, Grant, & Marziali, 1991; Angus, Levitt, & Hardtke, 1999).

Similarly, systematic evocative unfolding, developed by Laura Rice (1974; Rice & Saperia, 1984), is based on the notion that the retelling of events helps clients to become aware of connections between these events and their emotional and behavioural reactions to them (Elliot et al., 2004). In this activity, therapists guide clients in a description of events in ways that heighten clients’ access to and experience of their emotions. Importantly, clients are encouraged to describe events using concrete, specific and expressive language in order to paint a vivid and graphic scene. Systematic evocative unfolding is normally used in process-experiential therapy as a method to aid clients in an exploration of a situation in which they reacted in an unexpected way (Greenberg et al., 1993). In the study by Watson (1996) mentioned earlier, it was reported that vivid and concrete description of events was facilitated by systematic evocative unfolding techniques, which was associated with both heightened emotional experiencing within session and positive outcome. Other studies have also linked the use of systematic evocative unfolding with positive outcome, suggesting that vivid and concrete description, compared to abstract and nonspecific description, is associated with better access to emotional experience and positive psychotherapeutic outcome (Harber & Pennebaker, 1992; Wiseman, 1992; Wiseman & Rice, 1989).

Further support for the notion that concrete, specific and vivid description is more productive than more general, abstract and vague description comes from the imaginal exposure literature. Imaginal exposure involves repeated recounting of a traumatic experience and is often used as part of treatment for posttraumatic stress disorder (Foa, Zoellner, Feeny, Hembree, & Alvarez-Conrad, 2002). Research into imaginal exposure has
revealed that a specific mode of processing, which involves the description of an event in as much detail as possible, is associated with reductions in distress (Philippot, Baeyens, & Douilliez, 2006; Raes, Hermans, Williams, & Eelen, 2006; Vrielynck & Philippot, 2009). Additionally, a concrete focus on one’s actual experiences, compared to an abstract focus (e.g., on meaning and consequences), has been associated with positive outcomes such as improved problem solving (Stober & Borkovec, 2002; Watkins & Moulds, 2005) and reduced emotional vulnerability (Moberly & Watkins, 2006). As in the case with Bucci’s (1985, 1995) ideas on referential activity and Rice’s (1974) systematic evocative unfolding, detailing concrete and specific episodic memories in imaginal exposure is thought to arouse intense emotions that can subsequently be processed in various ways (Philippot, Schaefer, & Herbette, 2003).

Finally, the “Describing” dimension in the Measure of Clients’ Productive Processing (MCP; Watson & McMullen, 2008) was developed to differentiate productive from unproductive ways that clients describe their external experiences during psychotherapy in terms of whether they were engaged or disengaged. The engaged processing activity encompasses descriptions that are vivid, concrete and specific and that evoke images and episodic memories. In contrast, the disengaged processing activity points to descriptions that are general, rehearsed, distant or “flat.” In a study by McMullen (2013), it was found that clients who underwent treatment with cognitive-behavioural therapy (CBT) and emotion-focused process-experiential therapy (EFT-PE) and described events in an engaged manner had better treatment outcomes than those whose descriptions were more disengaged. This provides further empirical support for the idea that the use of vivid, concrete and specific references to external events is related to improvements in well-being.
In sum, research into the description of external experiences suggests that vivid, concrete and imagistic language, particularly during psychotherapy and related activities, is associated with productive processing. While some of this research touts the interpersonal benefit of these descriptions, there is also considerable support for the idea that it can have beneficial intrapersonal consequences. Accordingly, there is reason to believe that these qualities of external description may also be beneficial during the EW intervention and represent a productive processing activity. In light of this, the present study assessed these qualities in participants’ EW essays in order to examine whether they related to outcome in expected ways.

Symbolization and Expression of Internal Experience

Internal experiences refer to what is happening within an individual including cognitions, emotions and physiological sensations. The current section will deal only with emotions and physical sensations, however, since cognitions will be discussed separately. The activation, symbolization and expression of internal experiences play an essential part in many approaches to psychotherapy and other therapeutic activities (Greenberg, 2002; Kennedy-Moore & Watson, 1999). This includes the EW intervention, which directly instructs participants to explore their emotions. The fact that the vast majority of participants in EW do express emotions, but only some benefit, implies that there are both effective and ineffective ways that these emotions can be processed and expressed. In the current section, research into emotional arousal, experience and expression is reviewed with a focus on how this relates to well-being. This is followed by an investigation into what qualities of these processes might be considered productive or unproductive.
The specific roles of internal experiences, as well as the techniques used to highlight them, vary considerably between approaches; it is generally posited, though, that they can play an important role in psychopathology and that an understanding of these experiences can help individuals to respond to them in adaptive ways. From the experiential viewpoint, for instance, difficulties are thought to arise from individuals’ restricted awareness of emotional information or their failure to recognize it altogether (Greenberg, 2002; Greenberg & Safran, 1990; Pascual-Leone & Greenberg, 2007). In cognitive-behavioural therapy, it is held that negative emotions follow from the negative subjective meanings we attribute to events (Wright et al., 2006). In psychoanalytic theory, it is the suppression and repression of emotion that is believed to relate to the experience of distress (Greenberg & Safran, 1987). In any case, as discussed earlier, it is not the simple venting of emotions that is purported to be beneficial, but also how they are processed, expressed and used. There are several ways that the symbolization and expression of emotions have been purported to be beneficial, beginning with their role in emotional insight.

**Emotional Insight.** The central aim of many therapeutic activities, particularly those related to experiential approaches, is to foster emotional insight and awareness. Emotional insight is defined as “the ability, through self-reflection, to recognize, accurately label, and understand one’s emotional experience” (Kennedy-Moore & Watson, 1999, p. 63). In the context of the Process Model, emotional insight is likely to take place at steps two and three, where individuals consciously perceive an affective response and then label and interpret that response. The process through which individuals identify and label in words (or other symbolic means) their internal experiences is referred to as “symbolization” (Greenberg &
Watson, 2006; Kennedy-Moore & Watson, 1999). Emotional insight through awareness can be facilitated by expression in several ways.

The verbalization (or writing down) of feelings, for example, can play a role in fostering emotional insight as the simple translation of emotions into language may reduce their perceived intensity (Berkowitz & Troccoli, 1990; Keltner, Locke, & Audrain, 1993) and transform our understanding of them (Greenberg & Safran, 1987; Kennedy-Moore & Watson, 1999). In this process, individuals synthesize “various aspects of their immediate psychophysical experience with their linguistic-based understanding and find they are suddenly able to adequately capture an aspect of their subjective world” (Pascual-Leone & Greenberg, 2007, p. 39). Similarly, the verbal identification of emotions can create referential connections to those emotions and activate new, nonverbal elements that can then themselves be symbolized (Bucci, 1995). This may occur, for instance, when individuals look internally to decide what is important to express and then label and interpret those feelings. Watson and Rennie (1994), in their study of individuals undergoing brief experiential-client-centred therapy, reported that participants experienced increased clarity and a sense of relief when they were able to accurately symbolize their subjective experiences in words. They also noted that participants’ re-experiencing, symbolic representation and reflexive examination of their emotional experience (processed concurrently) were important correlates of change. This is in line with Gendlin’s (1974) assertion that accurately labelling internal experiences results in an internal felt shift, which can lead to positive movement in psychotherapy.

In addition, it is contended that observing the self can provide useful information about one’s emotional experience (Kennedy-Moore & Watson, 1999; Laird & Bresler, 1992). This involves inferring emotional states by observing one’s own physiological sensations and
overt emotional behaviours, much like what is done when inferring the emotions of others. In the context of EW, self-observation may involve observing oneself during the writing task. An individual might detect, for instance, that he grips the pen with more force, frowns, shifts in his seat or perspires when writing about a family member. Becoming aware of these sensations and behaviours might alert the individual to feelings of anxiety, anger or sadness that had previously remained outside of conscious awareness. Illustrating this point, Finkenauer and Rimé (1998), in their study of emotional experiences that were either shared or kept secret, reported that unshared experiences were associated with more feelings of guilt and shame than shared ones. In their discussion of this finding the authors consider the possibility of reverse causation, whereby individuals who kept their experiences secret inferred that these secrets were more shameful and, subsequently, felt these emotions more strongly. This idea parallels Bern’s (1972) self-perception theory, which argues that the same relationship exists between behaviours and attitudes (Finkenaur & Rimé, 1998).

Through the symbolization of internal experiences, which is often a first step in defining a problem, it is believed that individuals are able to become aware of and understand their experiences in new and helpful ways (Greenberg & Pascual-Leone, 2007; Kennedy-Moore & Watson, 1999; Watson & Greenberg, 1996; Watson & Rennie, 1994). Greenberg and Safran (1987), for instance, discuss how becoming aware of and acknowledging one’s emotions can be relieving as it allows individuals to better recognize, allow and accept the emotions as their own. Through this process the emotions are often tacitly cast as acceptable, legitimate and possibly even desirable. Acceptance of the emotions may also serve to deepen awareness of those emotions and their contexts, providing useful information about desires and helping individuals to become aware of the significance of emotions, goals and actions in
different situations (Elliot et al., 2004; Greenberg & Safran, 1987; Watson, 1996). Thus, it is argued that acknowledging and accepting emotions can lead to acceptance of the related desires and, subsequently, to actions aimed at fulfilling them (including interpersonal expression). Further, new awareness of previously covert emotions may allow for their integration with other emotions as well as with cognitive and behavioural information, thus changing the emotional experience (Gendlin, 1996; Greenberg & Safran, 1987; Watson & Greenberg, 1996). An individual may be aware, for instance, that she feels sad that a friend cancelled plans with her in order to spend time with someone else. If she were also to become aware that she feels anger towards that friend, she may recognize and more accurately label her feeling as jealousy.

Connecting words with experience can also help individuals to cultivate a sense of personal control (Greenberg & Safran, 1987; Kennedy-Moore & Watson, 1999). Individuals who symbolize emotions supposedly gain distance from them, recasting themselves as agents experiencing emotions rather than passive recipients of them. Subsequently, emotions can begin to be viewed as tolerable and, to some degree, controllable. This can enhance positive emotional reflection, allow for more effective subsequent reflexive examination of the emotion and foster the development of a coherent sense of self (Greenberg & Safran, 1987; Kennedy-Moore & Watson, 1999; Watson & Greenberg, 1996). Similar feelings of agency and control can also follow from the symbolization of emotions related to traumatic experiences (Paivio & Pascual-Leone, 2010). Articulating emotional aspects of these experiences is said to help create links between experiential and linguistic systems and, consequently, to make sense of feelings that may have previously been overwhelming and difficult to define. Overall, the bringing of emotional experience into awareness, through
language and other symbolic means, can allow for reflection, exploration, transformation and integration with other processing systems, which can help to lessen the negative consequences of maladaptive emotion (Greenberg, Auszra, & Herrmann, 2007; Greenberg & Safran, 1987; Watson & Greenberg, 1996). A rich program of research based on The Experiencing Scale (EXP; Klein, Mathieu, Gendlin, & Kiesler, 1969; Klein, Mathieu-Coughlan, & Kiesler, 1986), discussed next, puts many of these and other ideas related to emotional insight to the empirical test.

The Experiencing Scale. The EXP scale (Klein, Mathieu, Gendlin, & Kiesler, 1969; Klein, Mathieu-Coughlan, & Kiesler, 1986) was developed in order to measure clients’ emotional processing in psychotherapy by assessing their level of experiencing. The concept of experiencing, based on theories put forth by Gendlin (1962) and Rogers (1958), refers to the degree to which individuals focus attention on inner referents and explore the data generated through this attention (Klein et al., 1986). Raters using the EXP scale infer the levels of participants’ experiencing through their speech in therapy sessions and other contexts (e.g., structured interviews) as well as written documents (e.g., responses to open-ended questions). The EXP scale has seven stages (rated on a 7-point scale) that describe the progression of a client’s connection with inner referents from:

- impersonal (1) or superficial (2), through externalized or limited references to feelings (3), to direct inner referents (4), to questioning an unclear inner referent (5), to focusing with a step of resolution (6), and finally to the point where focusing comes easily and provides the connections for inner discourse (7). (Klein et al., 1986, p. 22)

As is evident from the stages of the EXP scale, the measure relates both to affective and cognitive processes rather than affective alone (Klein et al., 1986). Regardless, it provides a
means for testing whether awareness, experience and expression of internal experiences relates to emotional insight and well-being.

The EXP scale has been used extensively in the research literature and has been consistently linked with positive therapy outcome. Pos, Greenberg and Warwar (2009), for example, used the EXP scale to assess clients’ emotional processing in short-term experiential treatment for depression. They found early emotional processing was mediated by increased emotional processing during therapy in its prediction of improved depression, decreased general symptomatology and gains in self-esteem at outcome. Gains in emotional processing did not, however, predict improvements in interpersonal problems. The authors suggested that these findings provide support for the notion that increased emotional processing plays a direct role in good psychotherapy outcome. This was consistent with a previous study which reported that emotional processing independently predicted improvement (Pos, Greenberg, Goldman, & Korman, 2003). Further, Watson & Bedard (2006) discovered that depressed clients treated with process-experiential and cognitive-behavioural therapy who had good outcome had higher modal and peak EXP scores throughout therapy, with the highest scores found during mid-therapy (i.e., the “working phase”). The authors concluded that “good outcome clients in both groups engaged in deeper exploration, referred to their emotions more frequently, were more internally focused, and examined and reflected on their experience to create new meaning and resolve their problems in personally meaningful ways” (p. 156). Though much of the research using the EXP scale comes from the experiential literature, a study conducted by Castonguay, Goldfried, Wiser, Raue, and Hayes (1996) examined stages of EXP in individuals undergoing cognitive therapy for depression with and without concurrent medication. They reported that higher EXP
scores were correlated with more improvement in depressive symptoms, suggesting that depth of emotional processing is also relevant to change in non-experiential treatment approaches.

The vast majority of studies using the EXP scale have applied the measure to the psychotherapeutic interaction. There exist some studies, though, that have used EXP scale ratings to examine emotional processing in other forms of disclosure. Lutgendorf, Antoni, Kuman, and Shneiderman (1994), for instance, examined how experiential involvement in a trauma disclosure task related to immune functioning. In their study, individuals in the experimental condition discussed traumatic events (e.g., sexual abuse) with an experimenter during three weekly 20 minute sessions. During these sessions the experimenters employed active listening skills as well as strategies designed to increase emotional involvement in the disclosure (e.g., questions about somatic experience within the session). Results indicated that EXP ratings were highly correlated with an antibody response to a viral antigen, suggesting that depth of emotional processing can have positive immune effects. In the only study to date to apply the EXP scale to expressive writing, however, Pachankis and Goldfried (2010) did not report such positive results. In their study, gay males were assigned to either a control group or an EW group where they were instructed to write about a traumatic event related to their sexual orientation (e.g., bullying). The authors found negative correlations between EXP scores (both modal and peak) and negative affect and comfort with one’s sexual orientation at post-test. Several limitations of this study may help explain these results; for instance, participants were required to be male and to identify as gay but were not screened for the presence of past gay-related distress or traumatic experiences. Accordingly, while participants were instructed to write about their most stressful or traumatic gay-related
event, the presence and severity of such events was unknown. In addition, the mean (across writing sessions) modal and peak EXP scores of those in the experimental group were 2.39 and 3.42, respectively. Considering that a score of six or more on the EXP begins to indicate resolution, this suggests that the scale may not have been applied correctly. Finally, the relatively homogeneous sample (i.e., young Caucasian males) may limit the generalizability of the results. Thus, it remains unclear at present the relationship between EXP and well-being following the EW task.

Evidence from research using the EXP demonstrates the potential value of accessing and expressing internal experiences in the psychotherapeutic encounter and in other contexts. As described earlier, by focusing attention on inner referents individuals may become better able to symbolize experience, observe the self, cultivate feelings of control and, ultimately, gain emotional insight. In fact, support exists that emotional processing is a core change process in experiential therapies (Pos et al., 2009). It follows, thus, that emotional processing and insight may also be important to the EW intervention, since it relies heavily on participants’ emotional processing and expression. The purported benefits of the symbolization and expression of internal experiences is, however, not limited to its role in emotional insight. Others, for instance, have highlighted the positive physiological effects of emotional expression, an idea discussed next.

**Decreased Negative Physiological Effects of Inhibition.** In the theoretical and empirical literature, it has been argued that the inhibition of emotion causes stress which can lead to negative physiological symptoms and stress-related diseases (Kennedy-Moore & Watson, 1999; Pennebaker, 1995; Pennebaker & Beall, 1986; Pennebaker & Traue, 1993). This is thought to be particularly true for emotions related to traumatic experiences, as these
emotions are often viewed by victims as shameful or otherwise unacceptable and, hence, are not readily expressed (Kennedy-Moore & Watson, 1999; Pennebaker, 1985). Numerous studies that examined the effects of emotional inhibition and expression on a plethora of physiological indices of health have provided some support for these ideas. It has been reported, for instance, that inhibited emotional expression is associated with asthma (e.g., Mathé & Knapp, 1971), immune dysfunction (e.g., Esterling, Antoni, Kuman, & Schneiderman, 1990), increased skin conductance level (e.g., Fowles, 1980), myogenic pain (e.g., Traue, 1995), cancer etiology and progression (e.g., Gross, 1989) and coronary heart disease (e.g., Haynes, Feinleib, & Kannel, 1980). Research results, however, are inconsistent and often conflicting; thus, firm conclusions about the relationships between specific emotion-related diseases and the inhibition of specific emotions (e.g., anger and heart disease) are rarely warranted (Pennebaker & Traue, 1993). The empirical literature does, though, tend to support the more general notion that the inhibition of negative emotions is a generalized stressor that can exacerbate the links between stress and disease (Buck, 1993; Pennebaker & Traue, 1993).

It follows that, if emotional inhibition can lead to physiological stress, then emotional expression may help to alleviate that stress (Kennedy-Moore & Watson, 1999; Pennebaker, 1995). This might help to explain why the expression of internal experiences can confer health benefits. Beginning with the original EW study conducted by Pennebaker and Beall (1986), considerable evidence has emerged indicating that the expression of emotions during disclosure activities can relate to positive physiological health outcomes. Esterling, Antoni, Fletcher, Margulies and Schneiderman (1994), for example, assigned undergraduates who were seropositive for the very common Epstein-Barr virus (EBV) to either talk about a
stressful experience, write about a stressful experience or write about a trivial topic. Results indicated that individuals in the two disclosure groups, but not the control group, showed significantly decreased EBV antibody titres over a 4-week observation period (indicating greater immunological control). This was consistent with a previous study that reported higher EBV antibody titres in individuals who inhibited emotional expression or were categorized as having a repressive personality style (Esterling et al., 1990). In another study, Smyth, Stone, Hurewitz and Kaell (1999) assigned individuals suffering from asthma or rheumatoid arthritis to write about either a stressful experience or an emotionally neutral topic. Four months following treatment, participants in the experimental group (but not the control group) with asthma or rheumatoid arthritis demonstrated improvements in lung function and disease severity, respectively. A subsequent study, however, failed to replicate these findings (Harris, Thoresen, Humphreys, & Faul, 2005). Further, women suffering from breast cancer who expressed their emotions through writing, compared to a control group, experienced significantly fewer negative physiological symptoms related to the disease (Stanton et al., 2002), though other studies addressing breast and other cancers have reported mixed results (e.g., Rosenberg et al., 2002). While individual studies examining the link between emotional expression and physiological health have been inconsistent, Frattaroli’s (2006) meta-analysis of 30 studies with physiological functioning outcome measures showed promising results. Specifically, these studies produced a mean unweighted effect size of .059, which was significant in a random effects analysis (p = .0075).

The reported associations between emotional expression and positive physiological outcomes offer indirect support for the notion that emotional disclosure can provide some relief from the physiological stress of inhibition and subsequent health problems. It is
possible, however, that these changes are attributable to other processes associated with disclosure activities (e.g., cognitive restructuring). More direct evidence comes from research conducted by Fowles (1980), in which he discovered that behavioural inhibition is related to increased skin conductance level (SCL). Kennedy-Moore and Watson (1999) reason, thus, that the inhibition of emotions is likely associated with temporary increases in SCL and the expression of emotions with decreases in SCL. They point to experiments published by Pennebaker, Hughes and O’Heeron (1987) in which participants were assigned to speak about either an upsetting experience (experimental group) or an innocuous topic (control group). Participants in the experimental group were further designated as high or low disclosers based on how stressful and personal their disclosures were (determined by judges). It was found that high disclosers had lower SCLs when they spoke or thought about an upsetting experience than when they spoke about an innocuous topic. Low disclosers, however, showed the opposite pattern. Inhibition was also linked with temporary increases in systolic blood pressure (SBP), diastolic blood pressure (DBP) and heart rate. These findings suggest that the participants deemed high disclosers did not engage in as much inhibition and, therefore, experienced the disinhibition effect of lowered SCL. Low disclosers, on the other hand, did not capitalize on their opportunity to express and did not experience the disinhibition effect. This and other studies conducted by Pennebaker and colleagues (e.g., Pennebaker, Barger, & Tiebout, 1989) provide empirical support for the idea that the inhibition of emotion is indeed physiologically taxing. Though it is beyond the scope of this discussion, a review of the biological processes underlying emotional inhibition can be found in Traue and Pennebaker (1993). Like emotional insight, the abundance of empirical data suggesting that emotional expression is linked with decreased physiological stress is directly
relevant to EW, since expression is core to the task. Also relevant to EW and other therapeutic interventions is the role of emotional expression in exposure and habituation.

**Exposure and Habituation.** In addition to helping generate insight and decreasing the physiological stress of inhibition, the expression of internal experiences may also benefit individuals through the processes of exposure and habituation (Sloan & Marx, 2004a, 2004b; Sloan, Marx, & Epstein, 2005). As mentioned in the context of detailed external description, exposure in the trauma literature refers to repeated contact with memories related to a traumatic experience (imaginal exposure) and/or with avoided situations that are associated with a traumatic experience (in vivo exposure; Rauch & Foa, 2006). Confrontation of these stimuli within a safe environment has been found to help modify two of the core pathological elements of trauma-related disorders: the belief that the world is dangerous and the belief that one is unable to handle or tolerate distress (Foa & Rothbaum, 1998). These beliefs are maintained through systematic avoidance of trauma-related cues which would otherwise allow for new learning and subsequent correction (Rauch & Foa, 2006). Importantly, according to an emotional processing theory put forth by Foa and Kozak (1986), effective exposure must include activation of the fear structure as well as information that is incompatible with the core beliefs. This can lead to habituation to distressing emotions, restructuring of dysfunctional beliefs and, subsequently, improvements in trauma-related symptoms. Exposure as an effective treatment for posttraumatic stress disorder and other trauma-related disorders has been firmly established in the literature (Foa, 2011).

Effective activation of the fear structure is often facilitated by noticing, thinking about and expressing feelings and physical sensations during the construction of trauma narratives (Rauch & Foa, 2006). Kloss and Lisman (2002) submit that the inhibition of
emotions related to traumatic experiences is akin to avoidance behaviour, while expression is a form of exposure. Thus, individuals can “confront their emotional response by disclosing their thoughts and emotions in writing (without being punished or threatened). This procedure may help them feel more in control of these overwhelming reactions by engaging in the process of exposure, leading to eventual extinction” (p. 32). A decrease in avoidance behaviour and lessened distress may then follow, as is the case with more traditional exposure techniques. While the exposure hypothesis has not been systematically tested in the EW literature, empirical evidence has often been consistent with this view. In their initial study described earlier, for example, Pennebaker and Beall (1986) reported transient increases in physiological arousal and long-term decreases in health problems in those who wrote about the details and emotions associated with a trauma as well as those who wrote about emotions alone. These patterns were not seen in those who wrote only about the details of a trauma or about a trivial topic. Kelley, Lumley, and Leisen (1997) similarly found that emotional disclosure, but not trivial disclosure, was associated with immediate increases in negative mood as well as less emotional distress and better physical functioning at three month follow-up for individuals with rheumatoid arthritis. Finally, Sloan and Marx (2004a) assigned college students with a history of trauma and at least moderate symptoms of PTSD to either an EW or a control group. Their study revealed that, compared to control participants, those in the EW group showed significantly higher emotional arousal in the initial writing session and significantly reduced emotional arousal across sessions. Greater emotional arousal in the initial writing session, as measured by salivary cortisol levels, was also associated with greater gains in psychological well-being at outcome in the EW group. Although some studies have failed to replicate these findings (e.g., Kloss & Lisman, 2002) it
appears as though exposure to emotions related to traumatic events and subsequent habituation may partially explain the benefits of identifying and expressing emotional material.

Taken as a whole, the evidence strongly supports the idea that the symbolization and expression of emotions can be beneficial through their role in the generation of emotional insight, decreased physiological stress, and habituation. This hints at mechanisms of action that may be influencing outcome in EW, as these interventions are fundamentally about emotional expression. As with external descriptions, though, are there productive and unproductive qualities of expression that matter as much (or more) than whether expression occurs at all? This question is explored next, with particular attention to emotional arousal.

**Productive Symbolization and Expression of Internal Experience.** While attention to and expression of internal experiences can have positive psychological and physical consequences, optimal emotional arousal during this process has been associated with stronger positive outcomes (Greenberg, 2002, 2008; Greenberg, Auszra, & Herrmann, 2007; Greenberg & Safran, 1987; Watson, 1996). As is the case with exposure, within the experiential framework it is posited that, rather than simply thinking about and labelling internal experiences, it is important that to some degree individuals subjectively experience the sensations and feelings in present-moment awareness (i.e., are emotionally aroused; Greenberg, 2008; Greenberg & Safran, 1987; Teasdale, 1999). The earlier review of the EXP scale provides some support for this claim, as the higher stages of the scale (which have been consistently linked with better outcome) not only involve the generation of emotional insight but also entail increased connection with and arousal of emotions (Klein et al., 1986). Additionally, the intensity of aroused emotions has been found to be an important predictor
of good outcome in trauma resolution (Carryer & Greenberg, 2010). Jaycox, Foa and Morral (1998), for instance, studied emotional engagement in female assault victims who received exposure therapy for chronic PTSD. They reported that individuals who experienced high emotional engagement (as measured by subjective anxiety) during the initial treatment session and habituation over proceeding sessions benefitted more from treatment than those with either lower emotional engagement or lower habituation. Despite the considerable empirical support, some researchers have failed to confirm the positive relationship between arousal and outcome or have revealed the opposite effect (e.g., Coombs, Coleman, & Jones, 2002).

The views of Greenberg and colleagues (2007) are consistent with the idea that emotional arousal is important to the change process, but they argue that it is only the activation of primary emotions that is therapeutic. Primary emotions are classified as the emotional responses to a situation that are automatic and central (e.g., sadness upon the death of a loved one). This is in contrast to secondary emotions, which involve responses to primary emotions (e.g., anger in response to sadness) or instrumental emotions, which are emotions that serve the purpose of influencing others (e.g., expressing anger to intimidate). The activation of primary emotions are said to be therapeutic because they provide access to implicit underlying emotional meaning structures.

In order to investigate the effects of emotional arousal and productivity on outcome, Greenberg and colleagues (2007) analyzed these variables in the sessions of good and poor outcome clients who underwent brief experiential treatment for depression. It was discovered that better outcome clients “expressed more productive low expressed arousal as well as more productive high expressed arousal and thus more productive emotions in general in
therapy than did poorer outcome clients” (p. 490). They noted that both arousal and expression (rather than either alone) were related to the change process. Similarly, Warwar (2003) investigated the ways in which emotional arousal and depth of experiencing predicted outcome. She reported that good outcome was associated with increased emotional arousal from early to mid-therapy and that this prediction was stronger when late-therapy was characterized by deeper experiencing.

Based on these and other findings (e.g., Greenberg, 2002; Greenberg & Watson, 2006; Missirlian, Toukmanian, Warwar, & Greenberg, 2005) Greenberg and colleagues (2007) concluded that productive arousal and expression must involve accessing primary emotions, experiencing the emotions in the present and symbolizing the emotions in awareness. It is thought that the combination of optimal emotional arousal, expression and manner of processing is what promotes change in psychotherapy rather than any of these processes in isolation. This is consistent with Kennedy-Moore and Watson’s (1999) assertion that emotional arousal and expression alone may not be beneficial. Instead, they suggest that arousal and expression are more likely to be valuable when accompanied by insight or other forms of distress resolution. Further, Greenberg and colleagues (2007) concluded that the emotions must relate to a therapeutically relevant theme. Finally, individuals must be mindfully aware of their emotions such that the emotions are not overwhelming and are always moving forward or transforming (i.e., are not stuck).

