ABSTRACT

Title of Dissertation:	RELATIONS BETWEEN EXPRESSIVE WRITING AND TEACHERS' AFFECT AND PREDICTORS OF ENGAGEMENT WITH EXPRESSIVE WRITING DURING THE COVID-19 PANDEMIC
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The physical and psychological health benefits associated with expressive writing (EW) have been extensively studied (Frattaroli, 2006; Frisina et al., 2004; review by Pennebaker, 2018; Smyth, 1998). Despite the depth of this research, two important questions remain *why is EW beneficial* and *who chooses to engage in EW*. This study addresses these two questions by using a mixed methods procedure, which includes teachers' written products about significant teaching experiences during the COVID-19 pandemic as well as their ratings of positive affect (PA) and negative affect (NA) before and after writing, and their ratings of the impact of the event they wrote about. Narratives were coded for levels of meaning-making and self-regulation with acceptable reliability among four raters. Results showed an immediate small decrease in NA after writing (d=.30) and an immediate small to moderate increase in PA after writing (d=.38). Additionally, correlational analyses revealed that higher levels of narrative meaning-making were related to higher levels of pre-writing NA, but not changes in NA or PA. Conversely,

higher levels of narrative self-regulation were not related to pre-writing affect, but were significantly related to adaptive changes in immediate post-writing affect (increase in PA and decrease in NA). Two logistic regression models, one predicting who completed the first expressive writing session and one predicting who volunteered to receive information about the next phase of the study (i.e., additional writing sessions) were not significant. However, a logistic regression predicting whether a participant completed a second writing prompt using change in affect and narrative quality as predictors was significant. Narrative self-regulation was the only significant predictor, such that higher self-regulation was related to an increase in the likelihood of completion of a second prompt. Overall, results suggest that meaning-making and self-regulation are related to different outcomes associated with participants' affect, with self-regulation being associated not only with adaptive change in affect, but also with continuing to engage with EW.

RELATIONS BETWEEN EXPRESSIVE WRITING AND TEACHERS' AFFECT
AND PREDICTORS OF ENGAGEMENT WITH EXPRESSIVE WRITING
DURING THE COVID-19 PANDEMIC

by

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Chapter 1: Introduction

Expressive Writing: Purpose, Procedure, and Benefits

Expressive writing refers to an intervention that involves describing emotional events by creating a written product (Travagin et al., 2015). The purpose of expressive writing is to help individuals express and process the emotional situations that they face. Much of the existing research has focused on participants writing about stressful or traumatic experiences and this procedure has resulted in physical and psychological health benefits (Pennebaker, 2000; Pennebaker, 2018). Some studies have also investigated outcomes for participants writing about intensively positive events or perceived benefits of traumatic events and results have shown that these procedures also produce physical and mental health benefits (Burton & King, 2004; King & Miner, 2000). The most common expressive writing procedure comes from Pennebaker (2000) and involves writing about a traumatic or stressful experience for twenty minutes. However, studies vary widely in the number of writing sessions, the length of time between writing sessions, the location of the writing sessions, the modality of writing, and the specific type of event that participants are asked to write about.

Expressive writing interventions have been found to provide physical health benefits in healthy adults and clinical populations as well as psychological benefits in healthy adults (Frattaroli, 2006; Frisina et al., 2004; Harris, 2006; Smyth, 1998). In healthy adult populations, physical health benefits have been found to include fewer visits to the doctor and fewer self-reported physical health symptoms (Francis & Pennebaker, 1992; Greenberg & Stone, 1992; Harris, 2006; Richards et al., 2000). Physical health benefits have also been found in groups experiencing physical health problems. Specifically, asthmatics have experienced improvements

in lung functioning, those with Rheumatoid Arthritis reported less discomfort and less medication use, and those with chronic illnesses such as fibromyalgia, chronic pain, and cancer have reported an increased quality of life and reduced physical symptoms and pain after expressive writing (Broderick et al., 2005; Lee et al., 2016; Norman et al., 2004; Smyth et al., 1999; Stanton et al., 2002).

Studies that have examined the impact on psychological health following expressive writing interventions have largely focused on affect. Generally, results have indicated that there is an overall decrease in negative affect across multiple writing sessions (Pascual-Leone et al., 2016). However, findings are mixed with respect to the impact that expressive writing has on negative affect immediately after writing. Some research has found an increase in self-reported negative affect immediately after writing – typically after writing about a traumatic or stressful event (Baikie & Wilhelm, 2005; Pascual-Leone et al., 2016). Other research has suggested that the impact on affect depends on how the participant feels before writing with results showing that participants who were highly distressed before writing demonstrated an improvement in negative affect immediately after writing about a recent job loss (Pennebaker, 2000). The mixed findings may also be due to the differences in expressive writing procedures, including the type of event written about and whether the participants wrote about a pre-selected event or chose what to write about.

While many studies and meta-analyses have shown that expressive writing can provide psychological and physical health benefits, some have found no effect or very small effect sizes (Frattaroli, 2006; Frisina et al., 2004; Harris, 2006; Oh & Kim, 2016; Reinhold et al., 2018). Some researchers have suggested that the variety of results in the literature may reflect the fact that individual variances in these studies are often large, which indicates that the effects of

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expressive writing may differ between participants meaning that expressive writing works for some, but not all (Reinhold et al., 2018; Rude & Haner, 2018). This has led to calls for additional research to focus on who benefits from expressive writing and why they benefit (Rude & Haner, 2018).

Proposed Mechanisms Underlying Benefits of Expressive Writing

Many researchers have developed theories attempting to explain the benefits of expressive writing. For most theories, mixed research exists with findings supporting aspects of the theories, but often leaving the full benefits of expressive writing unaccounted for (see review by Sloan & Marx, 2004). Early theories about the mechanisms underlying the benefits of expressive writing include emotional inhibition and exposure and habituation. The emotional inhibition theory purports that expressive writing allows for emotional inhibition to be released, thus leading to improved psychological health. Despite some supporting evidence, no known research has demonstrated a causal relationship between writing about a stressful event, decreases in inhibition, and improved health (Sloan & Marx, 2004). The exposure and habituation theory suggests that expressive writing is a form of exposure to distressing thoughts and feelings and that repeatedly writing about an event will lead to habituation and lessened emotional response to the event (Frattaroli, 2006; Travagin et al., 2015). Existing research is mixed on whether repeated written disclosures of thoughts and feelings reduce intrusive and avoidant thoughts (de Moor et al., 2002; Klein & Boals, 2001; Siemsen, 2018). Perhaps unsurprisingly, differences in these findings may be explained by different writing topics, populations, and individual characteristics. Expressive writing was found to reduce intrusive and avoidant thoughts in college students writing about a variety of typical events; however expressive writing did not reduce intrusive and avoidant thoughts for metastatic cancer patients

writing about their cancer (de Moor et al., 2002; Klein & Boals, 2001). Another study demonstrated that the effect of expressive writing on reducing intrusive thoughts in prostate cancer patients was moderated by social constraint with those feeling more constrained socially experiencing reductions in intrusive thoughts following expressive writing (Siemsen, 2018). Both theories are also undercut by research showing that writing about an imaginary event, a previously disclosed event, a positive event, or writing just once can produce health benefits (Friedel, 2012; Greenberg & Stone, 1992; Greenberg et al., 1996; Shen et al., 2018; Smyth & Pennebaker, 2008). Thus, expressing emotions and repeated written exposures are associated with some benefits, but as a whole the research does not suggest that these mechanisms can individually account for all the benefits of all types of expressive writing procedures.

Two additional mechanism theories are cognitive processing/meaning-making and self-regulation. Cognitive processing theory suggests that expressive writing provides benefits because it helps participants make meaning of their experience (i.e., understand a situation in a new way and adjust beliefs and goals for consistency), thus providing insight and perspective (Pennebaker et al., 1990; Pennebaker, 2018). Interestingly, cognitive processing/meaning-making has been studied from a cognitive perspective as well as a personality perspective (Graci et al., 2018). When this mechanism is studied from the cognitive approach, the expressive writing procedure often involves writing about a stressful or traumatic event while in the personality approach writing procedures are often autobiographical narratives. These different writing procedures produce different types of narratives and the studies often use different analytic techniques to examine the written products. Often in the cognitive approach, coding is either based on coherence and emotional intensity (content codes) or focused on changes in lexical indicators (e.g., use of tense, use of emotion words; Boals, 2012). On the other hand,

when narratives are examined from the personality approach, there is an emphasis on how an individual creates a sense of self through their story, resulting in the coding of narrative indicators (Graci et al., 2018). Thus, from the cognitive approach meaning-making tends to refer to making meaning of affect laden experiences while meaning-making from the personality approach tends to refer to constructing a meaningful identity based on an individual's life story. While some have suggested that integration of cognitive and personality approaches to analyzing writing products could be beneficial, it is also possible that different coding schemes are necessary in order to capture the different types of writing products being elicited.

Research has shown some support for the cognitive processing/meaning-making theory with studies that focus on lexical indicators demonstrating that participants' use of more positive emotion words and present tense over the course of writing sessions is related to improvements in mental health (Friedel, 2012). Content coding of meaning-making has also demonstrated benefits, with one study from the cognitive approach finding that meaning-making resulted in decreases in intrusive thoughts (Boals, 2012) and another study from the personality approach finding that improvements in agency (a narrative indicator of meaning-making) over writing sessions resulted in a decrease in internalizing symptoms (Adler, 2012). Much of the research supporting the cognitive processing/meaning-making mechanism has been correlational in nature. Thus, it is difficult to draw conclusions about the causal impact of expressive writing as the mechanism that increases cognitive processing/meaning-making, leads to changes in language use or perspective, and in turn provides benefit. Additionally, research demonstrating that writing about an imaginary event still results in benefits suggests that participants do not have to process and make meaning from *their own* experiences in order to benefit (Greenberg et al., 1996; Wong, 2007). This area of research has been cited as a reason why meaning-making

may not fully explain the effects of expressive writing. However, in the imaginary trauma event and imaginary relationship procedure, participants were asked to write about the imaginary event as if it was their own (Greenberg et al., 1996; Wong, 2007). Thus, it is still possible that meaning-making is a potential underlying mechanism as individuals who can engage in high levels of meaning-making when writing about their own experiences may also be better able to use that approach to thinking and organizing any emotional experience, even one they are imagining happened to them.

Finally, self-regulation has been proposed as a possible mechanism underlying the benefits of expressive writing. This theory proposes that expressive writing allows individuals to feel mastery over the event they are writing about, which increases self-efficacy and emotion regulation (Frattaroli, 2006). Some research has indicated that self-regulation and meaning-making may work together to produce benefit. For example, one study showed that individuals engaging in a higher level of self-distancing (an emotion regulatory process where individuals see the event from a distanced perspective) from the event they were writing about also demonstrated increased meaning-making and decreased emotional reactivity and physical health symptoms (Park et al., 2016). This research may suggest that self-regulation (through self-distancing) helps one make meaning of the situation or that meaning-making could lead to self-regulation as one might feel mastery over an event (self-regulation) because they have gained insight or changed their perspective (meaning-making). Thus, more research is needed to understand potential connections between self-regulation and meaning-making as mechanisms. Additionally, taken together the existing literature base suggests that self-regulation and meaning-making theories may be the most applicable theories to the wide variety of writing procedures and types of events written about.

Gaps in the Literature

While the existing research on expressive writing and its benefits is extensive, there is a dearth of research on why it is beneficial, who benefits, and who volunteers to participate and continues to participate in expressive writing interventions. King (2002) aptly noted, "two strong conclusions can be made regarding the benefits of writing. First expressive writing has health benefits. Second, no one really knows why" – one might also add that no one really knows who benefits either (Sloan & Marx, 2004). Researchers have also suggested that individual differences, moderators, and mechanisms should be a focus of future research on expressive writing due to mixed results on the effect sizes associated with expressive writing interventions (Rude & Haner, 2018).

Though there are many theories about potential mechanisms underlying expressive writing benefits, none seem to individually explain all of the benefits. Additionally, some of the theories, such as emotional inhibition and exposure/habituation are only applicable to a narrow range of expressive writing procedures (e.g., repeated writing sessions) and expressive writing topics (e.g., personally traumatic or stressful events). On the other hand, meaning-making and self-regulation appear to be logically applicable to a wide variety of expressive writing procedures including repeated writing sessions, single writing sessions, and a number of topics (positive events, traumatic events, stressful events, autobiographical narratives, self-chosen topics, assigned topics, etc.). The literature could benefit from research furthering the integration of these two proposed mechanisms due to their complementary nature. For example, as previously discussed some research has already demonstrated that together, they can explain some benefits of expressive writing (Park et al., 2016). Further, some meaning-making coding schemes used to analyze writing products, could arguably also be related to self-regulation. Graci

and colleagues (2018) identified fifteen meaning-making coding schemes from across the cognitive and personality approaches and applied them to a set of narratives to investigate overlap. Several of the fifteen codes that are used to identify meaning-making, could arguably also be related to self-regulation. For example, the study uses a code for the writer's sense of agency, which as defined in the study examines expressions of self-mastery. This is directly in line with the main components of the self-regulation mechanism theory, which proposes that expressive writing helps individuals gain mastery over the event written about and in turn improves emotion regulation (Frattaroli, 2006). Interestingly, agency did not load strongly on any of the meaning-making factors Graci and colleagues proposed in their study (2018), which may suggest that this code is more reflective of self-regulation than meaning-making. Two other codes (support seeking and rumination) used in the study to examine meaning-making also demonstrated potential overlap with self-regulation. For example, support seeking (i.e., "utilizing meaningful others in an emotionally regulated manner") and rumination (i.e., "repetitive self-focused thinking about one's negative feelings and conditions) could represent different ends of the self-regulation continuum (Graci et al., 2018). In order to be able to answer why expressive writing is beneficial, more research into mechanisms is needed. Specifically, it is important to better understand the unique contributions of, as well as the overlap between, meaning-making and self-regulation in relation to expressive writing. It is also important to ensure that coding schemes appropriately differentiate between the two and that coding schemes are appropriate for the type of writing product to which they are being applied.

More research is also needed in order to address the questions of who benefits from expressive writing, who volunteers, and who continues to engage in expressive writing (see review; Sloan & Marx, 2004). This research is important given that not everyone who

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participates in expressive writing experiences benefits (Pennebaker, 1993; see commentary from Rude & Haner, 2018). The little existing research has demonstrated that college students tend to have greater psychological health benefits, that writing about current events produces greater benefits than writing about past events, that writing weekly produces greater benefit than writing daily, and that highly distressed participants experience greater improvements in affect (Frattaroli, 2006; Pennebaker, 2000; Smyth, 1998). However, more research is needed to understand a wider variety of characteristics of individuals who benefit from expressive writing.

In terms of existing research on who continues to participate in expressive writing interventions and who drops out, a few studies have asked participants who drop out for their reason for ending participation. Reasons given include not being able to make the time commitment/inconvenience, not wanting to toy with their own minds, not being interested, health problems, the writing exercise being too upsetting, death of a family member, and other life circumstances (de Moor et al., 2002; Francis & Pennebaker, 1992; Norman et al., 2004). No known research has specifically studied who volunteers for expressive writing interventions and what factors predict continuation. Many existing studies also provide participants with course credit or monetary payment for their participation, which creates an external incentive for continuation (see Table 1). Thus, research is needed to understand what motivates individuals to continue writing when there are no external incentives.

The Current Study

The literature has largely focused on examining the impact that expressive writing has on physical and psychological health for individuals experiencing major life stressors or typical distress, with some research also investigating these impacts for individuals experiencing positive events (Broderick et al., 2005; Burton & King, 2004; Francis & Pennebaker, 1992;

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Frattaroli et al., 2011; Lepore, 1997; Norman et al., 2004; Richards et al., 2000; Shen et al., 2018; Spera et al., 1994). More research is needed to better understand the mechanisms underlying the benefits as well as integration of mechanism theories to fully explain the benefits. Self-regulation and meaning-making are two such theories that should be further researched and potentially integrated.

In the pursuit of investigating mechanisms and integrating schools of thought, some researchers have also suggested the need to integrate approaches to coding expressive writing samples so that findings can be more easily compared (Graci et al., 2018). Though, integration of coding schemes may help with comparability, it is also possible that not all codes are applicable to all types of narratives (e.g., life story vs. single event) or topics written about (e.g., traumatic event vs. intensively positive event). Thus, it may be more important to consider how to integrate the impact of different mechanisms and their conceptualization. Finally, more research is needed to examine who benefits from expressive writing and who chooses to volunteer and continue to engage in expressive writing. To the author's knowledge, no known research has examined who chooses to continue to volunteer and engage in expressive writing about specific events across multiple sessions and what factors are related to the continued participation.

Purpose and Procedures

This study examined how meaning-making and self-regulation are represented in a set of expressive writing products. Additionally, this study investigated characteristics of the writer that predicted volunteering for expressive writing as well as continued engagement with expressive writing. The current study examined the expressive writing products from teachers during the beginning of the COVID-19 pandemic as schools were being closed across the United States. Teachers were identified as the target group for this study because teaching is an emotional

profession. Emotions are necessary for successful teaching, as teachers must adjust their own emotional expression to best support and engage their students (Meyer, 2009). Researching interventions that could help teachers process their emotions is important because teachers' emotions impact their students (Frenzel, 2014; Frenzel et al., 2009). Emotions such as enjoyment and pride are related to higher ratings of lesson quality and connectedness to students (Frenzel et al., 2009; Taxer & Frenzel, 2015). Emotions such as anger, stress, anxiety, and depression are related to lower ratings of teaching quality and problem behavior in the classroom (Frenzel et al., 2009; Jennings, 2015; Jeon et al., 2014). Some research has shown that negatively valenced emotions like stress and anxiety may not always be related to negative outcomes if the teacher is able to reflect on the emotion and make adaptive changes to their behavior in the classroom (DeMauro & Jennings, 2016; Meyer, 2009). Again, expressive writing may be a helpful intervention as it provides the opportunity to reflect on and process those emotional experiences.

Additionally, figuring out ways to support teachers during significantly difficult times, such as teaching during the COVID-19 pandemic, in a low cost, noninvasive, and feasible way is important. Pre-COVID, teachers reported facing emotional problems related to the stress of the job, with one national survey showing that almost a quarter of teachers reported that teaching was very or extremely stressful (Horgan et al., 2018; Montgomery & Rupp, 2005). During the transition to remote learning at the start of the pandemic, these emotional experiences and stressors increased, with a nationwide survey in the US reporting that over three quarters of teachers endorsed having a harder time doing their job than usual, being worried about their students, and being concerned that remote learning was causing students to fall behind (Page, 2020). Thus, while teachers are generally good candidates for an expressive writing intervention because of the emotional nature of the profession, the additional emotional experiences brought

on by COVID-19 made the utility of expressive writing even more relevant. Expressive writing interventions are also understudied in teacher populations.

In this study, participants wrote for 15 minutes about a recent *significant* teaching event and reflected on the thoughts and feelings they experienced as the event unfolded. The prompt was intentionally ambiguous as some have suggested that allowing participants to choose their writing topic may be better than forcing individuals to write about a particular topic as it could cause them to focus more on the writing rather than the role of their emotions (Pennebaker & Chung, 2007). Allowing participants to choose their writing topic was also important to this study because it provided teachers the opportunity to consider what was most important to them about teaching in the context of COVID, which allowed them to choose an event that they wanted to process or gain mastery over. This procedure differs from many other studies that assign participants to write about either a positively-valenced event or a negatively-valenced event. Thus, the responses in this study included variation in the types of narratives written about. Due to this variation, the coding categories were developed to be applicable to different types of narratives.

The coding of the written products sought to capture how participants wrote about their experiences through the lens of two proposed mechanisms in order to determine whether meaning-making and self-regulation were utilized in writing and related to improvements in emotional states. The procedures for this study gave participants the opportunity to volunteer for additional expressive writing activities. After completing the first expressive writing activity, participants were able to choose to continue or not continue with future writing sessions. Thus, the procedure allowed for analyses of volunteerism and continued engagement with expressive writing. Analyses of the data also included examining affect, importance of the event written

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about, and narrative codes in order to identify patterns in who chose to volunteer for expressive writing and who continued to engage in expressive writing across writing opportunities. This study also investigated emotional impacts of expressive writing by comparing reported affect before and after writing.

Research Questions

This research addresses four questions:

1. Are there changes to teachers' self-rated affect after engaging in expressive writing?

   a. This question was answered by comparing pre and post writing session ratings of positive affect and negative affect through a paired samples t-test as well as comparing ratings of affect across writing sessions for those who continued to write in subsequent writing experiences through a MANOVA.

2. Are there associations between teachers' perception of the impact of the event written about, narrative quality, pre-writing self-rated affect, and changes in self-rated affect?

   a. This question was answered by analyzing whether the ratings of the impact of the event written about are related to changes in negative affect, changes in positive affect, level of meaning-making, and level of self-regulation. This analysis was conducted by running a series of correlations.

3. What variables predict which teachers engage in expressive writing?

   a. Most participants completed the first pre-writing affect rating scale regardless of whether they chose to complete the writing activity that immediately followed. Thus, this question was answered by analyzing whether three person-level variables (length of time teaching and pre-writing ratings of positive and negative affect) predicted who chose to engage in the initial expressive writing exercise.

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4. Are meaning-making, self-regulation, and change in affect predictors of teachers' continued volunteerism for and participation in expressive writing?

   a. This question was answered by analyzing participants who completed the first writing exercise and examined whether narrative codes for meaning-making and self-regulation as well as change in positive and negative affect predicted continued volunteerism for and participation in subsequent expressive writing experiences.

Chapter 2: Overview of the Literature

Expressive Writing

Expressive writing is an individual intervention that allows an outlet for emotional expression and emotional processing of and adapting to stressful situations (Travagin et al., 2015). Written emotional disclosure is a related term that often comes up in the literature and refers to writing, rather than talking, about thoughts and feelings about personal and meaningful topics to improve physical and psychological well-being (Frisina et al., 2004; Frattaroli, 2006; Pennebaker, 2018). Decades of research now suggest that reflecting on negative life experiences through written format can provide psychological benefits (Travagin et al., 2015). Typically, the expressive writing or written emotional disclosure paradigms ask participants to write about a traumatic or stressful experience for twenty minutes (Pennebaker, 2000; Pennebaker, 2018). The number of writing sessions, length of time between sessions, location of writing sessions (at home or in a lab), and modality of writing sessions (typed or written) often vary between studies. Additionally, while much of the research on expressive writing and written emotional disclosure is focused on writing about stressful or traumatic events, some research suggests that writing about positive events that are meaningful can also be beneficial (Smyth & Pennebaker, 2008; Shen et al., 2018). There is extensive research on physical and psychological health benefits of expressive writing. Less understood is the mechanism by which the improvement occurs. Thus, the impacts of expressive writing will be reviewed as well as the potential mechanisms underlying expressive writing.

Impacts of Expressive Writing

Expressive Writing Meta-Analyses

Several meta-analyses on the impacts of expressive writing have been conducted. Most have demonstrated the positive effect of the intervention on health outcomes, however some found no significant effect of expressive writing on health. Smyth (1998) conducted a meta-analysis that included studies with healthy adults. This meta-analysis demonstrated that those in the expressive writing intervention groups showed significant self-reported health benefits in the areas of physical health, psychological well-being, physiological functioning, and general functioning compared to those in control groups writing about a non-stressful topic. Additionally, this meta-analysis demonstrated a medium effect size of 0.47 (Smyth, 1998). Other researchers have also examined whether expressive writing produces similar results in studies with clinical populations. One such meta-analysis demonstrated that expressive writing was able to improve physical ($d = 0.21$), but not psychological health outcomes in clinical populations (Frisina et al., 2004).

Both Smyth (1998) and Frisina and colleagues (2004) used a fixed effects approach in their analyses of expressive writing, which assumes that the individual effects are correlated with the intervention group (expressive writing or control). Frattaroli (2006) argued that a random effects approach should be used instead, but even with the different analytic approach found that expressive writing was an effective intervention and improved health outcomes for psychological problems (e.g., anxiety and depression), self-reported physical health, and general functioning. The effect size was quite small in this study ($d = 0.08$; Frattaroli, 2006) and this small effect size may be explained by the variation in studies included. For example, studies ranged from only including healthy participants to including only those with clinical diagnoses. Additionally, the

expressive writing procedures differed between studies, with differences including the number, spacing, and duration of writing sessions.

While these meta-analyses demonstrate that expressive writing is beneficial for physical and psychological health outcomes, other meta-analyses have found mixed effects or non-significant effects of expressive writing. One meta-analysis used random effects estimation and focused on whether expressive writing impacted health care utilization. This meta-analysis included studies where an expressive writing group was compared with neutral topic writing groups or no-writing control groups (Harris, 2006). The results demonstrated that writing about stressful experiences reduced health care utilization in healthy samples with a small effect size ($d = 0.16$). However, expressive writing did not impact health care utilization in populations with medical diagnoses or exposure to stress or psychological problems (Harris, 2006). Another meta-analysis that investigated the effect of expressive writing on reducing physical and psychological symptoms in cancer patients found mixed results. Specifically, they found that expressive writing had a significant small effect ($d = 0.26$) on physical outcomes, but no significant effect on psychological or cognitive outcomes (Oh & Kim, 2016).

Other meta-analyses that have included healthy as well as clinical populations have found no effects for expressive writing improving psychological or physical health (Meads & Nouwen, 2005; Mogk et al., 2006). It is possible that type of outcome data may have impacted these results. For example, Mogk and colleagues (2006) only investigated outcome data that was taken at least 4 weeks after the expressive writing session, which means that it is possible that over time effects are reduced or non-significant, but it is still possible that there are immediate effects. Another meta-analysis that focused on samples of physically healthy adults experiencing stress, but not PTSD also found that expressive writing did not have any long-term effects on

depressive symptoms (Reinhold et al., 2018). However, the results demonstrated that there was a very small immediate effect on reduction of depressive symptoms ($d = 0.09$). The researchers noted that there were large sample variances in the studies that they included. They proposed that these large variances meant that expressive writing effects vary between participants, which may explain null findings or small effect sizes, as some participants benefit from expressive writing while others do not (Reinhold et al., 2018). This is an important idea that should help guide future research and clinical work because remaining questions of how effective expressive writing is may also be answered by researching "who benefits from expressive writing and under what conditions such benefits may occur" (Rude & Haner, 2018).

Although the previously reviewed meta-analyses have mostly included studies using the traditional expressive writing paradigm, which asks participants to write about stressful or traumatic events, several studies have examined whether a stressful or traumatic writing topic is necessary in order to experience benefits. One study assigned participants to write about either an intensely positive experience or a neutral control topic for twenty minutes per day for three days. Results indicated that writing about an intensely positive event was associated with fewer illness related health center visits compared to controls (Burton & King, 2004). Another study investigated the impact of the topic written about by assigning participants to write about one of four topics (only the perceived benefits of a traumatic event, only a traumatic event, a traumatic event and perceived benefits of it and a non-traumatic event). Perceived benefits were elicited by asking participants to write about how they have grown or benefited as a result of the traumatic event (King & Miner, 2000). The results showed that participants who wrote about only a traumatic event or only the perceived benefits of a traumatic event visited the health center significantly less for three months after writing compared to the control groups (King & Miner,

2000). Another study assigned participants to write about positive events and emotions every day while the control group was assigned to write about daily events. The participants in the positive event and emotion writing group showed significantly less test anxiety after the writing session than the control group (Shen et al., 2018). Thus, while many studies have established that writing about traumatic or stressful events (i.e., the traditional expressive writing paradigm) is beneficial, relatively few studies have focused on writing about positive events and emotions. The few studies that have investigated writing about positive events or positive aspects of events have indicated that this approach can also be beneficial. However, additional studies are needed to investigate the benefits of this type of writing and to investigate whether the mechanisms underlying the benefits are the same as those for stressful or traumatic events.

Impacts of Expressive Writing on Physical Health

A wide variety of physical health outcomes have been investigated in expressive writing interventions. Research has demonstrated that in physically healthy populations, like college students, prison inmates, and university employees, participants who wrote about stressful/traumatic events visited the physician less often and/or reported fewer physical health symptoms after completing the writing intervention compared to participants who wrote about neutral events (Francis & Pennebaker, 1992; Greenberg & Stone, 1992; Harris, 2006; Richards et al., 2000). Research has also demonstrated that participants with physical health problems benefit from expressive writing interventions. Specifically, participants diagnosed with Asthma experienced improvements in lung function and less medication use after expressive writing and participants diagnosed with Rheumatoid Arthritis experienced less discomfort and less medication use (Smyth et al., 1999). Research has also demonstrated that expressive writing can reduce physical symptoms and pain in women with fibromyalgia, chronic pain patients, and

cancer patients (Broderick et al., 2005; Norman et al., 2004; Oh & Kim, 2016; Stanton et al., 2002). Generally, the research has shown that expressive writing improves long-term physical health outcomes, but not health-related behaviors like diet, sleep, and exercise (see reviews by Baikie & Wilhelm, 2005; Smyth, 1998; Spera et al., 1994).

Impacts of Expressive Writing on Psychological Health

Research on psychological health benefits has shown that expressive writing can improve mood for those taking a graduate entrance exam (Frattaroli et al., 2011; Lepore, 1997). Both studies employed a one-time expressive writing paradigm that occurred one to two weeks before the exam. Mood improvements were examined by measuring mood one month before the exam and a few days before the exam. Additionally, the study conducted by Frattaroli and colleagues (2011) found that participants in the expressive writing group taking two specific graduate entrance exams (LSAT and MCAT) had higher test scores than their control group counterparts. Other research on expressive writing and testing has shown that writing daily about positive events reduced test anxiety (Shen et al., 2018).

The research on these psychological health impacts is somewhat inconsistent, which may be due to differences in expressive writing procedures (e.g. writing about a pre-selected event versus choosing what to write about; Baikie & Wilhelm, 2005). Some researchers have argued that while many variations of the expressive writing paradigm exist, none have been found to be more efficacious than the original trauma writing paradigm or other methods that encourage participants to choose their writing topic (Pennebaker & Chung, 2007). Thus, some suggest that researchers should not force individuals to write about a particular topic in a particular way as it can cause them to focus more on writing rather than the role of their emotions (Pennebaker & Chung, 2007).

Much of the research on the psychological impacts of expressive writing has focused on affect. This area of research has generally demonstrated that across multiple writing sessions, there is an overall decrease in negative affect (Pascual-Leone et al., 2016). When examining the change in affect pre to post writing, there is a mixture of findings. Some have found that participants tend to report an increase in negative affect immediately after a writing session (Baikie & Wilhelm, 2005; Pascual-Leone et al., 2016). However, other research has shown that highly distressed participants, who start out the writing session high in negative affect, tend to demonstrate an improvement in their affect and mood immediately after writing compared to controls (Pennebaker, 2000). This finding may suggest that a participant's emotional state after writing is not only related to the expressive writing process, but also related to how the participant is feeling before writing. It is also possible that the writing condition may play a role in the impact on affect. The studies that have found that participants tend to report an increase in negative affect in the hours after writing tend to have used the typical trauma or stressful event paradigm while the Pennebaker (2000) study that found that highly distressed participants showed an improvement in affect assigned the participants to write about a recent job loss. More research on the impacts of expressive writing on psychological health and emotions is needed to better understand these nuances.

Expressive Writing: Moderators and Mediators

Finally, research on expressive writing has also focused on relevant moderators and mediators. Studies have found that the number of writing sessions and the spacing of writing sessions had a significant effect on physical health complaints with more than three sessions and sessions being spaced more than a day apart demonstrating the largest effect sizes (Smyth, 1998; Travagin et al., 2015). There are mixed findings about gender differences with some studies

showing that men tended to have better health outcomes than woman and other studies finding no gender difference (Smyth, 1998; Frattaroli, 2006). Research has also indicated that studies using participants with a physical health problem or with a history of stressors tend to have larger effect sizes (Frattaroli, 2006). This finding suggests that participants facing difficult life events may benefit more from expressive writing interventions. Finally, the setting in which participants write has been shown to impact outcomes with studies using a write from home procedure demonstrating larger effect sizes than studies using a controlled lab setting for writing (Frattaroli, 2006). It is possible that participants feel more comfortable and in control disclosing at home rather than in a laboratory and thus become more engaged in the writing procedure (Frattaroli, 2006). However, no known research has randomly assigned home versus lab writing conditions, so more research is needed in order to understand this finding.

Why Expressive Writing is Helpful: Proposed Mechanisms

While research has established that expressive writing has physical and psychological health benefits, two important remaining questions are *why* is expressive writing beneficial and *who* benefits? Many different theories have proposed potential mechanisms underlying the efficacy of expressive writing to try and address the remaining question of *why*. For most theories, research is mixed, which could also indicate that a single theory may not fully account for all the benefits of expressive writing (see review by Sloan & Marx, 2004). The more prominent theories that have support in the existing literature are reviewed below.

Emotional Inhibition

One early theory of the mechanism underlying benefits of expressive writing is that expressive writing allows for a release of inhibition. This theory draws from Freud's

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understanding of psychological illness, which was that inhibiting emotions resulted in psychological illness and that catharsis through the "talking cure" allowed for release of emotional inhibition and improved psychological health (Frattaroli, 2006; Pennebaker, 2018; Sloan & Marx, 2004). Some have drawn the parallel between Freud's theory and the inhibition theory of expressive writing by dubbing it the "writing cure" (Lepore et al., 2002). Some research that supports the inhibition theory has shown that people who are more emotionally inhibited are also more likely to have physical health conditions than those who are more emotionally expressive. Specifically, one study found that people who inhibited anger and hostility were more likely to have hypertension and coronary heart disease (Steptoe, 1993). Other research has also demonstrated that increases in stress can result in health problems and that expressive writing can lead to improvements in immune functioning (Koschwanez et al., 2013; Pennebaker et al., 1988; Petrie et al., 1995).

Despite the supporting evidence, there is no known research that shows that decreases in inhibition mediates the relationship between writing about a stressful event and improved health (Sloan & Marx, 2004). Additionally, some research has shown that writing about events that have already been discussed can also produce beneficial health outcomes, which undercuts the idea that the initial release of emotional inhibition could stand alone as the explanatory mechanism underlying expressive writing (Greenberg & Stone, 1992). Further, some research has shown that writing about an imaginary event can also result in health benefits (Greenberg et al., 1996). Another study found that participants who were low on a measure of emotional inhibition benefitted the most from expressive writing, while those who were more emotionally inhibited benefited less (Francis & Pennebaker, 1992). It was suggested by Frattaroli (2006) that this finding provides evidence against the inhibition theory because if disinhibition were the

mechanism, then those who were more inhibited would have been more in need of the expressive writing intervention and should have benefitted the most. However, it could also be possible that those who are more constrained may not be able to fully express themselves during the writing intervention, which is why they did not experience the heightened benefit. Additionally, this study used health and job absentee rates to determine positive benefits, but did not examine the quality and content of writing responses for changes in emotional expressiveness or other benefits. Taken together, these findings largely suggest that the expression of previously inhibited emotions alone is not a sufficient explanation of the mechanism of expressive writing.

Exposure and Habituation

Another potential mechanism explaining the benefits of expressive writing is exposure and habituation. This theory suggests that the expression of thoughts and feelings through writing is a parallel process to exposure therapy (Frattaroli, 2006). Exposure therapy reduces fear or other negative emotional responses by activating those emotions through exposure to the emotion evoking stimuli and providing corrective information about the stimuli and the individual's response to lessen the negative emotional response (habituation; Abramowitz et al., 2019; Sloan & Marx, 2004). Thus, when a person repeatedly writes about an event, the repetition and exposure to the thoughts and feelings surrounding the event fosters habituation leading to a diminished emotional response to the event (Frattaroli, 2006; Travagin et al., 2015). There is mixed support for the theory of exposure and habituation as the mechanism for expressive writing benefits. Some have found a linear decrease in negative affect across sessions, suggesting that the repeated exposure through writing lessened the participants' emotional response to the event (Pascual-Leone et al., 2016).

Additionally, some have found that repeated disclosure of emotions through writing

reduced intrusive and avoidant thoughts (Klein & Boals, 2001). However, others have not found the same reduction in intrusive and avoidant thoughts (de Moor et al., 2002). One possible reason for this finding is that the populations in each study were very different. Klein and colleagues (2001) used undergraduate students writing about either coming to college, negative experiences, positive experiences, or trivial topics while de Moor and colleagues (2002) used patients with metastatic renal cell carcinoma writing about their cancer. These topics are greatly different and could contribute to how participants process and write about the events. Cancer patients may feel less control over the topic and may feel great distress about having cancer, leading to continued intrusive and avoidant thoughts, while undergraduate students may begin to adjust to college and use the expressive writing session to process the change in their thoughts and feelings about college. One of the main criticisms of this theory is that in order for exposure and habituation to explain the benefits of expressive writing, individuals would have to repeatedly write about the same event that evokes a negative emotional response. However, research has shown that expressive writing can be beneficial after just one writing episode, that individuals can write about positive events and experience benefits, and that individuals can write about different events across multiple sessions and experience benefits (Friedel, 2012; Shen et al., 2018; Smyth & Pennebaker, 2008). Thus, repeated exposures through writing have been associated with benefits, but do not appear to be an essential component underlying the benefits of expressive writing.

Cognitive Processing/Meaning Making

Cognitive Processing is another mechanism that has been theorized to explain the benefits of expressive writing. Pennebaker (1997) furthered the theory of a cognitive processing mechanism through research that asked participants to share what they thought was beneficial

about the expressive writing process. Interestingly, the majority of participants did not discuss catharsis stemming from the experience, but rather emphasized that writing was helpful because it guided them toward new insight and perspective (Pennebaker et al., 1990). Thus, Pennebaker concluded that expressive writing allowed participants to organize and integrate their experiences, which allowed them to make sense of the event and derive meaning. Others have also emphasized that for those writing about traumatic events, expressive writing allows them to work through their conceptualization of themselves and the world by changing their existing schemas to accommodate the traumatic experience (Sloan & Marx, 2004). Often, these changes in cognitive processing are identified by changes in cognitive word use (i.e., word-level text analysis). It is hypothesized that the increase in use of cognitive words indicates that the participant is searching for meaning and understanding of the event through their writing (Boals, 2012). Thus, an important component of the cognitive processing theory is that expressive writing launches a search for meaning and results in "meaning-making" (Travagin et al., 2015). Meaning-making refers to the process by which one understands a situation in a different way and reforms beliefs and goals to create consistency among them (Boals, 2012). Meaning-making can result in changes to situational appraisals or changes to global beliefs (Boals, 2012). In expressive writing literature it is not always specified whether meaning-making occurs at the situational or global level.

There is extensive research supporting cognitive processing and meaning making as a potential mechanism for expressive writing. For example, research has demonstrated that participants who showed the greatest improvements in physical health also demonstrated the greatest increases in the use of causal words (e.g. because, cause, effect) and insight words (e.g., consider, know) across writing sessions (Pennebaker & Francis, 1996). Other research has found

that participants' use of emotion words and grammatical tense changes over the course of an expressive writing intervention with participants using more positive emotion words and present tense and fewer negative emotion words and past tense by the end of writing sessions (Friedel, 2012). This research has also demonstrated that the participants who showed an improvement in mental health used slightly more present tense at the beginning of the expressive writing intervention than not improved participants and that by the end of the course the improved participants used even more present tense than not improved participants (Friedel, 2012). Additionally, participants who showed an improvement in mental health also demonstrated a consistent decrease in their use of future tense (Friedel, 2012).

Another study examining the use emotion words similarly found that the more participants used positive-emotion words in their writing, the more their health improved (Pennebaker, 2000). In addition, this study found an interesting result for the use of negative-emotion words. Pennebaker (2000) found that those who used negative-emotion words at a very high rate and those who used negative-emotion words very infrequently were the most likely to demonstrate continuing health problems. Pennebaker (2000) hypothesized that those in the extremes may represent those who repress emotions when coping (e.g., those using few negative emotion words) or those who ruminate and display neuroticism when coping (e.g. those using many negative emotion words). Other research has shown that when participants used causal and insightful words more often they were more likely to rate that their life as meaningful and more likely to experience post traumatic growth (Zheng et al., 2019). One drawback to focusing on word-level text analysis is that the context in which the emotion words are used is not accounted for and conclusions cannot be drawn about why the negative or positive emotion word use is impacting health outcomes. Additionally, it may be important to examine the interaction between

positive and negative word use as adaptively processing an event likely involves an acknowledgement of both positive and negative emotions without being overly ruminative or avoidant.

An additional study examining emotions and cognitions assigned participants to write about an event and focus on emotions, emotions and cognitions, or facts. The researchers found that only participants in the cognition and emotion group reported increases in positive growth over the trauma and those in the emotion only group reported more physical illness during the study than the other groups (Ulrich & Lutgendorf, 2002). This finding suggests that it is not enough to only focus on emotions and that participants need to engage both cognitions and emotions in order to experience benefits.

Other studies have focused specifically on meaning-making. One study examined meaning-making through the traditional measurement of word level analysis as well as a more holistic measure of whether the content indicated meaning-making. This research demonstrated that the word-level measure of meaning-making was not related to changes in intrusive thoughts. However, the content measure of meaning-making demonstrated that when participants wrote about highly distressing events and engaged in high levels of meaning-making they had greater decreases in intrusive thoughts (Boals, 2012). Another study investigated how expressive writing facilitates the meaning-making process. The researchers proposed that expressive writing allows for participants to distance themselves from the event, which in turn results in lessened emotional reactivity and physical/psychological symptoms (Park et al., 2016). The results supported this theory, with participants experiencing greater distance from the event across writing sessions. Self-distancing was measured by asking participants to rate the extent to which they replayed the memory they wrote about through their own eyes or watched it from a self-

distanced perspective and to rate how far away from the scene they were as they thought about and analyzed their emotions about the event. Additionally, the study demonstrated that physical symptoms were reduced by expressive writing through self-distancing (i.e. experiencing the event from afar), lessened emotional reactivity (i.e., ratings of the impact the event still has on individuals and the intensity of the individuals' emotions when thinking about the event), and meaning-making (i.e., changes to cognitive representation of negative experiences measured through changes in causation language; Park et al., 2016).