Elaborating on the last point, Kennedy-Moore and Watson (1999) discuss the potentially negative consequences of non-optimally aroused and expressed emotions. On one end of the spectrum is flooded emotion, which refers to states of emotional arousal and expression that are overly intense and out of control. An individual suffering from PTSD, for
instance, may demonstrate flooded emotions by cowering in a corner, screaming and crying hysterically when faced with an imaginal exposure intervention. When emotions are flooded, individuals may be “so swamped by their feelings that they cannot organize their thoughts, can’t communicate clearly, can’t process new information, and can’t consider another person’s point of view” (Kennedy-Moore & Watson, 1999, p. 220). Flooded feelings, thus, may interfere with and mitigate some of the positive effects of emotional behaviour outlined earlier. Additionally, intrapersonal difficulties (e.g., increased fear and confusion) and interpersonal difficulties (e.g., inappropriate emotions expressed to others) may arise. In relation to the Process Model, flooding can be understood as a form of expressive leakage, where expression takes place at various steps without adequate emotional processing (Kennedy-Moore and Watson, 1999). Rauch and Foa’s (2006) perspectives on emotional arousal and processing in the context of exposure therapy dovetails nicely with this view. They suggest that overengagement with emotional material during exposure interferes with the productive processing of information that would otherwise help modify pathological components of the fear structure.

On the opposite end of the spectrum is emotional blocking, which refers to the various ways in which individuals are distanced from emotional arousal, experience and expression (Kennedy-Moore & Watson, 1999). The forms of emotional blocking are numerous and often correspond with blocks in the Process Model that were described earlier. Individuals’ emotions may be blocked, for instance, because they deliberately attempt to suppress painful emotions (disruption at step two), have deficits in the ability to symbolize or label emotions (disruption at step 3), deem the emotions to be unacceptable (disruption at step 4), or feel that opportunities to express are limited (disruption at step 5). As is the case
with flooded emotions, the blocking of emotions does not provide individuals with the chance to become aware of, experience, symbolize and express their emotions in ways that can lead to beneficial change. Hence, in EFT a major therapeutic task is to help contain emotion where there is too much or help access emotions when there is too little (Greenberg, 2011). Underengagement with emotions in the exposure literature has also been identified as a hindrance to beneficial modifications of the fear structure, as the ability to learn new information (e.g., about one’s ability to tolerate negative emotions) is compromised (Rauch & Foa, 2006).

Carryer and Greenberg’s (2010) investigation into the relationships between aroused expressed emotion and therapy outcome provides some empirical support for the idea that there are productive and unproductive levels of emotional arousal. In their study, individuals who were treated with experiential therapy for depression were rated on expressed emotional arousal. Findings suggest that moderate amounts of emotional arousal, compared to arousal that was excessively low (i.e., blocked) or high (i.e., flooded), was associated with reduced depressive symptoms and lower severity of symptoms of psychopathology at outcome. The authors situate this finding within the commonly accepted psychological principle that there is a nonlinear relationship between performance and arousal, which is also a fundamental tenet of emotion-focused therapy (Carryer & Greenberg, 2010). Evidence of this principle also comes from EW studies that employed the Linguistic Inquiry and Word Count (LIWC; Pennebaker et al., 2007), which is a text analysis software that categorizes words into several diverse groups (e.g., pronouns, emotion words, verbs). Using an earlier version of the LIWC to analyze EW and control essays written by students adjusting to college, for instance, Pennebaker and Francis (1996) found that those in the EW group who used more positive
emotion words (e.g., happy) had more improvement in physical health at follow-up. In a later study, Pennebaker, Mayne and Francis (1997) reanalyzed data from six previous studies that examined associations between word use and health. They reported that maximal health benefits were associated with both moderate use of negative emotion words (e.g., sad) and high use of positive emotion words. These results were later replicated by Pennebaker and Seagal (1999) in their study of college students writing about a traumatic experience, suggesting that the expression of negative (but not positive) emotions is most helpful in the moderate range. Finally, in the earlier described study conducted by McMullen (2013), the MCPP was used to explore the relationships between the expression of productively aroused emotion (i.e., not flooded or blocked) and outcome in individuals undergoing CBT and EFT-PE for depression. She reported that productively aroused emotional expression was associated with lower dysfunctional attitudes in the EFT-PE group, although this relationship was not found for CBT participants.

Overall, there is considerable evidence to suggest that, under the right circumstances, the symbolization and expression of internal experiences can have favourable effects on well-being. Specifically relevant to EW, these processes may initiate and foster emotional insight, decrease the physiological work of inhibition and serve an exposure function that can lead to habituation. While the research findings are mixed there is evidence to suggest that, in order for many of these positive effects to take hold, primary emotions must be aroused and experienced in present-moment awareness. When this arousal falls at the extremes, however, individuals may lose their capacity to process their emotions in productive ways and to benefit from expressive activities. Finally, while a tolerable level of arousal is important, research suggests that the combination of productively aroused emotion and mode of
processing best predicts improved well-being following therapeutic activities. Based on these ideas, the present study examined emotional expression in the EW intervention in order to determine whether being optimally aroused is more closely related to symptom improvement (i.e., productive) than emotional expression in general and can help to explain why and how EW can be beneficial.

**Awareness and Assertion of Needs**

In many psychotherapeutic interactions, awareness and expression of needs (as well as desires, values, goals, etc.) is often seen as important, and may even be an explicit therapeutic task (Elliot et al., 2004). Although instructions in the EW intervention rarely asks participants directly to discuss their needs, participants often spontaneously become aware of and assert their needs in varying ways. A discussion of theory and research into the value of awareness and expression of needs follows, with the purpose of determining whether these activities may be recognized as pertinent to processing in the EW intervention. Then, specific qualities of this awareness and expression are explored in order to differentiate between productive and unproductive modes of processing.

Greenberg and colleagues (Greenberg, 2011; Greenberg & Paivio, 1997; Greenberg & Safran, 1987; Greenberg & Watson, 2006) discuss how every primary emotion is associated with a need and, thus, awareness, symbolization and expression of primary emotions can aid individuals in the identification of needs. The experiencing of emotions in the present-moment, for instance, can make action tendencies and dispositions to respond available in awareness. This not only relates to the automatic and fundamentally adaptive actions discussed earlier in the context of contemporary emotional theory, but also to more complex ways that emotions organize experience and provide individuals with a sense of
direction towards adaptive goals and change (Elliot et al., 2004; Greenberg & Paivio, 1997; Greenberg & Watson, 2006). Accordingly, through attention to emotions and emergent needs and goals, individuals can begin to mobilize internal resources to meet them. An individual, for example, may become aware of negative feelings after being excluded from a social gathering and then label those feelings as loneliness and rejection. Through this process, his need for attachment and acceptance might be identified along with the corresponding goal of increased social interaction and inclusion. Essentially, “every feeling has a need, and every emotion scheme activation provides a direction for action, one that will promote need satisfaction” (Greenberg, 2011, p. 37).

Drawing from and building upon theories of human emotion and functioning put forth by Antonio Demasio (1994) and Carl Rogers (1961), Watson (2011) identified and described four important developmental processes. Among these processes is differentiation (i.e., the distinguishing of several parts from one) both within the self and between the self and others. In the former case, individuals cultivate a sense of self through differentiation of their internal experiences including needs and values. This is an intrapersonal process that involves both awareness and symbolization of these needs and values in ways that allow individuals to better know themselves. In the latter case, individuals differentiate their personal needs and values from those of others and their environment (e.g., culture). This is an interpersonal process in which the self is recognized as independent from others and able to exercise self-determination and control. A failure to differentiate from others can interfere with self-actualization by driving individuals to act according to “shoulds” rather than to their personal emotions and needs (Greenberg, 2011). The overall importance of self-
differentiation as a developmental process is to foster adaptive behaviour through internal congruence as well as a sense of the self as independent and self-governing (Watson, 2011).

Awareness and expression of emergent needs, following from both emotional awareness and self-differentiation, can be an important change process. Through awareness of needs, goals and values, for instance, individuals are thought to be in a better position to examine themselves reflexively, determine the feasibility of getting needs met and evaluate whether their behaviour is consistent with these factors (Watson & Rennie, 2004). When needs and goals are found to be inconsistent with one’s behaviour, this evaluation can lead to alternative ways of being and interacting with the world that are more appropriate, effective and relevant to well-being. Greenberg and Watson (2006) further describe how the accessing of unmet needs can have positive effects at the cognitive, affective and motivational levels. Cognitively, they suggest that this process can spur problem-solving efforts by creating a “problem space,” where individuals can begin to search for ways to move towards an unmet need. With regards to affect, they explain that identifying and acknowledging an unmet need can invoke positive feelings related to fulfillment of the need. Individuals may even begin to access the feelings in the present moment by thinking about or remembering what it is like to have the need met. Through this experience, individuals’ motivation to meet the need may be heightened. Accordingly, at the core of the change process is “attention to emergent, alternate, emotionally based needs and goals and… access[ing] new more adaptive emotions to meet the need” (Greenberg & Watson, 2006, p. 289).

The acknowledgement of what one wants or needs can also be empowering and strengthening to the sense of self; it implies that the individual is entitled to have needs, that her needs are her own and that she deserves to have her needs met (Elliot et al., 2004). In
contrast, individuals are thought to show contempt for the self by ignoring their needs, which is invalidating and can cultivate helplessness. The foundation of this idea comes from gestalt theory (and, later, EFT), which espouses the precept that “health involves the owning of emerging experience, whereas dysfunction the automatic disowning or alienation of this experience. Pathology or dysfunction occurs when the need-satisfaction process is interrupted. This occurs because of lack of awareness” (Greenberg, 2011). Accompanying the self-empowerment associated with awareness of needs is often an increased sense of control over the self and one’s situation (Greenberg & Watson, 2006), the feeling of being more capable of confronting and dealing with pain (Elliot et al., 2004) and reduced perception that one is at the mercy of others (Watson et al., 2007). Thus, awareness of needs can foster a sense of confidence and agency as individuals “realize that just as they produce emotional and physical discomfort in themselves, they can also change these feelings” (Elliot et al., 2004, p. 240). This is an important tenet of experiential therapies, in which individuals’ responsibility in creating both their positive and negative emotional experiences are highlighted (though without the pretense of blame). A sense of agency has been recognized as a variable than can differentiate between good and poor outcomes clients and hence is thought of as an important factor in the change process (Watson et al., 2007; Watson & Rennie, 1994). Similarly, writings on CBT stress the importance of recognizing and setting goals as activities that can enhance agency and lead to more favourable outcomes (Taylor, Feldman, Saunders, & Ilardi, 2000).

According to Greenberg’s (2002) work on EFT, successful clients tend to move from the experience of a secondary emotion, to the experience of a primary maladaptive emotion, and finally to the experience of a primary adaptive emotion that is triggered by the
expression of an existential need (e.g., to feel loved). Thus, while the experiencing of emotions can aid in the identification of needs, so too can the identification of needs promote the experiencing of emotions. Research into the expression of needs in varying therapeutic contexts has provided some support for this model. Pascual-Leone and Greenberg (2007b), for example, examined video-recorded sessions of experiential therapy with the goal of identifying moment-by-moment steps in productive emotional processing. The authors reported that expression of existential needs was predictive of good in-session event outcomes as determined by high levels of experiencing. They argued that this finding is consistent with the notion that the expression of need can facilitate deeper emotional processing. Pascual-Leone and Greenberg acknowledge, though, that this is not always the case, as several clients who expressed a need had poor in-session events.

Research into the two-chair intervention also highlights the importance of the expression of wants and needs. The two-chair intervention is used in experiential therapies when an individual experiences an internal conflict and, in response, aligns with one side of the self while suppressing the other (Clark & Greenberg, 1986). The goal is to facilitate a “dialogue” between the two parts of an individual that are in conflict in order to bring new emotion and information into awareness and foster resolution. In their study of 18 students participating in a two-chair intervention, Sicoli and Hallberg (1998) discovered that prior to “softening” (i.e., when the “critical” part begins to understand the other part) participants were likely to have expressed wants, hopes, needs and desires. These results were consistent with previous findings that resolution of internal conflicts is associated with the expression of wants and needs, among other processes (e.g., Greenberg, 1992).
Similar results have also been reported in research into empty-chair work for unfinished business (Watson, Greenberg & Lietaer, 2010). In this intervention, usually used in situations relating to abandonment or abuse, individuals address unresolved feelings towards others by encountering the other in imagination (Elliot et al., 2004). Greenberg and Malcolm (2002) studied the process of resolution in 26 clients who experienced interpersonal problems and childhood maltreatment and participated in empty-chair activities in the context of EFT. They stated that clients who expressed previously unmet interpersonal needs, showed shift in their view of the other and affirmed the self experienced more positive change than those who did not. They added that almost all participants in the “resolution” group expressed an interpersonal need. In an earlier study, McMain, Goldman, and Greenberg (1996) found that therapy outcome was better predicted by the assertion of needs than revisioning of the other, suggesting that the expression of needs alone may be an essential factor in the change process. This was in line with additional research that identified the expression of needs as one of four performance components that discriminated between resolution and nonresolution following empty-chair work (Greenberg & Foerster, 1996). Taken as a whole, research into two-chair and empty-chair interventions suggests that the expression of needs can be beneficial, even though it may not be an end in and of itself (e.g., the benefits may lie in its ability to promote experiencing of primary emotions and other change processes).

Clearly, there is strong reason to believe that becoming aware of and expressing needs can be a beneficial therapeutic task. Psychotherapy process research suggests that these processes can deepen emotional awareness, mobilize resources towards adaptive action, aid in the process of self-differentiation, allow for behavioural evaluation, and be empowering to
the sense of self. Though EW is very different from psychotherapy, their similarities and common threads intimate that these processes may also be pertinent to the intervention and worth exploring in that context. As is the case with other processing activities, though, are there ways of expressing needs that are more productive than others?

**Productive Assertion of Needs.** In order for the assertion of needs to be productive, Greenberg and Watson (2006) stress that an individual’s needs must be expressed as “belonging to and coming from the self and with a sense of entitlement, rather than as deprivations or accusations of the other. Thus, they are an assertion of entitlement to the need, rather than an expression of desperate neediness” (p. 268). That is, individuals’ expression of needs must be congruent with their internal experiences, they must maintain an agentic stance and they must acknowledge their needs as valid and deserving of attention. This is in contrast to statements that take a passive stance vis-à-vis others, such as in cases of complaining. An individual who states, “I need to feel comforted when I am stressed,” for instance, is productively asserting a need by acknowledging his inner experience and implying that he deserves to have this need addressed. An individual who states, “you’re too selfish to notice when I am stressed,” on the other hand, is complaining in a way that undermines his agency; the other is given the power and the need itself is left unacknowledged. Thus, complaint shifts the focus of attention to others and places power and responsibility with them, while assertion of needs places the self at the centre of power and responsibility (Watson et al., 2007).

The reasons why individuals complain vary considerably (Kowalski, 1996). It has been suggested, for instance, that people complain in order to maintain control, to “vent” their frustrations, to present themselves in particular ways, to draw attention to or alter
others’ behaviours, or to obtain information about others’ thoughts and feelings. Regardless of the reason, Greenberg and Watson (2006) indicate that complaint is not productive because it is not differentiated into its fundamental primary emotions (i.e., anger and sadness). In this regard, they emphasize the importance of moving from complaint (and other secondary reactions) to the expression of primary emotions and the associated needs. In fact, they suggest that the expression of complaint is a marker of unfinished business in depression and an indicator that intervention is needed. Accordingly, the exclamation, “my father never supported me!” would be a non-productive marker indicating the need for further processing, whereas the comment, “I need to feel supported” likely represents productive processing of internal experience.

While there is considerable support for the importance of needs expression in the change process, empirical investigations of complaint and blame have not revealed comparable results. Greenberg and Foerster (1996), in the study examining empty-chair work mentioned earlier, reported that there was no difference in the frequency of complaint in resolved and unresolved events, suggesting that this is not related to the change process. They note that this was an expected result given that complaint is a marker of unfinished business. McMullen (2013) also examined complaint behaviours in samples of individuals undergoing CBT and PE-EFT for depression. She discovered that individuals in the CBT group who complained and were involved in productive behaviours, such as vividly describing situation and expressing needs, reported less interpersonal problems and distress at the end of treatment. This relationship did not hold for those who expressed complaint but did not show other productive behaviours, suggesting that complaint alone is not sufficient to
bring about change. Thus, the research evidence does not point to complaint as a productive behaviour.

In sum, awareness and expression of needs, wants, goals and values has been linked with productive processing and good outcome. Theory and research suggest that related self-assertion can lead to heightened emotional awareness, goal-orientation and adaptive action. Further, it can cultivate a stronger sense of self-determination, control and agency, which have been identified as important to the change process. In order to be productive, however, individuals must express these needs in ways that assert their agency and acknowledge their right to have their needs respected and met. This is in contrast to complaint, which places the self in a passive role and does not recognize the responsibility of the self in creation of emotion and circumstance. Though there are often implied needs present in complaint, evidence suggests that complaint alone is not enough to produce change. In the present study, the potential benefits of needs expression will be explored in the EW intervention, with attention to whether qualities of this expression (i.e., those identified as productive or unproductive) can account for differential relationships with symptomatology at outcome.

**Evaluation of the Self and Others**

Up to this point, the discussion of productive processing has focused on the awareness, symbolization and expression of experiences including events, physiological sensations, emotions, needs and goals. In the context of dialectical constructivism these activities represent the experiential mode of processing, where information is generated “bottom up” through the bodily felt sense and the symbolization of experience (Watson & Greenberg, 1996). The rational process, on the other hand, is a “top down” process that includes symbolized experience as well as the reflexive examination of that experience. In
the EW intervention (including the one used in the present study), participants are often instructed to not only consider their emotions when discussing stressful experiences, but also to explore their deepest thoughts related to them. Additionally, they may be advised to draw connections between their thoughts and emotions, discuss how the experience impacted their lives, and explore how their early childhood experiences may have influenced the outcome. Accordingly, it is pertinent to examine how the processing of rational data in EW may relate to outcome, and whether there are productive and unproductive qualities of that processing. This may help to answer important questions relating to why EW can be effective for some participants but not others. Among the reflexive processes, the evaluation of the self and others has been implicated as playing a role in the change process. Specifically, negative evaluations, criticism and blame have been linked with unproductive processes, while positive evaluations and validation have been associated with productive processing. Each of these ideas will be discussed in turn.

**Negative Evaluation, Criticism and Blame.** Coming from the perspective of EFT, Greenberg (2002) explains that negative views of the self, as well as self-criticism, can both follow from and lead to secondary emotional experiences. As discussed earlier, secondary emotions are responses to core primary emotions and are not thought of as productive since they do not provide access to underlying emotional meaning structures (Greenberg et al., 2007). Secondary anger, for instance, may manifest as hostile self-criticism (Greenberg, 2002; Greenberg & Paivio, 1997). This occurs when anger is directed towards the self in response to an action or feeling. An individual may, for example, experience primary sadness following romantic rejection. Based on various factors (e.g., cultural views on male sadness) he might then experience anger towards himself for feeling sad or for behaviours that led to
the rejection. Chastising himself for his behaviour (e.g., “I should have known better than to approach her”) or for feeling sad (e.g., “I’m such a baby”) would likely follow. These negative views of the self will often result in further negative feelings such as shame and depression. Accordingly, Greenberg (2002) posits that self-criticism alone is not productive because it may follow from secondary anger as well as cause further negative feelings.

Similarly, self-criticism is thought to be associated with secondary sadness (Greenberg, 2002). Secondary sadness is often characterized by the hopelessness and resignation “that come from a person feeling that his or her anger will not be heard, that it is not valid, or that it will not make an impact” (Greenberg, 2002, p. 155). That is, secondary sadness may represent reactions to core frustration and anger that individuals believe will remain unacknowledged. As such, it relates more to generalized hopelessness than to the authentic loss of core sadness. Individuals who experience secondary sadness may be criticizing themselves for perceived “shoulds” (e.g., “I shouldn’t feel angry”) or due to their feelings of hopelessness (e.g., “I don’t deserve to be angry”). In either case, self-criticism can further heighten the secondary sadness and block the experience of primary adaptive anger.

Self-criticism can also engender secondary feelings of shame (Greenberg, 2002; Greenberg & Paivio, 1997). This may occur when people perceive that they have made a mistake, their behaviour is embarrassing, what they have done is reflective of foolishness, or they have acted in an otherwise undesirable way. Shame in this context may lead to damaged self-esteem and depression. Often, these self-judgments are also projected onto others and cause individuals to perceive the criticisms as coming from both within and outside the self. An individual who fails to get a job following an interview, for instance, may criticize herself by thinking, “I made a fool of myself in the interview.” She may also project this judgment
onto the interviewer, thinking, “she didn’t give me the job because she thought I looked like a fool.” Feelings of shame and embarrassment are likely to follow. Greenberg (2002) notes that secondary shame differs from core shame in that it is more transient and situation dependent (e.g., “I acted foolish”) rather than a global and enduring evaluation (e.g., “I am a fool”). Due to the associations between self-criticism and secondary emotions, it should not be considered a productive behaviour in and of itself. The intervention, from an EFT standpoint, would be to recognize what is generating the negative emotions and to encourage and facilitate the experience and expression of the primary core emotions.

Kennedy-Moore and Watson (1999) further suggest that self-criticism following blame can inhibit emotional experience and expression. This is particularly relevant for survivors of traumatic experiences, as they are often consumed with self-blame. If an individual believes that he was to blame for a fatal car accident, for instance, he may inhibit his experience and expression of fear and sadness due to a view that he is not entitled to these emotions. It is suggested that criticism in this regard is not helpful and that redirection to more healthy self-assertion would more likely be productive. Research conducted by Mongrain and Zuroff (1994) provides support for this idea. In their investigation into factors that mediate the relationship between self-criticalness and depression, they discovered that self-criticism was related to ambivalence about expression, which in turn predicted depressive symptoms.

Relatedly, blame and criticism of others, like complaint, is thought to undermine an individual’s sense of agency (Greenberg & Paivio, 1997). As with self-blame, it is often more productive for individuals to focus on internal experience and to assertively express their needs. This is not always the case, however; when an individual experiences
maladaptive self-blame, such as is often the case with abuse, it is sometimes appropriate to externalize blame. This externalized blame, which comes “from a legitimate and deep sense of violation and injustice, needs to be encouraged. These feelings are powerfully assertive and focused, and involve holding the other accountable rather than just hurling insults” (Greenberg & Paivio, 1997). This helps individuals to feel empowered as opposed to emphasizing their position as a victim. In the research literature, blame has been consistently linked to poor outcome. In a comprehensive review of 25 published studies that examined the impact of blaming others for threatening events, Tennen and Affleck (1990) reported that blame was associated with increased demoralization, distress and depression, as well as lower self-esteem. Based on their review, the authors concluded that “other-blame shatters either the illusion of self-sufficiency among those who entertain that illusion or one’s belief in a benign world and the reliability of others. It appears to offer no adaptational benefits while wrestling a great emotional cost” (Tennen & Affleck, 1990, p. 226). A study conducted by Macready (2012) sheds further light on the topic, as she experimentally manipulated blame in an EW intervention. Her results indicated that participants who were instructed to blame others for a stressful experience during EW showed significantly less symptom reduction than those who were given standard EW instructions.

Drawing on writings by Perls (1969), Elliot and colleagues (2004) describe the coercive and evaluative self as:

a “top dog” that verbalizes the “shoulds,” “oughts,” and evaluations. It also carries with it hostility, disgust, or contempt that feeds into feelings of hopelessness, powerlessness, and subsequent depressive or anxious states. It is the specific dominance of the negative self-evaluating process that leaves the person immobilized, anxious, depressed and uncertain. (p. 220)
Accordingly, in addition to its relation to secondary emotions, negative evaluation is implicated as playing a role in the perpetuation of other maladaptive feelings and psychopathology. Personality traits associated with self-criticism, for instance, have been hypothesized to cause a vulnerability to depression (Beck, 1983). Individuals high in self-criticism have a tendency to have high expectations of achievement and are likely to perceive failures as personal (Rector, Bagby, Seagal, Joffe, & Levitt, 2000). Thus, when failure occurs, the self is deemed responsible and is evaluated negatively. Self-criticism has also been implicated in elevating the risk of depression relapse (Gilbert & Proctor, 2006). From a cognitive perspective, criticism of the self and others may represent cognitive errors, where negative conclusions are drawn from evidence that is insufficient or otherwise distorted (e.g., through overgeneralization; Wright et al., 2006). The intervention, from the perspective of CBT, is often to examine evidence against the self- and other-critical thoughts in order to arrive at a more balanced belief that takes into account positive attributes of the self and others.

Support for this position comes from Whelton and Greenberg (2005), who set out to empirically test the effects of self-criticism on the self, particularly with regards to depression and depressive vulnerability. They classified a sample of college students as either high or low in self-criticism and then had these students criticise themselves in their imaginations in response to a past experience of failure. Results indicated that participants high in self-criticism, compared to controls, demonstrated more contempt and disgust for the self. This was accompanied by increased feelings of sadness and shame, more submissiveness and less assertiveness. The authors concluded that both negative thoughts and emotions related to the self (especially disgust and contempt) play an important role in the development of
depression. This was consistent with a previous study by the same authors, which revealed that proneness to depression was associated with higher degrees of self-contempt embedded within the expression of a negative belief (Whelton & Greenberg, 2000). Furthermore, in her examination of productive behaviours in EFT-PE and CBT, McMullen (2013) reported that individuals in both treatment groups who were more self-critical also had poorer outcome scores on depressive symptoms, interpersonal difficulties, dysfunctional attitudes, self-esteem and general distress than those who were less self-critical. Several other studies have also demonstrated the negative effects that self-criticism and negative evaluations of the self and others can have on therapy outcome (e.g., Marshall, Zuroff, McBride, & Bagby, 2008; Rector et al., 2000; Rudkin, Llewelyn, Hardy, Stiles, & Barkham, 2007).

Important to note is that, while negative evaluation of the self or others is likely not itself productive, it may mark the beginning of the productive process. In fact, Greenberg (2002) noted that, in order to for individuals to modify their contempt, “the destructive beliefs, and the totality of the experience they represent, a person must first articulate the belief in words” (p. 94). In doing so, primary emotions related to the negative evaluation can begin to be symbolized and expressed, leading to other change processes. In two-chair work for conflict splits, for instance, the expression of self-criticism has been found to be an important component of a three-step model of resolution when followed by the expression of needs and a “softening” of the critic (Greenberg & Webster, 1982).

**Positive Evaluation, Softening and Validation.** Unlike negative evaluation of the self, which is associated with secondary emotions, positive self-evaluation and validation are linked with the experience and expression of primary emotions and related needs (Kennedy-Moore & Watson, 1999). Specifically, as individuals become aware of their internal conflicts
they also may become aware of new emotions and assert their needs in ways that validate the
criticised self. This experience often leads to a “softening” of the critic and to more positive
evaluations of the self. An individual, for instance, might criticize himself by thinking, “I am a loser.” Through a deeper awareness of this evaluation he might become aware of feelings of sadness and loneliness as well as the need to be loved and accepted. As the critical side of the self acknowledges this need, he may soften in his stance and move into a caring and compassionate role. In turn, this can lead to negotiation between the two sides of the self and subsequent resolution. These ideas are intimately related to the EFT strategy of two-chair work.