While there is a breadth of literature supporting the cognitive processing/meaning-making mechanism, some have also critiqued the theory. For example, much of the evidence supporting the cognitive processing/meaning-making mechanism theory is correlational in nature (Sloan & Marx, 2004). This is particularly true for research measuring meaning-making through word level text analysis, which does not directly examine the meaning of the word in context of the narrative. Research that is correlational does not prove that cognitive processing or meaning-making are the cause of changes in language and it is possible that those changes may be associated with other mechanisms (Sloan & Marx, 2004). Additionally, some research has shown that cognitive and linguistic changes can occur without physical or psychological improvements (Batten et al., 2002). Finally, research that has used an imaginary event paradigm (i.e., participants write about an imaginary event or imaginary relationship) has still shown that participants can benefit (Greenberg et al., 1996; Wong, 2007). Some have claimed that these findings suggest that individuals do not have to process and make meaning from their own experiences in order to benefit (Sloan & Marx, 2004). However, it should be noted that in the imaginary event paradigm participants are being asked to pretend to experience the imaginary event as if it actually happened to them and to channel the emotions they would experience

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(Greenberg et al., 1996). Thus, an alternative explanation might be that meaning-making is a possible mechanism explaining expressive writing benefits as long as participants are thinking about and organizing emotional experiences (real or imaginary).

Self-Regulation

Finally, self-regulation has also emerged as potential mechanism behind expressive writing. Proponents of the self-regulation theory have pointed to the shortfalls of literature supporting the cognitive processing theory and have instead emphasized that expressive writing allows individuals to feel mastery over the event written about, which can increase self-efficacy for emotional regulation (Frattaroli, 2006). Additionally, some have proposed that self-regulation may encompass other mechanisms, such as habituation and cognitive processing. Specifically, emotion-regulation, which is a component of self-regulation, relates to how individuals experience and express their emotions (Lepore et al., 2002; Nazarian & Smyth, 2013). Some researchers hypothesize that expressive writing may facilitate emotion regulation through three emotion regulation processes: focusing attention, promoting habituation, and leading to cognitive restructuring (Lepore et al., 2002). For example, expressive writing causes an individual to attend to sources of stress, including the feelings and thoughts related to the stress, and their own responses. By attending to all of these components in order to write about the event, the individual may begin to habituate to the emotions involved (Lepore et al., 2002). Further, expressive writing can facilitate changes in thoughts and appraisals, which relates to the concepts of cognitive restructuring, cognitive processing, and meaning-making. In one study that investigated various proposed mechanisms, researchers compared how different expressive writing instructions impacted mood and word use in writing content (Nazarian & Smyth, 2013). The results demonstrated that instructions promoting exposure produced an increase in emotional

habituation overtime and also promoted an increased use of cognitive words. The cognitive processing instructions lead to more cognitive word use and the self-regulation instructions produced greater positive affect (Nazarian & Smyth, 2013). These results again suggest that mechanisms underlying expressive writing may be related and that multiple processes may be tapped during expressive writing sessions.

Research from Park and colleagues (2016) is in line with the idea that self-regulation may be related to other proposed mechanisms underlying expressive writing. Although their previously mentioned research was focused on identifying how expressive writing facilitates meaning-making, their research pointed to a combination of the cognitive processing/meaning making and the self-regulation theories. Again, Park and colleagues (2016) focused on the role that self-distancing played in expressive writing and found that participants self-distanced more each time they wrote and that the self-distancing was related to lessened emotional reactivity, greater meaning making, and fewer physical health symptoms. Self-distancing is, by definition, an emotion-regulatory process where individuals see themselves in the event from a distanced perspective rather than seeing the event again through their own eyes (self-experiencing). This self-distanced perspective allows individuals to reflect on experiences and change the way they think about the experience to reduce aversiveness, which facilitates both emotional processing and adaptive meaning-making (Park et al., 2016). This research suggests that self-regulation (through self-distancing) helps one make meaning of the situation. It is also possible that meaning-making could lead to self-regulation as one might feel mastery over an event (self-regulation) because they have gained insight or changed their perspective (meaning-making).

Thus, more research is needed to understand potential connections between self-regulation and meaning-making.

Gaps in the Literature

Despite a large body of existing research on expressive writing, there are many remaining questions about how beneficial it is, why it is beneficial, who benefits, and who volunteers to participate and continues participating in expressive writing interventions. Though there are many theories about the mechanism underlying expressive writing, research shows mixed support for the different theories. Further complicating matters is the fact that researchers code writing products differently, making it difficult to accurately compare findings.

For example, meaning-making in the expressive writing literature is typically associated with the theory of cognitive processing, however in clinical and counseling psychology meaning-making is also studied from a personality approach (Graci et al., 2018). This has led to two bodies of literature studying the same construct in different ways and focusing on different empirical issues, leaving the concept and impact of meaning-making incomplete (Graci et al., 2018). Cognitive approaches to researching meaning-making typically focus on how individuals structure, evaluate, and integrate events. This focus typically leads to narrative coding that identifies coherence and emotional intensity (Grace et al., 2018). Higher levels of coherence are thought to indicate a greater ability to reflect, understand, and resolve emotional events. Supporting this theory, research has shown that coherence is positively related to well-being and inversely related to distress (Waters & Fivush, 2015; Brewin, 2016). Emotional intensity is also important within narratives as decreased emotional arousal over time has been related to higher levels of general well-being (Pennebaker & Chung, 2011). These cognitive indicators of meaning-making are sometimes coded based on the whole content of the narrative, but are

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sometimes coded at the individual word-level of the narrative (i.e., lexical indicators). This is different from the personality approach, which almost exclusively codes based on the whole content. Coding narratives at the individual word-level of the writing can provide a limited understanding of the narrative as a whole and whether the words being used are coherent and logical within the context of the narrative.

The personality approach to researching meaning-making focuses on how an individual creates a sense of self through telling their own stories and typically focuses on the following narrative indicators: motivations, themes, and integrative processing. Motivations are important because they are theorized to reflect the enduring aspects of the narrator's personality (Graci et al., 2018). For example, one type of motivational theme is agency, which reflects how much the narrator expresses mastery and empowerment in their ability to influence the course of their life (Grysman et al., 2016). Agency, when measured in narratives written at the end of therapy sessions over the course of treatment, has been shown to increase across sessions and predict a decrease in internalizing clinical symptoms (Adler, 2012).

There is a need in the literature to address the discrepancies between studies that examine meaning-making from a cognitive approach versus the personality approach and to better integrate frameworks for understanding and coding meaning-making. A recent study identified fifteen of the most common coding procedures from both the cognitive and personality approaches and applied them to a sample of participant writings (see Table 2). The researchers then used factor analysis to identify narrative indicators of meaning making. They found four narrative indicators including positive processing, negative processing, integrative meaning, and structure (Graci et al., 2018). The results also demonstrated that the narrative indicators related to aspects of personality as well as indicators of health and stress (Graci et al., 2018). Thus, the

researchers stressed the need for further research to examine the underlying narrative factors that relate to psychological states as this is a large gap in the existing literature.

Although the authors found four factors that integrated coding schemes from both the cognitive and personality perspectives of meaning-making, it is possible that all codes may not be appropriate for all narratives. When examining the studies that used or developed the fifteen coding schemes chosen by Graci and colleagues (2018), it was clear that studies from the personality literature tended to have participants write about or verbally describe autobiographical events or life stories while studies from the cognitive literature tended to follow the traditional expressive writing paradigm where participants write about a traumatic or distressing event (see Table 2). Codes like chronology may make sense if participants are being asked to share autobiographical events or life stories, but may not work as well when participants are describing one single event.

The idea that every code may not be appropriate for all narratives is supported by Graci and colleagues' (2018) study as they attempted to code the narratives for a sixteenth code of redemption, but found that too few of their narratives expressed the theme at all. Some research has directly compared automated linguistic analysis (i.e., word level coding) with human narrative coding for redemption themes in samples of life stories (Weston et al., 2016). These researchers found that redemption could not be fully captured by linguistic analysis alone. However, they also noted that the two types of coding independently predicted later psychological well-being, with word use and narrative coding of redemption potentially impacting well-being through different mechanisms (Weston et al., 2016). Even codes looking at coherence, which may apply to a variety of narratives, would likely have to be adjusted depending on the topic as coherence in describing a life story is different than coherence in

describing a single event. Thus, while there would be some benefit to reconciling or addressing the differences between coding meaning-making in the personality and cognitive approaches, it is also possible that one coding scheme will not be able to fully capture the variety of narratives elicited – just as one mechanism may not be able to fully explain the impact of expressive writing.

Additionally, the literature could benefit from further research and integration of the proposed mechanisms underlying expressive writing. For example, meaning-making and self-regulation have overlapped in previous studies. As previously mentioned, the Park and colleagues study (2016) focused on meaning making, but the self-distancing code that they used also points to the role of self-regulation as self-distancing is defined as an individual emotion regulation process. Additionally, several of the fifteen codes used in the Graci and colleagues' study (2018) could arguably also be related to self-regulation. For example, the agency code used in the study examines expressions of self-mastery. This tracks with the main concept of the self-regulation mechanism theory, which proposes that expressive writing helps individuals gain mastery over the event and in turn increases their self-efficacy for emotion regulation (Frattaroli, 2006). Interestingly, agency did not load strongly on any of the meaning-making factors in the Graci and colleagues' study (2018), which could potentially point to it being more reflective of self-regulation than meaning-making. Other codes used in the Graci and colleagues' study (2018) to indicate meaning-making could also relate to self-regulation. For example, support seeking (i.e., "utilizing meaningful others in an emotional regulated manner") and rumination (i.e., "repetitive self-focused thinking about one's negative feelings and conditions) may represent anchor points on the self-regulation continuum. It is important to better understand the overlap and connections between meaning-making and self-regulation as some researchers have

suggested that one mechanism alone may not be sufficient to explain the benefits of expressive writing.

Another large gap in the existing literature is *whom* expressive writing works for and *who* engages in expressive writing (see review; Sloan & Marx, 2004). This area of research is sparse, but also highly important because some people do not benefit from expressive writing (see review by Rude & Haner, 2018). One study found that participants in the bottom third on measures of health improvement in the expressive writing condition did not differ from control participants (Pennebaker, 1993). Some research has examined who benefits from expressive writing, with findings suggesting that college students tend to have larger psychological health effect sizes than nonstudents, that participants writing about current events compared to past events experienced greater benefit, and that participants who wrote weekly experienced greater benefit than those who wrote daily (Smyth, 1998).

No known research has specifically studied who volunteers for expressive writing interventions and what factors predict whether they continue with the intervention or drop out. As shown in Table 1 most studies implementing an expressive writing intervention provide participants with course credit or monetary payment for their participation, giving participants an incentive to continue writing. Most studies also experienced some attrition, though the percentages were often low with studies identified in Table 1 reporting attrition rates as low as 0% and as high as 14.3%. These lower rates may reflect that the participants were sufficiently incentivized to continue participating in the writing intervention. A few studies asked participants who dropped out of the study for a reason, with most of the drop out participants reporting that they stopped writing because it was too upsetting/depressing, the time commitment was too great, they were no longer interested, other life circumstances got in the way, or they

experienced the death of a loved one (de Moor et al., 2002; Francis & Pennebaker, 1992; Norman et al., 2004). Thus, research is still needed to understand who benefits from expressive writing, who volunteers, and what impacts their participation.

The Current Study

Taken together, the existing literature on expressive writing has mainly focused on the types of benefits (physical and psychological) that can be gained for individuals experiencing specific major life stressors (e.g., cancer, trauma, unemployment, chronic illness, etc.), physically healthy individuals experiencing distress, or even physically healthy individuals reflecting on positive experiences (Broderick et al., 2005; Burton & King, 2004; Francis & Pennebaker, 1992; Frattaroli et al., 2011; Lee et al., 2016; Lepore, 1997; Norman et al., 2004; Oh & Kim, 2016; Qian et al., 2020; Richards et al., 2000; Shen et al., 2018; Spera et al., 1994). Despite the breadth of literature demonstrating the benefits of expressive writing, little research exists on why expressive writing is beneficial, though there is some mixed research on potential mechanisms. Additionally, existing research points to the need for integrating mechanism theories to satisfactorily explain why expressive writing is beneficial. Self-regulation and meaning-making, two theories that may be connected, were investigated in this study.

Some researchers have also suggested the need to integrate approaches to coding expressive writing samples so that constructs can be meaningfully compared (Graci et al., 2018). While integrating coding schemes may help make studies more comparable, it is also possible that not all codes are appropriate or applicable for all narratives. For example, Adler and colleagues (2017) defined narratives as "experiences of specific life events that unfold over time" while Pennebaker and Seagal (1999) describe narratives as a process through which individuals make sense of an important life event by organizing it in story form. An important

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distinction between these two definitions is the emphasis on time. The life story technique, which

is often more prevalent in personality research, asks individuals to construct several narratives

about important life scenes that have happened over time covering childhood through adulthood

(McAdams et al., 2001). On the other hand, often in cognitive and expressive writing research,

participants are being asked to write about a specific event in their life. These different

approaches to eliciting narratives may also mean that the narratives themselves are different, may

need to be analyzed in different ways, and may involve different mechanisms. Thus, it is

important to consider how to integrate the different conceptualizations and coding approaches,

while also keeping in mind that one integrated approach may still not be applicable or fully

capture different types of narratives. Finally, more research is needed to examine who benefits

from expressive writing and who chooses to continue to engage in expressive writing. To the

author's knowledge, no known research has examined who chooses to continue to engage in

expressive writing about specific events across multiple sessions and what factors are related to

the continued participation.

The current study involved examining the expressive writing products from teachers

during the beginning of the COVID-19 pandemic. The content of these writing products were

focused on significant teaching experiences during COVID-19. Unlike other studies where

participants were assigned to write about positive or negative events or the positive benefits of a

negative event, the prompt used in this study was intentionally ambiguous and prompted only for

a *significant* event. The prompt asked about a significant event because it allowed teachers to

think about what was most important to them when teaching in the current context, thereby

allowing them to choose an event that they wanted to process or gain additional understanding

of. Additionally, research has shown that participants do not have to write about traumatic or

stressful events or even positive events in order to experience benefits (Smyth & Pennebaker, 2008). Research supports that participants can write about thoughts and feelings regarding an important event in their lives (Pennebaker & Chung, 2007).

While narratives in this study often contained descriptions of stress, frustration, fear, and confusion due to the context of teaching during a global pandemic, some teachers chose to write about a positive and significant teaching experience or an experience that blended positive and negative aspects. The freedom of the participant to choose the valence of the event is an uncommon aspect of this study. Thus, these narratives may differ qualitatively from other studies that asked participants to write about a personal trauma, a stressful event, or an intensely positive event, as there was variation in the types of narratives written. Due to the variation, coding categories that would be applicable to a wide range of types of narratives were chosen.

Narrative coding sought to examine how participants wrote about their experiences and the role of two proposed mechanisms to determine whether meaning-making and self-regulation through expressive writing related to improved mood. Analyses of the narratives also included examining variables related to the writing (affect, importance of the event, and quality of the writing) to identify patterns in who chose to engage in expressive writing and who continued to engage in expressive writing across writing opportunities. Finally, this study investigated the emotional impacts of writing by comparing reported affect before and after writing as well comparing reported affect across writing sessions.

Target Group: Teachers

Teachers are good candidates for an expressive writing intervention because teaching is an inherently emotional profession. Every day teachers must modulate their emotions to meet the changing contexts and demands within their classrooms (Meyer, 2009). For example, teachers

must correctly interpret their students' emotions, respond to their students' emotions, and adjust the expression of their own emotions in order to interact successfully and make effective instructional decisions (e.g., making a lesson more exciting or recognizing that students are confused or bored; Meyer, 2009). Teacher's emotions are important because they can help the teacher to manage roles and expectations, but dissonance can also occur when a teachers' attempt to manage their emotions is limited by externally imposed rules (Zemblyas, 2005).

Researching interventions that could help teachers cope with their teaching experiences is important because teachers' emotions impact their students (Frenzel, 2014; Frenzel et al., 2009). For example, teachers' self-reported enjoyment was related to students reporting more cognitively challenging and coherent lessons and feeling more supported by the teacher (Frenzel et al., 2009). Additionally, greater levels of teacher enjoyment and pride are related to teachers feeling more efficacious and more connected to their students (Taxer & Frenzel, 2015). Many teachers find meaning through their teaching because they feel that they are doing what is right for their students and they are helping their students (Santoro, 2011).

On the other hand, teachers also experience negative emotions such as anger, stress, and anxiety, which can impact their students as well. Teachers that reported more anger were more likely to have students rate the quality of teaching as low (Frenzel et al., 2009). When teachers self-reported higher levels of anxiety, students also reported lower quality teaching and they perceived their teachers' explanations as less elaborate and coherent (Frenzel et al., 2009). Teachers' self-reports of higher depression are also related to problem behavior in the classroom (Jennings, 2015; Jeon et al., 2014). Additionally, teachers face very high levels of stress with almost a quarter of teachers in a nationwide survey in the US reporting that teaching was very or extremely stressful (Horgan et al., 2018). Teachers reported finding that their work is stressful

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sixty-one percent of the time compared to workers in the general population reporting that work is stressful thirty percent of the time (Horgan et al., 2018). Teachers who experience high levels of stress or exhaustion may demonstrate lower quality teaching and impaired relationships with students, leading to poorer academic and behavioral outcomes for students (Herman et al., 2018). Notably, some research has demonstrated that negative emotions may not always produce negative outcomes and can be helpful to teachers if the teachers are able to reflect on the emotions and make changes to their classroom behavior, such as using emotional understanding gained from the reflection to improve instructional decisions (Bosman et al., 2021; DeMauro & Jennings, 2016; Meyer, 2009). In other words, if teachers are able to reflect on stressful emotional teaching situations and their reflection leads to adaptive preparation for upcoming challenges, positive outcomes are more likely (DeMauro & Jennings, 2016; Shandomo, 2010).

While teachers typically report emotional difficulties related to the stress of the job (Montgomery & Rupp, 2005), those stressors have only increased due to the COVID-19 pandemic. The first official case of COVID-19 was reported in the United States in January 2020 (Centers for Disease Control and Prevention, 2020) and by March of 2020 restrictions to promote public health led schools across the country to implement virtual learning with little preparation. These sudden closures lead to increased stress for teachers with a nationwide poll of 505 K-12 teachers in the US reporting that 83% of the teachers endorsed having a harder time doing their job than usual, 86% endorsed being worried about their students, and 76% endorsed being concerned that distance learning was causing students to fall behind (Page, 2020).

Thus, teachers generally are prime candidates for expressive writing interventions because these interventions allow for individuals to process emotional situations and the teaching profession is inherently emotional. Additionally, research has shown that teachers benefit when

they reflect on feelings of stress and anxiety in an adaptive way (DeMauro & Jennings, 2016; Meyer, 2009). The additional stressful and emotional experiences brought on by the COVID-19 pandemic make the potential utility of an expressive writing intervention more salient. Additionally, it is important to identify interventions that may be helpful in supporting teachers, especially interventions like expressive writing that are low-cost, noninvasive, and feasible to implement. Expressive writing may also be a good intervention for teachers as journaling is an important and common component of teacher education programs, making the process accessible and familiar for teachers. Journals are typically used in teacher preparation programs to help teachers activate their thinking, make connections between issues, and enhance their understanding of their experiences (Lee, 2004). Finally, studies have found that expressive writing had a beneficial impact on coping strategies, work communication satisfaction, problem solving and cognitive abilities for individuals in other high stress professions such as healthcare workers (Tonarelli et al., 2017).

Research Questions

This research addresses four questions:

1. Are there changes to teachers' self-rated affect after engaging in expressive writing?

    a. This question was answered by comparing pre and post writing session ratings of positive affect and negative affect through paired samples *t*-tests. Additionally, ratings of affect across writing sessions for those who continued to write in subsequent writing experiences were analyzed through a MANOVA. As the literature on pre to post writing changes in affect is mixed, there was no specific hypothesis. It is possible that negative affect may increase between pre to post writing ratings, a result that has been previously found in the literature (Baikie &

Wilhelm, 2005). It is also possible that participants who engage in multiple writing exercises would demonstrate an overall linear decrease in negative affect across sessions, but show increases in negative affect in pre-to-post session ratings, which was a result for participants writing about unresolved traumas (Pascual-Leone et al., 2016). Further, it is possible that participants who are highly distressed before beginning to write may demonstrate an improvement in negative affect immediately after writing, which was a result with college students (Pennebaker, 2000). Previous findings are mixed, possibly due to differences in expressive writing procedures and sample characteristics. Since the writing procedure of the current study is different than previous studies and the sample is unique, there is no specific hypothesis for this question.

2. Are there associations between teachers' perception of the impact of the event written about, narrative quality, pre-writing self-rated affect, and changes in self-rated affect?

    a. This question was answered by analyzing whether there are correlations between the ratings of the impact of the event written about, changes in negative affect, changes in positive affect, pre-writing negative and positive affect, level of meaning-making, and level of self-regulation. This analysis is exploratory, as no known research has investigated relationships between the impact of the event, narrative quality, and changes in affect. Thus, there are no hypotheses for this question.

3. What variables predict which teachers engage in expressive writing?

    a. Most participants completed the pre-writing affect rating scale regardless of whether they chose to complete the writing activity that immediately followed.