Two-chair work for negative treatment of the self involves the bringing of self-criticism and other conflict with the self into awareness in order to facilitate a productive shift in self-treatment (Watson, 2011). Through two-chair work, it is posited that:

clients can become aware of how they control and manage; oppress and silence; or neglect and fail to adequately take care of themselves. Once these oppressive and negative behaviors are activated therapists can help their clients become aware of their impact on their organism and help them to express their organismic experience in order to develop more nurturing and positive ways of treating themselves. (Watson, 2011, p. 24)

Individuals involved in two-chair work progress through several stages, including the identification and heightening of the self-critical split, engagement with and differentiation of emotions on both sides of the split, identification and negotiation of needs and, finally, softening of the critic and integration (Greenberg et al., 1993). Softening of the critic and positive treatment of the self, including soothing, respecting, accepting and valuing oneself, is thought to help produce positive therapeutic change. Research into two-chair work has provided some support for this opinion. In a study conducted by Shahar and colleagues (2012), for example, 10 individuals scoring at least one standard deviation above the mean on
a measure of self-criticism were treated with the two-chair intervention. The authors found that two-chair work was associated with increased self-compassion and self-reassuring as well as reductions in self-criticism. The intervention was further associated with improvements in symptoms of anxiety and depression, suggesting that a shift to positive treatment of the self is linked with improved well-being. In an earlier study by Greenberg and Webster (1982), 31 individuals experiencing intrapsychic conflict participated in a six week program using the two-chair dialogue. They reported that participants who “resolved” their conflicts were less undecided with regards to their conflicts, less anxious and more improved with regards to their target complaints. Importantly, following the session in which a “softening” of the critic was experienced, participants who resolved their conflicts reported less discomfort as well as increased mood change, goal attainment and conflict resolution. Among other processes, this implicates increased positive treatment of the self as significant to change.

Outside of the two-chair intervention, considerable empirical evidence also exists that supports positive treatment of the self as a productive processing activity. Kelly, Zuroff and Shapira (2009) assigned 75 individuals experiencing distress related to acne to one of three groups: a self-soothing group, where participants engaged in imagery and self-talk that was compassionate, nurturing and reassuring; an attack-resisting group, where participants engaged in resilient and retaliating self-talk; and a control condition. Relative to controls, participants in both experimental groups showed reduced shame and complaints about their skin. Participants in the attack-resistant group also demonstrated decreased depression. In addition, a series of five studies carried out by Leary, Tate, Adams, Allen and Hancock (2007) addressed the ways in which self-compassionate individuals (i.e., those who are kind
and nonjudgmental towards the self) deal with negative life events. Among other findings, they reported that “self-compassion was associated with lower negative emotions in the face of real, remembered, and imagined events and with patterns of thoughts that generally facilitate people’s ability to cope with negative events” (Leary et al., 2007, p. 901). Further, Neff, Hsieh and Dejitterat (2005) studied how being compassionate towards the self relates to academic failure. They described that self-compassion was positively associated with mastery and intrinsic motivation and negatively associated with performance-avoidance. They also noted that self-compassion was related to positive reinterpretation, growth and acceptance. Finally, Compassionate Mind Training (CMT), developed by Gilbert and Procter (2006), is a treatment used to address shame and self-criticism related to mental health difficulties such as depression. CMT is an integrated therapy that focuses on self-compassion, self-soothing and other forms of positive self-treatment through activities such as reasoning, behaviour, attention and nonjudgmental awareness (Gilbert, 2009). Research into CMT has demonstrated that it may be effective in reducing feelings of shame, inferiority, self-criticism, depression and anxiety (Gilbert & Procter, 2006), though this is not always the case. Taken together, there is considerable evidence to suggest that positive self-treatment is productive in the sense that it can confer benefits to well-being.

When it comes to negative evaluation and blaming of others, it can sometimes (but not always) be productive to shift to a more positive view (Greenberg, 1991; Kennedy-Moore & Watson, 1999). In empty-chair work for unresolved interpersonal issues, for instance, individuals are encouraged to evoke the presence of the other, differentiate and express primary emotions, assert and validate needs, and then let go of bad feelings through understanding, forgiveness or holding the other accountable. A shift to positive evaluation
may be helpful when it involves taking the perspective of the other, increased understanding of their behaviour, or otherwise developing a sense of empathy. An individual may demonstrate resentment towards his father, for instance, for never showing affection towards him. Through empty-chair work and the enactment of his father, he may become aware of and express feelings of sadness and resentment as well as recognize his need for love and comfort. Resolution may follow if the individual is able to acknowledge his feelings and needs while also shifting his view of his father. He may recognize that his father did show affection in certain ways, that he didn’t know how to show affection, or that he didn’t show affection due to his own developmental factors. This can lead to a more positive evaluation of his father and a letting go of negative emotions (e.g., “he was a good father, he just didn’t know how to show me he loved me,” or “he tried to demonstrate his love for me through small gestures, which shows he did care for me and try to make me happy”). In the case of abuse, contrarily, resolution may instead involve attributing responsibility to the other and reducing self-blame.

The position that a shift to a more positive evaluation of others is associated with beneficial change in empty-chair work is backed by research performed by Paivio and Greenberg (1995). In their study, individuals who reported unresolved feelings towards a significant other were randomly treated with either an empty-chair intervention or psychoeducation (i.e., information about unfinished business). The authors reported that, at follow-up periods of four months and one year, participants in the empty-chair group had reduced perceptions of hostility towards the other as well as increased self-acceptance. This was complemented by reductions in psychological symptoms, interpersonal distress and discomfort, as well as resolution of the unfinished business. It was further noted that four
clients experienced increased hostility, which the authors indicated provides evidence for the theory that holding the other accountable for harm may also relate to resolution. Furthermore, in their examination of 11 resolved and 11 unresolved cases of negative feelings towards a significant other, Greenberg and Foerster (1996) found that the “positive other” component (i.e., positive statements related to the other) significantly differentiated between the two groups. In fact, this component was present in nine out of 11 resolved cases and in none of the unresolved cases. Similarly, the authors reported that the “self-affirmation, self-assertion, or understanding of other” component was present in all resolved events but none of the unresolved events. Accordingly, the evidence points towards positive treatment and evaluations of others as productive behaviours that may positively affect the change process.

Finally, cognitive research provides evidence that positive cognitions and positive evaluations of the self, others and situations are related to healthy functioning and good therapy outcome. In a study run by Garamoni, Reynolds, Thase, Frank, and Fasicza (1992), for instance, 32 individuals with depression were treated with CBT and then classified as responders or nonresponders based on their depressive severity at outcome. They indicated that, through treatment, responders shifted their thoughts to the optimal balance between positivity and negativity, which they defined as a predominantly positive state that also considers negative events to be salient. This was in contrast to nonresponders, whose cognitions remained negative to a degree indicative of psychopathology. Based on these findings, these authors suggested that gains in CBT are more related to increased positive cognitions than to reductions in negative cognitions. The lack of a control group, however, may have limited the scope and generalizability of the findings. In addition, Burgess and Hagaa (1994) found a strong negative correlation between positive automatic thoughts (e.g.,
“I have many good qualities,” or “My future looks bright”) and depressive symptoms in a study of over 200 undergraduates who completed self-report measures. This relationship has also been reported in others studies (e.g., Ingram, Atkinson, Slater, Saccuzzo, & Garfin, 1990). Lastly, Lightsey (1994) administered questionnaires related to positive and negative automatic thoughts, life experiences and depressive symptoms to 71 undergraduate students. He stated that less frequent positive automatic thoughts were related to more severe depressive symptoms, while more frequent positive automatic thoughts were related to less severe depressive symptoms. He also reported a significant moderation effect, whereby the relationship between negative life events and depressive symptoms was reduced when higher levels of positive automatic thoughts were present.

**Productive Evaluation.** Though not an exhaustive review, consideration of both theory and empirical evidence suggests that negative evaluations of the self (e.g., self-criticism) and others (e.g., other-criticism, blame) are not productive in the sense that they alone are usually not associated with change, therapeutic gain and improved treatment outcome. In fact, much of the evidence implicates negative evaluations as playing a role in psychopathology as well as the generation and maintenance of secondary and maladaptive emotional experiences and behaviours. This is evident in research addressing both emotional and rational processes, representing both aspects of the dialectical constructivist view. Notwithstanding these findings, the expression of negative evaluation may be useful in that it can stimulate productive processes (e.g., the experience of primary emotions and expression of needs). Conversely, theory and evidence point towards positive evaluations and treatment of the self (e.g., self-compassion, validation) and others (e.g., through softening) as productive processing behaviours. Across theoretical perspectives and therapeutic
approaches, positive evaluation has, among other things, been found to relate to well-being, resiliency and treatment outcome. Even more compelling, an increase in positive evaluation has been found to be important to the change process even more than a reduction in negative evaluations. Overall, theory and research suggests that positive evaluations can be considered a productive process, while negative evaluations can be considered a neutral process at best (and a harmful one at worst). In the present study, these factors will be explored in EW to test whether these findings can be extended to the intervention and account for some of some of the positive changes often experienced as well as explain disparities in findings between participants.

**Reflection, Exploration and New Understanding**

The achievement of insight and self-understanding has long been considered one of the central goals of psychotherapy and, more broadly, life in general (Castonguay & Hill, 2007). The term “insight” has traditionally been used to delineate any new changes in consciousness, though the nature of this insight, as well as the ways in which it is generated, differs considerably across theories and therapies (Kennedy-Moore & Watson, 1999; Pascual-Leone & Greenberg, 2007). Is this insight, developed through reflection and exploration of both emotional and cognitive information, also important to the change process in the EW intervention? Could the achievement of insight and new understanding help to answer the “how” and “why” questions that have remained elusive? These questions are approached next, first from a theoretical standpoint and then taking into account empirical findings.

Pascual-Leone and Greenberg (2007), in their discussion of insight and awareness in experiential therapy, differentiate between “experience-near” and “experience-distant”
insight. Experience-near insight refers to the processing of immediate experiences (e.g., physical, emotional) in ways that lead to new awareness of the subjective world. This is considered a “bottom-up” approach that involves a low level of abstraction (i.e., concrete experiential content) and the processing of perceptual and emotional data. This is in contrast to experience-distant insight which involves gaining new self-understanding by going beyond immediate experiences and linking conceptual information across time and situations. This is a “top-down” approach that uses a high level of abstraction (i.e., conceptual content) and processes rational data. Experience-distant insights are linked with cognitive-behavioral and psychodynamic therapies while experience-near insights are more closely associated with experiential and existential therapies. This conceptualization of self-understanding and insight parallels the dialectical constructivist view.

Reflexive examination, in addition to evaluation of the self and others, involves individuals “consciously scrutinizing, questioning, and evaluating their experience and behavior, as well as their current needs, goals, and values, in the light of antecedents and consequences” (Watson & Greenberg, 1996, p. 256). As discussed in detail earlier, the symbolization and expression of internal experiences can itself promote insight and new understanding as part of the reflexive process; it involves the integration of experiential and rational knowledge in order to determine the relevance of emotional experience to one’s well-being (Kennedy-Moore & Watson, 1999). By connecting words with experience, individuals are put in positions where they can reflect on their experiences as if they are observers; they may begin to perceive how they construe events, identify personal patterns of responding and create narratives that clarify their experiences (Greenberg & Watson, 2006). Subsequently, they may become more aware of the meaning of events, their needs and
values, and their priorities for action. In many ways, the meaning that individuals attach to their emotional experiences cultivates their sense of identity and makes them who they are.

From the dialectical constructivist perspective, reflexivity involves both individuals’ instrumental and moral agencies as well as their ability to consider their emotions and behaviours as they unfold in therapy (Greenberg & Watson, 2006). In this context, “instrumental agency refers to clients’ capacity to be goal-oriented, independent, and autonomous in their actions, whereas moral agency refers to their ability to evaluate the significance of things for themselves in terms of higher-order needs and values” (Greenberg & Watson, 2006, p. 307). The experiential information that is represented, expressed and associated with meaning creation and insight, thus, is also subjected to cognitive processes that relate to problem solving and changes in the ways individuals interpret the self, others and their experience. This is analogous to the cognitive-behavioural perspective, where becoming aware of and examining the connections between thoughts, emotions, behaviours and physiological experiences also form the foundation of change (Wright et al., 2006). Specifically, individuals are encouraged to become aware of and label their emotional experiences. They then use reflexive examination to determine the effects of their thoughts on how they feel and how they behave (Wells, 2000). These thoughts are subjected to evaluation, where new evidence is generated and a more balanced view of the self is allowed to develop. Accordingly, as experience is brought into awareness it can be evaluated and better understood. In this way, symbolic representation and reflexive examination stimulate each other as individuals develop a sense of the antecedents and consequences of their inner experience and behaviors (Watson & Greenberg, 1996). This idea is reinforced by Watson and Rennie’s (1994) study of individuals who participated in interpersonal process recall
interviews following the exploration of a problematic reaction. They found that participants’ reflexive examination of their experience both followed from and led to symbolic representation of that experience.

Watson and Rennie (1994) distinguish between three essential components of reflexive self-examination. The first component involves posing questions about one’s emotions, actions and interactions with the environment. This inquiry sets the stage for reflexive examination. Next, individuals must explore their emotions and actions in order to develop explanations of how they relate to their environments (e.g., social and cultural contexts). The validity of these explanations is checked against a range of experiences. Last, individuals evaluate the consequences of their experiences and actions with respect to their needs, values and goals. In doing so they can begin to evaluate whether these factors are aligned and determine appropriate changes in behaviour. To illustrate, an individual may begin by asking, “why do I become sad and withdraw when I meet people for the first time?” He would then explore this pattern of responding and develop explanations; for example, he may think, “maybe I feel sad because I believe I don’t belong and I withdraw to avoid getting hurt,” or “I think this could relate to when I was a child and I had a hard time making friends at school.” This may lead to realizations such as, “by withdrawing, I am undermining my ability to make real connections with others.” Subsequently, the individual can evaluate the implications of his behaviour in relation to needs and develop alternate courses of action. He may recognize that his withdrawal behaviour is incongruent with his need for belonging and his goal of deep interpersonal relationships. This realization may spur change in the service of meeting this goal, such as making an effort to be more active when meeting others.

Essentially, through reflexive examination the significance of experiences, actions and events
can be better understood and individuals can develop courses of action that are aligned better with their needs, goals and values (Watson & Greenberg, 1996). Importantly, while this involves cognitive processes, it “is not merely an intellectual exercise, but rather represents a passionate commitment to the self in an attempt to come to know and realize it in action more fully and completely” (Greenberg & Watson, 2006, p. 307).

Through the process of reflexive examination, individuals gain insight, come to new realizations and begin to understand themselves better (Watson & Rennie, 1994). This can result in revisioning of the self, which involves developing alternate ways of being and behaving. Embedded within this construct is the sense of increased agency, control and responsibility for one’s experience and behaviour. By considering the consequences of actions and conceiving of alternatives, individuals can begin to “possess their feelings and actions rather than be possessed by them” (Watson & Greenberg, 1996, p. 256). The benefits of a sense of agency to well-being have been discussed earlier as a component of the change process. Further, by coming to new realizations and gaining perspective about the self, individuals may “experience a sense of triumph and accomplishment at their discovery” and feel “a surge of energy and an elevation in their mood” (Watson & Rennie, 1994, p. 504).

Theoretical musings on reflexive examination and the development of new understanding highlight the importance of these processes in change and resolution. Purportedly, they can lead to more clarity with regards to the meaning of events, heightened awareness of needs and values, identification of priorities for action, cultivation of identity, and increased insight. Hence, reflection and exploration emerge as potentially useful to partially explain the effectiveness of the EW intervention. Next, research into these processes will be reviewed to test whether the theoretical literature passes empirical muster.
Research in Reflection, Exploration and New Understanding. Empirical investigations into reflexive processes have tended to support its connection to positive therapy outcome and improved well-being. In the study conducted by Watson and Rennie (1994) mentioned earlier, they discuss how clients themselves talk about acquiring insight into psychotherapy. They reported, for instance, that clients found it significant and productive to represent their experience symbolically. This representation was found to take the form of speech acts (or narration of their “story”), cognitive-affective processes (including imagery of experience) and awareness events (i.e., the clarification of issues following their discussion). Further, clients’ reflexive self-examinations, prompted by the questioning of behaviour and attitudes, were found to foster evaluations of cognitions and emotions and, subsequently, new realizations about the self. These new realizations and the associated revisioning of the self were theorized to be related to positive psychotherapy experiences and increases in well-being. These findings are consistent with McMullen’s (2013) research into productive processing in psychotherapy, in which she discovered that participants treated with both EFT-PE and CBT who actively inquired, examined and explored themselves and their experiences tended to have better outcomes than those who engaged in these processes less frequently.

In addition, Missirlian and colleagues (2005) examined the relationship between perceptual processing and outcome in a sample of 32 participants who received experiential therapy for depression. Perceptual processing refers to the ways in which individuals process their experiences in therapy. At the higher levels, this involves reflective processes including externally focused differentiation, analytic differentiation, re-evaluation and integration. The authors reported that higher levels of perceptual processing predicted improvements in
depressive symptomatology, general symptoms and interpersonal dysfunction. They further noted that processing emotions in a more reflective manner and with aroused emotions was associated with more symptom reduction that either process alone. The authors concluded that, over the course of experiential psychotherapy, an individual’s “moment-to-moment understanding and experience of emotional information is believed to shift from a rigid, fixed state to a looser, more explorative phase, and finally to a ‘tightening’ stage, characterized by a broader and richer personal understanding of emotional experience” (Missirlian et al., 2005, p. 869). The use of self-report measures in the assessment of outcome, however, may have limited the generalizability of the results. Overall, reflexivity through exploration, awareness and understanding is an important part of the empirically-validated change process for the resolution of problematic reactions (Watson, 1992).

Research into reflexive processes in EW also provides some support for the notion that gains in insight and understanding following exploration is related to emotional and physical well-being. In particular, many studies have used the LIWC (Pennebaker et al., 2007) to examine patterns of word use in EW. In a study examining the use of EW to cope with having a child diagnosed with autism, for instance, Campbell (1993) found that higher use of words pertaining to insight (e.g., think, know and consider) and causation (e.g., because, hence and effect) were associated with decreases in negative health outcomes including grief and stress. Further, a reanalysis of data from six previous EW studies (total N = 453) done by Pennebaker, Mayne and Francis (1997) revealed that individuals participating in an EW activity who used increasing amounts of insight and causation words over sessions experienced improved physical health and adaptive behaviours at follow-up. These findings were corroborated by a later study, where increasing use of these words over sessions was
associated with more health improvements, higher grades and better job finding success compared to those who did not show a change (Pennebaker & Seagal, 1999). Tellingly, Pennebaker (1993) described that over three quarters of participants in his EW studies credited increased insight with their experiences of long-term benefits following the activity. Studies using other text-analysis measures to examine increases in the use of insight words over time have also generally supported these findings, with positive effects found for individuals living with HIV (Rivkin, Weingarten, & Chin, 2006), caregivers of ill children (Schwartz & Drotar, 2004) and breast cancer survivors (Owen et al., 2005).

While not necessarily using established process measures, other research into the mediating variables of EW have used content analysis in order to investigate qualities of the disclosures that may relate to outcome. In their analysis of EW essays written by women who lost a loved one to breast cancer, for instance, Bower, Kemeny, Taylor and Fahey (2003) found that the discovery of meaning was associated with elevated immune functioning. Similar results were found in a later study, where the discovery of meaning was associated with positive emotions after a breast cancer diagnosis (Bower et al., 2005). A more recent study by Creswell and colleagues (2007), however, contradicts these findings. In their study, an analysis of EW essays written by individuals diagnosed with cancer, it was discovered that, while self-affirmation was positively related to outcome, the discovery of meaning did not predict gains in physical well-being. The authors do report, though, that the combination of cognitive processing and the discovery of meaning were associated with benefits following EW. More specifically, this combination predicted less distress immediately after writing, which the authors speculate may relate to its ability to buffer against the distress of cancer-related thoughts and feelings. Several study limitations may also have contributed to
the lack of significant findings; for instance, the discovery of meaning was not directly
manipulated, but rather was assessed in the context of a general EW trial. This limited the
authors’ ability to make causal statements about the relationship between meaning-making
and physical well-being.

**Productive Reflection and Exploration.** As described earlier, productive reflection
involves consciously questioning, exploring and evaluating symbolized experience and
behaviour in the context of needs, goals and values (Watson & Greenberg, 1996). It is rooted
in the dialectical construction of experiential and rational knowledge. As such, reflexivity
necessarily occurs in moment-to-moment processing as individuals cycle and recycle through
symbolization of and reflection on experience. When individuals are not engaged in the
moment-to-moment process, they are unable to clearly symbolize their feelings and, thus, to
develop a clearer understanding of them (Kennedy-Moore & Watson, 1999). They may
observe their thoughts or belief in general, or provide explanations about their experiences
and actions that are based solely on reason or old views of the self. Since these observations
and explanations are not developed through conscious attention to one’s experience and do
not integrate experiential and rational knowledge, they are likely not productive and related
to the process of change. In the present study, reflection and exploration will be examined in
the EW intervention to see whether the qualities identified as productive or unproductive can
account for some of the differences in outcome seen across studies and between participants.

**Rationale, Objectives and Hypotheses**

The EW intervention, first studied by Pennebaker and Beall in 1986, has been
subjected to decades of theoretical and empirical study. Though results have been mixed, the
ability of EW to confer psychological and physical benefits to at least some participants
under certain conditions has been firmly established. These participants and conditions have
also been researched extensively, leading to the identification of variables (e.g.,
demographic, methodological) that likely moderate outcome in EW. Further, research
addressing the questions of why and how EW can be effective has provided some insight into
the mechanisms of action that may be driving the intervention. Some support has been found,
for instance, for the ideas that EW can aid in the processes of exposure and habituation,
organize traumatic memories through narrative creation, lessen the physiological distress
caused by inhibition, positively impact interpersonal functioning, and generate insight and
self-understanding. Overall, however, none of these theories has been sufficient in fully
explaining the effectiveness of EW and why some participants appear to benefit while others
do not. The present study aimed to address this gap in our understanding of EW by exploring
how cognitive and affective processing activities that participants engage in during the
intervention may influence psychological and physical symptomatology at outcome.

An understanding of emotional theory helps in the identification of which processing
activities may be most relevant to EW and why. Specifically, contemporary emotional
theory, the dual-pathway model, and the dialectical constructivist perspective all converge on
the idea that there are two ways that individuals process information. The experiential system
represents intuitive knowledge gained through the bodily felt sense, instinct, and rapid
appraisals. The rational system represents processing of information that occurs more slowly
and is influenced by variables such as cognitions, socialization and cultural context. Both of
these processes, though distinct from each other, are so intertwined and mutually influential
that it is difficult to consider them separately in any practical way. Accordingly, a
consideration of processing activities that may be relevant to EW should take into account both methods of information processing as well as how they may work together.

In addition, it is prudent to consider the functions of emotions and how arousal, awareness and expression may be beneficial in EW. Contemporary emotional theory views emotions as fundamentally adaptive in the sense that they serve to increase our chances of survival. Among other things, emotions can help individuals to identify goals, motivate and organize action, teach us about ourselves, and foster and manage interpersonal relationships. Combined with cognitive processing, actions can be planned and executed and then emotional information can be revisited and reflected on to determine future action. The Process Model of Expression and Nonexpression shows that, while fundamentally adaptive, specific emotions can proceed from arousal to expression (and back again) in adaptive or maladaptive ways. Further, a review of emotional venting theories and the related research reveals that the simple act of expression is not necessarily beneficial and is not sufficient to explain why emotional expression can be helpful. As such, the effectiveness of the EW intervention cannot be attributed to expression in and of itself; rather, there must be productive and unproductive ways that emotions and cognitions are processed and expressed during and after the intervention.

Psychotherapy and other process research provide insight into what these productive and unproductive processing activities may be. Specifically, there is reason to believe that: 1) descriptions of external experiences that are vivid, concrete and imagistic are productive, while those that are lifeless, distant or “flat” are not; 2) symbolization and expression of internal experiences while optimally aroused is productive, while “blocked” or “flooded” emotions are not; 3) awareness and assertion of needs is productive, while complaint is not;
4) positive evaluation, softening and validation of the self and others are productive, while negative evaluations, criticism and blame are not; and 5) reflexive examination and exploration is productive when individuals are engaged in moment-to-moment processing, while examination and exploration that is purely intellectual is not. The present study sought to determine whether these productive and unproductive processes could provide some insight into why EW can be beneficial in the same ways that they have provided insight into psychotherapy processes and their relation to outcome.

As described in the literature review, some studies have applied process measures to the EW intervention. These studies, however, have tended to focus narrowly on particular processes (e.g., emotional experiencing) and to produce inconsistent or conflicting results. Numerous studies have also used text analysis software, most prominently the LIWC, to examine how processing activities and other behaviours are related to outcome following writing tasks. These studies generally use word choice and other lexical factors to infer what processing activities individuals are engaged in. While some findings have been both relevant and consistent, they do not take into account the contexts within which words are used; as such, these approaches fail to capture the broader narratives being constructed, the idiosyncratic ways that individuals use language (e.g., metaphors), and whether the words used are relevant to the central tasks (i.e., on- or off-topic). Further, they do not directly address how different processing activities that participants engage in during EW may help to explain why some experience benefit and others do not. The present study aimed to address these limitations and improve on the LIWC by using extensively trained human raters to assess productive and unproductive processing activities within context.
The LIWC was also used in the present study in order to examine how patterns of word use relate to two of the processing activities identified: the symbolization and expression of internal experiences, and exploration and reflexive examination. Tausczik and Pennebaker (2010) reported that the LIWC can accurately identify language referring to emotions, including whether they are negative (e.g., “sad”) or positive (e.g., “happy”) emotions. A study conducted by Alpers and colleagues (2005) supported this notion, as they discovered that ratings of emotions on the LIWC were compatible with those completed by human raters. In addition, Tausczik and Pennebaker (2010) indicated that the use of words suggestive of cognitive mechanisms can provide hints about how individuals process information and attempt to interpret their experience. They noted, for instance, that the use of causation and insight words may indicate that an individual is engaged in the reappraisal process, making “reconstrual statements” (Tausczik and Pennebaker, 2010, p. 36), creating causal explanations, and organizing thoughts more generally. In the present study, thus, LIWC categories related to affective processes and cognitive mechanisms were used. Since the LIWC does not assess word use that applies to any of the other processing activities relevant to the present study, discussion of the LIWC will be limited in this regard.

The present study aimed to shed light on the questions of why EW can be effective, and why some participants benefit from the intervention while others do not. In order to address these questions, participants’ essays generated through an EW intervention for trauma survivors were explored. Specifically, the relationships between each of the processing activities identified and participants’ psychological and physical symptomatology at outcome were tested. Are the processing activities that participants engage in during the EW intervention related to outcome in the same ways suggested by the psychotherapeutic
literature? Can the benefits of EW be partially explained by these processes? It was expected that the quality of participants’ processing, as measured in their EW essays, would be related to outcome following EW in ways similar to those reported in the psychotherapy process literature.

Specifically, the hypotheses for the present study were:

1. Productive processing in each processing activity will be significantly negatively correlated with psychological and physical symptomatology one month following the EW intervention when controlling for these symptoms prior to writing.

2. Productive processing overall (i.e., regardless of specific activity) will be significantly negatively correlated with psychological and physical symptomatology one month following the EW intervention when controlling for these symptoms prior to writing.
CHAPTER 2: METHOD

Participants

Data from 38 participants in the experimental group of an expressive writing study were obtained. Data from the 32 participants in the control group of the same study were not used in the present research. Following a thorough review of the data, 10 participants were excluded from the analyses, resulting in a final sample size of 28 participants. Participants were excluded if they did not properly follow the writing instructions provided to them (e.g., if they wrote about different traumas on each day rather than a single trauma) or if it was determined through a review that a participant did not meet eligibility criteria upon entering the study (e.g., if they reported being involved in psychotherapy). In order to be included in the study, participants were required to meet the following eligibility criteria:

1. Experienced a past (i.e., not ongoing) traumatic event, excluding bereavement;
2. Currently experiencing distress as a result of this event;
3. Fluent in English;
4. Report no use of a personal diary for the past 12 months;
5. Not currently in psychotherapy or on any psychotropic medications.

As well, individuals who were deemed at risk of harming themselves or others were to be excluded from the study and given an appropriate referral. This action was not needed at any point during the study.

Demographic data indicating age, sex, ethnicity, marital status, level of education, amount of previous disclosure about the traumatic event, and previous experience with psychotherapy and psychotropic medications were collected (see Tables 1-3). Ages of participants ranged from 18 to 62, with a mean age of 30.39 years and a standard deviation of
Of the sample, 25% were male (n = 7) and 75% were female (n = 21). The majority of the sample identified themselves as Caucasian/European (n = 13, 46.4%). Four participants identified themselves as South Asian (14.3%), three as Hispanic (10.7%), three as Asian (10.7%), three as mixed/other (10.7%) and two as Black/African (7.1%).

With regards to marital status, almost all participants were single (96.4%, n = 27), with only one participant being married (3.6%). No participants reported being in common law relationships of divorced. A more even split was seen in participants’ level of education, with 39.3% of participants (n = 11) having graduated high school or less and 60.7% (n = 17) having graduated from college or university. Participants also varied in their amount of previous disclosure about their traumatic experiences, with five participants (17.9%) having never disclosed before, 17 participants (60.7%) disclosing a little, three participants (10.7%) disclosing a moderate amount, and three participants (10.7%) disclosing a lot. Finally, participants were asked about previous psychotherapy experience and whether they had ever taken psychotropic medications. Eight participants (28.6%) reported having been involved in psychotherapy at some point in their lives (not necessarily related to the reported traumatic experience), while three participants (10.7%) reported having taken psychotropic medications in the past.

During the initial session, participants were given the opportunity to identify the nature of their traumatic event by choosing from a list of categories. As can be seen in Table 4, the most frequently reported trauma involved a non-sexual assault perpetrated by a known assailant (n = 8, 28.6%). This was followed by traumas involving accidents (n = 7, 25.0%), sexual assaults perpetrated by a stranger (n = 3, 10.7%) and sexual assaults perpetrated by a known assailant (n = 2, 7.1%). Non-sexual assault perpetrated by a stranger, natural disasters,
combat, and sexual contact under age 18 with someone five or more years older were each
selected by one participant (3.6%). Four participants (14.3%) reported having experienced
traumatic events other than those listed.

Table 1

Descriptive Statistics for Participant Age (n = 28)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Minimum</th>
<th>Maximum</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>18</td>
<td>62</td>
<td>30.39</td>
<td>12.21</td>
</tr>
</tbody>
</table>

Table 2

Demographic Information (n = 28)

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>21</td>
<td>75.0</td>
</tr>
<tr>
<td>Male</td>
<td>7</td>
<td>25.0</td>
</tr>
<tr>
<td>Ethnicity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Caucasian/Euro</td>
<td>13</td>
<td>46.4</td>
</tr>
<tr>
<td>South Asian</td>
<td>4</td>
<td>14.3</td>
</tr>
<tr>
<td>Asian</td>
<td>3</td>
<td>10.7</td>
</tr>
<tr>
<td>Hispanic</td>
<td>3</td>
<td>10.7</td>
</tr>
<tr>
<td>Mixed/Other</td>
<td>3</td>
<td>10.7</td>
</tr>
<tr>
<td>Black/African</td>
<td>2</td>
<td>7.1</td>
</tr>
<tr>
<td>Marital Status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>27</td>
<td>96.4</td>
</tr>
<tr>
<td>Married</td>
<td>1</td>
<td>3.6</td>
</tr>
<tr>
<td>Common Law</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>Divorced</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>Education</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Variable</td>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>------------------------------</td>
<td>----</td>
<td>------</td>
</tr>
<tr>
<td>College/University Grads</td>
<td>17</td>
<td>60.7</td>
</tr>
<tr>
<td>High School or Less</td>
<td>11</td>
<td>39.3</td>
</tr>
</tbody>
</table>

**Table 3**

*Previous Disclosure and Treatment History (n = 28)*

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Previous Disclosure</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Little</td>
<td>17</td>
<td>60.7</td>
</tr>
<tr>
<td>None</td>
<td>5</td>
<td>17.9</td>
</tr>
<tr>
<td>Moderate</td>
<td>3</td>
<td>10.7</td>
</tr>
<tr>
<td>A lot</td>
<td>3</td>
<td>10.7</td>
</tr>
<tr>
<td>Previous Psychotherapy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>20</td>
<td>71.4</td>
</tr>
<tr>
<td>Yes</td>
<td>8</td>
<td>28.6</td>
</tr>
<tr>
<td>Previous Medication</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>25</td>
<td>89.3</td>
</tr>
<tr>
<td>Yes</td>
<td>3</td>
<td>10.7</td>
</tr>
</tbody>
</table>

**Table 4**

*Types of Trauma Selected (n = 28)*

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-sexual assault by a known assailant</td>
<td>8</td>
<td>28.6</td>
</tr>
<tr>
<td>Accident</td>
<td>7</td>
<td>25.0</td>
</tr>
<tr>
<td>Other traumatic event</td>
<td>4</td>
<td>14.3</td>
</tr>
<tr>
<td>Sexual assault by a stranger</td>
<td>3</td>
<td>10.7</td>
</tr>
<tr>
<td>Sex. assault known assailant</td>
<td>2</td>
<td>7.1</td>
</tr>
<tr>
<td>Variable</td>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>----------------------------------------------------</td>
<td>----</td>
<td>----</td>
</tr>
<tr>
<td>Military combat</td>
<td>1</td>
<td>3.6</td>
</tr>
<tr>
<td>Natural Disaster</td>
<td>1</td>
<td>3.6</td>
</tr>
<tr>
<td>Non-sexual assault by a stranger</td>
<td>1</td>
<td>3.6</td>
</tr>
<tr>
<td>Sexual contact under 18 by someone &gt;5yrs older</td>
<td>1</td>
<td>3.6</td>
</tr>
</tbody>
</table>

**Measures**

**Process Measures**

**Measure of Clients’ Productive Processing.** The Measure of Clients’ Productive Processing (MCMPP; Watson & McMullen, 2008; see Table 5) was used to assess participants’ engagement in productive and unproductive processing activities during writing. The MCPP is an observer-rated measure that classifies statements according to one of six nominal cognitive-affective processing activities, along with clients’ focus of attention and whether clients are engaged or disengaged as they processed their experience. The MCPP is based on an extensive review of the literature in terms of emotional processing (Greenberg & Paivio, 1997; Greenberg & Safran, 1987; Grenberg & Watson, 2006; Watson & Bedard, 2006; Watson & Greenberg, 1996), narrative processing (Bucci, 1995; Watson et al., 2007), and qualitative work with clients’ experience of psychotherapy (Watson, Greenberg & Liétaer, 2010). It also draws from Laura Rice’s measure of expressive stance that looked at qualities of client engagement (Butler et al., 1962; Rice & Wagstaff, 1967; Watson & Greenberg, 1996). The particular activities chosen to include in the measure were related to Jeanne Watson’s research into client processes in the exploration of problematic reactions (Watson, 1992, 1996; Watson & Rennie, 1994).
Within each processing activity, statements are rated as either engaged or disengaged (herein referred to as “engagement”) and as focused on the self or on others/events (herein referred to as “focus”). The engaged dimension of each processing activity refers to productive activities, while the disengaged dimension refers to unproductive activities. Specifically, the *Describing* activity refers to vivid descriptions that are concrete and specific (engaged; DE) or to lifeless and general descriptions of events (disengaged; DD). The *Experiencing* activity refers to feelings that are differentiated and immediate (engaged; XE) or to the blocking and flooding of emotional material (disengaged; XD). The *Expressing* activity refers to assertions or the expression of needs/wants (engaged; SE) or to complaining and demanding (disengaged; SD). The *Evaluating* activity refers to validations of the self or to positive evaluations of the self or others (engaged; VE) or to negative evaluations or critical statements of the self and attributing blame to others (disengaged; VD). The *Exploring* activity refers to actively inquiring about, considering and reflecting on questions about the self/others and situations (engaged; PE) or to passively inquiring in a distant and uncritical manner (disengaged; PD). Finally, the *Understanding* activity refers to revisioning the self, the creation of meaning bridges and new realizations (engaged; UE). There is no disengaged dimension of the *Understanding* activity.

The MCPP is a new measure that has been used to analyze therapy transcripts but has not been applied to written disclosures. Reliability information is provided by a study in which the measure was applied to transcripts of psychotherapy sessions. Specifically, McMullen (2013) reported that two secondary raters reached a “necessary” level of raw agreement with the primary rater (\(ra = .71\) and \(ra = .74\)) according to the standards of House, House and Campbell (1981). Based on standards outlined by Cicchetti (1994), McMullen
(2013) also reported a “good” inter-rater reliability as measured by kappa ($\kappa = .71$ and $\kappa = .69$) and a “good to excellent” intra-rater reliability ($\kappa = .73$ and $\kappa = .65$). McMullen also offered preliminary evidence for the construct validity of the MCPP based on her finding of a positive relationship between client statements of new understanding during sessions and their post-session reports of change (consistent across two different therapies and different stages of therapy). Further, McMullen stated that the predictive validity of the MCPP was exhibited by several expected relationships between productive (i.e., engaged) and unproductive (i.e., disengaged) processing activities and outcome. Across CBT and EFT-PE, for example, a higher frequency of Engaged Understanding predicted better outcome on measures of depression, self-esteem and dysfunctional attitudes, while a higher frequency Disengaged Experiencing predicted worse outcome.
Table 5
Measure of Clients’ Productive Processing (Watson & McMullen, 2008)

<table>
<thead>
<tr>
<th>Processing Activity</th>
<th>Productive/Engaged (E)</th>
<th>Unproductive/Disengaged (D)</th>
<th>Focus of Attention</th>
</tr>
</thead>
</table>
| Describing (D)               | vivid / concrete / specific / imagistic / idiosyncratic / episodic memory                | lifeless / distant / rehearsed / flat / general off-hand attitude / observing               | a. inside – self (s)  
b. outside – other (o) |
| Organismic Experiencing (X)  | feelings / locating a feeling / poignancy / immediacy / moderate arousal / differentiating | avoiding / flooding / reacting / distant from experience / undifferentiated / reporting feelings | a. inside – self (s) |
| Expressing (S)               | asserting / expressing needs / wants / wishes or hopes / setting limits or boundaries   | passivity vis-à-vis the other or environment / complaining / demanding                      | a. inside – self (s)  
b. outside – other (o) |
| Evaluating (V)               | positive evaluation of self, others or environment / validating / endorsing self, other or values | negative evaluation of self, other or environment / critical statements (self) / blame (other) | a. inside – self (s)  
b. outside – other (o) |
| Exploring/Examining (P)      | conjectures (speculation, guess) / construals / problem statements / active inquiring / questioning / considering / imagining / scrutinizing / studying | observing beliefs or thoughts generally / assuming / distant / static and uncritical / undifferentiated vague statements / rambling / unfocused / explaining / rehearsed / repeating old experience / intellectual / old view / static / definitive / general observation of others or own functioning | a. inside – self (s)  
b. outside – other (o) |
| Acquiring New Understanding/ Making Meaning (U) | new construals / meaning bridge (linking problem & construal) / new realizations / new perspective / integrating new experience / formulating new ways of being / elaborating new understanding / re-visioning self / re-evaluation / new view of other or self | N/A                                                                                      | a. inside – self (s)  
b. outside – other (o) |
**Linguistic Inquiry and Word Count.** The Linguistic Inquiry and Word Count (LIWC; Pennebaker et al., 2007; see Table 6) was used to lend further insight into emotional and cognitive processes assessed by the MCPP. The LIWC is a computer-based text-analysis program designed to provide data on linguistic markers that are associated with psychological and physical health outcomes following writing. These markers are divided into three groups: general linguistic features (e.g., tense, pronoun use, verb use) psychological processes (e.g., emotional, cognitive, social), and personal concerns (e.g., work, leisure, religion). These three groups are further divided into 74 subcategories that contain a total of 4500 words. The LIWC operates by analyzing each word in a text and calculating the percentage of words that fall into each of the categories and groups.

As mentioned earlier, only those word categories that were considered relevant to productive and unproductive processing activities specified in the present study were used for analyses. Related to the symbolization and expression of internal experiences, the LIWC word categories of Affective Processes, Positive Emotion, Negative Emotion, Anxiety, Anger, Sadness and Feel (i.e., any word relating to both the emotional and tactile aspects of “feeling”) were used to assess emotions within the EW essays. Some of these word categories are higher-order and contain subcategories, which is depicted in Table 6 along with samples of words in each category. Related to exploration, reflexive examination and new understanding, the LIWC category of Cognitive Mechanisms, as well as the subcategories of Insight, Causation, Discrepancy, Tentative, Certainty, Inhibition, Inclusion, and Exclusion were used.

On the LIWC, a single word can fall into more than one category (i.e., categories are not mutually exclusive), as is the case with the word “cried,” which falls into the categories of
“Affect,” “Negative Emotion,” and “Sadness.” Depending on the dimension being assessed, the inter-rater reliability of discrimination of category word elements ranges from 86% to 100%, demonstrating excellent content validity (Pennebaker et al., 2007). In order to test construct validity, 210 essays written by individuals making the transition to college were rated by judges along several of the LIWC dimensions. Judges’ ratings of the essays showed moderate correlations with the LIWC for most emotion categories, ranging from 0.22 to 0.75 (Pennebaker et al., 1997).

Table 6
LIWC Word Categories Used in the Present Study (Pennebaker et al., 2007)

<table>
<thead>
<tr>
<th>Category</th>
<th>Abbreviation</th>
<th>Examples</th>
<th>Word Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Affective Processes</td>
<td>Affect</td>
<td>Happy, cried, abandon</td>
<td>915</td>
</tr>
<tr>
<td>Positive Emotion</td>
<td>PosEmo</td>
<td>Love, nice, sweet</td>
<td>406</td>
</tr>
<tr>
<td>Negative Emotion</td>
<td>NegEmo</td>
<td>Hurt, ugly, nasty</td>
<td>499</td>
</tr>
<tr>
<td>Anxiety</td>
<td>Anx</td>
<td>Worried, fearful, nervous</td>
<td>91</td>
</tr>
<tr>
<td>Anger</td>
<td>Anger</td>
<td>Hate, kill, annoyed</td>
<td>184</td>
</tr>
<tr>
<td>Sadness</td>
<td>Sad</td>
<td>Crying, grief, sad</td>
<td>101</td>
</tr>
<tr>
<td>Feel</td>
<td>Feel</td>
<td>Feels, touch</td>
<td>75</td>
</tr>
<tr>
<td>Cognitive Processes</td>
<td>CogMech</td>
<td>Cause, know, ought</td>
<td>730</td>
</tr>
<tr>
<td>Insight</td>
<td>Insight</td>
<td>Think, know, consider</td>
<td>195</td>
</tr>
<tr>
<td>Causation</td>
<td>Cause</td>
<td>Because, hence, effect</td>
<td>108</td>
</tr>
<tr>
<td>Discrepancy</td>
<td>Discrep</td>
<td>Should, would, could</td>
<td>76</td>
</tr>
<tr>
<td>Tentative</td>
<td>Tentat</td>
<td>Maybe, perhaps, guess</td>
<td>155</td>
</tr>
<tr>
<td>Certainty</td>
<td>Certain</td>
<td>Always, never</td>
<td>83</td>
</tr>
<tr>
<td>Inhibition</td>
<td>Inhib</td>
<td>Block, constrain, stop</td>
<td>111</td>
</tr>
<tr>
<td>Category</td>
<td>Abbreviation</td>
<td>Examples</td>
<td>Word Count</td>
</tr>
<tr>
<td>-----------</td>
<td>--------------</td>
<td>---------------------------------------</td>
<td>------------</td>
</tr>
<tr>
<td>Inclusive</td>
<td>Incl</td>
<td>And, with, include</td>
<td>18</td>
</tr>
<tr>
<td>Exclusive</td>
<td>Excl</td>
<td>But, without, exclude</td>
<td>17</td>
</tr>
</tbody>
</table>

**Psychological and Physical Outcome Measures**

**Posttraumatic Diagnostic Scale.** The Posttraumatic Diagnostics Scale (PDS; Foa, 1995) was administered at baseline as well as at follow-up to measure changes in PTSD symptomatology. The PDS is a 49-item self-report measure of PTSD-related symptoms that participants can endorse experiencing over the past month. It was designed to measure the diagnostic criteria for PTSD outlined in the DSM-IV (APA, 1994) including re-experiencing, hyperarousal and avoidance/numbing. Participants are instructed to rate whether or not they have experienced a particular symptom (yes or no) and, if they have, to rate the frequency and severity of that symptom. Frequency scores for each symptom range from zero (“Not at all or only one time”) to three (“5 or more times a week/almost always”). Total symptom severity scores range from 0-51, with scores below 10 considered mild, from 10-20 considered moderate, from 21-35 considered moderate to severe, and scores above 35 regarded as severe. Research has demonstrated that the PDS symptoms severity scale has good psychometric properties with high test-retest reliability (.83), high internal consistency (.92), and high convergent validity with other measures of anxiety (.79) and depression (.80; Foa, 1995).

**Beck Depression Inventory, Second Version.** The Beck Depression Inventory, Second Version (BDI-II; Beck, Steer, & Brown, 1996) was administered at baseline as well as follow-up to measure changes in depressive symptomatology. The BDI-II is a 21-item self-report measure of current depression-related symptoms. It measures symptoms related to the cognitive, affective,
motivational, and physiological aspects of depression and was designed to correspond to the DSM-IV-TR diagnostic criteria for Major Depressive Disorder (APA, 2000). Each item consists of four statements that reflect severity level, and participants are asked to select a statement that best reflects their feelings and experiences from the past two weeks. Total symptom severity scores range from 0-63, with scores from 0-13 considered reflective of minimal depressive symptoms, from 14-19 considered reflective of mild depressive symptoms, from 20-28 considered reflective of moderate depressive symptoms, and from 29-63 considered reflective of severe depressive symptoms. The BDI-II has been used extensively and has been shown to have good to excellent psychometric properties in terms of test-retest reliability (.93), internal consistency (.92 - .93), and convergent and divergent validity (Beck et al., 1996).

**Pennebaker Inventory of Limbic Languidness.** The Pennebaker Inventory of Limbic Languidness (PILL; Pennebaker, 1982) was administered at baseline as well as follow-up to measure changes in physical health symptomatology. The PILL is a 54-item self-report measure of common physical symptoms and sensations that are sometimes associated with distress. Participants are instructed to rate how frequently they have experienced physical symptoms such as coughing, chest pain, racing heart, leg cramps, abdominal pain, sore muscles, acne, and headaches. Scores range from 54-270 and ratings can range from one (“Have never or almost never experienced the symptoms”) to 5 (“More than once every week”). The PILL was scored using the original additive scoring method (Pennebaker et al., 1977) rather than the more recent binary method, as this better captures subtle symptom change. Research has demonstrated two-month test-retest reliability ranges from .79 - .83 and internal consistency ranges from .88 - .91 (Pennebaker, 1982). No clinical cut-off scores are specified in the literature.
**Difficulties in Emotion Regulation Scale.** The Difficulties in Emotion Regulation Scale (DERS; Gratz & Roemer, 2004) was administered at baseline as well as follow-up to measure changes in emotion regulation abilities. The DERS is a 36-item self-report questionnaire that measures a variety of clinically relevant difficulties in emotion regulation. It asks participants to indicate how often each item applies to them, with scores ranging from 36-180 and response options ranging from “almost never” (response choice = 1) to “almost always” (response choice = 5). The DERS has been shown to be comprised of 6 distinct yet related factors of emotion regulation difficulties: (a) lack of emotional awareness; (b) lack of emotional clarity; (c) Non-acceptance of emotional responses; (d) difficulties engaging in goal-directed behaviours when distressed; (e) impulse control difficulties; and (f) limited access to emotion regulation strategies. Although the DERS is a relatively new scale, the authors report excellent overall internal consistency (.93) as well as good cronbach alpha values for each subscale (ranging from .80 to .89). Additionally, in a sample of college students, test-retest reliability for the overall score over a span of four to eight weeks was found to be good (.80), with modest to good reliabilities for each subscale (.57-.89). Finally, the DERS has been used in two published research studies by Gratz and her colleagues (e.g. Gratz & Anderson, 2006; Gratz, Lacroce, & Gunderson, 2006) up to this point. Both of these studies have demonstrated significant drops at post treatment in DERS scores after taking part in a psychological intervention (for a review, see Sloan and Kring, 2007).

**Other Measures**

**Demographic.** A number of demographic information variables were collected during the baseline measure session. These include: age, gender, marital status, education, occupation,
primary language used to speak/write, ethnicity, previous treatment/medication use, amount of previous disclosure about their traumatic experience, amount of time that the traumatic experience occurred for, and the number of years since last exposed to the trauma.

Expressive Writing Study Procedure

Recruitment

The overwhelming majority of participants for this study were recruited through advertisements placed online (e.g., on social media websites). In addition to the online campaign, other more traditional means of recruitment were also utilized. Posters, for instance, were put up in various public locations around an urban area in Southern Ontario.

Screening

Interested individuals who contacted the investigators were screened using the inclusion criteria. Those who were deemed ineligible were informed that the tasks in the study were not suitable for their particular needs and were given information in regards to why their particular answers made them ineligible. A comprehensive list of emergency contact resources was also offered. Individuals who did meet the eligibility criteria were provided with further details of the study and scheduled to come into the offices on three consecutive days. Once booked, participants were assigned the next available identification number; participants assigned to odd numbers were placed in the EW (experimental) group and those assigned to even numbers were placed in the control group.

First Writing Session

Participants arriving for their first session were brought to one of two private testing rooms, both of which were made to look exactly alike. Once consent was provided, participants
were instructed to work through the questionnaire package (approximately 40 minutes). They were then provided with their first writing task (either EW or control) as well as a blank booklet to write in. The experimenter informed participants that they would be asked to stop writing 20 minutes later.

Once participants began the writing session, suicide risk was determined through a review of their BDI-II scores. Participants scoring either a two (indicating “I would like to kill myself”) or a three (indicating “I would kill myself if I had the chance”) on question number nine were considered to be at risk. In these cases, one of the principal investigators was to intervene, pay the participant for the current session, contact the supervising psychologist, and work with the participant to figure out the most appropriate next steps (e.g., a referral to community mental health centres). This protocol was never implemented.

Once the 20 minutes expired, the experimenter instructed participants to stop writing and participants placed their writing into a confidential envelope. The writing was again screened for risk by checking for content relating to harm to self or others. If there was reason to suspect risk in this regard, the same protocol outlined earlier was to be followed. Again, this protocol was never implemented. Before ending the session, participants were compensated ten dollars ($10.00) and were given the list of emergency contact resources.

Second and Third Writing Sessions

On the second and third days of the experiment, participants were given the next set of writing instructions that corresponded to their group. Writing procedures then followed those outlined earlier for session one. At the end of the third session, participants were booked for their one month follow-up session.
Follow-Up

The follow-up session took place an average of approximately 29 days following the third session, with the vast majority of participants attending their follow-up session exactly 28 days later. One participant completed the follow-up session 50 days later due to scheduling difficulties. In this session, participants worked through the series of follow-up questionnaires (approximately 30 minutes). When the questionnaires were complete, debriefing with regards to the study purpose and hypotheses took place. The BDI-II was again checked for risk as outlined earlier. A copy of all writing instructions for both groups was offered, along with another copy of the emergency contact list. Participants were given the opportunity to ask questions and email addresses were collected for the purpose of sending the results of the study once all analyses were complete. Before ending the session, participants were compensated the final ten dollars ($10.00) and were informed that, for finishing the study, they would be entered into a draw to win a one hundred dollar ($100.00) cash prize.

Writing Conditions

The writing instructions used closely resemble those outlined by Sloan and her colleagues (e.g., Sloan, Marx, Epstein, & Lexington, 2007) and can be found in Appendix A. For the control condition, participants were asked to write on three consecutive days about how they use their time. Each set of instructions stressed that the writing was to be as objective and factual as possible, with no reference to thoughts or emotions. Specifically, on the first day participants were instructed to write about what they did the day before, from the moment they woke up to the moment they went to bed. On the second day they were instructed to write about what they
had done on the present day since waking up. Lastly, on the third day they were asked to write
about what they will be doing over the coming week.

For the EW condition, participants were asked to write on three consecutive days about
the most traumatic event that they had ever experienced. In their writing, they were instructed to
explore their deepest emotions and thoughts related to the experience. On the first day
participants were encouraged to write about the event itself and how it may have affected them in
various ways. On the second day they were instructed to continue writing about the same
traumatic event, exploring their deepest thoughts and emotions. On the third day participants
were instructed to continue writing about the same traumatic event with a focus on how it
continues to affect them currently.

**Present Study Procedure**

The essays, demographic information and outcome data obtained from participants in the
study described earlier were used for the present study.

**MCPP Ratings**

MCPP ratings were completed by the Principal Investigator as well as the measure’s co-
author. Both raters were extensively trained in using the MCPP by Dr. Watson, a recognized
expert in theories of emotional processing and expression and the primary developer of the
measure. This involved approximately 240 hours of total training time which included studying
of the manual, completing practice ratings and meeting to discuss theoretical (e.g., the
conceptual foundations of each processing activity) and practical (e.g., rules for rating) issues.
Both raters also had previous experience applying the MCPP to psychotherapy transcripts, where
they obtained an acceptable level of inter-rater and intra-rater reliability (McMullen, 2013).
Additional training for the present study involved theoretical discussions of how the MCPP might apply differently to written disclosures (compared to psychotherapy transcripts) and the refinement of MCPP rating rules based on these discussions. Then, numerous practice EW essays, provided by Dr. James Pennebaker from some of his previous EW studies, were rated using the MCPP and compared between raters. This was followed by additional discussion and refinement of rating rules. Inter-rater reliability was calculated for practice ratings until a percent agreement of 80% was reliably reached.

Once the acceptable level of inter-rater reliability was attained for practice essays, both raters applied the MCPP to one third (28 out of 84) of the essays. Selection of essays to be rated by both raters was done by stratified random sampling using session numbers as groupings. Specifically, nine essays were chosen at random from each of sessions one and two, and 10 essays were chosen at random from session three. Since the writing instructions were different for each session, this helped to ensure that raters were reliable regardless of specific content. All identifying information and outcome data were separated from essays in order to limit the possibility of rater bias.

Essays were first rated using the MCPP by the Principal Investigator. A single rating (i.e., determination of processing activity, engagement and focus) was given for a portion of writing until the content and quality of the writing were judged to have changed significantly enough to warrant a different rating. At that point the unit of writing was deemed a complete segment. Accordingly, a single segment could contain several sentences, or a single sentence could contain several different segments. The statement, “I feel so much anger towards him for being a terrible father,” for instance, would be divided into two segments. Specifically, “I feel so much
anger towards him” would be one segment and rated as Experiencing (processing activity), Engaged (engagement), Self (focus). The second segment, “for being a terrible father,” would be rated as Evaluation, Disengaged, Other. This rating procedure was continued until an entire essay had been rated.

Once the first five essays were rated by the Principal Investigator, the second rater then rated the segmented essays with all rating information removed. Inter-rater reliability was calculated in order to ensure that rater drift was kept to a minimum (Patterson, 1982). Specifically, after reliability was calculated, ratings were compared to determine whether the raters were rating essays according to the correct MCPP definitions and rules and that no systematic errors were occurring. Recurring errors were identified and the raters discussed ways that these errors could be corrected before moving on to the next essays. This procedure was repeated after 10, 18, and the full 28 essays were completed by both raters. Following the final inter-rater reliability check and discussion, the Principal Investigator rated the remaining 56 essays.

To determine whether raters were reliable over time (i.e., intra-rater reliability), each rater re-rated three essays approximately four months after their initial ratings. Essays with the highest inter-rater reliability scores were selected for this task since these likely represented the most accurate and reliable use of the MCPP.

LIWC

Analysis using the LIWC was completed using a purchased version of the LIWC text analysis computer software. Essays were entered into the program one at a time, which generated
output files that specified the percentage of words in an essay that fell into each of the 16 LIWC categories chosen for the present study.
CHAPTER 3: RESULTS

Reliability

Inter-Rater Reliability

In order to test for inter-rater reliability on the MCPP, percent of agreement as well as Cohen’s (1960) kappa were calculated between the essays rated by the two raters. Reliability was calculated for each of processing activity, engagement and focus alone. It was also calculated for processing activity plus engagement, and for processing activity, engagement and focus together. With regards to percent agreement, the number of ratings that were agreed upon between the two raters was divided by the total number of ratings. This provided a measure of agreement without taking into account chance agreement. In order to correct for chance agreement, Cohen’s kappa was then calculated, which corrects observed agreement for the chance level of agreement (Brennan & Prediger, 1981). As mentioned earlier, inter-rater reliability estimates were checked after 5, 10, 18 and the full 28 essays were rated by both raters.