This question was answered by analyzing whether three person-level variables (length of time teaching, pre writing ratings of positive affect, and pre writing ratings of negative affect) predicted who chose to engage in the initial expressive writing exercise. Length of time teaching may be related to engagement in expressive writing as early career teachers and mid and late career teachers may be experiencing different concerns. For mid and late career teachers writing about their experiences, teaching is not new, but teaching remotely is. On the other hand, early career teachers are new to teaching and new to remote teaching. Thus, teachers at different points in their careers may be facing different demands and stressors, which could impact their motivation to write. Additionally, pre-writing ratings of affect may be related to engagement in writing as high levels of emotionality about an event may be more motivating to write about than low levels. As there is no known research examining who volunteers for expressive writing, this research question is mainly exploratory.

4. Are meaning-making, self-regulation, and change in affect predictors of teachers' continued volunteerism for expressive writing?

    a. This question was answered by analyzing data from participants who completed the first writing exercise and examined whether narrative codes for meaning-making and self-regulation and change in positive and negative affect predicted volunteering to receive additional writing prompts. As there is no known research examining who volunteers for expressive writing, this research question is mainly exploratory. However, based on existing research and theory behind meaning-making and self-regulation as mechanisms of expressive writing it is possible that

using expressive writing to make meaning of an experience or to aid in emotion regulation may produce benefits that would motivate participants to want to continue writing. Additionally, this question was answered by analyzing data from participants who completed the first writing exercise and volunteered to continue writing in follow-up sessions and examined whether the same variables previously mentioned (i.e., meaning-making, self-regulation, change in positive and negative affect) predicted completion of a second writing session.

Chapter 3: Research Methods and Research Design

Study Design

This study used a mixed methods approach to investigate teachers' use of an expressive writing exercise during the beginning of the COVID-19 pandemic, relying on teachers' qualitative open-ended descriptions of a significant teaching experience as well as quantitative items regarding self-rated affect and perceived impact of the event written about. Additionally, this study can be considered a mixed methods conversion design as the qualitative narratives written by teachers were first analyzed to see what mechanisms were most applicable and then subsequently quantitized using a coding scheme (Schoonenboom & Johnson, 2017). Expressive writing has been shown to have benefits for mental and physical health (Frisina et al., 2004; Frattaroli, 2006; see review by Pennebaker, 2018). However, little is known about who engages in expressive writing and who continues to participate in expressive writing exercises across multiple sessions. Additionally, many possible mechanisms underlying the efficacy of expressive writing have been proposed and researched, but none have been found to completely explain the benefits (King, 2002). Thus, this study also investigated how the quality of the narratives related to engagement and affect. The data used in this study comes from a nationwide survey of educators during the COVID-19 pandemic.

Procedure

Educators were recruited from advertisements posted on social media sites through graduate researchers' profiles (e.g., Facebook and Instagram) and teaching specific forums (e.g., public groups on Facebook and Reddit subthreads for teachers). The advertisement explained the purpose and requirements of the study (see Appendix A). Specifically, the advertisement stated that the research would provide teachers the opportunity to share their experiences with teaching

during COVID-19 and would investigate how expressive writing impacted processing those experiences. Interested participants clicked on the link in the advertisement, which brought them to the informed consent and survey (see informed consent in Appendix B). The informed consent specified that participants would receive no extrinsic benefits or incentives from participating in the research (e.g., payment or extra credit), however the informed consent noted that, based on previous research, participants may experience increases in positive affect and decreases in negative affect following expressive writing sessions. After providing consent, participants were asked to answer demographic questions including gender/gender identity, race/ethnicity, position in the teaching profession, length of time teaching, type of school, grade taught, setting of school, state, general SES of students at the school, and current type of teaching activities (e.g., in-person, online, sending home paper packets, etc.). Participants were then asked to answer two open-ended questions *What are the most important issues for right now?* and *With COVID-19 impacting many aspects of daily life, what are you often thinking about?* The responses to these two questions were analyzed as part of the current study. Participants were then asked to complete a short-form version of the Positive and Negative Affect Schedule (PANAS), which required participants to rate five positive affect adjectives and five negative affect adjectives according to the extent to which each adjective described the way they felt at that moment.

Next, participants were asked to complete an expressive writing exercise, which asked them to "think back over the past two weeks and choose a single event or experience that you've had as a teacher that stands out as significant or as especially meaningful to you… Please write for at least the next 15 minutes about this experience and include as much detail as you can about what happened, what you were thinking, and what you were feeling as the event unfolded." After completing the writing prompt, participants were asked to answer an adapted and shortened

version of the Impact of Events Scale (IES), which measures the amount of distress associated with a specific event and were asked to complete the short-form PANAS for a second time. Finally, participants were given the option to enroll in a second phase of the study, which involved receiving the same expressive writing prompt via email once per month for three months. If participants did not want to enroll in the second phase, the survey would conclude; if participants did want to enroll, they were provided informed consent and asked for an email address and then the survey concluded. Phase one of the study took place during the spring of 2020 with data collection beginning at the end of April and concluding at the end of May. The start of the second phase of the study was individualized and started one month after the participant completed phase one. Thus, across all participants phase two started at the end of May through the end of June.

Participants

188 participants completed part of the first survey. As this study was intended to examine volunteerism for expressive writing, some participants who did not complete the first expressive writing exercise and those who dropped out over time are included in some analyses (see Figure 1 for the numbers of participants who completed various components of the study). Out of the 188 participants, 77 completed the full survey including the ratings scales and responses to the qualitative questions and 4 completed all of the qualitative questions and all of the quantitative items except for the post-writing affect ratings. 78 participants completed the first two qualitative questions, but did not complete the expressive writing prompt, and 69 of those 78 participants completed the pre- writing PANAS rating scale before discontinuing. 29 participants did not complete any of the qualitative items and did not respond to the rating scale items fully; these participants were excluded because of the lack of data available to compare them to the other

groups. Thus, the remaining sample consisted of 159 educators (145 female, 13 male, and 1 nonbinary/gender nonconforming) who had been teaching for less than one year up to forty-five years (M = 10.75, SD = 9.78). The majority of the sample (87.4%) was White/European American and the sample also included multi-racial (5.7%), Latinx or Chicanx or Hispanic (4.4%), African American/Black (1.3%), and Asian or Asian American (1.3%) participants. Most of the sample (93.1%) were professional teachers, however intern teachers (4.4%) and other educators (2.5%) were also included. The "other educators" category included two school administrators, one school psychologist, and one special education teacher specialist. These participants were included because of the teaching activities that they reported engaging in. Specifically, these participants reported supporting and training teachers as they made the switch to online learning and leading small groups of students online (e.g., social emotional learning groups and academic study sessions). Two of the non-teacher participants completed the expressive writing prompt and two did not. This rate of participation in the expressive writing prompt was similar to professional teachers and interns, where 50.9% of teachers completed the expressive writing prompt and 49.1% did not.

All participants reported what kinds of teaching activities they were engaging in at the time of the survey and teaching activities were not mutually exclusive (e.g., teachers could be teaching using a hybrid approach, meaning that they would report teaching both synchronously and asynchronously). Most teachers reported providing instruction online using asynchronous (80.5%) and synchronous methods (51.6%). Some teachers also reported providing remote instruction through the use of paper packets (30.8%). And one participant (0.63%) reported teaching in-person at the time of taking the survey. Most of the participants worked in schools in suburban settings (55.3%). The general socio-economic status of the students at the participants'

schools varied widely with 38.4% of participants reporting that their school had a mixture of SES

levels, 27% reporting that their school was low income, 22.6% reporting that their school was

middle income, and 11.9% reporting that their school was high income. The sample includes

participants from 33 states, representing diverse geographic regions within the U.S. including the

Northeast (17%), South (61%), Midwest (7.5%), West (10.7%), and Pacific Islands (0.6%; see

U.S. Census Bureau, n.d. for additional information on how states are categorized into

geographic regions). Additionally, a small portion of teachers (2.5%) did not provide a state and

entered a free response of "Military Base" instead.

Out of the 77 participants who completed all the expressive writing exercises and the

rating scales, 51 chose to enroll in phase II of the study (i.e., receiving additional writing prompts

via email) and 25 chose to not enroll. Out of the 51 participants who enrolled in phase II, about

half completed at least one follow-up writing prompt while the other half completed no follow-

up writing prompts. Only 10 participants completed all three writing prompts.

Measures

Narratives

The method for eliciting expressive writing products in this study used an adaptation of

Pennebaker's (2000) paradigm. In the typical paradigm, individuals are asked to write about a

traumatic or stressful experience for twenty minutes. The following prompt was used in this

study.

Day to day and week-to-week teachers are confronted with a variety of experiences that
range from the traditional role of classroom instruction to other roles like caretaker,
disciplinarian, or social mediator. Some of the experiences may be quickly forgotten or become
routine, while other specific events may stand out as significant or meaningful. These events and
experiences may be significant for positive or negative reasons – it depends on the teacher and
the experience. We are interested in learning about what significant experiences you have

encountered recently, what you remember about them, and why they are important to you.

Please think back over the past two weeks and choose a single event or experience that you've had as a teacher that stands out as significant or as especially meaningful to you. Because of the constant changes that are occurring because of COVID-19, your recent experiences as a teacher may be drastically different from what you typically experience. Please feel free to write about whatever is most salient for you right now. Please write for at least the next **15 minutes** about this experience and include as much detail as you can about what happened, what you were thinking, and what you were feeling as the event unfolded.

This prompt uses a similar timeframe as the typical paradigm and also similarly emphasizes writing about thoughts, feelings, and details of the event. One adaptation is that the prompt used in the current study asks for a significant experience rather than a traumatic or stressful one. Though many teachers chose to write about a stressful teaching event, some chose to write about positive events, and some blended positive and negative aspects of the event into their writing product. Though many studies use a procedure that prompts for traumatic or stressful events, some research supports that participants can write about thoughts and feelings regarding an important event in their lives and experience benefit and thus, some researchers contend that participants should be given the choice of what to write so that they can fully focus on writing (Pennebaker & Chung, 2007). Further, it was important for this study to allow teachers to choose what to write about because the choice allows for teachers to consider what was most salient to them about teaching during COVID, which allowed them to choose an event they wanted to process or gain mastery over.

Coding and Analytic Procedures for the Narratives

All narratives were downloaded as originally typed from Qualtrics and analyzed in a datasheet that contained only narratives and participant ID numbers. The author of this paper conducted an exploratory coding process to identify potential coding categories. The author first read all of the narratives and identified several potential categories that were consistent with the

literature base, relevant to the research questions, and lent well to reliable coding. The author and the faculty principal investigator discussed the potential codes and identified ways to combine codes that shared overlap. For example, one potential code was an adaptation of an exploration meaning-making code (Graci & Fivush, 2017; Pals, 2006) and a second potential code was for situational versus global meaning-making. Through discussion and review of narratives, the researchers identified overlap in these two codes and developed a way to capture both codes within a single continuum. Similarly, another two potential coding categories included an adaptation of a self-regulation code (originally developed for analysis of Thematic Apperception Test responses; Teglasi, 2010) and an adaptation of a self-mastery agency code (McAdams et al., 1996). The self-mastery agency code was originally conceptualized as a present/absent code and was intended to capture individuals striving to "successfully master, control, enlarge, or perfect a self that has already attained some measure of autonomy" (McAdams et al., 1996, p. 246). This definition of self-mastery implies a continuum exists with individuals on one end not having autonomy and individuals on the other end attaining autonomy and working to strengthen their inner self and ideals. Through review of the coding schemes and narratives, the author determined that this definition of self-mastery agency already existed within the self-regulation code. Additionally, in exploratory coding there was significant overlap when coding these categories separately. Exploratory coding was necessary to gain an understanding of the content and structure of the narratives and to identify codes that would apply to this specific type of narrative. Thus, the two coding categories that were chosen (meaning-making and self-regulation) represent codes that were developed from a theory-driven top-down approach as well as an inductive data-driven bottom-up approach (Syed & Nelson, 2015).

The first code is labeled meaning-making and is an adaptation of a previously developed

coding system intended to capture the concept of meaning-making through exploration (Graci & Fivush, 2017; Pals, 2006). As previously discussed, meaning-making refers to how an individual comes to understand a situation in a different way in order to create consistency among beliefs and goals (Boals, 2012). This change in perspective can result in changes to situational appraisals or changes to global beliefs (Boals, 2012). Many codes exist to examine different aspects of meaning-making. This code was chosen because the levels in the coding system mirror the conceptualization of meaning-making as a mechanism for processing events. Additionally, previous research using this code has demonstrated that meaning-making is related to psychological health (Graci & Fivush, 2017). Specifically, meaning-making was significantly and positively related to stress-related growth, mediated the relationship between self-reported coping style as a young adult and emotional maturity forty years later, and loaded onto a factor that reflected integrative meaning-making (i.e., reflecting on an event and integrating important components into one's perspective; Graci & Fivush, 2017; Graci et al., 2018; Pals, 2006). Thus, the results from previous research suggest that this meaning-making code has suitable validity as it is related to several constructs that theoretically should be related and was related to other meaning-making codes. The studies using this specific code have included narratives about stressful life experiences as well as life story narratives. The original exploration code included five levels and did not address whether the meaning that was made was situational or global. Thus, the adapted coding scheme includes a sixth level, with the fifth and sixth levels differentiated by situational (fifth) vs. global (sixth) meaning (see Table 3). This adapted coding scheme offers a more holistic view of the cohesion of meaning-making evident in the narrative as the narrative must meet the criteria of the levels below any given score.

The second code, labeled self-regulation is based on and adapted from a coding approach

to classify self-regulation in Thematic Apperception Test responses (Teglasi, 2010). The only adaptation of the original code for the current study was the exclusion of the lowest level of self-regulation. This level is characterized by stories with faulty logic and socially inappropriate or bizarre content and in previous studies this level was often found in stories from individuals with emotional disabilities (Teglasi, 2010). During exploratory coding, it was found that this level was not represented in the stories from teachers. In the expressive writing literature, self-regulation refers to the process through which individuals are able to feel mastery over the event written about (Frattaroli, 2006). The self-regulation code includes several levels of a continuum, which largely encompasses how actions and feelings are influenced and/or determined by internal versus external sources and the complexity with which the individual perceives and organizes the event (see Table 4). The code is also intended to capture important components of self-regulation including self-monitoring (monitoring the environment for cues for responding and modulating responses based on observed cues), self-direction (ability to shift attention and effort toward more distant concerns and goals), and self-determination (ability to balance inner and outer aspects of the event; Teglasi, 2010).

Theoretically, when self-regulation is adaptive and internally organized (rather than the individual relying on external sources to regulate emotions, cognitions, and behaviors), the individual would be better able to handle stress and other negatively valenced emotions (Bassan-Diamond et al., 1995). Past studies using this self-regulation code have supported this theory with results showing that young adolescents with higher scores on a measure of negative emotionality had lower self-regulation scores on the TAT (Bassan-Diamond et al., 1995; Lohr et al., 2004). Further supporting the validity of this code, another study demonstrated that higher levels of self-regulation scores on TAT stories were related to social competence as measured by

the Social Skills Improvement System (SSIS), which would be expected given research that children with better self-regulation are more competent in social interactions (Annotti & Teglasi, 2017; Gresham & Elliott, 2008; McKown et al., 2009). Additionally, as self-regulation conceptually includes the ability to accurately attend to important environmental cues, the self-regulation code should relate to measures of attention and executive functioning. Several studies using this self-regulation code have found this link with one study finding that adolescents with higher levels of distractibility had lower levels of self-regulation, which may reflect a difficulty with correctly attending to and screening in or out relevant environmental cues (Bassan-Diamond et al., 1995). Another study found that higher levels of self-regulation on TAT stories were related to measures of attention and executive functioning on the NEPSY-II (design fluency and statue; Annotti & Teglasi, 2017). Finally, this code has also demonstrated high validity as it successfully differentiated students with an identified emotional disturbance (characterized by emotional dysregulation) from students with no emotional disturbance (Lohr et al., 2004).

While the TAT is a different task than the expressive writing procedure used in the current study, the instructions share important similarities. Specifically, the TAT asks individuals to describe what is happening in the pictured stimulus, what happened before, what the characters are thinking and feeling, and how the pictured scene ends (Annotti & Teglasi, 2017). The instructions for the expressive writing task in the current study emphasize that the participant should reflect on thoughts and feelings and describe an event that occurred. Most participants described what caused the event they wrote about, how they responded to the event through thoughts, feelings, and behaviors, and described how the event ended. Thus, although the topics of stories in the current study are different from the topics of TAT stories, given that the self-regulation code has high validity and the stories in the current study have similar

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structural components to TAT stories, this code was identified as being appropriate to use.

Inter-Rater Reliability

A team of four judges independently coded each narrative for meaning-making and self-regulation. The team of judges consisted of the first author as well as three other graduate student researchers. Judges were first trained on the meaning-making coding scheme and completed coding for all narratives before being trained on self-regulation. Thus, the judges scored the narratives separately for meaning-making and then for self-regulation so that the scores were independent of one another. The same process for training narrative coders was used for meaning-making and self-regulation. Training started with the meaning-making code and once all of the narratives were coded for meaning-making, the process was repeated for self-regulation. The training process involved several initial meetings to discuss the conceptualization of the code and to differentiate the levels of the code. Next the judges independently coded a practice set of narratives (20 participants) for the code and took notes on their reasoning for the score they gave. The judges met again to discuss their scores and review the conceptualization and levels of the code. The judges then independently coded a random set of participants (comprising 20% of the sample). Reliability analyses were conducted on the random set of participants to ensure that reliability was satisfactory and additional training was not needed. The reliability analyses for the random sets were good to very good for both meaning-making and self-regulation, thus the judges independently coded the remaining participants.

The reliability that is reported reflects analyses of the independent ratings of the whole sample, excluding the initial practice set. Reliability was assessed with an average interjudge agreement, calculated by averaging the Cohen's Kappa between each pairing of the four judges. The average interjudge agreement for self-regulation was 0.82 (agreement between rater pairs

ranged from 0.75 – 0.90) and for meaning-making was 0.82 (agreement between rater pairs ranged from 0.75 – 0.89; see Table 5 for agreement for each pair). After independently coding the narratives and establishing acceptable reliability, coders met again to discuss and reconcile differences in the codes they assigned to participants and the reconciled score was then used for the analyses.

Impact of Events Scale (IES)

The Impact of Events Scale provides a measure of current subjective distress related to a specific event (Horowitz et al., 1979). The original scale consists of fifteen items, seven of which measure intrusive symptoms (i.e., unbidden thoughts and images, troubled dreams, waves of feelings) and eight that measure avoidance symptoms (i.e., denial of meaning/consequence of the event, blunted responses, behavioral inhibition, awareness of emotional numbness). The items are rated on a 0-3 Likert scale ranging from "not at all" to "often." In the current study, six items were selected from the original scale with items representing both the avoidance and intrusive subscales. The decision was made to shorten the scale because of the time demands that the rest of the survey placed on teachers and because some items were more relevant for traumatic stressors rather than daily stressors. For example, items such as feeling "as if it hadn't happened or wasn't real," "I tried to remove it from memory," and "My feelings about it were numb" were considered to be less relevant to the situations that teachers were reflecting on and more related to the traumatic stressors the scale was originally intended for.

Thus, teachers were asked to indicate how often the six selected IES intrusive or avoidant symptoms occurred during the past two weeks regarding the event described during the expressive writing exercise (i.e., Below is a list of phrases people use to describe life events. Please check each item, indicating how frequently these events were true for you during the past

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two weeks regarding the event you described on the previous page. If they didn't occur at all, please mark Not At All). Horowitz and colleagues (1979) reported that the total scale reliability was 0.86, which indicates good reliability. In this sample using a shortened version of the IES, the reliability was 0.73 (N=91). Previous studies have also indicated that the IES is a valid measure. In terms of validity, several studies have demonstrated that the IES intrusion and avoidance subscales are significantly and moderately correlated with other measures of anxiety, depression, and posttraumatic stress disorder (e.g., The Symptom Checklist-90, General Health Questionnaire, Stress Reaction Questionnaire) as well as physiological markers of stress including cortisol, epinephrine, and heart rate (Sundin & Horowitz, 2002).

Positive and Negative Affect Schedule (PANAS)

The Positive and Negative Affect Schedule contains two 10-item mood scales and provides brief independent measures of positive affect (PA) and negative affect (NA; Watson, Clark, & Tellegen, 1988). Individuals are asked to rate the 20 mood adjectives (10 positive and 10 negative) to the extent to which they describe the way the individual felt during a specific timeframe. Individuals are asked to rate the mood adjectives on a 5-point Likert scale from 0 (very slightly or not at all) to 4 (extremely). A short-form version of this scale was used in the current study. Kercher (1992) created the short-form by choosing five items from the positive affect scale and five items from the negative affect scale based on a prior model (Mackinnon et al., 1999). The short-form was first validated in an elderly population and was subsequently validated in a community sample of adults (Mackinnon et al., 1999; Kercher, 1992). Mackinnon and colleagues (1999) found high internal consistency using the shortened form with Cronbach's alphas of 0.78 for PA and 0.87 for NA. In the current study participants completed the PANAS short-form scales before and after the expressive writing exercise. They were asked to consider

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the extent to which they felt the specific moods in the immediate moment (i.e., This scale consists of a number of words that describe different feelings and emotions. Read each item and then choose the appropriate answer next to that word. Indicate to what extent you feel this way <u>right now</u>). The internal consistencies for the short-form scale in the current study were also high ranging from 0.80 (Pre-writing PA) to 0.89 (Post-Writing NA), which is similar to the psychometric properties reported by Mackinnon and colleagues (1999). Previous research has supported the construct validity of both the full form and short form PANAS. Specifically with the short-form scale, studies have confirmed the theoretical factor structure and have suggested that the structural characteristics of the PA and NA subscales are robust to difference in demographic variables (Mackinnon et al., 1999).