The percent agreement between raters for each batch of essays, as well as for all of the essays combined, is presented in Table 7. Percent agreement for all essays combined ranged from 81.6% for the combination of processing activity, engagement, and focus, to 96.0% for focus alone. Cohen’s kappa between raters for each batch of essays, as well as for all of the essays combined, is presented in Table 8. Overall kappa values for all essays combined ranged from 0.53 for processing activity plus engagement to 0.90 for processing activity alone. Acceptable levels of kappa have varied according to different authors and there is no universally acceptable kappa value. Landis and Koch (1977) and Altman (1991), for instance, consider kappa values of 0.00-0.20 to be “poor” or “slight,” 0.21-0.40 to be
“fair,” 0.41-0.60 to be “moderate,” 0.60-0.80 to be “good” or “substantial” and 0.81-1.00 to be “very good” or “almost perfect.” Fleiss (1981) considers kappa values of 0.40-0.60 to be “fair,” 0.60-0.75 to be “good” and greater than 0.75 to be “excellent.” Finally, Cichetti (1994) considers kappa values less than 0.40 to be “poor,” 0.40-.59 to be “fair,” 0.60-0.74 to be “good” and greater than 0.74 to be “excellent.” Based on these conventions for interpreting kappa values, the obtained values should be considered from “moderate” to “excellent.” Importantly, the combination of processing activity, engagement and focus, which takes into account all aspects of the MCPP (and is thus the most stringent measure of agreement), produced a kappa of 0.68, which is generally considered to be in the “good” range.

Table 7

<table>
<thead>
<tr>
<th>Raw Percent Agreement Between Raters on the MCPP</th>
</tr>
</thead>
<tbody>
<tr>
<td># of Segments</td>
</tr>
<tr>
<td>---------------------</td>
</tr>
<tr>
<td>Processing Activity</td>
</tr>
<tr>
<td>Engagement</td>
</tr>
<tr>
<td>Focus</td>
</tr>
<tr>
<td>PA &amp; E</td>
</tr>
<tr>
<td>PA, E &amp; F</td>
</tr>
</tbody>
</table>
Table 8

*Cohen’s Kappa for Agreement Between Raters on the MCPP*

<table>
<thead>
<tr>
<th></th>
<th>Batch 1</th>
<th>Batch 2</th>
<th>Batch 3</th>
<th>Batch 4</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong># of Segments</strong></td>
<td>143</td>
<td>127</td>
<td>186</td>
<td>191</td>
<td>647</td>
</tr>
<tr>
<td>Processing Activity</td>
<td>0.93</td>
<td>0.91</td>
<td>0.56</td>
<td>0.89</td>
<td>0.90</td>
</tr>
<tr>
<td>Engagement</td>
<td>0.78</td>
<td>0.67</td>
<td>0.67</td>
<td>0.79</td>
<td>0.73</td>
</tr>
<tr>
<td>Focus</td>
<td>0.85</td>
<td>0.93</td>
<td>0.92</td>
<td>0.86</td>
<td>0.89</td>
</tr>
<tr>
<td>PA &amp; E</td>
<td>0.86</td>
<td>0.79</td>
<td>0.56</td>
<td>0.48</td>
<td>0.53</td>
</tr>
<tr>
<td>PA, E &amp; F</td>
<td>0.51</td>
<td>0.79</td>
<td>0.42</td>
<td>0.61</td>
<td>0.68</td>
</tr>
</tbody>
</table>

**Intra-Rater Reliability**

In order to determine whether raters reliably reproduced the same ratings over time, the same process used for inter-rater reliability was used. The percent agreement for the same raters at different times is presented in Table 9. Percent agreement for Rater 1 ranged from 87.9% to 98.9%, and percent of agreement for Rater 2 ranged from 90.5% to 98.4%. The combined percent agreement for both raters ranged from 87.9% for the combination of processing activity and engagement, to 98.6% for focus alone. Cohen’s kappa for the same raters at different times is presented in Table 10. Kappa values for Rater 1 ranged from 0.87 to 0.97, and kappa values for Rater 2 ranged from 0.55 to 0.96. The combined kappa values for both raters ranged from 0.83 for engagement alone to 0.97 for focus alone. Based on the conventions for interpreting kappa values detailed, the obtained values for individual raters should be considered from “fair” to “excellent,” while the combined values should be considered “excellent.” This includes the combination of processing activity, engagement and focus, which produced a kappa value of 0.88.
Table 9
**Raw Percent Agreement Within Raters on the MCPP**

<table>
<thead>
<tr>
<th></th>
<th>Rater 1</th>
<th>Rater 2</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong># of Segments</strong></td>
<td>83</td>
<td>63</td>
<td>146</td>
</tr>
<tr>
<td><strong>Processing Activity</strong></td>
<td>92.8%</td>
<td>98.4%</td>
<td>95.2%</td>
</tr>
<tr>
<td><strong>Engagement</strong></td>
<td>95.2%</td>
<td>90.5%</td>
<td>93.2%</td>
</tr>
<tr>
<td><strong>Focus</strong></td>
<td>98.9%</td>
<td>98.4%</td>
<td>98.6%</td>
</tr>
<tr>
<td><strong>PA &amp; E</strong></td>
<td>89.2%</td>
<td>90.5%</td>
<td>87.9%</td>
</tr>
<tr>
<td><strong>PA, E &amp; F</strong></td>
<td>87.9%</td>
<td>90.5%</td>
<td>89.0%</td>
</tr>
</tbody>
</table>

Table 10
**Cohen’s Kappa for Agreement Within Raters on the MCPP**

<table>
<thead>
<tr>
<th></th>
<th>Rater 1</th>
<th>Rater 2</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong># of Segments</strong></td>
<td>83</td>
<td>63</td>
<td>146</td>
</tr>
<tr>
<td><strong>Processing Activity</strong></td>
<td>0.91</td>
<td>0.55</td>
<td>0.94</td>
</tr>
<tr>
<td><strong>Engagement</strong></td>
<td>0.88</td>
<td>0.77</td>
<td>0.83</td>
</tr>
<tr>
<td><strong>Focus</strong></td>
<td>0.97</td>
<td>0.96</td>
<td>0.97</td>
</tr>
<tr>
<td><strong>PA &amp; E</strong></td>
<td>0.87</td>
<td>0.89</td>
<td>0.88</td>
</tr>
<tr>
<td><strong>PA, E &amp; F</strong></td>
<td>0.87</td>
<td>0.89</td>
<td>0.88</td>
</tr>
</tbody>
</table>

**Descriptive Statistics for Process Measures**

The mean and standard deviation for the raw count of MCPP processing activities plus engagement, engagement alone, focus alone, and total number of segments are presented in Table 11. Notably, no segments were rated Disengaged Expressing in sessions one or three and no segments were rated Engaged Understanding in session one. The mean and standard deviation for the raw number of words in each LIWC category of interest are presented in Table 12.
### Table 11
Descriptive Statistics for MCPP Processing Activities plus Engagement (raw number)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Session 1</th>
<th></th>
<th>Session 2</th>
<th></th>
<th>Session 3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
</tr>
<tr>
<td># of segments</td>
<td>21.18</td>
<td>8.10</td>
<td>21.29</td>
<td>7.81</td>
<td>18.29</td>
</tr>
<tr>
<td>DE</td>
<td>6.29</td>
<td>3.53</td>
<td>2.57</td>
<td>1.99</td>
<td>1.89</td>
</tr>
<tr>
<td>DD</td>
<td>1.71</td>
<td>1.49</td>
<td>1.11</td>
<td>1.52</td>
<td>1.07</td>
</tr>
<tr>
<td>XE</td>
<td>3.39</td>
<td>2.44</td>
<td>4.79</td>
<td>2.38</td>
<td>3.75</td>
</tr>
<tr>
<td>XD</td>
<td>1.11</td>
<td>1.47</td>
<td>0.75</td>
<td>0.93</td>
<td>0.25</td>
</tr>
<tr>
<td>SE</td>
<td>0.61</td>
<td>0.92</td>
<td>1.43</td>
<td>1.37</td>
<td>1.39</td>
</tr>
<tr>
<td>SD</td>
<td>0.00</td>
<td>0.00</td>
<td>0.18</td>
<td>0.55</td>
<td>0.00</td>
</tr>
<tr>
<td>VE</td>
<td>0.50</td>
<td>0.69</td>
<td>0.36</td>
<td>0.62</td>
<td>0.50</td>
</tr>
<tr>
<td>VD</td>
<td>0.96</td>
<td>1.07</td>
<td>1.39</td>
<td>1.42</td>
<td>0.96</td>
</tr>
<tr>
<td>PE</td>
<td>2.68</td>
<td>2.16</td>
<td>3.71</td>
<td>2.43</td>
<td>4.11</td>
</tr>
<tr>
<td>PD</td>
<td>3.93</td>
<td>3.01</td>
<td>4.93</td>
<td>2.89</td>
<td>4.11</td>
</tr>
<tr>
<td>UE</td>
<td>0.00</td>
<td>0.00</td>
<td>0.07</td>
<td>0.26</td>
<td>0.25</td>
</tr>
<tr>
<td>Engaged</td>
<td>13.46</td>
<td>5.08</td>
<td>12.93</td>
<td>4.99</td>
<td>11.89</td>
</tr>
<tr>
<td>Disengaged</td>
<td>7.71</td>
<td>4.06</td>
<td>8.36</td>
<td>4.28</td>
<td>6.39</td>
</tr>
<tr>
<td>Self</td>
<td>14.43</td>
<td>6.29</td>
<td>15.75</td>
<td>6.52</td>
<td>13.89</td>
</tr>
<tr>
<td>Other</td>
<td>6.76</td>
<td>4.21</td>
<td>5.54</td>
<td>3.52</td>
<td>4.39</td>
</tr>
</tbody>
</table>

### Table 12
Descriptive Statistics for LIWC Categories (raw number)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Session 1</th>
<th></th>
<th>Session 2</th>
<th></th>
<th>Session 3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
</tr>
<tr>
<td>Affect</td>
<td>23.60</td>
<td>9.73</td>
<td>28.97</td>
<td>10.71</td>
<td>27.32</td>
</tr>
<tr>
<td>PosEmo</td>
<td>8.11</td>
<td>5.62</td>
<td>10.73</td>
<td>5.43</td>
<td>11.40</td>
</tr>
<tr>
<td>NegEmo</td>
<td>15.18</td>
<td>7.71</td>
<td>18.01</td>
<td>8.28</td>
<td>15.39</td>
</tr>
<tr>
<td>Anx</td>
<td>3.53</td>
<td>2.47</td>
<td>5.62</td>
<td>4.38</td>
<td>4.00</td>
</tr>
<tr>
<td>Anger</td>
<td>4.86</td>
<td>4.15</td>
<td>5.62</td>
<td>4.14</td>
<td>5.25</td>
</tr>
<tr>
<td>Sad</td>
<td>2.78</td>
<td>2.06</td>
<td>3.41</td>
<td>2.07</td>
<td>2.57</td>
</tr>
</tbody>
</table>
Descriptive Statistics for Outcome Measures

The minimum, maximum, mean, standard deviation, skewness and kurtosis for all outcome measures (BDI-II, PDS, PILL and DERS) at pre-test and post-test were calculated to check for violations of assumptions (see Table 13). None of the outcome measures were found to be in significant violation of assumptions of normality and, thus, no transformations were performed. Although post-test BDI-II scores were slightly positively skewed and slightly leptokurtic, no transformations were performed so that analyses across outcome measures would remain consistent.

Table 13

Descriptive Statistics for Outcome Measures at Baseline and Follow-up (n = 28)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Session 1</th>
<th></th>
<th>Session 2</th>
<th></th>
<th>Session 3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
</tr>
<tr>
<td>Feel</td>
<td>4.43</td>
<td>3.47</td>
<td>6.21</td>
<td>4.18</td>
<td>4.61</td>
</tr>
<tr>
<td>CogMech</td>
<td>71.43</td>
<td>26.77</td>
<td>81.36</td>
<td>27.52</td>
<td>76.15</td>
</tr>
<tr>
<td>Insight</td>
<td>10.40</td>
<td>5.17</td>
<td>16.36</td>
<td>7.42</td>
<td>14.64</td>
</tr>
<tr>
<td>Cause</td>
<td>7.04</td>
<td>5.26</td>
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<td>7.28</td>
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</table>
### Relationships Between Variables

#### Outcome Measures

In order to examine how participants’ symptoms related to each other both prior to and following EW, Pearson correlations were calculated between outcome measures (Table 14). As expected, pre-test scores for each variable were highly correlated with post-test scores on the same variable ($p < .01$). Scores on the Pre BDI-II and Post BDI-II were highly significantly positively related to scores on the Pre PDS, Pre DERS and Post DERS, indicating that those with more severe depressive symptoms at baseline and follow-up were likely to have more severe symptoms of posttraumatic stress at baseline as well as more difficulties with emotion regulation at baseline and follow-up. Post BDI-II scores were also significantly positively correlated with scores on the Post PDS and Post PILL, indicating that those with more severe depressive symptoms at follow-up were more likely to also have more severe symptoms of posttraumatic stress and physical symptoms at follow-up. Further, Pre PDS was significantly positively correlated with Pre DERS and Post DERS, meaning that more severe symptoms of posttraumatic stress at baseline were associated with more difficulties in emotion regulation both at baseline and follow-up. Finally, Pre PILL was significantly positively correlated with Pre DERS, suggesting that more physical symptoms of stress at baseline were associated with more difficulties in emotion regulation at baseline.

Since outcome measures did not all strongly correlate with each other at follow-up, an
aggregate score of overall health was not created and each outcome measure was considered alone.

**Table 14**

_Intercorrelations Between Outcome Measures at Pre-test and Post-test (n = 28)_

<table>
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<td>.602**</td>
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<td>-</td>
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<td>.395*</td>
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<td>.661**</td>
<td>.710**</td>
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<td>-</td>
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<td>.486*</td>
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<td>-</td>
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<td>Post DERS</td>
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</table>

*p < .05, **p < .01

**MCPP Processing Activities plus Engagement**

In order to explore whether certain processing activities on the MCPP often occurred together, Pearson correlations were calculated between the raw numbers of each processing activity plus engagement for each of the three writing sessions. Correlations were calculated separately for each writing session in order to test whether the variables often occurred together (i.e., rather than followed from each other across sessions). Correlations that were significant in the same direction in at least two writing sessions were considered to reliably occur together in the present study.
Correlations between the raw count of MCPP processing activities plus engagement are presented in Tables 15-17. Engaged Expressing was significantly positively correlated with Engaged Evaluating in sessions 1 and 3, indicating that individuals who were expressing and asserting their needs in those sessions were also likely to be positively evaluating themselves or others. Further, Engaged Describing was significantly positively correlated with Disengaged Evaluating and Disengaged Exploring in sessions 2 and 3, meaning that individuals who described others and events in a vivid, concrete and specific manner in those sessions were also likely to be negatively evaluating themselves or others as well as exploring in a passive and uncritical manner. No other correlations were significant in at least two writing sessions.

Table 15
Intercorrelations Between MCPP Processing Activities plus Engagement (raw number) in Session 1

<table>
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*Note. aSD is excluded because it is only present in session 2
bUE is excluded because it is only present in sessions 2 and 3
*p < .05, **p < .01

Table 16

*Intercorrelations Between MCPP Processing Activities plus Engagement (raw number) in Session 2*

*p < .05, **p < .01*
Table 17  
*Intercorrelations Between MCPP Processing Activities plus Engagement (raw number) in Session 3*

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</tbody>
</table>

*Note. SD is excluded because it is only present in session 2*  
*p < .05*

**MCPP and LIWC**

In order to examine ways in which the MCPP and LIWC were related to each other, Pearson correlations were calculated between each MCPP processing activity plus engagement and each LIWC category of interest. This analysis was performed in order to determine the patterns of word use associated with each processing activity. Raw numbers (rather than percentages) were used for these analyses since interest was in the relationship between variables regardless of total number of segments or words in a particular essay. Again, correlations were performed separately for each writing session in order to examine whether the variables often occurred together. Correlations that were significant in the same
direction in either two or three sessions were considered to reliably occur together in the present study.

Correlations between the raw number of MCPP processing activities plus engagement and the raw number of words in LIWC categories are presented in Tables 18-23. Correlations that were significant in at least two sessions are detailed next.

**Engaged Describing.** The number of segments rated as Engaged Describing on the MCPP was significantly positively correlated with the number of words in the following LIWC categories in two or three sessions: Cognitive Mechanisms (e.g., cause, ought; sessions 1 and 2); and Inclusion (e.g., and, with; sessions 1 and 2).

**Disengaged Describing.** There were no significant correlations between the number of segments rated as Disengaged Describing on the MCPP and the number of words in any LIWC category in two or three sessions.

**Engaged Experiencing.** The number of segments rated as Engaged Experiencing on the MCPP was significantly positively correlated with the number of words in the following LIWC categories in two or three sessions: Feel (e.g. feels, touch; sessions 2 and 3); Negative Emotion (e.g. hurt, ugly; all sessions); Anxiety (e.g. worried, nervous; all sessions); Tentative (e.g. maybe, perhaps; sessions 2 and 3); and Exclusive (e.g. but, without; sessions 2 and 3).

**Disengaged Experiencing.** There were no significant correlations between the number of segments rated as Disengaged Experiencing on the MCPP and the number of words in any LIWC category in two or three sessions.
**Engaged Expressing.** The number of segments rated as Engaged Expressing on the MCPP was significantly positively correlated with the number of words in the following LIWC categories in two or three sessions: Affect (e.g. happy, cried; sessions 2 and 3); Discrepancy (e.g. should, could; all sessions); and Exclusive (e.g. but, without; sessions 2 and 3).

**Disengaged Expressing.** Correlations between the number of segments rated as Disengaged Expressing on the MCPP and the number of words falling in the LIWC categories were not calculated. This was because ratings of Disengaged Expressing were only found in session two, and thus the requirement that correlations be significant in at least two sessions could not be met.

**Engaged Evaluating.** There were no significant correlations between the number of segments rated as Engaged Evaluating on the MCPP and the number of words in any LIWC category in two or three sessions.

**Disengaged Evaluating.** The number of segments rated as Disengaged Evaluating on the MCPP was significantly positively correlated with the number of words in the following LIWC categories in two or three sessions: Affect (e.g. happy, cried; all sessions); Negative Emotion (e.g. hurt, ugly; sessions 1 and 3); Anger (e.g. hate, annoy; sessions 1 and 3); Cognitive Mechanisms (e.g. cause, ought; sessions 1 and 3); and Causation (e.g. because, effect; sessions 1 and 3).

**Engaged Exploring.** The number of segments rated as Engaged Exploring on the MCPP was significantly positively correlated with the number of words in the following LIWC categories in two or three sessions: Exclusive (e.g. but, without; sessions 1 and 3).
**Disengaged Exploring.** The number of segments rated as Disengaged Exploring on the MCPP was significantly positively correlated with the number of words in the following LIWC categories in two or three sessions: Cognitive Mechanisms (e.g. cause, ought; sessions 1 and 2); Discrepancy (e.g. should, would; sessions 1 and 2); and Exclusive (e.g. but, without; sessions 1 and 2).

**Engaged Understanding.** There were no significant correlations between the number of segments rated as Engaged Understanding on the MCPP and the number of words in any LIWC category in two or three sessions.

**Table 18**

*Intercorrelations Between MCPP Processing Activities plus Engagement (raw number) and LIWC Affective Processes (raw number) in Session 1*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Affect</th>
<th>Posemo</th>
<th>Negemo</th>
<th>Anx</th>
<th>Anger</th>
<th>Sad</th>
<th>Feel</th>
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</thead>
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<tr>
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<td>.181</td>
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<td>.499**</td>
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<td>.022</td>
<td>.119</td>
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*Note.* aHigher-order LIWC categories have been bolded  
bCorrelations that are significant in two or more times have been bolded  
cSD has been excluded because it is only present in session 2  
dUE is excluded because it is only present in sessions 2 and 3  
*p < .05, **p < .01
### Table 19

**Intercorrelations Between MCPP Processing Activities Plus Engagement (raw number) and LIWC Affective Processes (raw number) in Session 2**

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<td>-.161</td>
<td>.132</td>
<td>.125</td>
<td>-.132</td>
</tr>
<tr>
<td>VD</td>
<td>.374*</td>
<td>.132</td>
<td>.350</td>
<td>.070</td>
<td>.269</td>
<td>.103</td>
<td>-.084</td>
</tr>
<tr>
<td>PE</td>
<td>.162</td>
<td>-.093</td>
<td>.258</td>
<td>.361</td>
<td>-.030</td>
<td>.106</td>
<td>.233</td>
</tr>
<tr>
<td>PD</td>
<td>.312</td>
<td>.255</td>
<td>.254</td>
<td>.071</td>
<td>.305</td>
<td>-.088</td>
<td>-.143</td>
</tr>
<tr>
<td>UE</td>
<td>.027</td>
<td>-.116</td>
<td>.085</td>
<td>.056</td>
<td>-.043</td>
<td>.216</td>
<td>.460*</td>
</tr>
</tbody>
</table>

*Note.* aHigher-order LIWC categories have been bolded
bCorrelations that are significant in two or more times have been bolded
cSD has been excluded because it is only present in session 2
*p < .05, **p < .01

### Table 20

**Intercorrelations Between MCPP Processing Activities plus Engagement (raw number) and LIWC Affective Processes (raw number) in Session 3**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Affect</th>
<th>Posemo</th>
<th>Negemo</th>
<th>Anx</th>
<th>Anger</th>
<th>Sad</th>
<th>Feel</th>
</tr>
</thead>
<tbody>
<tr>
<td>DE</td>
<td>.161</td>
<td>.067</td>
<td>.196</td>
<td>.074</td>
<td>.212</td>
<td>-.003</td>
<td>.018</td>
</tr>
<tr>
<td>DD</td>
<td>.059</td>
<td>.136</td>
<td>-.006</td>
<td>.339</td>
<td>-.015</td>
<td>-.223</td>
<td>-.061</td>
</tr>
<tr>
<td>XE</td>
<td>.481**</td>
<td>-.011</td>
<td>.615**</td>
<td>.527**</td>
<td>.546**</td>
<td>.360</td>
<td>.498**</td>
</tr>
<tr>
<td>XD</td>
<td>.327</td>
<td>.105</td>
<td>.356</td>
<td>.183</td>
<td>.200</td>
<td>.410*</td>
<td>.157</td>
</tr>
<tr>
<td>SE</td>
<td>.465*</td>
<td>.298</td>
<td>.336</td>
<td>.486**</td>
<td>.340</td>
<td>.064</td>
<td>.138</td>
</tr>
</tbody>
</table>
Table 21

**Intercorrelations Between MCPP Processing Activities plus Engagement (raw number) and LIWC Cognitive Mechanisms (raw number) in Session 1**

<table>
<thead>
<tr>
<th>Variable</th>
<th><strong>Affect</strong></th>
<th>Posemo</th>
<th>Negemo</th>
<th>Anx</th>
<th>Anger</th>
<th>Sad</th>
<th>Feel</th>
</tr>
</thead>
<tbody>
<tr>
<td>VE</td>
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<td>.230</td>
<td>.185</td>
<td>.198</td>
<td>.322</td>
<td>-.041</td>
<td>-.191</td>
</tr>
<tr>
<td>VD</td>
<td><strong>.413</strong>*</td>
<td>.163</td>
<td><strong>.424</strong>*</td>
<td>.394*</td>
<td><strong>.396</strong>*</td>
<td>.164</td>
<td>.332</td>
</tr>
<tr>
<td>PE</td>
<td>.614**</td>
<td>.629**</td>
<td>.357</td>
<td>.595**</td>
<td>.299</td>
<td>.008</td>
<td>.257</td>
</tr>
<tr>
<td>PD</td>
<td>.197</td>
<td>.337</td>
<td>.066</td>
<td>-.026</td>
<td>.106</td>
<td>.036</td>
<td>.143</td>
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<td>.219</td>
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<td>.298</td>
<td>.320</td>
</tr>
</tbody>
</table>

*Note.* aHigher-order LIWC categories have been bolded
bCorrelations that are significant in two or more times have been bolded
cSD has been excluded because it is only present in session 2
dUE is excluded because it is only present in sessions 2 and 3
*p < .05, **p < .01

<table>
<thead>
<tr>
<th>Variable</th>
<th><strong>Cogmech</strong></th>
<th>Insight</th>
<th>Cause</th>
<th>Discrep</th>
<th>Tentat</th>
<th>Certain</th>
<th>Inhib</th>
<th>Incl</th>
<th>Excl</th>
</tr>
</thead>
<tbody>
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<td>.162</td>
<td>.018</td>
<td>.091</td>
<td>.269</td>
<td><strong>.784</strong>*</td>
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</tr>
<tr>
<td>DD</td>
<td>.139</td>
<td>.102</td>
<td>.106</td>
<td>.013</td>
<td>.037</td>
<td>.172</td>
<td>.091</td>
<td>.156</td>
<td>.023</td>
</tr>
<tr>
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<td>.212</td>
<td>.310</td>
<td>.071</td>
<td>-.066</td>
<td>.148</td>
<td>-.150</td>
<td>.129</td>
<td>.310</td>
<td>.147</td>
</tr>
<tr>
<td>SE</td>
<td>.276</td>
<td><strong>.487</strong>*</td>
<td>.165</td>
<td><strong>.398</strong>*</td>
<td>.056</td>
<td>-.016</td>
<td>.102</td>
<td>.126</td>
<td>-.040</td>
</tr>
<tr>
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<td>.251</td>
<td>.356</td>
<td>.259</td>
<td>.087</td>
<td>.161</td>
<td>.062</td>
<td>-.096</td>
<td>.235</td>
<td>.048</td>
</tr>
<tr>
<td>VD</td>
<td><strong>.413</strong>*</td>
<td>.297</td>
<td><strong>.560</strong>*</td>
<td><strong>.563</strong>*</td>
<td>.131</td>
<td>.321</td>
<td>.089</td>
<td>.110</td>
<td>.125</td>
</tr>
<tr>
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<td>.280</td>
<td>-.054</td>
<td>.301</td>
<td>.182</td>
<td>.136</td>
<td>-.204</td>
<td>-.478*</td>
<td><strong>.414</strong>*</td>
</tr>
<tr>
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<td>.267</td>
<td><strong>.544</strong>*</td>
<td><strong>.743</strong>*</td>
<td>.341</td>
<td>.563**</td>
<td>-.042</td>
<td>.083</td>
<td><strong>.444</strong>*</td>
</tr>
</tbody>
</table>

*Note.* aHigher-order LIWC categories have been bolded
bCorrelations that are significant in two or more times have been bolded
cSD has been excluded because it is only present in session 2
dUE is excluded because it is only present in sessions 2 and 3
*p < .05, **p < .01
### Table 22

**Intercorrelations Between MCPP Processing Activities plus Engagement (raw number) and LIWC Cognitive Mechanisms (raw number) in Session 2**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Cogmech</th>
<th>Insight</th>
<th>Cause</th>
<th>Discrep</th>
<th>Tentat</th>
<th>Certain</th>
<th>Inhib</th>
<th>Incl</th>
<th>Excl</th>
</tr>
</thead>
<tbody>
<tr>
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<td>.106</td>
<td>.098</td>
<td>.473*</td>
<td>.429*</td>
<td>.005</td>
<td>.140</td>
<td>.629**</td>
<td>.529**</td>
</tr>
<tr>
<td>DD</td>
<td>.299</td>
<td>-.020</td>
<td>.048</td>
<td>.301</td>
<td>.533**</td>
<td>-.153</td>
<td>.020</td>
<td>.241</td>
<td>.558**</td>
</tr>
<tr>
<td>XE</td>
<td>.348</td>
<td>.275</td>
<td>.192</td>
<td>.147</td>
<td>.429*</td>
<td>.015</td>
<td>.204</td>
<td>.274</td>
<td>.402*</td>
</tr>
<tr>
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<td>-.073</td>
<td>-.094</td>
<td>-.246</td>
<td>.058</td>
<td>-.081</td>
<td>-.332</td>
<td>.161</td>
<td>.064</td>
<td>.052</td>
</tr>
<tr>
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<td>.075</td>
<td>.049</td>
<td>.570**</td>
<td>.197</td>
<td>.422*</td>
<td>.024</td>
<td>.057</td>
<td>.532**</td>
</tr>
<tr>
<td>VE</td>
<td>.066</td>
<td>.028</td>
<td>.232</td>
<td>.096</td>
<td>-.181</td>
<td>.156</td>
<td>.065</td>
<td>.082</td>
<td>-.159</td>
</tr>
<tr>
<td>VD</td>
<td>.255</td>
<td>.081</td>
<td>.000</td>
<td>.125</td>
<td>.007</td>
<td>.248</td>
<td>.100</td>
<td>.354</td>
<td>.211</td>
</tr>
<tr>
<td>PE</td>
<td>.201</td>
<td>.275</td>
<td>.119</td>
<td>.200</td>
<td>.192</td>
<td>.096</td>
<td>.161</td>
<td>-.051</td>
<td>.181</td>
</tr>
<tr>
<td>PD</td>
<td>.512**</td>
<td>.179</td>
<td>.332</td>
<td>.427*</td>
<td>.406*</td>
<td>.204</td>
<td>.117</td>
<td>.379*</td>
<td>.455*</td>
</tr>
<tr>
<td>UE</td>
<td>.135</td>
<td>.443*</td>
<td>.125</td>
<td>-.078</td>
<td>.166</td>
<td>.139</td>
<td>-.279</td>
<td>-.035</td>
<td>-.025</td>
</tr>
</tbody>
</table>