Data Analyses

The data were analyzed using the Statistical Package for the Social Sciences (SPSS) (SPSS Inc., 2019) and R Packages software (R Core Team, 2013). In order to answer the first research question – *Are there changes to teachers' self-rated affect after engaging in expressive writing?*– paired samples *t*-tests were used to compare the mean negative affect and positive affect ratings pre and post the first expressive writing session. Ratings of affect across writing sessions, for those that continued to engage in subsequent writing experiences, were also analyzed to determine if ratings of affect changed across expressive writing experiences. A repeated measures MANOVA was used to analyze mean ratings of negative affect and positive affect across writing sessions.

The second question – *Are there associations between teachers' perception of the impact of the event written about, narrative quality, pre-writing self-rated affect, and changes in self-rated affect (increase, decrease, no change)?* — was answered by running a series of

correlations. Pearson correlations were used to examine possible relationships between the average Impact of Event Scale score, narrative codes (meaning-making and self-regulation), and pre-negative and positive affect ratings. Point-polyserial correlations were used to examine relations between changes in positive and negative affect and the average IES score and narrative codes. Point-polyserial correlations are appropriate when some variables are continuous (Impact of Event Scale score, narrative codes) and some variables are categorical/ordinal (change in positive affect and change in negative affect; Ogasawara, 2011; Olsson et al., 1982).

In order to conduct these analyses, the PANAS ratings for PA and NA were transformed into three groupings. The three groupings for affect (increase, decrease, no change) were determined by first creating a difference in positive affect (pre-PA – post-PA) and difference in negative affect (pre-NA – post-NA) variable for the first expressive writing session. While difference scores are often challenged because of the perception that they will have less reliability than the base measures, others have argued that their use can be valid and legitimate in certain circumstances (Gollwitzer et al., 2014; Thomas & Zumbo, 2012). The conclusion that difference scores will have low reliability is based on the assumptions that reliability and standard deviations do not change between administrations of the measure (Gollwitzer et al., 2014). In the current study, reliability and standard deviations of the PA and NA subscales did change between administrations of the PANAS pre and post expressive writing (see Table 6 for the reliability and standard deviation calculations for pre and post administrations of the PANAS).

Once calculated, the difference scores indicate that when the change in PA or NA variable is positive that means that that type of affect decreased, if the change in PA or NA variable is negative it indicates that that type of affect increased. In order to create the groupings,

the mean and standard deviation for each difference variable was calculated. Difference variable values that were within one standard deviation of the group mean were categorized as no change, while difference variables that were below or above one standard deviation of the mean were categorized as increased and decreased, respectively. Preliminary descriptive analyses demonstrated that the PA difference variable had a mean of -0.19 ($SD = 0.54$), so values that are equal to or less than -0.74 were categorized as an increase in PA, values that are between -0.73 and 0.35 were categorized as no change, and values that are equal to or greater than 0.36 were categorized as a decrease in PA. Similarly, the NA difference variable had a mean of 0.15 ($SD = .50$), so values that were equal to or less than -0.36 were categorized as an increase in NA, values that were between -0.35 and 0.65 were categorized as no change, and values that were equal to or greater than 0.66 were categorized as a decrease in NA. These preliminary analyses suggested that both the NA and PA difference values were normally distributed so this categorization method created groupings that showed meaningful changes in affect based on the normal distribution (see Table 7 for the number of participants in each proposed group).

The third question - *What variables predict which teachers engage in expressive writing?* – was answered using a logistic regression. As shown in Figure 1, most participants completed the demographic information and pre-writing PANAS rating in the first survey regardless of whether they continued on to complete the expressive writing prompt. Thus, three variables, length of time teaching, pre writing ratings of negative affect, and pre writing ratings of positive affect were used to predict whether participants completed or skipped the first expressive writing opportunity.

Length of time teaching was a free response item where teachers reported the number of years they had spent teaching. This variable was transformed into a categorical variable based on

frequency distributions and literature about professional teaching experience. The free-responses about length of time teaching were grouped into three approximately even categories, early career teachers (1-5 years), mid-career teachers (6-11 years), and late career teachers (11+ years). Literature about professional teachers and their career trajectories suggest that it is common to classify early career teachers as those within their first 5 years (Weldon, 2018). Additionally, the literature suggests that late career teachers are those who have taught for over 10 years (Parkinson, 2008; Ulrich & Straus, 2014). Average pre-writing positive affect scores and negative affect scores were calculated and were also used as predictors in the regression.

The fourth question –*Are meaning-making, self-regulation, and change in affect predictors of teachers' continued volunteerism for expressive writing?* – was answered using two logistic regressions. Several independent variables were used to predict whether those participants who completed the first writing experience volunteered to participate in additional expressive writing experiences (i.e., whether a completer of the first expressive writing exercise volunteered to continue to receive follow-up writing prompts) as well as who actually completed an additional writing experience (i.e., whether a completer of the first expressive writing exercise who agreed to receive follow-up prompts went on to complete a second expressive writing exercise). Predictor variables included narrative codes for meaning-making and self-regulation and change in self-rated positive and negative affect (using the same groupings previously described).

Chapter 4: Results

The results are organized by the four research questions: 1) Are there changes to teachers' self-rated affect after engaging in expressive writing? 2) Are there associations between teachers' perception of the impact of the event written about, narrative quality, and changes in self-rated affect (increase, decrease, no change)? 3) What variables predict which teachers engage in expressive writing? 4) Are meaning-making, self-regulation, and change in affect predictors of teachers' continued volunteerism for and participation in expressive writing. Since the number of participants being analyzed changed across research questions, descriptive statistics for the variables used were examined separately for each question and are presented below.

Research Question #1: Are there changes to teachers' self-rated affect after engaging in expressive writing?

While eighty-one participants completed the first expressive writing prompt, four of those participants only completed the pre-writing affect rating so they were not included in the following analyses. The descriptive statistics for pre and post negative and positive affect are shown in Table 8 and Q-Q Plots demonstrate the approximately normal distributions for these variables in Figures 2-4.

A paired samples *t*-test was used to compare the mean negative affect before the first expressive writing session ($M = 2.88$, $SD = 0.98$) with the mean negative affect after the first expressive writing session ($M = 2.73$, $SD = 0.96$). Using an alpha level of 0.05, this test was found to be statistically significant, $t(76) = 2.67$, $p < 0.01$, with a small effect size ($d = 0.30$). This suggests that participants rated themselves as having significantly less negative affect

immediately after writing. Another paired samples t-test was used to compare the mean positive affect before the first expressive writing session ($M = 2.70$, $SD = 0.83$) with the mean positive affect after the first expressive writing session ($M = 2.89$, $SD = 0.90$). Using an alpha level of 0.05, this test was found to be statistically significant, $t(76) = -3.09$, $p < 0.01$, with a small to moderate effect size ($d = 0.38$). This suggests that participants rated themselves as having significantly greater positive affect immediately after writing.

In addition to the paired samples t-tests, the individual mood ratings used to create the composite positive affect and negative affect variables were also graphed and visually inspected for trends (see Figures 5 & 6). Additionally, ad hoc analyses were conducted to examine whether there were any significant differences in the specific affect states pre to post writing. Paired samples t-tests revealed that teachers felt significantly more inspired, $t(76) = -4.60$, $p < 0.01$, and more excited, $t(76) = -2.80$, $p < 0.01$, after writing. Additionally, teachers felt less afraid, $t(76) = 2.23$, $p < 0.05$, and less scared, $t(76) = 2.67$, $p < 0.01$, after writing. Descriptive statistics for the individual affect states are presented in Table 9.

In order to determine if ratings of affect changed across expressive writing sessions, a repeated measures MANOVA was conducted. The MANOVA included ratings of positive and negative affect across four time points for those who continued to engage in subsequent writing experiences (i.e., pre and post ratings for two writing sessions), which included seventeen participants. Assumptions of a MANOVA, including multivariate normal distribution and absence of multicollinearity, were analyzed and one outlier was identified. This participant had a post-negative affect rating that was four standard deviations above the mean, so this participant was excluded from analysis. After removing this outlier, all assumptions of the MANOVA were met. See Table 10 and Figures 7-12 for descriptive statistics and QQ-plots for the distributions.

The multivariate test of the differences among positive and negative affect across the four time points was significant, Wilks' Lambda = 0.716, $F(6) = 2.67$, $p = .02$, $\eta_p^2 = .15$. In order to examine which of the contrasts between time points were significant for positive or negative affect, a series of univariate ANOVAs were conducted (see Table 11). Only the negative affect ANOVA was significant, $F(3) = 4.13$, $p = .01$, $\eta_p^2 = .21$ and tests of within-subjects contrasts revealed that there was only a significant difference between the pre and post negative affect ratings for the first writing session, $F(1) = 22.23$, $p < .01$ (see Table 12). Thus, the results of the MANOVA did not demonstrate a significant linear decrease in negative affect across multiple writing sessions. The mean ratings of negative and positive affect across the four time points are visually depicted in Figures 13 & 14.

As the paired contrasts in ANOVA analyses only compared the first time point to the second, the second to the third, and the third to the fourth, additional ad hoc analyses were run to examine the contrasts between time points not included in the ANOVA analyses. These analyses were run in order to better understand the trend in negative affect over time. Paired t-tests demonstrated that there was also a significant decrease in negative affect between the pre-writing rating for session 1 ($M = 2.80$, $SD = .75$) and the pre-writing rating for session 2 ($M = 2.43$, $SD = .80$); $t(15) = 2.31$, $p < 0.05$. There was also a significant decrease in negative affect between the pre-writing rating for session 1 ($M = 2.80$, $SD = .75$) and the post-writing rating for session 2 ($M = 2.22$, $SD = .68$); $t(15) = 2.85$, $p = 0.01$. There was not a significant difference between the post-writing rating for session 1 ($M = 2.36$, $SD = .70$) and the post-writing rating for session 2 ($M = 2.22$, $SD = .68$); $t(15) = 0.84$, $p = .42$.

Research Question #2: Are there associations between teachers' perception of the impact of the event written about, narrative quality, and changes in self-rated affect (increase, decrease, no change)?

To examine the possible relationships between the average Impact of Event Scale score, narrative codes (meaning-making and self-regulation), and pre-negative and positive affect ratings, Pearson correlations were conducted. While 81 participants completed the first writing prompt, four did not complete ratings of affect after writing and were excluded from the correlational analyses. Table 13 contains the descriptive statistics for these variables for the 77 participants. Table 14 contains the Pearson correlations between these variables. The two coding categories, meaning-making and self-regulation, were found to be moderately and significantly related ($r = .45$, $p < 0.01$). This means that higher levels meaning-making in the narrative were related to higher levels of self-regulation in the narrative. Correlations between meaning-making and affect revealed that meaning-making was unrelated to pre-positive affect, but was significantly and positively related to pre-negative affect ($r = .23$, $p = 0.04$). This means that higher ratings of negative affect before writing were related to higher levels of meaning-making in the narrative. Correlations between self-regulation and affect revealed that self-regulation was not significantly related to either positive or negative affect before writing. Finally, the average Impact of Event rating was significantly and positively related to pre-negative affect ($r = .37$, $p < 0.01$). This means that as the ratings of how much the event written about impacted the participant increased, the self-rated negative affect before writing also increased.

To examine relationships between changes in positive and negative affect and the average IES score and narrative codes, point-polyserial correlations were conducted. Table 15 contains the point-polyserial correlations for these variables. Change in negative affect was significantly

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and positively related to the Impact of Event Scale score ($\hat{\rho} = .29$, $p = 0.03$). This means that an increase in negative affect after writing was related to higher ratings of the impact of the event. Additionally, change in negative affect was significantly and inversely related to self-regulation ($\hat{\rho} = -.30$, $p = 0.03$), such that a decrease in negative affect after writing was related to higher levels of self-regulation in the narrative quality. Finally, change in positive affect was significantly and positively related to self-regulation ($\hat{\rho} = .34$, $p < .01$) such that an increase in positive affect after writing was related to higher levels of self-regulation in narrative quality.

Research Question #3: What variables predict which teachers engage in expressive writing?

Before building the model, descriptive statistics and frequency data were examined (see Table 16) and assumptions were checked and met. Then a logistic regression was performed to determine the effects of length of time teaching, pre-writing ratings of negative affect, and pre-writing ratings of positive affect on the likelihood that participants would complete the first expressive writing session. The analysis included the 81 participants who completed the first expressive writing prompt, pre-writing affect ratings, and IES rating as well as the 69 participants who completed all of the qualitative responses except for the expressive writing prompt and completed the pre-writing affect rating. The logistic regression used pre-writing affect ratings as well as length of time teaching to predict membership in these two groups. The logistic regression model was not statistically significant, $\chi^2(4) = 4.01$, $p = 0.41$. The model explained 3.60% (Nagelkerke R^2) of the variance in completion of the first writing session and correctly classified cases no better than chance (58.80%).

Research Question #4: Are meaning-making, self-regulation, and change in affect predictors of teachers' continued volunteerism for and participation in expressive writing?

Two logistic regression models were built to answer this question using the 77 participants who completed the first expressive writing prompt and affect ratings before and after writing. The first logistic regression determined the effects of narrative codes for meaning-making and self-regulation as well as change in self-rated positive and negative affect on the likelihood that a participant opted into continuing to complete expressive writing prompts. These participants volunteered to be contacted once per month for three months to complete additional expressive writing prompts. Out of the 77 participants who completed the first writing prompt, 51 participants indicated an interest in continuing to receive writing prompts and provided contact information while 26 did not opt into receiving additional writing prompts. Thus, the first logistic regression uses meaning-making, self-regulation, and change in self-rated positive and negative affect to predict membership in those two groups. The second logistic regression used the same predictor variables, but rather than predicting interest in receiving additional writing prompts, it predicted completion of additional writing prompts. Thus, the second logistic regression model used only those 51 participants who opted into completing additional writing prompts. Out of those 51 participants, 25 did not complete any of the additional writing prompts that were sent to them, while 26 completed at least one additional writing prompt. The second logistic regression model uses meaning-making, self-regulation, and change in self-rated positive and negative affect to predict membership in those two groups.

Before building the first logistic regression model, descriptive statistics were examined (see Table 17) and assumptions were checked and met. The logistic regression model was not statistically significant, $\chi^2(6) = 6.74$, $p = 0.35$. The model explained 11.60% (Nagelkerke R^2) of

the variance in completion of the first writing session and correctly classified 68.80% of cases.

The second regression model determined the effects of narrative codes for meaning-making and self-regulation as well as change in self-rated positive and negative affect on the likelihood that a participant actually completed a second writing prompt. Out of the 51 participants who agreed to receive three additional writing prompts, 25 did not complete any of the writing prompts that were sent and 26 completed at least one of the additional writing prompts sent. Descriptive statistics were examined and assumptions were also checked and met. The logistic regression model was statistically significant, $\chi^2(6) = 13.05$, $p < 0.05$ (see Table 18). The model explained 30.10% (Nagelkerke R^2) of the variance in completion of the first writing session and correctly classified 72.50% of cases. Only one predictor variable (self-regulation) was statistically significant. The odds ratio suggests that the likelihood of completing a second writing prompt increases as level of self-regulation on the first writing prompt increases, with the odds of completing a second writing prompt increasing by 3.36 times for each one unit increase in self-regulation (OR = 3.36, 95% CI [1.26, 9.01]).

Chapter 5: Discussion

This study surveyed teachers across the United States during the beginning of the COVID-19 pandemic and provided them the opportunity to engage in an expressive writing exercise about recent teaching experiences. Specifically, the survey was first circulated in mid-April of 2020, within a month of school closures beginning due to the COVID-19 pandemic. Teachers were the target population for this study because of the emotional nature of the profession and because the context of COVID-19 and the subsequent changes to teaching demands only made the emotional nature of teaching more salient, with teachers reporting higher levels of stress about their jobs and worry about their students (Page, 2020). Past research has also demonstrated that when teachers are able to reflect on their emotional teaching experiences in a way that leads to adaptive behavior change, positive outcomes for both teachers and their students are more likely to occur (Shandomo, 2010). Additionally, other studies have demonstrated that when teachers are able to reflect on their affect in difficult relationships with individual students through consultation, their perceptions of closeness to the student and their perceptions of provided emotional support increased while conflict with the student decreased (Bosman et al., 2021). Thus, there is a need in the literature for research that investigates low-cost, noninvasive, and feasible interventions, such as expressive writing, to support teachers.

Additionally, while much of the expressive writing literature has investigated associated physical and psychological health benefits, there is a dearth of research on who benefits from expressive writing, who chooses to participate in expressive writing, and why expressive writing is beneficial. To the author's knowledge, this study is the first to analyze predictors of expressive writing completion and continuation. Another uncommon feature of the study is that participants were asked to write about an event that was significant to them, rather than being asked to write

about a recent stressful or traumatic event. Much of the expressive writing literature focuses on stressful events with the source of stress often being chosen for the participants (e.g., cancer diagnosis, unresolved traumas, etc.; Greenberg & Stone, 1992; Pennebaker, 2018; Pennebaker, 2000; Stanton et al., 2002). Additionally, in studies where participants are asked to write about stressful experiences, it is not uncommon for participants to experience an immediate increase in negative affect along with a downward trend in negative affect over time (Baikie & Wilhelm, 2005; Pascual-Leone et al., 2016). In this study, it was not assumed that the pandemic or stress stemming from the pandemic would be a stressor or the topic that participants wanted to write about. Instead, participants were able to choose what was significant to them.

The decision to recruit teacher participants in the context of the COVID pandemic was based on the idea that teachers might benefit from opportunities to reflect on their teaching experiences (Bosman et al., 2021), particularly in light of the changes COVID had on the nature of the job (Page, 2020). Expressive writing has been extensively studied in the context of traumatic stressors, but has not been as widely studied in the context of day-to-day stressors or even positive events. Thus, in using expressive writing to give teachers the opportunity to process professional stressors, the instructions in this study did not specify an a priori stressor but allowed for individual participants to write about what stood out as most significant to them. This study provides findings for key questions about the processes by which expressive writing might benefit individuals, the associations between narrative qualities and affect, and predictors of who chooses to continue engaging in expressive writing opportunities. Given the departure of this study's methodology from the stressful/traumatic event paradigm, the findings may be relative to the specific instructions and conditions used in this study.

Changes in Affect After Expressive Writing

An important finding of the current study stemmed from the changes that occurred in affect pre to post writing. In this study, participants rated their positive and negative affect immediately before and after each expressive writing session. The results demonstrated a small immediate decrease in negative affect (NA; $d = .30$) after writing and a small to moderate increase in positive affect (PA) after writing ($d = .38$). With regard to PA, some studies have shown an increase in PA after writing, while others have had null results, and still others have shown a decrease. One study that assigned participants to write about their most stressful experience under different conditions (control, emotional disclosure, cognitive reappraisal, or a combination of emotional disclosure and cognitive reappraisal) found that PA decreased for participants in all of the conditions over time (Lu & Stanton, 2010). However, results also demonstrated that the combination condition (emotional disclosure and cognitive reappraisal) had a higher level of PA across all sessions compared to the control group (Lu & Stanton, 2010). The authors viewed the combination condition as representing self-regulation since the participants were acknowledging their emotions while also reappraising them to make sense of the situation. This suggests that how one thinks about and processes the event may impact their perception of their PA, with adaptive processing of the event leading to stable or perhaps even increased PA. The results in the current study may be best contextualized in comparison to other studies of professionals writing about important events from their workday. One such study examined the effects of employed adults writing about an important event during their workday (expressive writing condition) or writing about the routine of their workday (control condition). The results demonstrated that participants in the expressive writing condition reported significantly higher PA after writing compared to the control group (Kirk & Schutte, 2011). The

finding from this study is especially notable because the methods are similar to the current study with the participants being professionals writing about *an important* event from their workday and not necessarily a stressful experience. In the current study, there was also an immediate increase in PA after writing about *a significant* teaching event and this finding, contextualized with previous research, may suggest that the type of writing condition and the writing prompt could impact mind-set for writing and subsequently the direction of change in PA.

With regard to NA, the finding of an immediate decrease in NA in the current study also adds to the literature as past studies have reported a mixture of results. Previous research has found a small immediate increase in NA immediately after a writing session, along with some studies showing a general linear decrease in NA across writing sessions (Greenberg et al., 1996; Pascual-Leone et al., 2016). In these studies, the increase in NA occurred for participants writing about stressful life events or real traumas and received course credit and monetary payments for writing. Other research, using the typical expressive writing paradigm of writing about a traumatic or stressful experience, has shown that level of distress before writing impacts change in NA, with highly distressed individuals demonstrating a decrease in NA compared to controls (Pennebaker, 2000). The decrease in NA for highly distressed individuals may also be attributed to the fact that there is more room for change or improvement in affect rating for those participants than for participants who are at a normative level of NA. The results of the current study demonstrated that expressive writing is related to a small, but immediate decrease in NA after the first writing session. Again, it is possible that the finding in the current study may be related to writing condition. The previously mentioned studies that found an increase in NA immediately after writing employed the typical expressive writing paradigm of writing about a traumatic or stressful experience (Pennebaker, 2000). The current study allowed participants to

choose a recent and significant teaching experience to write about. It was not assumed that COVID would be the stressor or that experiences would even be solely focused on stress. Allowing the participants to choose the event that they wrote about may have provided the opportunity for the participant to individualize what was important and to reflect on what they wanted to express and how they wanted to express it. Thus, the difference in type of writing prompt may have played a role in the affect changes that occurred in the current study after writing.

Another difference in results between this study and others was that previous studies have found a general linear decrease in post-NA rating across writing sessions for participants in an expressive writing group and no significant pattern for participants in a control group (Pascual-Leone et al., 2016). In previous studies, this linear decrease was examined using hierarchical linear modeling and examining only post writing ratings of affect. In this study, a MANOVA comparing four time points (pre NA/PA first writing, post NA/PA first writing, pre NA/PA second writing, post NA/PA second writing) was significant, but the only significant contrast was between pre to post NA ratings for the first writing session. As MANOVAs only include contrasts for the sequential pairs of time points, the analysis did not include comparisons between pre NA ratings for the first and second writing sessions or comparisons between post NA ratings for the first and second writing sessions.

Ad hoc analyses using paired *t*-tests demonstrated that there was also a significant decrease in NA between the pre-writing rating for the first session ($M = 2.80$) and the pre-writing rating for the second session ($M = 2.43$). There was also a significant decrease in NA between the pre-writing rating for the first session ($M = 2.80$) and the post-writing rating for the second

session ($M = 2.22$). There was not a significant difference between the post-writing rating for the first writing session ($M = 2.36$) and the post-writing rating for the second session ($M = 2.22$).

Thus, while the MANOVA did not reveal significant contrasts between sequential time points, ad hoc analyses demonstrated some support of a decreasing linear trend for NA, although this was not true for the post-writing ratings. The decrease in NA after the first writing session remained at the start of the second writing session as there was not a significant difference between post NA for the first writing session and pre NA for the second writing session. Since this decrease occurred after the first session and then remained, it may have limited the room for NA to decrease after the second writing session. Unfortunately, due to the sample size decreasing for each writing session, the pre and post NA ratings for the third and fourth writing sessions could not be included in this sample due to a lack of power. A larger sample size and the inclusion of the additional writing sessions would have improved the ability to track the trend over time. In addition to using different statistical methods to answer this question, it is also possible that different expressive writing methods led to the differences in findings. Previous studies that have found the general linear decrease in post writing NA across sessions have typically used the traditional stressful/traumatic event paradigm and asked the participants to continue writing about the same event across writing sessions (Pascual-Leone et al., 2016). In the current study, participants were asked to write about a recent significant teaching event and they wrote about different events each time. Thus, it is possible that the general linear decrease across writing sessions could have occurred in other studies because the participants habituated to the negative arousal associated with writing about the event, which was not possible in the current study given the expressive writing prompt asked for a different experience each time (Pascual-Leone et al., 2016).

Relations Between Affect, Narrative Quality, and Impact of Event

The current study also revealed several important findings about the relations of affect with narrative quality (meaning-making and self-regulation) and between affect and the impact of the event written about. These associations are important in understanding potential mechanisms by which expressive writing relates to changes in affect. While some research has investigated associations between self-rated meaning-making and negative affect (NA) in undergraduate students and women diagnosed with breast cancer as well as healthy controls (Kamijo & Yukawa, 2018; Kernan & Lepore, 2009; Tomich & Helgeson, 2002), no known research has investigated associations between affect and narrative quality based on coding of writing samples (i.e., meaning-making and self-regulation). In the current study, association between affect and narrative quality were specific to meaning making and self- regulation.

The associations between affect and narrative quality were examined in two ways; first correlations between ratings of affect before the first writing session and narrative quality indicators were run and then correlations between the change in affect across the first writing session and narrative quality indicators were run. Higher levels of NA before writing were related to higher levels of meaning-making in the narrative, but pre-writing affect (PA and NA) was unrelated to self-regulation. This pattern may indicate that individuals who experience more negative affect are motivated to find meaning in the event. This finding aligns with previous research on meaning-making, with results demonstrating that higher levels of searching for meaning (self-rated) were related to higher levels of NA in women who had been diagnosed with breast cancer (Kernan & Lepore, 2009; Tomich & Helgeson, 2002). Additionally, this finding held true for healthy controls, with women in the control group who reported searching for meaning also reporting higher levels of NA (Tomich & Helgeson, 2002). Similarly, a study with

undergraduate students who were asked to reflect on their most stressful life events and then complete questionnaires about NA, rumination, and making meaning related to the event found that rumination was positively associated with NA and making meaning of the event.

On the other hand, when examining correlations using the change in affect, self-regulation, but not meaning-making, related to adaptive changes in affect (increase in PA and decrease in NA). While these narrative codes were moderately and positively correlated ($r =$ .45), the differences in how these codes relate to affect may stem from the conceptual differences that each of these narrative codes reflect in the writing products. Specifically, the meaning-making code reflects the extent to which a participant explored the event through their writing and came to understand it in a different way. The lowest level of meaning-making identifies narratives that are flat and objective accounts of the event that omit thoughts and feelings while the highest level indicates that a narrative has considered multiple viewpoints of the event and that the new viewpoint is being utilized, valued, or acted upon. Lower levels of meaning-making are related to a core concept of self-regulation in that self-regulation is grounded in the awareness of inner and outer sources of tension. Some stories may receive similar scores in self-regulation or meaning-making. For example, if a teacher were to recount a lesson that they taught without discussing any of their feelings or thoughts they would receive a low score on meaning-making due to the absence of feelings and thoughts and would also receive a low score on self-regulation as they did not demonstrate any self-monitoring of the event.

While the two codes share some similarities, self-regulation departs from meaning-making in that it incorporates not only self-monitoring (awareness of the emotions), but also self-direction (thinking, acting, and responding realistically to the situation), and self-determination (cohesive resolution of the inner and outer sources of tension (Teglasi, 2010). Thus, the self-

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regulation code includes several levels of a continuum, which largely encompass how actions and feelings are influenced and the complexity with which the individual organizes the event. The lowest level reflects that actions are based on the immediate and feelings are evoked by immediate external circumstances while the highest level reflects complex coordination between the participant's thoughts, feelings, actions, with plausible effort exerted to meet internally organized standards. An important difference in these codes is that conceptually, meaning-making is focused on a change in perspective whereas self-regulation is focused on how the participant perceives and organizes the event around their inner experiences and values. In the meaning-making code, the higher levels do not necessitate that the change in perspective is plausible or appropriate, just that there is a new perspective and the individual is acting upon it. On the other hand, in the self-regulation code, actions need to be realistic and also guided by the individual's values.

Given the differences in what these codes identified in this set of narratives, it makes sense that higher pre-writing negative affect might spur an individual to try to make meaning about the event. It also makes sense that an adaptive change in affect would be related to self-regulation, as higher levels of self-regulation reflect a higher level of information processing and functional response to the event. Previously, when this same self-regulation code was applied to stories of young adolescents, higher levels of self-regulation were related to lower temperamental NA (a more lasting trait rather than an immediate state) as rated by adult informants (Bassan-Diamond et al., 1995). In this study, level of NA was measured in terms of a state, so the change in affect across the writing session is more comparable to the findings of affective traits in the previously mentioned study. Specifically, in this study, decreases in NA and increases in PA pre to post writing were related to higher levels of self-regulation in the

narrative. This suggests that those who were better able to use the expressive writing experience to regulate their thoughts and emotions about the event felt better than those who were not able to regulate (i.e., used the expressive writing to vent about the event). Interestingly, while self-regulation was related to adaptive changes in affect, it was not related to pre-writing ratings of affect as meaning-making was. This may suggest that an individual's initial reaction to an event is less related to how the individual ultimately responds to and handles the event (i.e., self-regulation). This interpretation fits within established theory about the process of self-regulation of emotion where a primary immediate response occurs and is simply an individual's immediate reaction to emotional events, but the secondary response, which is where self-regulation begins, relates to the individual's ability to cope with, respond to, and regulate the primary emotional response (Baumann et al., 2007; Koole et al., 2011; Lazarus, 1991).

Another variable that was examined in order to better understand affective experiences related to expressive writing was the extent to which the participant felt the event they chose to write about had an adverse impact on them (IES). Higher ratings of adverse impact from the event (e.g., higher levels of self-rated intrusive or avoidant thoughts) were related to higher levels of NA before writing as well as an increase in NA after writing. Some research has demonstrated that intrusive and ruminative thoughts about stressful events are related to higher levels of NA (Kamijo & Yukawa, 2018). Additionally, while little research has examined the relation between NA and the impact of event score (intensity of adverse impact of the event), some research has examined the relation between NA and the frequency of adverse events. The findings from the current study fit well with findings from previous research, which demonstrated that the frequency of negative adverse events predicted higher levels of healthcare

professionals' NA (Volmer & Fritsche, 2016). Thus, it makes sense that not only frequency of adverse events, but also the perceived intensity of adverse events relates to level of NA.

A main aim of this study was to examine who benefits from expressive writing and why. Understanding how adaptive change in affect relates to narrative quality and the impact of the event written about during expressive writing provides insight into these important questions. When examining the correlations as a whole, higher levels of NA prior to writing related to perceptions of higher adverse impacts of the event as well as greater engagement in making meaning of the event. On the other hand, self-regulation was unrelated to the impact of the event, but was related to adaptive changes in affect. This finding suggests that those who are better able to self-regulate are more likely to experience an affective benefit and they may be experiencing this benefit because of how they process the event.

Predictors of Expressive Writing Engagement, Volunteerism, and Continued Completion

Finally, this study provided insights about predicting who might volunteer to participate in expressive writing, who actually participates, and who continues to participate when no external incentive is provided (e.g., monetary payment, course credit, etc.). There is a dearth of research on who chooses to participate in expressive writing and who benefits from doing so. Additionally, most studies provide participants with incentives to start and continue expressive writing interventions, which makes it more difficult to disentangle personal characteristics impacting participation from the desire for the incentives (see Table 1 for more information on common incentives). In this study, 188 participants responded to a survey including demographic questions, affect scales, the expressive writing prompt, and the Impact of Events Scale (IES). Out of the 188 participants only 159 participants provided enough data to be included in some analyses in this study. Out of the 159 participants, about 48% (77 participants) completed all of

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the items and the writing prompt, about 3% (4 participants) completed the writing prompt and all of the items except for the post affect ratings, about 43% (69 participants) completed all of the items until the expressive writing prompt and then discontinued the survey, while the remaining 6% (9 participants) completed almost all of the items until the expressive writing prompt and then discontinued the survey.

The first logistic regression used the 150 participants who completed pre-affect writing ratings to predict who completed the first expressive writing prompt using length of time teaching as well as pre-writing positive and negative affect ratings as predictors. This regression was non-significant. This finding is important because it demonstrates that levels of NA and PA before writing did not impact the participants' decision to complete the first writing experience. While the correlations show that pre-writing NA is related to the adverse impact of the event the participant chooses to write about and how the participant makes meaning of the event, it did not impact their decision to engage with the first expressive writing prompt. Future research should investigate other individual-level characteristics, such as temperament, emotion regulation, personality variables, and personal life demands that could impact whether an individual chooses to engage with expressive writing for the first time.

Out of the 77 participants who completed the first expressive writing prompt, the IES, and the pre/post affect rating scales, about 66% (51 participants) opted into receiving additional writing prompts once per month for three months while the remaining 34% (26 participants) did not indicate an interest in receiving additional prompts. The second logistic regression predicted who opted into receiving additional prompts (i.e., indicated an interest in future writing experiences) using change in NA, change in PA, self-regulation, and meaning-making and was non-significant. Out of the 51 participants who opted into receiving additional writing prompts,

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26 participants completed an at least one additional writing prompts and 25 participants did not. The final logistic regression predicted completion of an additional prompt using the same variables (change in NA, change in PA, self-regulation, and meaning-making) and was significant. This finding is important because it suggests that there is a difference between simply volunteering and actually completing additional writing sessions. Out of the variables in the regression predicting completion of a second writing session, only self-regulation was a significant predictor such that the likelihood that a participant completed a second writing session increased as the level of self-regulation demonstrated in the first writing session increased. Specifically, the odds of completing a second writing session increased 3.36 times for each one-point increase in self-regulation in the first writing session.

This finding helps to address the question of who volunteers for, who engages in, and who benefits from expressive writing. Participants who demonstrated higher levels of self-regulation in the first writing session were more likely to complete additional writing sessions. This finding suggests that self-regulation is not only related to adaptive changes in affect, but also has a functional impact on completion of expressive writing experiences. This may suggest the need for interventions that help guide the participant towards self-regulation. In a previous expressive writing study, researchers conceptualized an assigned writing condition as the "self-regulation" condition where they asked participants to write about their emotions regarding a stressful experience as well as the consequences, challenges, opportunities, and use of coping strategies related to the event (Lu & Stanton, 2010). Their hypothesis was that participants in this writing condition would be spurred to self-regulate as the prompt would help them bring their emotions and goals into awareness and then regulate their thoughts and emotions through reappraisal (as compared to a control group, an emotional disclosure only group, and a cognitive

reappraisal only group). The results demonstrated that the self-regulation group was the most beneficial, as this group had reduced physical symptoms and a buffered decrease in positive affect, compared to the control group (Lu & Stanton, 2010).

Future research should continue to investigate self-regulation as a mechanism underlying expressive writing and interventions that spur self-regulation more generally. For example, Koole (2009) describes targets and functions of emotion regulation as well interventions that serve each target. The targets are aimed at helping one identify the emotion-generating system that is being activated (attentional, knowledge/cognitive appraisal, or body/physiological) and match an emotion regulation strategy to the function (i.e., will the emotion regulation serve a hedonic need, short-term goal, or long-term/multiple goals). Expressive writing is suggested as an intervention that addresses the knowledge/cognitive appraisal target and would serve the multiple/long-term goal function. This conceptualization of self-regulation and expressive writing parallels findings and observations from the current study. Specifically, self-regulation as coded in the narratives appeared to capture some longer-term adaptive management of affectivity while meaning-making appeared to capture more reactive or momentary venting. Future research should continue to investigate interventions that guide individuals towards self-regulation and should examine whether the expressive writing instruction can prompt or encourage self-regulation. Additionally, research should examine whether self-regulation is stable or whether it changes across writing sessions.

Limitations, Strengths, and Future Directions

The main limitations of this study are related to methodology and demographics of the sample, which limit generalization of the results. Specifically, one limitation is that causation cannot be determined for the research questions because there is no control group. The temporal

sequence of the measures, rating affect before writing, completing the writing, and then rating affect again, lends some weight to the expressive writing being a source of impact. However, since there was not a true experimental design, causation of effects cannot be determined. Additionally, because of a smaller starting sample size as well as attrition over the course of the study, there was limited statistical power for many analyses. Future studies may seek to replicate this study with a larger sample size as it would lend to tracking trends in narrative quality and affect over several writing sessions. In addition, a larger sample size may allow for additional significant results in terms of predictors of engagement in, volunteerism for, and continuation of expressive writing, where the effect was too small to be detected in the current sample size. This study sought to maximize participation and feasibility for teachers by using short-form versions of rating scales. While this may have increased the feasibility of completing the surveys, using the short-form versions limited the amount of information collected on the impact of the event and mood states and may have impacted validity, although reliability of the scales stayed high. Future studies should continue to consider how to maximize participation in expressive writing interventions while balancing feasibility and collecting information on related variables.

Another limitation is the ability to generalize the results from this study because of the sample. The sample included only teachers in the United States, which may limit generalizing findings to professionals in other fields. However, there likely is some commonality in how individuals think and write about significant events that affect them professionally and these results may be generalizable to professionals in fields that evoke similar emotional moments throughout the day (e.g., healthcare professionals). Within the teaching population, although the current study included participants from various geographic locations and a range of teaching experiences, the results of this study may not generalize to all teachers in the United States. It is

important to note that the majority of the participants were from the Eastern states in the US. Additionally, the sample was 92% female and 87.4% white. These characteristics limit generalization of results to all teachers' experiences and how expressive writing may impact all teachers, particularly teachers of color. However, these demographics do reflect trends that are similar to those found in the teaching profession as about 77% of teachers in the US are women, with that number rising to about 90% in primary schools, and about 80% are white (Loewus, 2017). It is also important to consider recruitment efforts and those efforts may have impacted who signed up. In the advertisement, the study's purpose is described as focused on learning about teachers' experiences teaching during the COVID-19 pandemic and identifying ways to support teachers. This description is general and does not imply or state that participants may experience benefits. Potential participants may have responded differently to this style of advertisings versus an advertisement that states extrinsic benefits (e.g., course credit/money) or even an advertisement that billed the study as an intervention conveying the potential for psychological benefit. Additionally, participants were mainly recruited from social media sites such as Facebook and Reddit, which may have introduced sampling bias because since the survey was advertised and administered online, teachers who are not as comfortable with online platforms likely did not have the opportunity to participate.

The findings from this study raise avenues for future research in several areas. First, research should continue to investigate who benefits from expressive writing and why, particularly in professionals facing high emotional workloads as expressive writing can be used as a low-cost and noninvasive intervention. Previous research has found that expressive writing had a beneficial impact on coping strategies, work communication satisfaction, problem solving and cognitive abilities for healthcare workers (Tonarelli et al., 2017). This study added to

existing literature by demonstrating that expressive writing was related to a small to moderate immediate beneficial change in teachers' affect. Additionally, the results from this study suggest that teachers who are able to use the writing experience productively as a means to regulate themselves are more likely to experience adaptive change to their affective state. Thus, continued research on interventions that can help teachers and other professionals cast their stories in ways that increase their self-regulation is important. For example, in one study with teachers, the researchers interviewed the teachers and asked them to reflect on positive and negative teaching experiences, identifying their emotions, actions, and resolutions to the experiences (Janssen et al., 2008). The researchers found that when teachers reflected on the positive experiences they made more innovative resolutions (as judged by researchers) and were more highly motivated to implement the resolutions and had more positive feelings about the event (self-rated; Janssen et al., 2008). Interventions, written or interactive, that promote self-regulation and result in functionally adaptive outcomes for professionals are essential particularly in professions with high emotional workloads.

Future research should also continue to investigate the impact of the expressive writing instructions on findings. The current study allowed participants to pick a significant topic to write about rather than asking them to write about something stressful or traumatic. In an effort to contextualize how this instruction may have impacted the type of narratives written, the author independently sorted the content of the narratives into categories, which were not mutually exclusive and included narratives that mentioned (1) the words COVID or pandemic, (2) a teaching moment with specific student or a whole class, (3) teaching through remote learning, (4) no teaching moment, (5) only negative descriptions, (6) only positive descriptions, and/or (7) a mixture of descriptions. The content of these narratives is important because they speak to the

value of allowing teachers to choose what stood out as significant to them. Only 11% explicitly mentioned the COVID-19 pandemic, which may suggest that a prompt specifying that they discuss stressors related to the pandemic would have been counterproductive for processing their teaching experiences. Most teachers mentioned remote learning (83%), but did so in the context of a teaching moment with a specific student or the whole class (79%). There was variation in the emphases and in the valence of the moment that was described with 23% of the teachers writing only negative descriptions, 35% writing only positive descriptions, and 41% writing a mixture of positive and negative descriptions. Thus, the flexibility in the instructions may have contributed to a more diverse set of narratives in this study with teachers being able to process chosen salient events to reflect upon. In one previous study researchers compared how different expressive writing instructions impacted mood and word use in writing content (Nazarian & Smyth, 2013). The results demonstrated that instructions promoting exposure produced an increase in emotional habituation over time and an increase in use of cognitive words. The cognitive processing instructions lead to more cognitive word use and the self-regulation instructions produced greater positive affect (Nazarian & Smyth, 2013). While participants in that study were asked to write about a stressful or traumatic event in all the prompt conditions, the results demonstrated that different instructions can play a role in how participants process the event. As much of the expressive writing literature was built around paradigms that ask participants to write about stressful events or a research-chosen topic, additional research is needed to see if prompt type around the event being written about is related to different benefits or functional differences in how participants process the event. Future studies may consider an experimental design with a "significant event" prompt, a "stressful/traumatic event" prompt, and a control group to further investigate this.

A novel aspect of this study was the method used for eliciting information about teachers' experiences during the COVID-19 pandemic. Other studies collecting information about teachers' experiences during the pandemic have asked more explicit questions rather than asking them to compose a narrative about their most salient teaching experience. One study asked the following direct questions: *What has been the most difficult aspect of your job during the pandemic?* and *What has been the most helpful in facilitating/supporting your work during the pandemic?*; Baker et al., 2021). For the former question, the researchers found that teachers commonly identified the most difficult aspect of the work being the lack of connection to students (43% of teachers) while the most helpful aspect was support from coworkers (42% of teachers), followed by specific technology resources (e.g., distribution of hotspots, tablets, and computers; Baker et al., 2021). In the current study, the vast majority of teachers discussed remote teaching (83%) as well as discussing a specific teaching moment with a student or class (79%). Additionally, the valence of the stories was mixed, with some acknowledging both challenges and positives, some discussing only challenges, and some discussing only positives. Similar to the study by Baker and colleagues (2021), some teachers did discuss feeling a lack of connection with their students due to remote teaching, however many others (particularly the 35% who only wrote about positives) discussed how they increased efforts to sustain connections with their students and how interactions with their students sustained them. The information collected in the current study helps to contextualize and complement themes found in other studies and highlights the importance how questions are posed to participants.