*Note.* aHigher-order LIWC categories have been bolded

bCorrelations that are significant in two or more times have been bolded

SD has been excluded because it is only present in session 2

*p < .05, **p < .01

### Table 23

**Intercorrelations Between MCPP Processing Activities plus Engagement (raw number) and LIWC Cognitive Mechanisms (raw number) in Session 3**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Cogmech</th>
<th>Insight</th>
<th>Cause</th>
<th>Discrep</th>
<th>Tentat</th>
<th>Certain</th>
<th>Inhib</th>
<th>Incl</th>
<th>Excl</th>
</tr>
</thead>
<tbody>
<tr>
<td>DE</td>
<td>.130</td>
<td>-.137</td>
<td>.154</td>
<td>.313</td>
<td>.127</td>
<td>.121</td>
<td>-.104</td>
<td>.345</td>
<td>.157</td>
</tr>
<tr>
<td>DD</td>
<td>.341</td>
<td>.093</td>
<td>.358</td>
<td>.497**</td>
<td>.317</td>
<td>.429*</td>
<td>.423*</td>
<td>.085</td>
<td>.247</td>
</tr>
<tr>
<td>XE</td>
<td>.419*</td>
<td>.359</td>
<td>.486**</td>
<td>.438*</td>
<td>.408*</td>
<td>.187</td>
<td>.367</td>
<td>.084</td>
<td>.430*</td>
</tr>
<tr>
<td>XD</td>
<td>.033</td>
<td>-.028</td>
<td>-.003</td>
<td>-.164</td>
<td>-.088</td>
<td>-.175</td>
<td>.105</td>
<td>.291</td>
<td>-.024</td>
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</tbody>
</table>
### Relationship Between Process Measures and Outcome

#### Methods of Analysis

Data obtained thought the MCPP was used in statistical analyses in two ways. The first method was used in order to determine how much participants engaged in each processing activity over time. To do so, the number of segments in each MCPP processing activity plus engagement in a particular essay was divided by the total number of segments in that essay (e.g., the number of Engaged Describing segments divided by the total number of segments). The result, labeled *MCPP Percent of Total*, represents the number of segments of each processing activity plus engagement in an essay relative to the total number of segments in the same essay. All segments for each individual were also combined (i.e., across all writing session) and subjected to the same analyses, which provided information about participants’ overall engagement in each mode of processing.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Cogmech</th>
<th>Insight</th>
<th>Cause</th>
<th>Discrep</th>
<th>Tentat</th>
<th>Certain</th>
<th>Inhib</th>
<th>Incl</th>
<th>Excl</th>
</tr>
</thead>
<tbody>
<tr>
<td>SE</td>
<td>.365</td>
<td>.256</td>
<td>.456*</td>
<td>.450*</td>
<td>.282</td>
<td>.090</td>
<td>.186</td>
<td>.186</td>
<td>.391*</td>
</tr>
<tr>
<td>VE</td>
<td>-.105</td>
<td>-.070</td>
<td>-.045</td>
<td>.068</td>
<td>-.091</td>
<td>-.247</td>
<td>.000</td>
<td>-.053</td>
<td>-.083</td>
</tr>
<tr>
<td>VD</td>
<td>.462*</td>
<td>.329</td>
<td>.516**</td>
<td>.339</td>
<td>.338</td>
<td>.564**</td>
<td>.127</td>
<td>.199</td>
<td>.399*</td>
</tr>
<tr>
<td>PE</td>
<td>.666**</td>
<td>.537**</td>
<td>.459*</td>
<td>.619**</td>
<td>.573**</td>
<td>.507**</td>
<td>.298</td>
<td>.427*</td>
<td>.414*</td>
</tr>
<tr>
<td>PD</td>
<td>.280</td>
<td>-.027</td>
<td>.214</td>
<td>.256</td>
<td>.353</td>
<td>.235</td>
<td>-.288</td>
<td>.355</td>
<td>.292</td>
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<tr>
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<td>.092</td>
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<td>-.078</td>
<td>-.102</td>
<td>.141</td>
<td>-.058</td>
<td>.046</td>
</tr>
</tbody>
</table>

*Note.* aHigh-order LIWC categories have been bolded  
bCorrelations that are significant in two or more times have been bolded  
cSD has been excluded because it is only present in session 2  
*p < .05, **p < .01*
The second method was used in order to determine how much a participant engaged in the productive versus unproductive mode of processing in each processing activity. To do so, the number of engaged segments in each processing activity in a particular essay was divided by the total number of segments in that processing activity (e.g., the number of Engaged Describing segments divided by the total number of Describing segments). The result, labeled **MCPP Percent of Activity**, represents the number of each engaged processing activity in an essay relative to the total number of segments in that processing activity. Again, all segments for each individual were combined and subjected to the same analyses, which provided information about participants’ overall level of engaged versus disengaged processing.

For the LIWC, analyses were based on the computer software output, which takes the number of words in each category in a particular essay and then divides by the total number of words in that essay. The result provides the number of words in each category relative to the total number of words. As with the MCPP, all three essays completed by each individual were combined and subjected to the same analyses as each individual essay, providing overall LIWC ratings for that individual.

In order to determine whether participants’ essays could be considered together (i.e., as one unit rather than three distinct sessions) from a statistical perspective, MCPP Percent of Total, MCPP Percent of Activity, and the LIWC were correlated with themselves between writing sessions. If these measures correlated significantly and consistently, it would make sense to combine them for analyses. As can be seen in Tables 24-26, several significant correlations exist. These correlations were not consistent, however, suggesting that essays were distinct in their proportions of processing activities and word categories across writing.
sessions. This was expected, given that writing instructions were different for each writing session and thus were expected to elicit different proportions of MCPP and LIWC variables. From a statistical perspective, the absence of consistent correlations suggests that the sessions should not be combined for analyses. Conceptually, however, it does make sense to combine sessions, as processing activities during writing may influence symptomatology at outcome regardless of when this processing takes place (e.g., whether it all occurs in a single writing session or is spread across sessions). Accordingly, as outlined earlier, analyses were performed on each individual writing session as well as all writing sessions combined in order to address both the statistical and conceptual considerations.

**Table 24**

*Relationship Between MCPP Processing Activities plus Engagement (percent of total) Across Sessions*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Session 1 &amp; 2</th>
<th>Session 1 &amp; 3</th>
<th>Session 2 &amp; 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>DE</td>
<td>.215</td>
<td>-.058</td>
<td>.252</td>
</tr>
<tr>
<td>DD</td>
<td>-.231</td>
<td>.387*</td>
<td>-.078</td>
</tr>
<tr>
<td>XE</td>
<td>.133</td>
<td>.516**</td>
<td>.222</td>
</tr>
<tr>
<td>XD</td>
<td>.250</td>
<td>.365</td>
<td>.247</td>
</tr>
<tr>
<td>SE</td>
<td>.214</td>
<td>.082</td>
<td>.241</td>
</tr>
<tr>
<td>VE</td>
<td>.195</td>
<td>.155</td>
<td>.111</td>
</tr>
<tr>
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<td>.173</td>
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<tr>
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<td>.233</td>
<td>.213</td>
</tr>
<tr>
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<td>.274</td>
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<tr>
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<td>--</td>
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<tr>
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<td>.323</td>
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<tr>
<td>Self</td>
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<td>.432*</td>
<td>.471*</td>
</tr>
</tbody>
</table>

*Note. SD has been excluded because it is only present in session 2
*p < .05, **p < .01
Table 25

Relationship Between Engaged MCPP Processing Activities (percent of activity) Across Sessions

<table>
<thead>
<tr>
<th>Variable</th>
<th>Session 1 &amp; 2</th>
<th>Session 1 &amp; 3</th>
<th>Session 2 &amp; 3</th>
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</thead>
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<tr>
<td>XE</td>
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<td>.364</td>
<td>.359</td>
</tr>
<tr>
<td>VE</td>
<td>.121</td>
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<td>.349</td>
</tr>
<tr>
<td>PE</td>
<td>-.105</td>
<td>.412*</td>
<td>.242</td>
</tr>
</tbody>
</table>

Note. aSE is excluded because there were not enough SD ratings
bUE is excluded because there is no UD processing activity
*p < .05

Table 26

Relationship Between LIWC Psychological Categories Across Sessions

<table>
<thead>
<tr>
<th>Variable</th>
<th>Session 1 &amp; 2</th>
<th>Session 1 &amp; 3</th>
<th>Session 2 &amp; 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Affect</td>
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<td>.572**</td>
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<td>.546**</td>
<td>.557**</td>
</tr>
<tr>
<td>NegEmo</td>
<td>.155</td>
<td>.632**</td>
<td>.258</td>
</tr>
<tr>
<td>Anx</td>
<td>.429*</td>
<td>.519**</td>
<td>.569**</td>
</tr>
<tr>
<td>Anger</td>
<td>.343</td>
<td>.543**</td>
<td>.280</td>
</tr>
<tr>
<td>Sad</td>
<td>.101</td>
<td>.254</td>
<td>.375*</td>
</tr>
<tr>
<td>Feel</td>
<td>.430*</td>
<td>.027</td>
<td>.420*</td>
</tr>
<tr>
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<td>.122</td>
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<td>.113</td>
<td>.264</td>
</tr>
<tr>
<td>Tentat</td>
<td>.189</td>
<td>.616**</td>
<td>.330</td>
</tr>
<tr>
<td>Certain</td>
<td>.443*</td>
<td>.551**</td>
<td>.417*</td>
</tr>
<tr>
<td>Inhib</td>
<td>.331</td>
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<td>.392*</td>
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<tr>
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<td>.223</td>
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</table>

*p < .05, **p < .01
For preliminary analyses of prediction, partial correlation coefficients were computed in order to investigate the relationships between each variable on the MCPP and LIWC and post-test scores on outcome measures, controlling only for pre-test scores. This step was performed in order to reduce the potential pool of predictor variables for use in multiple regression analyses. According to Harris (1985), the “rule of thumb” for predictor variables states that a minimum of 10 participants per predictor is appropriate when there are six or more predictors, though approximately 30 participants would allow for better power. When there are five or less predictors, he suggests the number of participants should be equal or greater to the number of predictors plus 50. Harris’ estimate is among the most liberal; Green (1991), for instance, indicates that the number of participants in regression analyses should be greater than $50 + 8m$ (with m representing the number of predictors). Thus, given the relatively small sample size in the present study ($n = 28$), even by the most liberal standards only three or fewer predictor variables could be included in multiple regression analyses while still retaining sufficient power.

Results of the partial correlational analyses revealed that, in some cases, there were more than the maximum of three variables significantly associated with post-test scores on outcome measures. Accordingly, selecting only three variables for use in multiple regression analyses would not provide a comprehensive explanation of the relationships between potential predictor variables and outcome. Further, many of the significant predictor variables on the LIWC were not independent of each other and thus were not appropriate for regression analyses. This was the case, for instance, when higher-order categories on the LIWC were significant predictors along with their subcategories. For these reasons, no further statistical analyses were performed beyond the calculation of partial correlation.
coefficients. Multiple regression analyses were not carried out in cases where three or fewer significant relationships were found, or when predictors were independent of each other, so that analyses were consistent throughout the study. Instead, a description of the relationships between the independent variables and outcome is provided with the intent of identifying and explaining patterns in the data. The correlations between the MCPP, LIWC and outcome measures for each writing session as well as all writing session combined are detailed next.

**Relationships Between the Description of External Experiences and Outcome**

In order to test the relationships between productive and unproductive descriptions of external experience and outcome in EW, partial correlations were calculated for each session as well as all sessions combined (presented in Tables 27-30). No significant relationships were found between the description of external experiences and any of the outcome measures when controlling for pre-test scores on the outcome measures. The relationship between a higher proportion of segments rated as Disengaged Describing in session 3 and higher posttraumatic stress scores at outcome, however, did approach significance \( r = .369, p = .058 \). The relationship between a higher proportion of segments rated Engaged Describing in all sessions combined and lower difficulty in emotion regulation scores at outcome also approached significance \( r = -.366, p = .061 \).

**Table 27**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Session 1</th>
<th>Session 2</th>
<th>Session 3</th>
<th>Combined</th>
</tr>
</thead>
<tbody>
<tr>
<td>DE % of Total</td>
<td>-.068</td>
<td>-.100</td>
<td>-.067</td>
<td>-.015</td>
</tr>
<tr>
<td>DD % of Total</td>
<td>-.043</td>
<td>-.051</td>
<td>.040</td>
<td>.033</td>
</tr>
<tr>
<td>DE % of Activity</td>
<td>-.151</td>
<td>.134</td>
<td>-.155</td>
<td>-.152</td>
</tr>
</tbody>
</table>
Table 28  
**Relationship Between Description of External Experiences and Post PDS, Controlling for Pre PDS**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Session 1</th>
<th>Session 2</th>
<th>Session 3</th>
<th>Combined</th>
</tr>
</thead>
<tbody>
<tr>
<td>DE % of Total</td>
<td>-.300</td>
<td>-.315</td>
<td>-.160</td>
<td>-.262</td>
</tr>
<tr>
<td>DD % of Total</td>
<td>.017</td>
<td>-.106</td>
<td>.369</td>
<td>.278</td>
</tr>
<tr>
<td>DE % of Activity</td>
<td>.062</td>
<td>.010</td>
<td>-.240</td>
<td>-.186</td>
</tr>
</tbody>
</table>

Table 29  
**Relationship Between Description of External Experiences and Post PILL, Controlling for Pre PILL**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Session 1</th>
<th>Session 2</th>
<th>Session 3</th>
<th>Combined</th>
</tr>
</thead>
<tbody>
<tr>
<td>DE % of Total</td>
<td>-.071</td>
<td>-.103</td>
<td>.070</td>
<td>-.105</td>
</tr>
<tr>
<td>DD % of Total</td>
<td>-.064</td>
<td>.168</td>
<td>.050</td>
<td>.020</td>
</tr>
<tr>
<td>DE % of Activity</td>
<td>-.077</td>
<td>-.109</td>
<td>-.252</td>
<td>.065</td>
</tr>
</tbody>
</table>

Table 30  
**Relationship Between Description of External Experiences and Post DERS, Controlling for Pre DERS**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Session 1</th>
<th>Session 2</th>
<th>Session 3</th>
<th>Combined</th>
</tr>
</thead>
<tbody>
<tr>
<td>DE % of Total</td>
<td>-.179</td>
<td>-.050</td>
<td>-.305</td>
<td>-.366</td>
</tr>
<tr>
<td>DD % of Total</td>
<td>-.042</td>
<td>.066</td>
<td>-.217</td>
<td>-.232</td>
</tr>
<tr>
<td>DE % of Activity</td>
<td>-.187</td>
<td>.016</td>
<td>-.381</td>
<td>-.071</td>
</tr>
</tbody>
</table>

Relationships Between the Symbolization and Expression of Internal Experiences and Outcome

In order to test the relationships between productive and unproductive symbolization and expression of internal experience and outcome in EW, partial correlations were calculated for each session as well as all sessions combined (presented in Tables 31-34). The following correlations were significant after controlling for pre-test scores on outcome measures.
**Session 1.** More use of Sad words (e.g. cry, grief) was significantly related to higher depression scores at outcome. More use of Anxiety words (e.g., worry, fear) was significantly related to higher physical symptom scores at outcome. Finally, a higher proportion of segments rated as Engaged Experiencing and Disengaged Experiencing were significantly related to higher posttraumatic stress scores at outcome.

**Session 2.** More use of Negative Emotion words (e.g., hurt, ugly) and Anxiety words were significantly related to lower depressions scores at outcome. More use of Negative Emotion words and Anger words (e.g. hate, annoyed) were significantly related to lower posttraumatic stress scores at outcome. A higher proportion of segments rated as Engaged Experiencing (compared to Disengaged Experiencing) was significantly related to lower physical symptom scores at outcome. A higher proportion of segments rated as Disengaged Experiencing was also significantly related to higher physical symptom scores at outcome.

**Session 3.** Less use of Positive Emotion words (e.g. love, nice) and a higher proportion of segments rated as Engaged Experiencing (compared to Disengaged Experiencing) were significantly related to lower posttraumatic stress scores at outcome. More use of Sad words was significantly related to higher physical symptom scores at outcome. Further, more use of Affect words, Negative Emotion words and Sad words were significantly related to higher difficulty in emotion regulation scores at outcome.

**Combined.** Less use of Anxiety words and more use of Sad words were significantly related to higher depression scores at outcome. More use of Sad words and Feel words (e.g., feels, touch) were significantly related to higher physical symptom scores at outcome. Further, more use of Affect words, Negative Emotion words and Sad words were
significantly related to higher difficulty in emotion regulation scores at outcome. Lastly, although not statistically significant, the relationship between a higher proportion of segments rated as Disengaged Experiencing and higher posttraumatic stress scores at outcome approached significance ($r = .375$, $p = .054$).

Table 31

**Relationship Between Symbolization and Expression of Internal Experiences and Post BDI, Controlling for Pre BDI**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Session 1</th>
<th>Session 2</th>
<th>Session 3</th>
<th>Combined</th>
</tr>
</thead>
<tbody>
<tr>
<td>XE % of Total</td>
<td>.045</td>
<td>-.163</td>
<td>-.043</td>
<td>-.109</td>
</tr>
<tr>
<td>XD % of Total</td>
<td>.344</td>
<td>.314</td>
<td>-.085</td>
<td>.333</td>
</tr>
<tr>
<td>XE % of Activity</td>
<td>-.377</td>
<td>-.385</td>
<td>.085</td>
<td>-.299</td>
</tr>
<tr>
<td>Affect</td>
<td>.007</td>
<td>-.195</td>
<td>.204</td>
<td>-.006</td>
</tr>
<tr>
<td>PosEmo</td>
<td>-.099</td>
<td>.241</td>
<td>.339</td>
<td>.192</td>
</tr>
<tr>
<td>NegEmo</td>
<td>.126</td>
<td>-.515**</td>
<td>-.076</td>
<td>-.204</td>
</tr>
<tr>
<td>Anx</td>
<td>-.035</td>
<td>-.428*</td>
<td>-.302</td>
<td>-.413*</td>
</tr>
<tr>
<td>Anger</td>
<td>-.229</td>
<td>-.170</td>
<td>-.122</td>
<td>-.285</td>
</tr>
<tr>
<td>Sad</td>
<td>.545**</td>
<td>.144</td>
<td>.325</td>
<td>.467*</td>
</tr>
<tr>
<td>Feel</td>
<td>-.245</td>
<td>-.100</td>
<td>-.164</td>
<td>-.206</td>
</tr>
</tbody>
</table>

*p < .05, **p < .01

Table 32

**Relationship Between Symbolization and Expression of Internal Experiences and Post PDS, Controlling for Pre PDS**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Session 1</th>
<th>Session 2</th>
<th>Session 3</th>
<th>Combined</th>
</tr>
</thead>
<tbody>
<tr>
<td>XE % of Total</td>
<td>.420*</td>
<td>-.153</td>
<td>.109</td>
<td>.207</td>
</tr>
<tr>
<td>XD % of Total</td>
<td>.395*</td>
<td>.073</td>
<td>.262</td>
<td>.375</td>
</tr>
<tr>
<td>XE % of Activity</td>
<td>-.340</td>
<td>-.333</td>
<td>-.451*</td>
<td>-.356</td>
</tr>
<tr>
<td>Affect</td>
<td>.111</td>
<td>-.059</td>
<td>.248</td>
<td>.048</td>
</tr>
<tr>
<td>PosEmo</td>
<td>.091</td>
<td>.364</td>
<td>.435*</td>
<td>.293</td>
</tr>
<tr>
<td>NegEmo</td>
<td>.074</td>
<td>-.454*</td>
<td>-.033</td>
<td>-.193</td>
</tr>
<tr>
<td>Variable</td>
<td>Session 1</td>
<td>Session 2</td>
<td>Session 3</td>
<td>Combined</td>
</tr>
<tr>
<td>----------</td>
<td>-----------</td>
<td>-----------</td>
<td>-----------</td>
<td>-----------</td>
</tr>
<tr>
<td>Anx</td>
<td>.140</td>
<td>-.268</td>
<td>-.118</td>
<td>-.167</td>
</tr>
<tr>
<td>Anger</td>
<td>-.194</td>
<td>-.473*</td>
<td>-.109</td>
<td>-.296</td>
</tr>
<tr>
<td>Sad</td>
<td>.097</td>
<td>-.208</td>
<td>.215</td>
<td>.032</td>
</tr>
<tr>
<td>Feel</td>
<td>.032</td>
<td>-.128</td>
<td>-.105</td>
<td>-.045</td>
</tr>
</tbody>
</table>

*p < .05

Table 33
Relationship Between Symbolization and Expression of Internal Experiences and Post PILL, Controlling for Pre PILL

<table>
<thead>
<tr>
<th>Variable</th>
<th>Session 1</th>
<th>Session 2</th>
<th>Session 3</th>
<th>Combined</th>
</tr>
</thead>
<tbody>
<tr>
<td>XE % of Total</td>
<td>.216</td>
<td>-.025</td>
<td>.192</td>
<td>.150</td>
</tr>
<tr>
<td>XD % of Total</td>
<td>.208</td>
<td>.442*</td>
<td>.093</td>
<td>.284</td>
</tr>
<tr>
<td>XE % of Activity</td>
<td>.008</td>
<td>-.538*</td>
<td>-.127</td>
<td>-.296</td>
</tr>
<tr>
<td>Affect</td>
<td>.070</td>
<td>.054</td>
<td>.344</td>
<td>.203</td>
</tr>
<tr>
<td>PosEmo</td>
<td>-.033</td>
<td>.064</td>
<td>.207</td>
<td>.083</td>
</tr>
<tr>
<td>NegEmo</td>
<td>.170</td>
<td>-.006</td>
<td>.218</td>
<td>.198</td>
</tr>
<tr>
<td>Anx</td>
<td>.392*</td>
<td>-.079</td>
<td>.041</td>
<td>.061</td>
</tr>
<tr>
<td>Anger</td>
<td>-.204</td>
<td>-.050</td>
<td>-.071</td>
<td>-.076</td>
</tr>
<tr>
<td>Sad</td>
<td>.064</td>
<td>.156</td>
<td>.627**</td>
<td>.467*</td>
</tr>
<tr>
<td>Feel</td>
<td>.350</td>
<td>.330</td>
<td>.250</td>
<td>.206</td>
</tr>
</tbody>
</table>

*p < .05, **p < .01

Table 34
Relationship Between Symbolization and Expression of Internal Experiences and Post DERS, Controlling for Pre DERS

<table>
<thead>
<tr>
<th>Variable</th>
<th>Session 1</th>
<th>Session 2</th>
<th>Session 3</th>
<th>Combined</th>
</tr>
</thead>
<tbody>
<tr>
<td>XE % of Total</td>
<td>.210</td>
<td>.015</td>
<td>.324</td>
<td>.254</td>
</tr>
<tr>
<td>XD % of Total</td>
<td>.136</td>
<td>.097</td>
<td>.108</td>
<td>.087</td>
</tr>
<tr>
<td>XE % of Activity</td>
<td>.273</td>
<td>-.193</td>
<td>-.119</td>
<td>-.034</td>
</tr>
<tr>
<td>Affect</td>
<td>.309</td>
<td>.196</td>
<td>.522**</td>
<td>.412*</td>
</tr>
<tr>
<td>PosEmo</td>
<td>.110</td>
<td>.020</td>
<td>.081</td>
<td>.083</td>
</tr>
<tr>
<td>NegEmo</td>
<td>.260</td>
<td>.157</td>
<td>.465*</td>
<td>.399*</td>
</tr>
</tbody>
</table>
### Relationships Between Awareness and Assertion of Needs and Outcome

In order to test the relationships between productive and unproductive awareness of assertion of needs and outcome in EW, partial correlations were calculated for each session as well as all sessions combined are presented in Tables 35-38. No significant relationships were found between the awareness and assertion of needs and any of the outcome measures when controlling for pre-test scores on the outcome measures. The relationship between a higher proportion of segments rated as Engaged Asserting in session 3 and lower posttraumatic stress scores at outcome, however, did approach significance ($r = -.365, p = .061$).

### Table 35

**Relationship Between Awareness and Assertion of Needs and Post BDI, Controlling for Pre BDI**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Session 1</th>
<th>Session 2</th>
<th>Session 3</th>
<th>Combined</th>
</tr>
</thead>
<tbody>
<tr>
<td>SE % of Total</td>
<td>-.058</td>
<td>-.011</td>
<td>-.061</td>
<td>-.073</td>
</tr>
<tr>
<td>SD % of Total</td>
<td>--</td>
<td>.336</td>
<td>--</td>
<td>.330</td>
</tr>
</tbody>
</table>

*Note. SE % of activity is excluded because there were not enough SD ratings*
Table 36  
*Relationship Between Awareness and Assertion of Needs and Post PDS, Controlling for Pre PDS*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Session 1</th>
<th>Session 2</th>
<th>Session 3</th>
<th>Combined</th>
</tr>
</thead>
<tbody>
<tr>
<td>SE % of Total</td>
<td>-.006</td>
<td>.312</td>
<td>-.365</td>
<td>-.208</td>
</tr>
<tr>
<td>SD % of Total</td>
<td>--</td>
<td>.258</td>
<td>--</td>
<td>.242</td>
</tr>
</tbody>
</table>

*Note. SE % of activity is excluded because there were not enough SD ratings*

Table 37  
*Relationship Between Awareness and Assertion of Needs and Post PILL, Controlling for Pre PILL*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Session 1</th>
<th>Session 2</th>
<th>Session 3</th>
<th>Combined</th>
</tr>
</thead>
<tbody>
<tr>
<td>SE % of Total</td>
<td>-.057</td>
<td>-.193</td>
<td>-.090</td>
<td>-.058</td>
</tr>
<tr>
<td>SD % of Total</td>
<td>--</td>
<td>.310</td>
<td>--</td>
<td>.322</td>
</tr>
</tbody>
</table>

*Note. SE % of activity is excluded because there were not enough SD ratings*

Table 38  
*Relationship Between Awareness and Assertion of Needs and Post DERS, Controlling for Pre DERS*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Session 1</th>
<th>Session 2</th>
<th>Session 3</th>
<th>Combined</th>
</tr>
</thead>
<tbody>
<tr>
<td>SE % of Total</td>
<td>.044</td>
<td>-.256</td>
<td>.261</td>
<td>.231</td>
</tr>
<tr>
<td>SD % of Total</td>
<td>--</td>
<td>.041</td>
<td>--</td>
<td>.048</td>
</tr>
</tbody>
</table>

*Note. SE % of activity is excluded because there were not enough SD ratings*

**Relationships Between the Evaluation of the Self and Other and Outcome**

In order to test the relationships between productive and unproductive evaluations of the self and others and outcome in EW, partial correlations were calculated for each session as well as all sessions combined (presented in Tables 39-42). The following correlations were significant after controlling for pre-test scores on outcome measures.
**Session 1.** A higher proportion of segments rated as Engaged Evaluating was significantly related to higher posttraumatic stress scores at outcome. This association held both when considering the percentage of segments rated as Engaged Evaluating in relation to the total number of segments, and in relation to the percentage of segments in the Evaluating processing activity.

**Session 2.** No significant relationships were found between the awareness and assertion of needs and any of the outcome measures when controlling for pre-test scores on the outcome measures.

**Session 3.** A higher proportion of segments rated as Engaged Evaluating (compared to Disengaged Evaluating) was significantly related to higher posttraumatic stress scores at outcome.

**Combined.** A higher proportion of segments rated as Engaged Evaluating (compared to Disengaged Evaluating) was significantly related to higher posttraumatic stress scores at outcome.

### Table 39

**Relationship Between Evaluation and Post BDI, Controlling for Pre BDI**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Session 1</th>
<th>Session 2</th>
<th>Session 3</th>
<th>Combined</th>
</tr>
</thead>
<tbody>
<tr>
<td>VE % of Total</td>
<td>-.098</td>
<td>.082</td>
<td>-.154</td>
<td>-.152</td>
</tr>
<tr>
<td>VD % of Total</td>
<td>-.017</td>
<td>.065</td>
<td>.013</td>
<td>.117</td>
</tr>
<tr>
<td>VE % of Activity</td>
<td>-.153</td>
<td>.391</td>
<td>-.139</td>
<td>-.281</td>
</tr>
</tbody>
</table>
Table 40

Relationship Between Evaluation and Post PDS, Controlling for Pre PDS

<table>
<thead>
<tr>
<th>Variable</th>
<th>Session 1</th>
<th>Session 2</th>
<th>Session 3</th>
<th>Combined</th>
</tr>
</thead>
<tbody>
<tr>
<td>VE % of Total</td>
<td>.449*</td>
<td>.192</td>
<td>.151</td>
<td>.385*</td>
</tr>
<tr>
<td>VD % of Total</td>
<td>-.197</td>
<td>.099</td>
<td>-.189</td>
<td>-.190</td>
</tr>
<tr>
<td>VE % of Activity</td>
<td>.628*</td>
<td>.402</td>
<td>.581*</td>
<td>.261</td>
</tr>
</tbody>
</table>

*p < .05

Table 41

Relationship Between Evaluation and Post PILL, Controlling for Pre PILL

<table>
<thead>
<tr>
<th>Variable</th>
<th>Session 1</th>
<th>Session 2</th>
<th>Session 3</th>
<th>Combined</th>
</tr>
</thead>
<tbody>
<tr>
<td>VE % of Total</td>
<td>-.096</td>
<td>.013</td>
<td>-.324</td>
<td>-.245</td>
</tr>
<tr>
<td>VD % of Total</td>
<td>-.086</td>
<td>-.228</td>
<td>.170</td>
<td>.030</td>
</tr>
<tr>
<td>VE % of Activity</td>
<td>-.516</td>
<td>.367</td>
<td>-.033</td>
<td>-.385</td>
</tr>
</tbody>
</table>

Table 42

Relationship Between Evaluation and Post DERS, Controlling for Pre DERS

<table>
<thead>
<tr>
<th>Variable</th>
<th>Session 1</th>
<th>Session 2</th>
<th>Session 3</th>
<th>Combined</th>
</tr>
</thead>
<tbody>
<tr>
<td>VE % of Total</td>
<td>.058</td>
<td>-.142</td>
<td>-.288</td>
<td>-.231</td>
</tr>
<tr>
<td>VD % of Total</td>
<td>-.092</td>
<td>.050</td>
<td>-.142</td>
<td>.065</td>
</tr>
<tr>
<td>VE % of Activity</td>
<td>-.200</td>
<td>.088</td>
<td>.067</td>
<td>-.229</td>
</tr>
</tbody>
</table>

Relationships Between Reflection, Exploration and New Understanding and Outcome

In order to test the relationships between productive and unproductive reflection, exploration and new understanding and outcome in EW, partial correlations were calculated for each session as well as all sessions combined (presented in Tables 43-46). The following correlations were significant after controlling for pre-test scores on outcome measures.
Session 1. No significant relationships were found between reflection, exploration and new understanding and any of the outcome measures when controlling for pre-test scores on the outcome measures.

Session 2. No significant relationships were found between reflection, exploration and new understanding and any of the outcome measures when controlling for pre-test scores on the outcome measures. The relationship between more use of Tentative words and lower depression scores at outcome, however, did approach significance ($r = -.326, p = .062$). The relationship between more use of Positive Emotion words and higher posttraumatic stress scores at outcome also approached significance ($r = .364, p = .062$).

Session 3. A higher proportion of segments rated as Engaged Understanding was significantly related to lower depression scores at outcome. More use of Causation words (e.g., because, hence) and Tentative words (e.g., maybe, perhaps) were significantly related to lower posttraumatic stress scores at outcome. Finally, more use of Cognitive Mechanism words (e.g., cause, ought; $r = .452, p < .05$), Insight words (e.g., think, consider; $r = .509, p < .01$), and a higher proportion of segments rated as Engaged Exploring (compared to Disengaged Exploring) were related to higher difficulty in emotion regulation scores at outcome.

Combined. A higher proportion of segments rated as Engaged Understanding was significantly related to lower depression scores at outcome. Further, more use of Cognitive Mechanism words and Insight words were significantly related to higher difficulty in emotion regulation scores at outcome.
### Table 43

*Relationship Between Reflection, Exploration and New Understanding and Post BDI, Controlling for Pre BDI*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Session 1</th>
<th>Session 2</th>
<th>Session 3</th>
<th>Combined</th>
</tr>
</thead>
<tbody>
<tr>
<td>PE % of Total</td>
<td>-.115</td>
<td>-.097</td>
<td>-.011</td>
<td>-.194</td>
</tr>
<tr>
<td>PD % of Total</td>
<td>.048</td>
<td>.127</td>
<td>.354</td>
<td>.231</td>
</tr>
<tr>
<td>PE % of Activity</td>
<td>-.193</td>
<td>-.042</td>
<td>-.188</td>
<td>-.305</td>
</tr>
<tr>
<td>UE % of Total</td>
<td>--</td>
<td>-.199</td>
<td>-.441*</td>
<td>-.420*</td>
</tr>
<tr>
<td>CogMech</td>
<td>.270</td>
<td>-.118</td>
<td>.175</td>
<td>.087</td>
</tr>
<tr>
<td>Insight</td>
<td>.137</td>
<td>-.193</td>
<td>-.135</td>
<td>-.167</td>
</tr>
<tr>
<td>Cause</td>
<td>.166</td>
<td>.067</td>
<td>-.023</td>
<td>.038</td>
</tr>
<tr>
<td>Discrep</td>
<td>-.179</td>
<td>-.196</td>
<td>.218</td>
<td>-.129</td>
</tr>
<tr>
<td>Tentat</td>
<td>-.027</td>
<td>-.364</td>
<td>.031</td>
<td>-.167</td>
</tr>
<tr>
<td>Certain</td>
<td>.017</td>
<td>-.078</td>
<td>.194</td>
<td>.000</td>
</tr>
<tr>
<td>Inhib</td>
<td>.136</td>
<td>.062</td>
<td>-.144</td>
<td>-.017</td>
</tr>
<tr>
<td>Incl</td>
<td>.151</td>
<td>.094</td>
<td>.200</td>
<td>.229</td>
</tr>
<tr>
<td>Excl</td>
<td>.218</td>
<td>-.052</td>
<td>.079</td>
<td>.131</td>
</tr>
</tbody>
</table>

*Note.* UE % of activity is excluded because there is no UD processing activity

* *p < .05

### Table 44

*Relationship Between Reflection, Exploration and New Understanding and Post PDS, Controlling for Pre PDS*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Session 1</th>
<th>Session 2</th>
<th>Session 3</th>
<th>Combined</th>
</tr>
</thead>
<tbody>
<tr>
<td>PE % of Total</td>
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<td>-.192</td>
<td>.014</td>
<td>-.101</td>
</tr>
<tr>
<td>PD % of Total</td>
<td>-.292</td>
<td>.226</td>
<td>.079</td>
<td>-.095</td>
</tr>
<tr>
<td>PE % of Activity</td>
<td>.185</td>
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<td>-.086</td>
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<tr>
<td>UE % of Total</td>
<td>--</td>
<td>-.021</td>
<td>-.226</td>
<td>-.209</td>
</tr>
<tr>
<td>CogMech</td>
<td>.096</td>
<td>-.032</td>
<td>-.024</td>
<td>.009</td>
</tr>
<tr>
<td>Insight</td>
<td>.032</td>
<td>-.131</td>
<td>-.177</td>
<td>-.160</td>
</tr>
<tr>
<td>Cause</td>
<td>.093</td>
<td>-.131</td>
<td>-.461*</td>
<td>-.267</td>
</tr>
<tr>
<td>Discrep</td>
<td>-.328</td>
<td>-.044</td>
<td>.018</td>
<td>-.170</td>
</tr>
<tr>
<td>Tentat</td>
<td>-.101</td>
<td>-.176</td>
<td>-.382*</td>
<td>-.317</td>
</tr>
</tbody>
</table>
### Table 45

**Relationship Between Reflection, Exploration and New Understanding and Post PILL, Controlling for Pre PILL**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Session 1</th>
<th>Session 2</th>
<th>Session 3</th>
<th>Combined</th>
</tr>
</thead>
<tbody>
<tr>
<td>Certain</td>
<td>-.087</td>
<td>.133</td>
<td>.078</td>
<td>.071</td>
</tr>
<tr>
<td>Inhib</td>
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<td>.065</td>
<td>.256</td>
<td>.205</td>
</tr>
<tr>
<td>Incl</td>
<td>.308</td>
<td>.166</td>
<td>.371</td>
<td>.213</td>
</tr>
<tr>
<td>Excl</td>
<td>-.036</td>
<td>.239</td>
<td>-.002</td>
<td>.025</td>
</tr>
</tbody>
</table>

Note. UE % of activity is excluded because there is no UD processing activity

*p < .05*

Note. UE % of activity is excluded because there is no UD processing activity
Table 46

Relationship Between Reflection, Exploration and New Understanding and Post DERS, Controlling for Pre DERS

<table>
<thead>
<tr>
<th>Variable</th>
<th>Session 1</th>
<th>Session 2</th>
<th>Session 3</th>
<th>Combined</th>
</tr>
</thead>
<tbody>
<tr>
<td>PE % of Total</td>
<td>.051</td>
<td>.222</td>
<td>.277</td>
<td>.272</td>
</tr>
<tr>
<td>PD % of Total</td>
<td>-.039</td>
<td>-.145</td>
<td>-.336</td>
<td>-.230</td>
</tr>
<tr>
<td>PE % of Activity</td>
<td>.010</td>
<td>.176</td>
<td>.388*</td>
<td>.243</td>
</tr>
<tr>
<td>UE % of Total</td>
<td>--</td>
<td>.180</td>
<td>.241</td>
<td>.257</td>
</tr>
<tr>
<td>CogMech</td>
<td>.321</td>
<td>.180</td>
<td>.452*</td>
<td>.402*</td>
</tr>
<tr>
<td>Insight</td>
<td>.171</td>
<td>.308</td>
<td>.509**</td>
<td>.496**</td>
</tr>
<tr>
<td>Cause</td>
<td>.374</td>
<td>.211</td>
<td>.213</td>
<td>.278</td>
</tr>
<tr>
<td>Discrep</td>
<td>.043</td>
<td>.052</td>
<td>.210</td>
<td>.184</td>
</tr>
<tr>
<td>Tentat</td>
<td>.030</td>
<td>-.040</td>
<td>.324</td>
<td>.131</td>
</tr>
<tr>
<td>Certain</td>
<td>-.185</td>
<td>-.019</td>
<td>-.007</td>
<td>-.125</td>
</tr>
<tr>
<td>Inhib</td>
<td>-.026</td>
<td>-.041</td>
<td>.159</td>
<td>.009</td>
</tr>
<tr>
<td>Incl</td>
<td>.032</td>
<td>-.276</td>
<td>-.065</td>
<td>-.143</td>
</tr>
<tr>
<td>Excl</td>
<td>.320</td>
<td>.078</td>
<td>.191</td>
<td>.334</td>
</tr>
</tbody>
</table>

Note. UE % of activity is excluded because there is no UD processing activity
*p < .05, **p < .01

Relationships Between General Productive Processing and Outcome

In order to test the relationships between general productive and unproductive processing and outcome in EW, partial correlations were calculated for each session as well as all sessions combined (presented in Tables 47-50). The following correlations were significant after controlling for pre-test scores on outcome measures.

Session 1. No significant relationships were found between general productive processing and any of the outcome measures when controlling for pre-test scores on the outcome measures.
Session 2. No significant relationships were found between general productive processing and any of the outcome measures when controlling for pre-test scores on the outcome measures.

Session 3. A higher proportion of segments rated as Engaged, without consideration of specific processing activity, was significantly related to higher difficulty in emotion regulation scores at outcome.

Combined. A higher proportion of segments rated as Engaged, without consideration of specific processing activity, was significantly related to lower depression scores at outcome.

Table 47
Relationship Between Engagement and Post BDI, Controlling for Pre BDI

<table>
<thead>
<tr>
<th>Variable</th>
<th>Session 1</th>
<th>Session 2</th>
<th>Session 3</th>
<th>Combined</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Engaged</td>
<td>-.221</td>
<td>-.272</td>
<td>-.329</td>
<td>-.406*</td>
</tr>
</tbody>
</table>

*p < .05

Table 48
Relationship Between Engagement and Post PDS, Controlling for Pre PDS

<table>
<thead>
<tr>
<th>Variable</th>
<th>Session 1</th>
<th>Session 2</th>
<th>Session 3</th>
<th>Combined</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Engaged</td>
<td>.122</td>
<td>-.271</td>
<td>-.209</td>
<td>-.134</td>
</tr>
</tbody>
</table>

Table 49
Relationship Between Engagement and Post PILL, Controlling for Pre PILL

<table>
<thead>
<tr>
<th>Variable</th>
<th>Session 1</th>
<th>Session 2</th>
<th>Session 3</th>
<th>Combined</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Engaged</td>
<td>.158</td>
<td>-.170</td>
<td>-.026</td>
<td>-.087</td>
</tr>
</tbody>
</table>
Table 50

Relationship Between Engagement and Post DERS, Controlling for Pre DERS

<table>
<thead>
<tr>
<th>Variable</th>
<th>Session 1</th>
<th>Session 2</th>
<th>Session 3</th>
<th>Combined</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Engaged</td>
<td>.027</td>
<td>.043</td>
<td>.430*</td>
<td>.224</td>
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</table>

*p < .05
CHAPTER 4: DISCUSSION

While EW has been shown to be effective in bringing about positive change in many participants, why the intervention can be helpful and why different participants experience disparate outcomes has yet to be sufficiently explained. In the psychotherapeutic literature, several client processing activities have been identified as productive and linked with good outcome on various measures assessing psychological and physical symptomatology. These processing activities include those related to the description of external experiences, symbolization and expression of internal experiences, expression of needs, evaluations of the self and others, reflection and exploration, and the development of new understanding and resolution. The present study aimed to examine whether these processing activities are also relevant to EW and, thus, can help explain the intervention’s effectiveness and its differential effects for various participants. In order to do so, relationships between processing activities and symptomatology at outcome were explored in essays generated through an EW intervention for trauma survivors. The following is a discussion of present findings relevant to each processing activity in the context of theory and previous research. Then, study limitations and future directions will be addressed.

Description of External Experience

In the EW intervention, participants are instructed to describe their traumatic experiences in as much detail as possible. To examine whether the quality of participants’ descriptions of external experiences influenced outcome in the ways suggested in the psychotherapeutic process literature, the MCPP was used. As expected, descriptions of external experiences that lacked detail and were “flat” (i.e., Disengaged Describing) were not associated with changes in psychological or physical symptomatology following the EW
intervention. This suggests that descriptions with these qualities do not represent productive processing activities in written emotional disclosure, which is consistent with the theoretical and empirical psychotherapeutic literature. Contrary to hypotheses, however, vivid, concrete and imagistic descriptions of external experiences (i.e., Engaged Describing) were not found to be related to reductions in psychological and physical symptomatology following the EW intervention. Given that descriptions with these qualities have repeatedly been linked with good psychotherapeutic outcome, there are several possible explanations for the present null findings.

First, the benefits of describing in an engaged manner have often been found to depend on whether the descriptions lead to and facilitate other productive processing activities (rather than being beneficial in and of themselves). Bucci (1995), for instance, argued that vivid descriptions of past experiences help to create referential connections between those experiences and present experiencing. Subsequently, individuals are more likely to become emotionally aroused, to recollect and re-experience emotions similar to those felt during the event, and to symbolize and express those emotions (Bucci, 1995; Elliot et al., 2004; Watson, 1996; Watson & Rennie, 2004). These processes are considered central to the change process in emotion-focused (Greenberg, 2008), exposure (Parivio & Pascual-Leone, 2010) and other therapeutic approaches. Similarly, vivid, concrete and imagistic descriptions have been shown to promote narrative development (Angus, 2012), reflexive examination (Watson et al., 2007) and cognitive processing of an event within context (Paivio & Pascual-Leone, 2010), all of which have been linked with positive outcome. Accordingly, whether vivid, concrete and imagistic descriptions are beneficial may depend on (i.e., be moderated by) whether the descriptions lead to emotional experiencing and other
important processes. If this is the case, descriptions of external experiences that are engaged would not influence outcome directly, but would still be relevant to productive processing in that they facilitate other processing activities.

Second, the relationship between descriptions of external experiences and symptomatology may be moderated by other variables (i.e., variables not related to processing activities). The amount of previous disclosure about a traumatic event, for example, may influence whether describing an event in an engaged way is beneficial. More specifically, individuals who had previously disclosed traumatic experiences in vivid detail are likely to have more fully habituated to their distress reactions; thus, being immersed in the concrete details of their traumas would not be expected to confer much additional benefit over more general descriptions. This is particularly relevant to research into imaginal exposure, which posits that vivid, concrete and imagistic language serves exposure and habituation functions (Paivio & Pascual-Leone, 2010). The moderating potential of amount of previous disclosure is supported by the findings of Frattaroli’s (2006) meta-analysis, where she reported that EW participants who were asked to write about previously undisclosed traumatic events had marginally larger psychological health effect sizes than those who were not.

Finally, many of the benefits of vivid, concrete and imagistic descriptions reported in the psychotherapeutic literature relate to the relationship and interaction between therapists and their clients. This includes helping to develop a shared context between clients and therapists (Angus et al., 2004; Watson et al., 2007), helping therapists identify difficulties in clients’ processing (Watson et al., 2007), and aiding therapists in the development of their empathic understanding of clients (Angus & Kagan, 2007; Greenberg & Ruchanski-
Rosenberg, 2002; Watson et al., 2007; Watson & Greenberg, 2009). Further, therapeutic interventions such as systematic evocative unfolding (Rice, 1974; Rice & Saperia, 1984) rely on therapists to expertly guide clients towards productive descriptions of experiences that allow clients to become more aware of their emotional and behavioural responses to those experiences (Elliot et al., 2004). The present null findings suggest that these and other factors unique to psychotherapy better explain the benefits of engaged descriptions than the intrapersonal factors hypothesized to be at work in EW; they highlight the vital role that therapists play in the facilitation of external descriptions that are productive.

Important to note is that, while there were no significant relationships between the description of external experiences and outcome, there were some findings that approached significance. Specifically, the use of vivid, concrete, and imagistic language was linked with improved emotion regulation abilities, while distant and flat descriptions were linked with worsened symptoms of posttraumatic stress. Accordingly, future studies (especially those with larger sample sizes) should continue to explore the possible roles that descriptions play in the EW intervention.

**Symbolization and Expression of Internal Experience**

In addition to describing the details of their traumatic experiences, EW participants were also instructed to describe and explore their deepest emotional experiences. To examine whether participants’ level of emotional arousal during expression influenced outcome in the ways suggested in the psychotherapeutic process literature, the MCPP was used. The LIWC was used to provide further insight into this relationship by determining patterns of word use in relation to positive and negative emotions. As expected, internal experiences that were blocked or flooded (i.e., Disengaged Experiencing) were either not associated with changes
in symptomatology or were associated with an increase in symptoms following EW. Some support for the hypothesis that internal experiences symbolized and expressed at a moderate level of arousal (i.e., Engaged Experiencing) would be associated with a reduction in symptoms following EW was provided. Findings varied according to writing session, with each session discussed separately.

Participants whose emotions were blocked or flooded in the initial writing session tended to report increased symptoms of posttraumatic stress at outcome. This is consistent with the psychotherapeutic literature, where these processes have been found to interfere with or prevent individuals from becoming aware of, experiencing, symbolizing and expressing internal experiences in beneficial ways (Carryer & Greenberg, 2010; Kennedy-Moore & Watson, 1999; Rauch & Foa, 2006). In the case of flooding, for instance, individuals are overwhelmed by feelings and thus are unable to effectively organize their thoughts, process new information, or engage in other useful activities (Kennedy-Moore & Watson, 1999). Likewise, when emotions are blocked individuals are unable to gain access to what they are feeling, making differentiation and symbolization unlikely.

Also in the initial writing session, participants who symbolized or expressed their emotions with a moderate level of arousal tended to experience an increase in symptoms of posttraumatic stress at outcome, a finding inconsistent with hypotheses. This is accompanied by the findings that participants who used more Sad words and Anxiety words tended to report an increase in depressive and physical symptoms at outcome, respectively. Together, these results are perhaps best understood in consideration of Kennedy-Moore & Watson’s (1999) position that the expression of emotion can be both a sign of distress and a means of coping with it. Specifically, the majority of participants spent much of the initial writing
session describing the details of their traumatic experiences; participants who immediately expressed their internal experiences, without first situating these experiences within the context of their traumas, were more likely to have been “venting” their emotions rather than expressing them in ways that cultivate resolution. This interpretation is reinforced by the differential results revealed in subsequent writing sessions.

Findings from the second writing session support the present study’s hypotheses. Specifically, participants who expressed their emotions in an engaged manner tended to report a reduction in physical symptoms at outcome, while those who were disengaged from their emotions tended to report increased physical symptoms. With regards to word use, participants who used more Negative Emotion words and Anger words tended to report reduced symptoms of posttraumatic stress. More use of Negative Emotion words, along with Anxiety words, were also linked with reductions in depressive symptoms at outcome. Importantly, both of these word categories correlated significantly and positively with emotional experiencing that is engaged (but not disengaged), suggesting that participants who were using words indicative of negative emotions and anxiety were doing so with a moderate level of arousal. Taken together, these findings are consistent with theory and research asserting that the symbolization and expression of emotions with a moderate level of arousal (i.e., not blocked or flooded) can have beneficial effects through processes such as the generation of emotional insight (Kennedy-Moore & Watson, 1999), decreased physiological stress (Kennedy-Moore & Watson, 1999; Pennebaker, 1995) and exposure/habituation (Sloan & Marx, 2004a, 2004b; Sloan, Marx, & Epstein, 2005).

In the third writing session, participants who were engaged with their emotional experiencing, rather than disengaged, tended to report a reduction in symptoms of
posttraumatic stress at outcome. This supports the present study’s hypotheses and is consistent with much of the previous research, particularly in the context of exposure and habituation (Sloan & Marx, 2004a; Sloan, Marx, & Epstein, 2005). Habituation is believed to occur when the fear structure is activated and individuals experience and express emotions and physical sensations related to traumatic experiences (Rach & Foa, 2006). Through this exposure process, individuals gain a sense of control over their emotions and the pathological elements of fear (e.g., the belief that one cannot handle distress) are challenged (Foa & Rothbaum, 1998). By engaging with one’s emotions with a moderate level of arousal, compared to avoiding them or being overwhelmed by them, these processes are facilitated and improvements in symptoms of posttraumatic stress can occur as they have in the present study.

When it comes to word use in the third writing session, participants who used more Positive Emotion words and Sad words tended to report an increase in symptoms of posttraumatic stress and physical symptoms at outcome, respectively. Important to note is that Positive Emotion words did not correlate significantly with experiencing that was either engaged or disengaged in the third session, while Sad words correlated significantly and positively with experiencing that was disengaged. Accordingly, while the use of words in these categories in the third session were linked with increased symptomatology at outcome, evidence suggests that the participants were not expressing their emotions at a moderate level of arousal and may have been experiencing emotional blocking or flooding. The finding that Positive Emotion words relate to poor outcome is inconsistent with previous research undertaken by Pennebaker and colleagues (Pennebaker et al., 1997; Pennebaker & Francis, 1996; Pennebaker & Segal, 1999), who reported that more frequent use of Positive Emotion
words predicted health benefits. The findings are congruent, however, with the idea that level of arousal while experiencing and expressing emotions is more relevant to productive processing than is emotional expression in general (Greenberg, 2008; Greenberg, 2002; Greenberg, Auszra, & Herrmann, 2007; Greenberg & Safran, 1987; Watson, 1996).

Further, participants who used more Affect words, Negative Emotion words and Sad words in the third writing session tended to report increased difficulties in emotion regulation at outcome. This suggests that participants who continued to express high levels of negative emotions (especially sadness) during the final writing session had failed to fully process their emotions in productive ways and, thus, exited the study with more difficulties in emotion regulation regardless of their capacities at baseline. This is supported by the lack of relationships between these variables in earlier sessions and emotion regulation at outcome, suggesting that the use of Affect words, Negative Emotion words and Sad words is only associated with difficulties in emotion regulation at outcome when participants continued to express these emotions at the end of the EW intervention (i.e., without further processing time).

Clearly, results related to both the MCPP and LIWC suggest that the consequences of processing activity and word use differ depending on which writing session they take place during, with findings from the later sessions (i.e., session two and three) producing results that are more consistent with hypotheses. Research into “phases” of therapy has often differentiated between the processes at play during early, mid and late therapy (with mid therapy also referred to as the “working phase;” Pos et al., 2003). It has been demonstrated, for instance, that emotional processing activities during mid and late phases are the best predictors of outcome following therapy (e.g., Goldman, Greenberg, & Pos, 2005; Pos et al.,
Watson and Bedard (2006) also revealed that clients’ depth of emotional processing, as measured by the EXP scale, was deepest during the working phase. Similarly, Pos and colleagues (2009) showed that EXP scores during the working phase best predicted depression and general distress at outcome. Though the differences between psychotherapy and EW are vast, results of the present study are consistent with the findings that productive emotional processing in the mid and late phases of an intervention best predict positive outcomes with regards to symptomatology (but not emotion regulation).

Finally, participants who used more Anxiety words across all sessions combined tended to report reduced depressive symptoms at outcome. Given the very strong positive correlation between Engaged Experiencing (i.e., emotional expression with a moderate level of arousal) on the MCPP and Anxiety words on the LIWC in all three writing sessions, this supports the hypothesis that emotional experiencing with a moderate level of arousal is a beneficial and productive process. Further, participants who used more Sad words across sessions tended to report increased depressive and physical symptoms at outcome. It makes intuitive sense that participants who generally used more words indicative of sadness reported higher levels of sadness at outcome, especially given that Sad words did not correlate at any point with Engaged Experiencing. Among other things, this may point to a lack of habituation to negative emotions over the course of the intervention, an idea consistent with the findings of Jaycox and colleagues (1998). It also provides support for Kennedy-Moore and Watson’s (1999) assertion that the expression of emotions is only beneficial to the extent that it leads to some sort of resolution; sadness expressed at higher levels throughout EW, as opposed to during the working phase, may indicate that participants
were venting rather than expressing emotions in ways that promoted subsequent awareness and insight into the self.

**Awareness and Assertion of Needs**

To examine whether the ways in which participants’ did or did not became aware of, express and assert their needs influenced outcome in the ways suggested in the psychotherapeutic process literature, the MCPP was used. As expected, complaining or demanding (i.e., Disengaged Expressing) was not associated with changes in symptomatology following EW. The theoretical and empirical literature points to these activities as placing power and responsibility with others and, thus, undermining of one’s sense of agency (Greenberg & Watson, 2006). Complaints and demands are also likely not differentiated into their primary adaptive emotions, the expression of which is thought of as fundamental to the change process. While the lack of evidence pointing to complaining and demanding as productive processing activities was expected, the hypothesis that awareness and assertion of needs (i.e., Engaged Expressing) would be associated with symptom improvement following the EW intervention was not supported.

When interpreted in the context of the theoretical and empirical literature, the present results suggest that the assertion of needs is not beneficial per se, but rather only when it is indicative of new awareness and change. Watson (2011) posits that the symbolization and expression of needs can follow from a differentiation of experience, where individuals become better aware of their internal unmet needs as well as the ways their needs differ from those of others. This can foster a sense of self-determination, empowerment and control as well as allow individuals to better “know themselves.” Further, the awareness and expression of emergent needs can facilitate a shift from the experience of secondary emotions to primary
adaptive emotions (Greenberg, 2002), lead to the development of goals (Elliot et al., 2004; Greenberg & Paivio, 1997; Greenberg & Watson, 2006), spur positive behaviour change (Watson & Rennie, 1994) and foster positive emotional experiences (Greenberg & Watson, 2006). In each of these cases, the benefits of needs expression follow from new awareness of needs (e.g., through differentiation); accordingly, expressions of needs that individuals were previously aware of, or that were not properly differentiated, may not to lead to the same positive effects on symptomatology as the expression of needs that follow from new awareness and realizations.