Finally, additional research is needed to better understand meaning-making and self-regulation as mechanisms underlying expressive writing benefits. In terms of meaning-making, additional conceptualization is needed to integrate the multiple perspectives on this concept

within the literature (see review by Park, 2010). Currently, studies do not always distinguish between searching for meaning and making meaning (i.e., meaning made; Park, 2010). This distinction is important because actively searching for meaning without resolution can be akin to rumination while actually creating new meaning theoretically should be adaptive (Kernan & Lepore, 2009; Park, 2010). In this study, teachers who reported high levels of NA before writing were also more likely to report greater adverse impact from the event and were more likely to engage in high levels of meaning-making, which reflected creating new meaning. However, in this study higher levels of meaning-making were not related to adaptive changes in affect. Thus, future research should also investigate other outcomes related to expressive writing in order to better understand the types of benefits as well as continuing to examine factors that make meaning-making adaptive. Additionally, much of the research on meaning-making focuses on making meaning of a negative, stressful, or traumatic event. In the current study, participants were allowed to choose a significant event to write about and this may have impacted whether and how meaning-making served as a mechanism underlying benefits of expressive writing. This is important because making meaning about a cancer diagnosis is drastically different from making meaning about a teaching experience. When making meaning about a cancer diagnosis there are likely fewer options and less control over what the outcome may look like, for example, participants may ruminate, make meaning, or just accept the situation (Kernan & Lepore, 2009; Tomich & Helgeson, 2002). On the other hand, making meaning about a teaching experience may differ because the teachers have the opportunity to reflect on their options and then make new choices to change the outcome.

Further, additional conceptualization and integration of the construct of meaning-making may be necessary as the process of meaning-making is intended to lead to better adjustment to

the stressful event, but there is a discrepancy in whether plausibility of new meaning is included in definitions. This is important because if an individual organizes their new meaning and subsequent actions around something implausible, then it may not be adaptive. For example, consider a teacher who views teaching remotely as negative and stressful, but has one positive interaction with a student and their view of teaching remotely has completely changed because they have realized they can reach all of their students with much more ease. In this example, the teacher may score highly on measures of meaning-making because they have come to understand remote teaching in a new way. However, if their narrative did not include additional information on how they would build on this one positive interaction with a student to actually connect with their other students and continue this long-term, then the meaning is unrealistic or at least the meaning is less meaningful.

A novel aspect of this study is the inclusion of narrative coding for both meaning-making self-regulation. Most expressive writing studies that include measures of meaning-making tend to use word-level content analysis to determine meaning-making rather than content analysis or have participants rate their perceived level of meaning-making (Kernan & Lepore, 2009; Tomich & Helgeson, 2002; Boals, 2012; Friedel, 2012; Zheng et al., 2019). Meaning-making content coding is more common in personality research, but is more often focused on making meaning of life stories rather than a single event (Graci et al., 2018). Content coding of self-regulation in expressive writing research is even more limited than meaning-making and may have provided new insight into the mechanisms of expressive writing in this study. For instance, in the example given above where the teacher demonstrated implausible meaning-making, the participant likely would not have scored high on self-regulation without discussing the adaptive actions that would be taken as well as why connecting with the students is an important value and worthy of that

effort. Thus, in this study the self-regulation code may have indicated planning for appropriate action and intent to follow-through, which may be why it was predictive of completion of additional writing prompts. This also makes sense given that previous research studies using the self-regulation coding scheme found that self-regulation was related to components of executive functioning, which include the ability to plan (Annotti & Teglasi, 2017). Therefore, more research is needed on how meaning-making works when participants are not required to write about traumatic and stressful events as well as how self-regulation and meaning-making may serve different purposes or functions in expressive writing.

Conclusions

To this author's knowledge no research has examined who chooses to continue to engage in expressive writing across multiple sessions and no known research has investigated associations between narrative quality (i.e., meaning-making and self-regulation) and affect. This study examined how affect changed after completing a writing session, analyzed relations between meaning-making, self-regulation, and affect, and investigated variables that predicted continued completion of writing sessions. This study adds to the literature in numerous ways, but most importantly contributes to what is known about who benefits from expressive writing and why. Specifically, the results demonstrated that teachers who engaged in higher levels of self-regulation while processing the event they wrote about were more likely to complete another writing session. Additionally, these teachers were more likely to experience an adaptive change in affect (i.e., increase in PA and decrease in NA). These teachers may have found the process more productive as they were more self-regulated during the writing session. These findings suggest that interventions that encourage or stimulate productive processing of an event may be more beneficial and result in better participation.

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The findings from this study have implications for districts to provide supportive interventions for teachers. These types of interventions are crucial as teacher attrition is a continual problem in the US and is even more salient due to the COVID-19 pandemic with unprecedented numbers of districts reporting severe staffing shortages (Lieberman, 2021). Research focusing on interventions that are cost-effective and feasible to implement that could support teachers' emotional health and improve their ability to reflect on teaching events and make adaptive changes is essential. School districts may consider providing opportunities for teachers to write about and reflect on significant events that they experienced while teaching and guiding the teachers to focus on components of self-regulation during their reflection to spur adaptive processing and help teachers make adaptive choices moving forward. Past research has shown that when teachers reflect and make changes, they and their students benefit (DeMauro & Jennings, 2016; Meyer, 2009).

While these findings have practical implications for school districts to better support teachers, these results also point to future directions for research. Future research should further examine meaning-making and self-regulation as expressive writing mechanisms and should also investigate whether allowing participants to choose a significant event to write about corresponds to benefits. Additionally, research that continues to expand the literature base on the effects of expressive writing is necessary. There have been many calls for researchers to examine who benefits from expressive writing and why and to continue to investigate underlying mechanisms that make expressive writing beneficial. While this study contributes important information on who benefits and why, the need for more research exists in order to learn more about these fundamental questions.

Tables

Table 1.

Procedures Used in Expressive Writing Studies

Authors	Participants	Findings	Type of Writing	Length of Time	Participant Recruitment and Drop Outs
Francis & Pennebaker, 1992	University employees	Participants who wrote about traumatic experiences demonstrated a significant decrease in work absentee rates compared to controls	Assigned to write about either traumatic experiences or non-traumatic topics	Participants wrote for 20 minutes once a week for 4 consecutive weeks	81 employees were recruited, but only 43 agreed to participate. Those who declined to participate cited not being able to make the time commitment, not wanting to toy with their minds, and not being interested as reasons why they declined. 2 participants dropped out before completing the study, one due to health problems and one due to employment termination.
Greenberg & Stone, 1992	Healthy undergraduate students	Participants who disclosed more severe traumas reported fewer physical health symptoms than those who wrote about low-severity trauma or controls; Previous disclosure of a traumatic event did not impact results	Assigned to write about undisclosed traumas, previously disclosed traumas, or trivial events	Participants wrote for 20 minutes per day for 4 consecutive days in a lab	60 participants completed a pretest questionnaire and all writing prompts. 8 subjects did not complete follow-up questionnaires. Participants received course credit for participating.

Richards, Beal, Seagal, & Pennebaker, 2000	Prison inmates	Participants in the trauma condition reported more physical symptoms after the intervention compared to participants in the other conditions; Sex offenders in the trauma writing condition demonstrated a decrease in infirmary visits after the intervention	Assigned to write about trauma, a trivial topic, or to go about routine and not write	Those in the writing groups wrote for 20 minutes per day for 3 consecutive days	105 participants, received nothing for participating, final sample was 98 participants
Smyth, Stone, Hurewitz, & Kaell, 1999	Asthmatics and those with Rheumatoid Arthritis	Participants with asthma in the intervention group demonstrated improved lung function compared to controls; Participants with rheumatoid arthritis in the intervention group experienced less discomfort and decreased medication use compared to controls	Assigned to write about the most stressful event they had experienced or an emotionally neutral topic	Participants wrote for 20 minutes per day for 3 consecutive days	112 participants, received $50 for completing the study; 107 completed the study

Broderick, Junghaenel, & Schwartz, 2005	Female patients with fibromyalgia	Participants in the trauma writing group experienced reductions in pain and fatigue and improved psychological well-being compared to control groups at a 4-month follow-up; These benefits were not maintained at a 10-month follow-up	Assigned to write about trauma, a trivial topic, or to continue with typical care	Those in the writing groups wrote 1 day per week for 20 minutes per day over a 3 week period; follow-up health measurements occurred at 4 and 10-months post intervention	114 participants, received $40 for completing the study; 102 completed all study requirements (5 dropped out from EW, 6 dropped out of neutral writing, 1 dropped out of usual care)
Norman, Lumley, Dooley, & Diamond, 2004	Patients with chronic pelvic pain	Participants writing about stressful consequences had lower pain intensity ratings than those writing about positive events at follow-up; The two groups did not differ on several other health measures	Assigned to write about stressful consequences of their pain or positive events in their life	Participants wrote for 3 consecutive days and health status was evaluated at 2-month follow-up	78 women signed up for the study, 18 dropped out without completing any measures, 10 dropped out before finishing the writing task and 2 dropped out after writing but before follow-up; participants received $25 for completing study. 8 of 12 who dropped out reported dropping out because writing was too upsetting (n=4), death of a family member (n=1), or other life circumstances (n=3)
Stanton et al., 2002	Patients with breast cancer	The emotion writing condition was most effective for participants low in measures of cancer avoidance while identifying positive	Assigned to write about deepest thoughts and feelings regarding breast cancer, positive thoughts and feelings regarding experience	Participants wrote for fours sessions; Outcomes were assessed at 1 and 3-month follow-ups	

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		thoughts was most effective for participants high in avoidance.	with breast cancer, or facts about their breast cancer experience		
Lepore, 1997	Undergraduate and graduate students signed up to take a graduate entrance exam	Those in the emotion and feeling writing condition exhibited a significant decline in depressive symptoms from 1 month to 3 days before the exam; Those in the control group did not experience a decrease	Assigned to write deepest thoughts and feelings about the exam or writ about a trivial topic	Participants wrote in a laboratory room for 25 minutes on 1 occasion	74 participants, were paid $10 for completing the study; 70 completed all study requirements
Spera, Buhrfeind, & Pennebaker, 1994	Recently unemployed professionals	Participants who wrote about the trauma of losing their jobs were more likely to find reemployment compared to controls; short term mood measurement, long term reemployment measurement; Participants in experimental group drank less alcohol six weeks following the study than controls; No differences between groups on exercise or sleep behaviors	Assigned to either experimental writing condition or control writing condition, also compared to nonwriting controls	Participants wrote for 20 minutes each day for 5 consecutive days	63 participants; 41 volunteered for the study and writing, 22 volunteered, but did not sign up for the writing portion and were classified as nonwriting controls; no incentive for completing is noted

Pascual-Leone, Yeryomenko, Morrison, Arnold, & Kramer, 2016	Individuals who suffered unresolved traumas	Participants in expressive writing group showed an overall decrease in negative affect across sessions, but showed increases in negative affect in pre-to-post session ratings.	Assigned to an expressive writing task or a control writing condition	Participants wrote for 15 minutes for 3 consecutive days	261 participants, received course credit and $35; 244 participants completed all study requirements
Frattaroli, Thomas, & Lyubomirsky, 2011	Students preparing for the GRE, MCAT, LSAT, or PCAT	Participants in the expressive writing group had significantly lower pre-exam depressive symptoms than the neutral writing group; Participants in the expressive writing group and taking the MCAT or the LSAT also had significantly higher test scores than neutral writing group	Assigned to an expressive writing condition where they wrote about the upcoming exam or to a neutral writing condition	Participants wrote for 30 minutes in a laboratory room nine days before the exam and only wrote on one occasion	104 participants, 35 received course credit, 27 volunteered with no compensation (study funds were not yet available), 41 received $20 for participating (if ineligible for course credit and once study funds were available); no mention of dropouts
Park, Ayduk, & Kross, 2016	Undergraduate students	Participants writing about distressing life experiences experienced reduced physical symptoms through greater self-distancing and lessened emotional reactivity 1 month (study 1 and 2) and 6	Study 1: Assigned to write about a distressing life experience or a non-emotional topic Study 2: Assigned to write or think about a distressing experience or	Study 1: Participants wrote for 15 minutes in a laboratory room for 3 consecutive days Study 2: Participants wrote or thought for 15 minutes in a laboratory	Study 1: 56 participants, received $40 for participating; 8 participants did not complete all study requirements Study 2: 84 participants, received $60 for participating; 10 participants did not complete the study (3 in expressive writing condition, 5

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		months (study 2) after the intervention	write about a non-emotional topic for the same amount of time	room for 3 consecutive days	in control writing, and 2 in thinking condition)
Klein & Boals, 2001	Undergraduate students	Study 1: Participants in expressive writing condition had larger working memory gains Study 2: Participants writing about negative personal experiences demonstrated greater working memory improvements and declines in intrusive thinking compared with students writing about a positive or trivial topic	Study 1: Assigned to write about thoughts and feelings about coming to college or to write about a trivial topic. Study 2: Assigned to write about negative personal experience, positive experience, or trivial topic.	Study 1: Participants wrote for 20 minutes in a laboratory room for 3 days over a 2-week period Study 2: Participants wrote for 20 minutes per day in a laboratory setting for 4 days across a 4 week period	Study 1: 77 participants, received partial course credit; 71 participants completed all study requirements Study 2: 120 participants, received partial course credit; 101 participated in all sessions
de Moor et al., 2002	Patients with Metastatic Renal Cell Carcinoma	No significant findings for change in mood or symptoms of distress; EW participants reported less sleep disturbance, and better sleep quality and sleep duration	Assigned to an expressive writing condition where they wrote about their cancer or a neutral writing group where they wrote about health behaviors	Participants wrote once per week for 4 consecutive weeks	42 participants; no incentive for completing is noted; 35 participants completed all writing sessions; all participants completed at least 1 writing session; 5 participants dropped out prior to follow-ups citing reasons including inconvenience and poor health; 3 participants died before completing the study

Table 2.

Fifteen Meaning-Making Coding Procedures Identified by Graci and Colleagues (2018)

Coding Scheme	Description of Code	Original Study	Type of Narrative in Original Study
Agency	Expression of self-mastery, empowerment, achievement, and/or status	Grysman, Fivush, Merrill, & Graci, 2016	Participants wrote about an open-ended event from past 2 years, a high-point and a low-point self-defining event (autobiographical narratives)
		McAdams, Hoffman, Mansfield, & Day, 1996	Participants were asked to write about a peak experience and an earliest memory (autobiographical narratives)
Communion	Expression of active efforts to achieve personally meaningful goals concerning positive self or relationship development	Grysman et al. 2016	Participants wrote about an open-ended event from past 2 years, a high-point and a low-point self-defining event (autobiographical narratives)
		McAdams et al., 1996	Participants were asked to write about a peak experience and an earliest memory (autobiographical narratives)
Support Seeking	Hypervigilance to threat with no evidence others can help on the lower end. Expression of the utilizing of meaningful others in an emotionally regulated manner on the higher end	Graci & Fivush, 2017	Participants wrote about a traumatic experience
Positive Affect	Positive emotion words or expressions of affect	Grysman et al., 2016	Participants wrote about an open-ended event from past 2 years, a high-point and a low-point self-defining event (autobiographical narratives)
Negative Affect	Negative emotion words or expression of negative affect	Grysman et al., 2016	Participants wrote about an open-ended event from past 2 years, a high-point and a low-point self-defining event (autobiographical narratives)
Rumination	Level of expression of repetitive self-focused thinking about one's negative feelings and conditions	Nolen-Hoeksema, 2000	Verbal interview; no writing

Contamination	The extent to which a demonstrably positive event leads to emotionally negative outcomes, or a negative event spirals down into a more intense or damaging negative event	McAdams et al., 2001	Interviewed with life-story technique where participant is asked to describe 8 life scenes: high point, low point, turning point, earliest memory, important childhood scene, important adolescent scene, important adult scene, and 'other' important scenes (autobiographical narratives)
Exploration	The degree to which one makes an active effort to explore, reflect on, or process a difficult life experience in an open manner	Graci & Fivush, 2017	Participants wrote about a traumatic experience
		Pals, 2006	Participants wrote about a difficult time in life
Interpretive Elaboration	Expression of subjective details of the context, including: thoughts, emotions, beliefs, and reasoning about the event	Grysman et al., 2016	Participants wrote about an open-ended event from past 2 years, a high-point and a low-point self-defining event (autobiographical narratives)
		Pasupathi & Wainryb, 2010	Participants were children who provided narratives verbally about a recent negative experience
Positive Self-event Connections	The frequency of explicit positive connections the individual constructs between their experience and sense of self, including dispositions, values, outlooks, personal growth, and/or intimacy	Merrill et al., 2016	Participants wrote about a traumatic event and an intensely positive event
		Pasupathi, Mansour, & Brubaker, 2007	Participants wrote about recent experiences that contradicted their sense of self (autobiographical narratives)
Negative Self-Event Connections	The frequency of explicit negative connections the individual constructs between their experience and sense of self, including dispositions, values, outlooks, personal growth, and/or intimacy	Merrill et al., 2016	Participants wrote about a traumatic event and an intensely positive event
		Pasupathi, Mansour, & Brubaker, 2007	Participants wrote about recent experiences that contradicted their sense of self (autobiographical narratives)
Context	Both time and place are mentioned and both are specific	Pasupathi & Wainryb, 2010	Participants were children who provided narratives verbally about a recent negative experience
		Reese et al., 2011	Participants were children who provided narratives verbally about a recent life experience that was sometimes nominated by the parent

Chronology	Naïve listener can order almost all (>75%) of the temporally relevant actions	Pasupathi & Wainryb, 2010	Participants were children who provided narratives verbally about a recent negative experience
		Reese et al., 2011	Participants were children who provided narratives verbally about a recent life experience that was sometimes nominated by the parent
Theme	Narrative includes all the above and a resolution to the story, or links to other autobiographical experiences including future occurrences, or self-concept or identity	Pasupathi & Wainryb, 2010	Participants were children who provided narratives verbally about a recent negative experience
		Reese et al., 2011	Participants were children who provided narratives verbally about a recent life experience that was sometimes nominated by the parent
Factual Elaboration	Expression of objective details or the context, including: who, what, when, where, and how actions physically unfolded	Grysman et al., 2016	Participants wrote about an open-ended event from past 2 years, a high-point and a low-point self-defining event.
		Pasupathi & Wainryb, 2010	Participants were children who provided narratives verbally about a recent negative experience

Table 3.
Proposed Meaning-Making Coding Scheme

Meaning-Making

Score	Description
1	Flat, objective account of event provided. Thoughts and feelings are omitted.
2	Expression of mild elaboration of thoughts, feelings, behaviors, and how they are causally connected.
3	Expression of active processing, questioning, or effortful drawing of conclusions based on thoughts, feelings, and behaviors.
4	Expressing multiple viewpoints; different ways to think or feel about the event based on other elaborated thoughts, feelings, conclusions, and viewpoints
5	Evidence that the newer viewpoint is being utilized, valued, acted on or its significance is somehow expressed based on other elaborated thoughts, feelings, conclusions, and viewpoints. The newer viewpoint represents a shift in perspective of a situational nature. Example: "This event has made me realize that I can still connect with my students."
6	Evidence that the newer viewpoint is being utilized, valued, acted on or its significance is somehow expressed based on other elaborated thoughts, feelings, conclusions, and viewpoints. The newer viewpoint represents a shift in perspective of a more global nature. Example: "This event has made me reconsider what it means to be a teacher."

Table 4.
Proposed Self-Regulation Coding Scheme

Self-Regulation

Score	Description
1	Information processing and behavior relate to the moment without adequate reflection on prior history, future consequences, or implications for others. Actions are based on what immediately dominates awareness without organization or integration of important aspects of the current situation. Actions are aimed at seeking immediate gain or relief. Feelings are not regulated internally, but evoked by immediate external circumstances.
2	Information processing and behavior are guided by externally imposed standards, feedback, or necessity (e.g., adverse event) rather than by whim. Various elements of the current situation and relationships are more realistically assessed than at previous levels. Narratives revolve around more long-term expectations and less narrow or trivial concerns. The individual may experience a sense of pressure to meet demands of others or to conform to acknowledged standards rather than being directed by inner values or standards and requires external sources of motivation or reassurance.
3	Information processing and behavior are implicitly guided by standards and prosocial values that are internally represented and that the individual feels competent to attain. The individual can balance personal concerns with the needs of important others (family, friends, students) and coordinate short and long term considerations. There is more initiative and greater organization of thoughts, emotions, and behaviors. Initiative and effort are appropriate for desired ends and/or for meeting adaptive demands.
4	Information processing is complex and responsible as indicated by stories that elaborate inner experience within or across important others (family, friends, students) in ways that are cohesive with the described circumstance, actions, and outcomes. The narrator's intentions, thoughts, feelings, actions, outcomes and story events are well-coordinated in relative emphasis, context, and time frame. Information processing is more complex than the previous level, incorporating multiple dimensions of experience and perspectives of relevant others over the long term. Therefore, people and events are evaluated as they are, apart from the feelings or needs of the perceiver. Standards or goals are valued beyond their connection to desired ends.