In the present study, for instance, one participant asserted that she “need[s] to feel close to others.” Other statements in her writing, however, suggest that this was not an emergent need and that her assertion did not represent new awareness or change (e.g., “I’ve tried very hard to confide in others, but I haven’t been able get close enough”). Another participant, contrarily, asserted that she “will not give [her] power to the perpetrator” and that she “must consciously decide to own [her] life and move forward.” This followed from a reflexive and tentative examination of how she has acted as a “victim” (i.e., Engaged Exploration) and led to subsequent statements of new understanding and resolution (i.e., Engaged Understanding). In the former example, the assertion of a need may not have been productive because it did not represent new awareness. In the latter case, the recognition of emergent needs was more likely to be productive and lead to feelings of empowerment, the development of goals, and other beneficial outcomes. As these examples suggest, the null findings in the present study may reflect the fact that not all participants who asserted their needs did so in response to new awareness (and thus their assertions were not indicative of change).
Moreover, the lack of associations between the assertion of needs and symptomatology at outcome in the present study suggests that the value of needs expression may be the ability of this processing activity to promote other beneficial activities or behaviours. While the “newness” of expressed needs is important, how individuals deal with these emergent needs may also be an essential factor in determining whether the expression is beneficial. As mentioned, for instance, the development of goals and mobilization of resources towards fulfilling them can follow from needs expression (Elliot et al., 2004; Greenberg & Paivio, 1997; Greenberg & Watson, 2006). As such, whether the expression of needs is productive may depend on whether individuals are able to draw connections between those needs and their goals as well as take adaptive actions towards them. In cases such as this, the expression of needs would not be productive in and of itself, but rather only when individuals are able to make adaptive changes based on the new information.

Finally, the assertion of needs may not have emerged as a productive process in the present study because EW does not have therapists guiding individuals to express themselves in productive ways. In the two-chair intervention, for example, therapists help clients to differentiate and recognize their needs, and direct clients to express these needs in ways that encourage emotional processing and new awareness (Greenberg & Watson, 2006). It is plausible that, without this guidance, participants who asserted their needs were not doing so in ways that facilitated resolution. Thus, the failure to find associations between expressing behaviours and outcome in the present study may point to the crucially important role therapists play in this process.

Important to note is that, while there were no significant relationships between the assertion of needs and outcome, there was one finding that approached significance.
Specifically, productive assertion of needs was linked with improved symptoms of posttraumatic stress. Accordingly, future studies (especially those with larger sample sizes) should continue to explore the possible roles that assertions of need play in the EW intervention.

**Evaluation of the Self and Others**

To examine whether participants’ evaluations of the self and others influenced outcome in the ways suggested in the psychotherapeutic process literature, the MCPP was used. The hypothesis that positive evaluation and validation (i.e., Engaged Evaluating) would be associated with a reduction in symptoms following the EW intervention was not supported. In fact, some results suggest that writing more about negative evaluations, criticism and blame (i.e., Disengaged Evaluating) was more closely associated with positive outcome. Findings varied according to writing session and are discussed next.

Individuals whose evaluations were more positive than negative in the first and third writing sessions tended to experience increased symptoms of posttraumatic stress at outcome. Positive evaluations and validation in general in session one and all sessions combined were also associated with increased symptoms of posttraumatic stress at outcome. These findings contradict the hypotheses of the present study and are not consistent with much of the reviewed theoretical and empirical literature. Interestingly, the negative correlation between Engaged Evaluation and symptomatology at outcome is restricted to symptoms of posttraumatic stress, with similar results not found for depression, physical symptoms or difficulties in emotion regulation. An examination of the content of the essays reveals that this may be partially explained by the contexts of many of the positive evaluations. Specifically, “softening,” soothing, valuing and other forms of compassion towards the self
or others have been shown to be predictive of positive therapeutic change (Greenberg et al., 1993; Kennedy-Moore & Watson, 1999; Watson, 2011). Many of the engaged evaluations in participants’ essays, however, were apparently not related to this process.

Specifically, participants’ engaged evaluations often highlighted the positive qualities that the self or others possessed prior to the occurrence of a traumatic event. One participant in the present study, for instance, stated that he was “young, smart, good looking and well-dressed,” which was deemed a positive (i.e., engaged) evaluation. This statement, however, was part of a discussion of this participant’s belief that he was attacked because his assailants were “jealous” of him and were “bitter that their lives were so pointless and shitty” compared to his. Similarly, another participant positively evaluated her friend as “usually very brave” and “a good and honest person” while recounting how that same friend was unable to fend off a sexual assault and questioning why it happened to her. Yet another participant stated that a married couple who ran a convenience store were “nice people” before explaining how those people were robbed. Accordingly, when considered within context, these positive evaluations may have been representative of (or even strengthened) these participants’ views that the world is dangerous, unpredictable and unjust, which are believed to be some of the core beliefs that perpetuate symptoms in trauma-related disorders (Foa & Rothbaum, 1998; Resick, Monson, & Chard, 2008). This would help to explain why engaged evaluations had a negative influence on symptoms of posttraumatic stress but no other outcomes.

Thus, when and in what context positive evaluations occur, rather than whether they occur, may be more important with regards to influencing symptomatology. That is, engaged evaluations may only be productive when they occur as a “softening” or otherwise positive shift of a previously held negative evaluation. Such is the case with two-chair work for
negative treatment of the self, which has been shown to be predictive of positive therapeutic outcome (e.g., Greenberg & Webster, 1982; Shahar et al., 2012). Similarly, self-nurturing activities such as compassion and reassurance may be beneficial only when they occur in response to a re-evaluation of negative life events (Kelly et al., 2009; Leary et al., 2007, Neff et al., 2005) rather than in isolation. Finally, as indicated by Greenberg (1991) and Kennedy-Moore and Watson (1999), positively evaluating others in cases of abuse is likely not productive; instead, the goal is often to attribute blame and responsibility to the abuser in order to reduce self-blame. In any case, the results of the present study do not support the position that positive evaluations are inherently beneficial and, rather, suggest that they may have the opposite effect depending on the context within which they take place.

**Reflection, Exploration and New Understanding**

To examine whether participants’ reflexive examination, exploration and generation of insight and new understanding influenced outcome in the ways suggested in the psychotherapeutic process literature, the MCPP was used. The LIWC was used to provide further insight into this relationship by determining patterns of word use related to cognitive processes. The hypothesis that reflexively exploring and developing new understanding (i.e., Engaged Exploring and Understanding) would be associated with symptom reduction following the EW intervention received some support. As expected, the majority of results suggest that explanations that were intellectual, uncritical or based on assumption (i.e., Disengaged Exploring) were not associated with changes in symptomatology.

The development of new understanding and resolution in the third writing session, as well as in all writing sessions combined, was associated with a reduction in depressive symptoms at outcome. This supports the hypotheses of the present study and is particularly
salient given the relatively low number of segments that received ratings of Engaged Understanding on the MCPP. This finding is consistent with the idea that, through the process of reflexive examination, individuals can gain insight into themselves and their behaviour, develop alternate ways of being, and reach resolution (Greenberg & Watson, 2006; Watson & Rennie, 1994). The fact that the power of new understanding and resolution is most evident in the final writing session speaks to the ways in which this understanding develops from other productive processes, such as the differentiation of emotion and reflexive examination. One participant, for instance, wrote extensively in the first and second writing sessions about feeling “consumed” by an assault experience. In her final writing session, she began to consider the ways that she had grown from the experience and to notice how “resilient” she had been. Eventually, at the end of the third writing session, she stated:

I have a greater insight I did not have before the physical assault. I can own my own happiness and manifest peace in the face of fear. Fear is a natural emotion, yet I can know how to contain it so I am still productive. I realized I often live in emotion-mind, ruled by overwhelming emotions. In reflection, I am willing to reorganize my bodily sensations and check in with what I am thinking. I can de-escalate the anticipated fear or resulting isolating behaviour by being in control and choosing to feel empowered.

This woman’s writing exemplifies the ways that individuals can gain insight into their experiences and reach resolution through self-exploration.

Additionally, the use of Causation words in the third writing session was associated with decreased symptoms of posttraumatic stress at outcome. There are 108 words in the Causation category, including “affect,” “because,” “cause,” “why,” “therefore,” “influence,” and “control.” The words pertain largely to cause and effect and are meant to measure whether individuals are drawing connections in their writing. Accordingly, the present
findings suggest that participants who were actively drawing connections between aspects of themselves, others and their experiences/environments were better able to develop insights into their experience and, subsequently, to experience reductions in symptomatology. Similar results have been reported in previous research, with Causation words being linked with better outcome across varying indices of health (Campbell, 1993; Pennebaker et al., 1997; Pennebaker & Segal, 1999).

Also in the third writing session, the use of Tentative words was associated with a reduction in symptoms of posttraumatic stress at outcome. There are 155 words in the Tentative category including “depends,” “kinda,” “maybe,” “perhaps,” “possibly,” “seem,” “somehow,” and “wonder.” The words are meant to measure whether individuals are being tentative in their writing, as opposed to conveying certainty (e.g., “always,” “definitely,” “must”). Thus, the present finding fits with the model of reflexivity that touts the benefits of actively questioning and scrutinizing experience in a tentative way rather than assuming or explaining in a strictly intellectual manner (Watson & Greenberg, 1996). When individuals are actively inquiring, they are believed to be more engaged with the moment-to-moment process and in tune with their current experiencing (rather than simply observing their thoughts), which opens them to new insight and self-understanding (Kennedy-Moore & Watson, 1999). Both Causation words and Tentative words were correlated with Engaged Exploring in the third session, further suggesting that exploration and reflexive examination are productive processing activities.

Contrary to hypotheses, actively exploring and examining in the third session, rather than explaining in an intellectual manner, was associated with increased difficulties in emotion regulation at outcome. Since this result was not found for earlier sessions, it implies
that continuing to process emotions and reflexively examine the self, others and the environment in the late phase of EW did not leave participants with enough time to use this information in productive ways. Tellingly, Engaged Exploring was highly correlated with the use of Affect words, Positive Emotion words and Anxiety words in the third writing session (but not the first or second sessions), which corresponds with the earlier discussed idea that more expressed emotion in the late phase of the intervention might point to emotions that are being “vented,” have not been processed fully and are dysregulated.

Increased difficulties in emotion regulation at outcome was also associated with the use of Cognitive Mechanism words and Insight words in both the third writing session and all writing sessions combined. The Cognitive Mechanism word category is very broad and includes 730 words associated with thought (as opposed to emotion, events or things). The Insight word category is subsumed under the Cognitive Mechanism category and includes words pertaining to discovery and meaning, such as “know,” “learn” and “believe.” Again, these word categories were highly correlated with Engaged Exploring in the third session but not in sessions one or two, suggesting that these patterns of word use in the late phase of EW point towards continued engagement in working phase activities at the end of the intervention.

Overall, thus, it appears that the timing of exploration is critically important, with active questioning and reflexive examination only beneficial when individuals have the opportunity for further processing. This idea is relevant to research conducted by Missirlian and colleagues (2005), in which they examined perceptual processing (among other processes) in individuals who underwent experiential therapy for depression. In particular, they reported that clients’ “moment-to-moment understanding and experience of emotional
information is believed to shift from a rigid, fixed state to a looser, more explorative phase, and finally to a ‘tightening’ stage, characterized by a broader and richer personal understanding or emotional experience” (p. 869). In the present study, participants who remained in the “explorative” phase in the final writing session may not have had the opportunity to move into the “tightening” phase and, hence, not experienced improvements in symptomatology at outcome.

**General Productive Processing**

To examine whether participants’ overall engagement in productive or unproductive processing influenced outcome in the ways suggested in the psychotherapeutic process literature, the MCPP was used. When considering all writing sessions combined, writing that was considered engaged (i.e., productive), regardless of specific processing activity, was associated with a reduction in depressive symptoms at outcome. This finding supports the present study’s hypotheses and is consistent with the notion that engagement in productive processing activities can lead to positive outcomes following the EW intervention. Previous research has repeatedly highlighted the importance of the ways individuals process their emotions and experience to the change process. Although some of the specific processing activities identified in the literature did not emerge as significant in the present study, this result suggests that productive processing activities work together (e.g., facilitate one another) to spur positive change.

Contrary to hypotheses, writing that was considered engaged in the third writing session, regardless of specific processing activity, was associated with increased difficulties in emotion regulation at outcome. Again, this finding suggests that individuals who were engaged in “working phase” activities, such as the differentiation of emotions and active
exploration, in the final writing session did not have the opportunity to reach “later phase” insight and resolution. This idea is reinforced by the lack of significant relationships found between difficulties in emotion regulation at outcome and any of the productive processing behaviours in the first or second writing sessions. It also speaks to Watson and colleagues’ (Watson et al., 2007; Watson, 2011) assertion that productive engagement in psychotherapy often requires individuals to first spend time developing a stronger sense of self as well as improving their capacity to regulate their emotions.

**General Discussion**

The present study found some support for the notions that symbolizing and expressing emotions at moderate levels of arousal, as well as actively exploring and developing new understanding, are productive processes in EW. Accordingly, engagement in these processes may help to explain why the intervention has so often been found to be beneficial, and the differential engagement in these processes between participants may shed light on why some participants improve and others do not. This is most prominently the case for depressive symptoms, though there is also some evidence that symptoms of posttraumatic stress and physical symptoms are positively affected. In contrast, difficulties in emotion regulation appear to be unaffected or to worsen following EW when participants are experiencing their emotions and exploring in engaged ways. Importantly, these results are limited to the second and third writing sessions. Accordingly, it appears as though the activities identified as productive can have varying effects on outcome depending on the phase during which they occur, with the most notable effects seen during the mid and late phases. This fits with Greenberg and Pinsof’s (1986) position that therapeutic processes are unstable and vary significantly throughout an intervention. Clinically, these findings suggest
that, for individuals who have experienced traumatic events and report depressive, posttraumatic, or physical symptoms, EW might help them to engage with their emotions in useful ways and to reflexively examine aspects of themselves, others and situations. Considering the somewhat inconsistent findings, however, EW may best be considered a useful adjunct to traditional psychotherapy rather than a standalone intervention (e.g., as a homework assignment), an idea that is often touted in the literature (e.g., L’Abate, 1991).

The present study did not find support for the ideas that describing external experiences, becoming aware of and asserting needs, or evaluating the self and others in engaged ways are productive processes in EW. This suggests that engagement in these processes cannot help to explain why EW has often been found to be effective and why some participants improve while others do not. Given the abundance of research that points to these activities as productive processes in psychotherapy, the present results suggest that a relationship with and guidance from a therapist are critically important to these processes. This idea is especially relevant given that much of the research supporting the benefits of productive processing relied on therapists to use specific techniques (e.g., systematic evocative unfolding, empty-chair work, and two-chair work) in order to facilitate resolution in their clients. Further, the null results may point to important moderating or mediating roles that other variables play (including other processing activities), an idea that has received some support in the literature. Present study limitations, however, must be taken into account before firm conclusions can be drawn. From a clinical perspective, these findings suggest that the benefits of EW may not be related to its potential for exposing individuals to traumatic memories, helping them recognize and assert their needs, or fostering compassion and positive evaluations of the self and others. When these processes are determined to be
relevant to an individual’s recovery and well-being, EW may not be an appropriate task either as a standalone intervention or as part of traditional psychotherapy. Instead, guidance from therapists in the context of a strong therapeutic bond would likely be more useful in bringing about change and resolution.

A further explanation of why processing activities identified in the psychotherapeutic literature as productive may not be applicable to EW relates to the medium of expression. Specifically, individuals involved in psychotherapy primarily describe their experiences verbally, while those using EW communicate exclusively in writing. Accordingly, the differential medium of expression, irrespective of the therapeutic relationship and interaction, may help to explain the present findings. Murray and Segal (1994), for instance, discuss how individuals who express their emotions verbally also convey emotional information through vocal parameters including intensity, frequency and rate of speech. The authors point to research linking these parameters with physiological arousal, and thus suggest that vocal expression of emotions may actually lead to increased emotional arousal. They further point to evidence that facial and bodily movements during vocal expression help arouse and even amplify emotional experience (Izard, 1990, as cited in Murray & Segal, 1994). Finally, the authors posit that the simple “ease” of verbal compared to written expression allows individuals to process their experiences quicker and more effectively (i.e., more information can be processed in a shorter amount of time). In addition, Esterling and colleagues (1994) theorized that the vocal expression of emotion allows for deeper emotional awareness than writing because it is more in accordance with the ways that individuals are accustomed to expressing themselves.
Some research has supported the notion that verbal disclosure of stressful experiences is more beneficial than written disclosure. Esterling and colleagues (1994), for instance, instructed individuals to disclose traumatic experiences verbally (into a tape recorder) or in writing. Their results revealed that, compared to the written disclosure group, those who disclosed verbally experienced more beneficial cognitive change, improved coping skills, increased self-esteem and lower EBV antibodies. Both groups, however, experienced better outcomes than a control group. While there is some support for the superiority of verbal over written disclosure, results are inconsistent. Segal and Murray (1994), for example, found that speaking into a tape recorder and writing about a traumatic experience both resulted in similar positive therapeutic effects. Additionally, Sousa (2001) found that individuals who wrote about or verbalized negative experiences showed equivalent positive changes in life satisfaction, physical health and mental health (though both were superior to thinking about the negative experience). Despite the variable findings, it is possible that some of the discrepancies between the present findings and those in the psychotherapeutic literature can be attributed to the different medium of expression.

**Limitations and Future Directions**

There are several factors that may have limited the potential for uncovering significant findings in the present study. Most prominently, the relatively small sample size reduced the power of the study and may have made it difficult for important findings to emerge from the data. Given the large number of predictor variables, the small sample size also precluded the use of regression analyses and limited analyses to partial correlations. Accordingly, while significant relationships between the variables of interest were revealed, causation cannot be assumed and the relative contribution of each predictor to the variance in
outcome could not be calculated. Future research should make efforts to significantly increase the sample size in order to mitigate these limitations.

Also related to statistical limitations, the inclusion of numerous correlational analyses inflated the possibility that a significant finding would emerge in error (i.e., a Type I error). Thus, it is possible that some of the results obtained in the current sample are not truly representative of the population. Since the present study was exploratory, this level of error was accepted; future studies, however, would benefit from a more limited number of analyses.

Methodologically, the exclusive use of self-report measures to assess symptoms at baseline and outcome may also represent a study limitation. Although the measures used were well-developed, previously used in similar studies and psychometrically sound, it is possible that biases in participants’ responses and other factors may have affected the accuracy of their self-reports. Among other things, this may have included attempts at impression management (e.g., to appear more or less symptomatic), difficulties understanding items, tendencies to respond in certain ways (e.g., predominantly affirmative), or limited introspective ability (Stone et al., 2000). In order to address this limitation, future research may benefit from adding other measures that do not rely solely on self-report. The Structured Clinical Interview of DSM-IV-TR Axis I Disorders (SCID-I; First, Spitzer, Gibbon, & Williams 2002), for instance, could be administered by experienced professionals at baseline and outcome in order to assess changes in psychological symptoms following the intervention. While this interview does use self-report information, it also allows the interviewer to take into account other information such as presentation, consistency of information and level of comprehension. Measures that address potential response biases,
such as the Minnesota Multiphasic Personality Inventory (MMPI-2; Butcher, Dahlstrom, Graham, Tellegen, & Kaemmer, 1989) or that are purely objective (e.g., heart rate) may also be useful.

Also related to methodology, the use of only three 20-minute writing sessions may not have provided participants with enough time to engage in productive processing activities in ways that affect outcome. While the number of sessions in the present study was consistent with previous research as well as Frattaroli’s (2006) meta-analytic findings, it is possible that, had participants been given additional time or sessions, they would have been more immersed in the “working phase” of the intervention and been able to process their emotions and experiences more effectively. While the implementation of additional sessions comes with its own difficulties (e.g., financial), future research may benefit from having participants write for longer periods of time and/or on more occasions.

Some important study limitations also follow from the use of the LIWC and the MCPP as process measures. With regards to the LIWC, the simple word count approach does not take into account the contexts of the words, their idiosyncratic meanings (e.g., metaphorical), or whether the words were relevant to the task. If an individual wrote, “I am feeling angry,” for instance, the word “angry” would be counted as a negative emotion word. If an individual wrote, “the sky was full of angry looking clouds,” the word “angry” would similarly be counted as a negative emotion word. While the use of the word “angry” in the two examples is extremely different, they are not recognized as such on the LIWC.

The MCPP addressed this limitation by using trained raters to examine and categorize writing within context. The MCPP is also limited, however, by several factors. First, it relied on raters to use writing alone in order to judge the processing activities that
participants were engaged in. Without other factors, such as tone of voice and nonverbal behaviours, raters may have been inaccurate in their judgments of client activities. Sarcasm, for instance, can be challenging to detect through writing. Further, it may be difficult to determine a participant’s emotional experience without observation, such as seeing whether they tremble or sweat when reporting anxiety. This speaks to the broader problem of inferring participants’ internal processes through their expressions alone, which is a limitation of many process measures (Greenberg & Pinsof, 1986). In the present study, for instance, whether participants were evoking episodic memories was inferred through their use of vivid, imagistic and concrete language. It may be the case, however, that a participant was heavily engaged in an episodic memory but chose not to write it down or lacked the vocabulary to do so. In such a case, the MCPP would fail to capture an important process and limit the ability of the results to accurately reflect the relationships between this process and outcome. Finally, whether processing was productive or unproductive was coded on the MCPP using a binary scale, which may not have fully captured the nuances between the two options (McMullen, 2013).

To address these limitations in the future, post-session or post-test interviews with participants can be conducted in conjunction with process measures. Participants can be asked directly about aspects of their processing activities, for instance, such as how vivid their episodic memories were during writing, how strongly they experienced their emotions during writing, or whether they felt they made new realizations relevant to their traumatic experiences. This could then be interpreted alongside the information gathered through process measures to examine whether participants’ reports are consistent with observer ratings.
In the future, it would also be valuable to explore not only whether productive processing activities relate to outcome, but also to directly assess how the different processing activities relate to each other. In particular, it would be important to determine whether certain processing activities moderate (or even mediate) the relationships between other activities and outcome. This may provide some insight into more specific conditions under which productive processing activities are relevant to EW. It would also be useful to explore whether other variables, such as amount of previous disclosure, moderate the relationship between productive processing and outcome in EW.

**Concluding Remarks**

As discussed by Pennebaker (2004), it is unlikely that a single process or theory will fully account for the benefits to well-being often experienced through participation in EW. Rather, “most psychotherapeutic effects that will be significant at termination are the result of the cumulative impact of a complex of events and factors that play out and accumulate over time” (Greenberg & Pinsof, 1986, p. 7). The present study sought to investigate whether several productive processes, covering both the rational and experiential modes of processing, relate to outcome in written disclosures in the same way they do in the psychotherapeutic context. The present study also aimed to help explain why some individuals benefit from the EW intervention and some do not. Clearly, additional research is needed in order to confidently answer these questions and to address the limitations of the present study. The present study did, however, provide some preliminary evidence that some of the productive processes at work in the interpersonal context of psychotherapy may also be applicable to the intrapersonal context of EW and may help to explain why individuals given the same writing task can experience varying effects on their well-being. Specifically,
emotional expression with a moderate level of arousal and reflexive examination, which have been repeatedly linked with good outcome in psychotherapy, were also linked with good outcome in EW. The critical importance of psychotherapists, with respect to both their relationships with clients and ability to facilitate productive processes, however, likely explains much of the benefits of productive processing (Nicchols & Efran, 1985; Greenberg & Safran, 1987); EW, thus, is perhaps best considered a useful supplement to more traditional therapy.
References


Appendix A

Writing Instructions

Instructions given to all participants

This study is an extremely important project looking at the effects of writing. Over the next three days, you will be asked to write about one of two different topics for 20 minutes each day. You will be situated in a private location where you will be left alone to write after reading the instructions. The person who takes you to the office will close the door: this will be your sign to begin writing. At the end of 20 minutes of writing, the experimenter will knock on the door to let you know that the 20 minutes is up. At this point we would like for you to stop writing, and to place your essay in the envelope provided.

The only rule we have about your writing is that you write continuously for the entire time. If you happen to run out of things to say, just repeat what you have already written. In your writing, don’t worry about grammar, spelling, or sentence structure. Just write. Different people will be assigned to write about different topics so it is important that you refrain from discussing this experiment with anyone. Because it is a rigid experiment, we can’t tell you what other people are writing about or anything about the predictions of the experiment. Once the study is complete, however, we will tell you everything. Another thing to mention is that sometimes people feel a little sad or anxious after writing. If this occurs, it is completely normal. Most people say that the feelings go away within a couple of hours. If at any time during the experiment you feel upset or distressed and would like to talk to a trained counsellor, please contact Dr. Jeanne Watson, Justin Mattina, or Jonathon Danson immediately, or call the crisis telephone number which will be provided to you.

One last thing to mention is that your writing is completely anonymous and confidential. Your information is coded with an ID number, so please refrain from writing your name anywhere in the booklet. Some people in the past have preferred that nobody read their writing. This is OK. However, we do prefer that you turn in your writing samples, as we are interested in what people write. I promise that your experimenter will not be able to link your writing to you. The one exception to this is if your writing indicates you intend to harm yourself or others. In cases like this, we are legally bound to match your ID with your name and inform the authorities to ensure the safety of you and others. In order to do this and respect your privacy we will have a research assistant (in which you will not meet) read your essays once you submit your information, and only have your experimenter alerted if it is deemed legally/ethically necessary. Above all, we respect your privacy. Do you have any questions at this point? Do you still wish to participate?
**Experimental Condition Writing Instructions**

On the first day of Writing:

For the next 3 days, we would like for you to write about the most stressful, upsetting, and traumatic experience of your entire life. In your writing, we want you to really let go and explore your very deepest emotions and thoughts about the experience. Whatever you choose to write about, please keep in mind that it is critical that you really delve into your deepest emotions and thoughts. Ideally, we would also like you to write about a traumatic event that you have not discussed in great detail with others. Remember that you have three days to write. You might want to tie your experience to other parts of your life. How it has impacted you personally, emotionally, and socially, how it is related to your childhood and your development, the people you love, or how it has shaped who you are today and who you want to be. Again, in your writing please examine your deepest emotions and thoughts.

On the second day of Writing:

How did yesterday’s writing go? Today, we want you to continue writing about the same traumatic experience that you wrote about yesterday. Today, what is important is that you express your deepest emotions and thoughts about the experience.

On the third day of Writing:

Today is the last writing session. In your writing today, we again want you to continue writing about the most traumatic and upsetting event that you have wrote about for the last two days. Remember that today is your last writing day so you may want to wrap everything up. For instance, how is this traumatic event related to your current life situation and future? But feel free to go in any direction you feel most comfortable with. What is important is that you delve into your deepest emotions and thoughts.
**Control Condition Writing Instructions**

On the first day of Writing:

For the next 3 days we would like for you to write about how you use your time. Each day we will be giving you a different writing assignment on how you use your time. In your writing, we would like for you to be as objective as possible. We are not interested in your emotions or your opinions. Instead, we would like for you to be as factual and objective as possible. Feel free to be as detailed about the facts as you like. For today’s topic, describe what you did yesterday from the time you got up until the time you went to bed. For example, you may start when your alarm went off and you got out of bed. You could include the things you ate, where you went, which buildings or objects you passed by as you walked from place to place. The most important thing is that you only write objectively and factually about how you spent your time, refraining from including any information about your opinions or emotions.

On the second day of Writing:

How did yesterday’s writing go? Today, we would like you to describe what you have done today since you woke up. Again, be as objective as possible, with no description of emotions or opinions. Please describe exactly what you have done up until starting this experiment.

On the third day of Writing:

You have now written for two days and today is the last writing session. Today, we would like you to describe what you will be doing over the next week in as much detail and as accurately as possible. The most important thing is that you only write objectively and factually about this topic, refraining from including any information about your opinions or emotions.