Table 5.

Reliability for Meaning-Making and Self-Regulation Narrative Codes

	Kappa Statistic	*Significance*
Self-Regulation		
Raters 1 & 2	.90	< .01
Raters 1 & 3	.83	< .01
Raters 1 & 4	.79	< .01
Raters 2 & 3	.78	< .01
Raters 2 & 4	.75	< .01
Raters 3 & 4	.86	< .01
Average	**.82**	
Meaning-Making		
Raters 1 & 2	.89	< .01
Raters 1 & 3	.81	< .01
Raters 1 & 4	.85	< .01
Raters 2 & 3	.79	< .01
Raters 2 & 4	.75	< .01
Raters 3 & 4	.83	< .01
Average	**.82**	

Table 6.

Descriptive Statistics for Pre and Post Positive and Negative Affect Ratings for Completers of Writing Prompt 1

	Pre PA	Post PA	Pre NA	Post NA
Internal Consistency Reliability	0.78	0.82	0.87	0.88
Mean	2.70	2.89	2.87	2.73
Standard Deviation	0.83	0.90	0.98	0.96

Table 7.

Number of Participants in Proposed Change in Affect Groups for Completers of Writing Prompt 1

	Positive Affect Groups (*N*)	Negative Affect Groups (*N*)
Increase in Affect	40	22
No Change in Affect	17	13
Decrease in Affect	20	42

Table 8.

Descriptive Statistics for Pre and Post Self-Rated Affect for the First Expressive Writing Session

	n	*M*	*SD*	*Minimum*	*Maximum*
Pre-Positive Affect	77	2.70	.83	1.20	4.60
Post-Positive Affect	77	2.89	.90	1.20	5.00
Pre-Negative Affect	77	2.88	.98	1.00	5.00
Post-Negative Affect	77	2.73	.96	1.00	5.00

Table 9.

Descriptive Statistics for Pre and Post Self-Rated Affect States for the First Expressive Writing Session

	n	M	SD	Minimum	Maximum
Pre-Inspired	77	2.30	1.09	1.00	5.00
Post-Inspired	77	2.79	1.24	1.00	5.00
Pre-Alert	77	3.40	1.19	1.00	5.00
Post-Alert	77	3.44	1.12	1.00	5.00
Pre-Excited	77	1.99	1.01	1.00	4.00
Post-Excited	77	2.30	1.15	1.00	5.00
Pre-Enthusiastic	77	2.35	1.09	1.00	5.00
Post-Enthusiastic	77	2.42	1.19	1.00	5.00
Pre-Determined	77	3.44	1.29	1.00	5.00
Post-Determined	77	3.48	1.22	1.00	5.00
Pre-Afraid	77	2.86	1.13	1.00	5.00
Post-Afraid	77	2.64	1.10	1.00	5.00
Pre-Upset	77	2.79	1.27	1.00	5.00
Post-Upset	77	2.82	1.29	1.00	5.00
Pre-Nervous	77	3.09	1.30	1.00	5.00
Post-Nervous	77	2.88	1.26	1.00	5.00
Pre-Scared	77	2.77	1.19	1.00	5.00
Post-Scared	77	2.56	1.12	1.00	5.00
Pre-Distressed	77	2.87	1.16	1.00	5.00
Post-Distressed	77	2.74	1.14	1.00	5.00

Table 10.

Descriptive Statistics for Pre and Post Self-Rated Affect for Participants who Completed First and Second Writing Prompts

	n	M	SD	Minimum	Maximum
EW1 Pre-Positive Affect	16	2.76	.81	1.40	4.20
EW 1 Post-Positive Affect	16	3.06	.88	1.60	4.80
EW 2 Pre-Positive Affect	16	2.73	1.18	1.00	4.80
EW 2 Post-Positive Affect	16	2.78	1.29	1.20	4.80
EW 1 Pre-Negative Affect	16	2.80	.75	1.00	4.25
EW 1 Post-Negative Affect	16	2.36	.70	1.00	3.80
EW 2 Pre-Negative Affect	16	2.43	.80	1.20	4.00
EW 2 Post-Negative Affect	16	2.22	.68	1.00	3.00

Table 11.
F-tests for univariate follow up tests for negative and positive affect ratings across time

	df	F	p	η^2
Positive Affect	3	1.36	.27	.08
Negative Affect	3	4.13	.01	.22

Table 12.
Contrasts between times points for positive and negative affect

Type of Affect	Contrast	Mean Difference	df	F	p	η^2
Negative Affect	Writing 1 Pre - Post	0.44	1	22.23	.01	.60
	Writing 1 Post - Writing 2 Pre	-0.07	1	0.12	.74	.01
	Writing 2 Pre - Post	0.22	1	3.06	.10	.17
Positive Affect	Writing 1 Pre - Post	-0.30	1	6.92	.02	.32
	Writing 1 Post - Writing 2 Pre	0.33	1	2.48	.14	.14
	Writing 2 Pre - Post	-0.05	1	0.25	.63	.02

Table 13.
Descriptive Statistics for Participants who Completed First Writing Prompt and Rated Affect Before and After Writing

	n	M	SD	Minimum	Maximum
IES	77	1.17	.60	1.17	4.00
Meaning-Making	77	2.74	1.34	1.00	4.00
Self-Regulation	77	1.94	.89	1.00	6.00
Pre-Negative Affect	77	2.88	.98	1.00	5.00
Pre-Positive Affect	77	2.70	.83	1.20	4.60

Table 14.

Pearson Correlation Matrix for IES, Meaning-Making, Self-Regulation, and Self-Rated Affect

Variable	1	2	3	4	5
IES (1)	1	.17	-.07	.37**	-.05
Meaning-Making (2)		1	.45**	.23*	-.12
Self-Regulation (3)			1	.03	-.06
Pre-Negative Affect (4)				1	-.09
Pre-Positive Affect (5)					1

* = sig. at 0.05
** = sig. at 0.01

Table 15.

Point Poly-Serial Correlation Matrix for IES, Meaning-Making, Self-Regulation, and Change in Self-Rated Affect Pre-to-Post Writing

Variable	1	2	3	4	5
Change in Negative Affect (1)	1	-.03	.29*	.06	-.30*
Change in Positive Affect (2)		1	-.14	.22	.34**
IES (3)			1	---	---
Meaning-Making (4)				1	---
Self-Regulation (5)					1

* = sig. at 0.05
** = sig. at 0.01
--- = Correlations not run, because they are reflected in Table # as Pearson Correlations

Table 16.

Descriptive Statistics and Frequency Data for Predictor Variables

	n	*M*	*SD*	*Minimum*	*Maximum*
Pre-Positive Affect	150	2.64	.80	1.00	4.60
Early Career Teachers	60	2.46	.73	1.00	4.60
Mid Career Teachers	38	2.53	.74	1.40	4.60
Late Career Teachers	52	2.93	.86	1.20	4.40
Pre-Negative Affect	150	2.87	.96	1.00	5.00
Early Career Teachers	60	2.95	.99	1.00	5.00
Mid Career Teachers	38	2.98	1.00	1.00	4.80
Late Career Teachers	52	2.68	.88	1.40	5.00

Table 17.
Descriptive Statistics and Frequency Data for Predictor Variables

	n	M	SD	Minimum	Maximum
Change in Positive Affect	77	2.26	.85	1.00	3.00
Decrease	20				
No Change	17				
Increase	40				
Change in Negative Affect	77	1.74	.88	1.00	3.00
Decrease	42				
No Change	13				
Increase	22				
Self-Regulation	77	1.96	.90	1.00	4.00
Meaning-Making	77	2.77	1.33	1.00	6.00

Table 18.
Logistic Regression Predicting Completion of a Second Writing

Coefficients	β	Std. Error	OR	Wald	p
Intercept	-.01	1.34	.99	.00	.99
Change in Positive Affect				1.59	.45
Decrease	-1.09	1.00	.34	1.18	.28
Increase	-1.27	1.03	.28	1.52	.22
Change in Negative Affect				2.27	.32
Decrease	-1.89	1.27	.15	2.23	.14
Increase	-1.38	1.11	.25	1.53	.22
Self-Regulation	1.20*	.50	3.36	5.82	.02
Meaning-Making	-.02	.29	.98	.01	.94

Figures
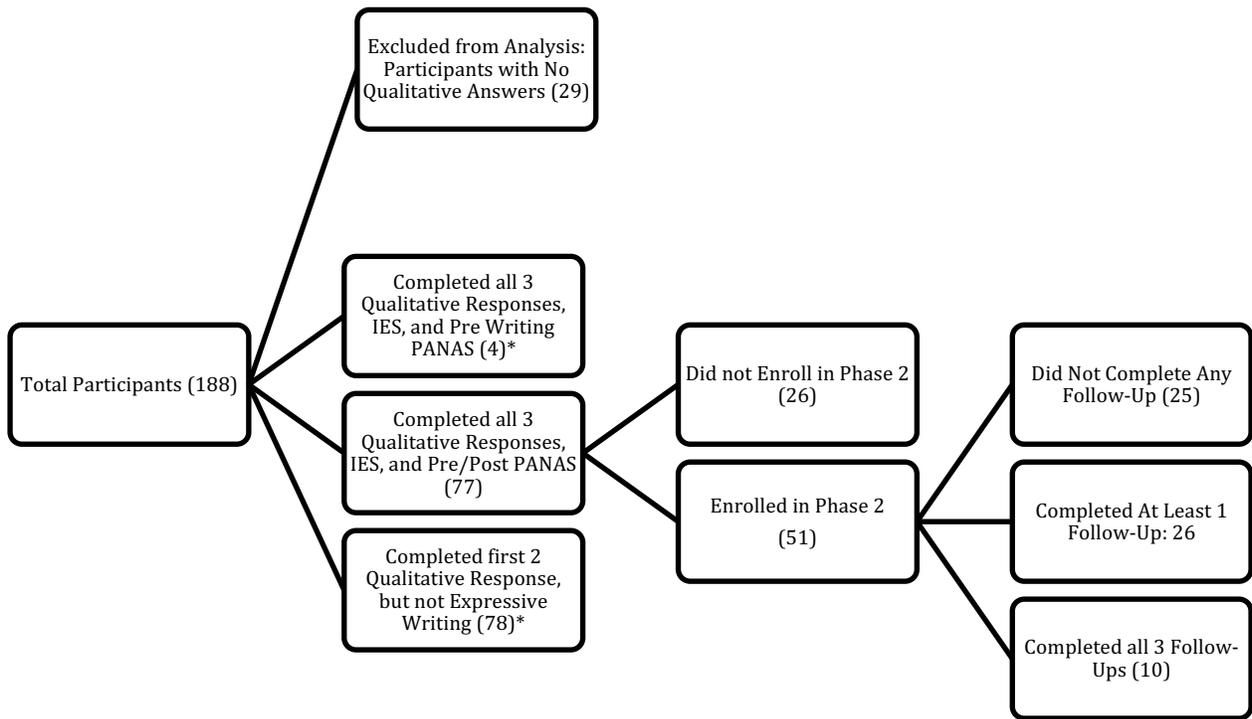
Figure 1. Number of participants completing each phase of the study.

Note: *3 of these 4 participants did not enroll in Phase 2 and 1 participant did enroll, but did not complete any follow-up writings; ** 9 of these participants did not complete the pre-writing affect rating.
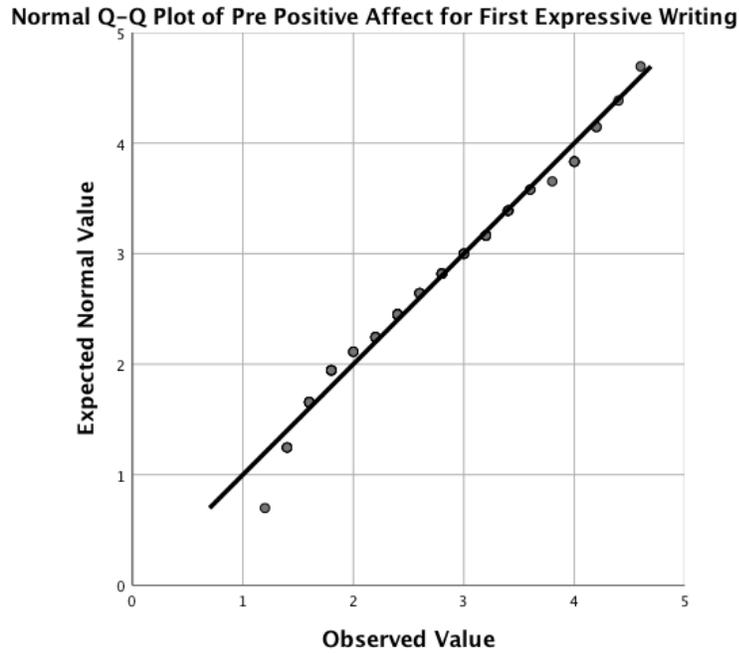
Figure 2. Q-Q Plot of pre positive affect for first expressive writing, demonstrating an approximately normal distribution.
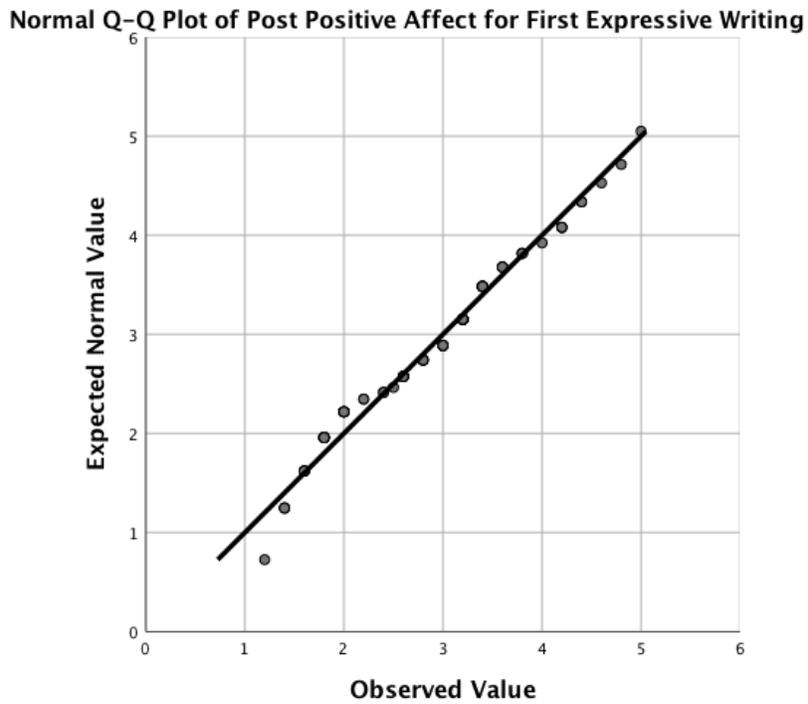

Figure 3. Q-Q Plot of post positive affect for first expressive writing, demonstrating an approximately normal distribution.
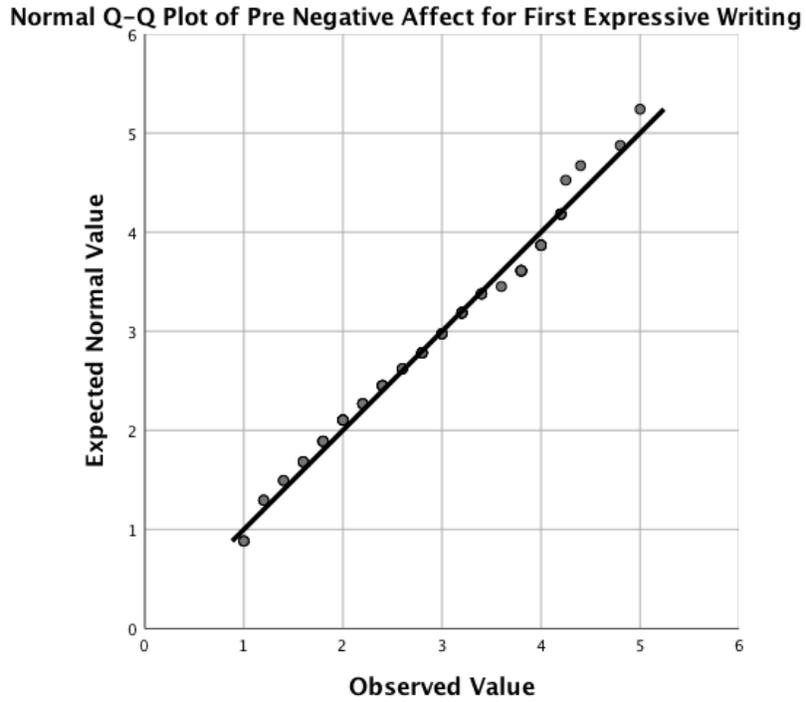
Figure 4. Q-Q Plot of pre negative affect for first expressive writing, demonstrating an approximately normal distribution.
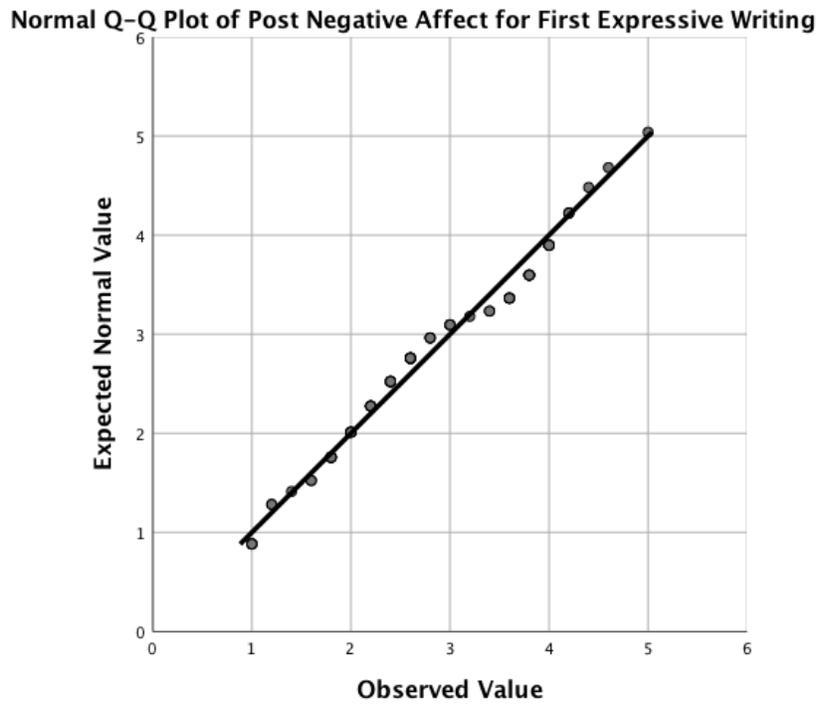
Figure 5. Q-Q Plot of post negative affect for first expressive writing, demonstrating an approximately normal distribution.
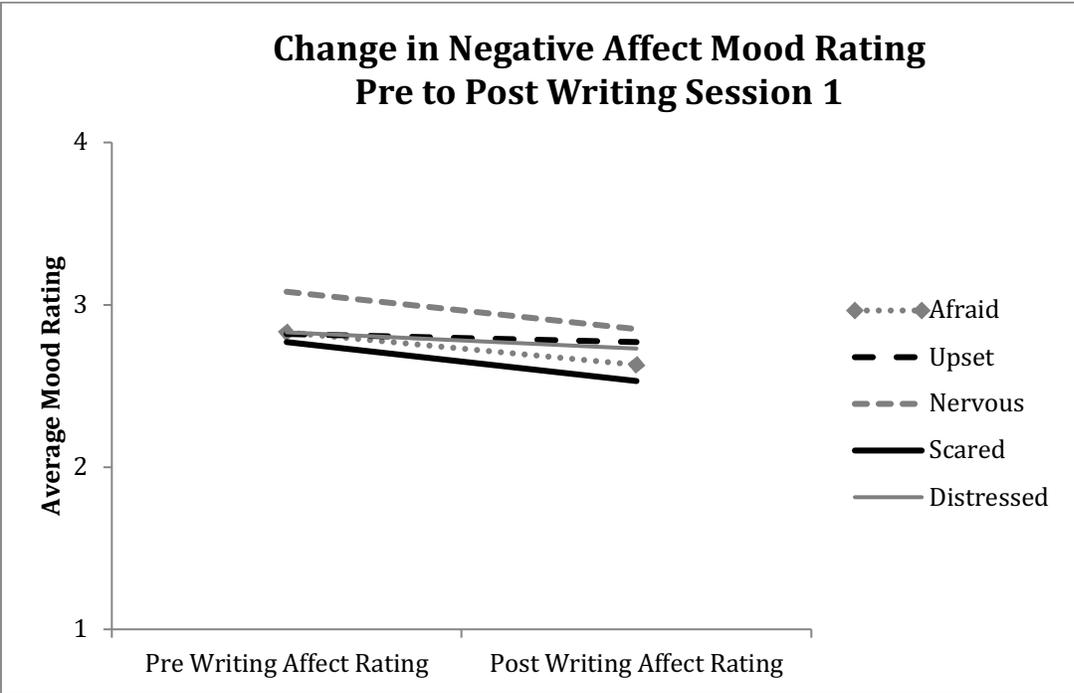
Figure 6. Pre to post individual mood ratings for negative affect across the first writing session.
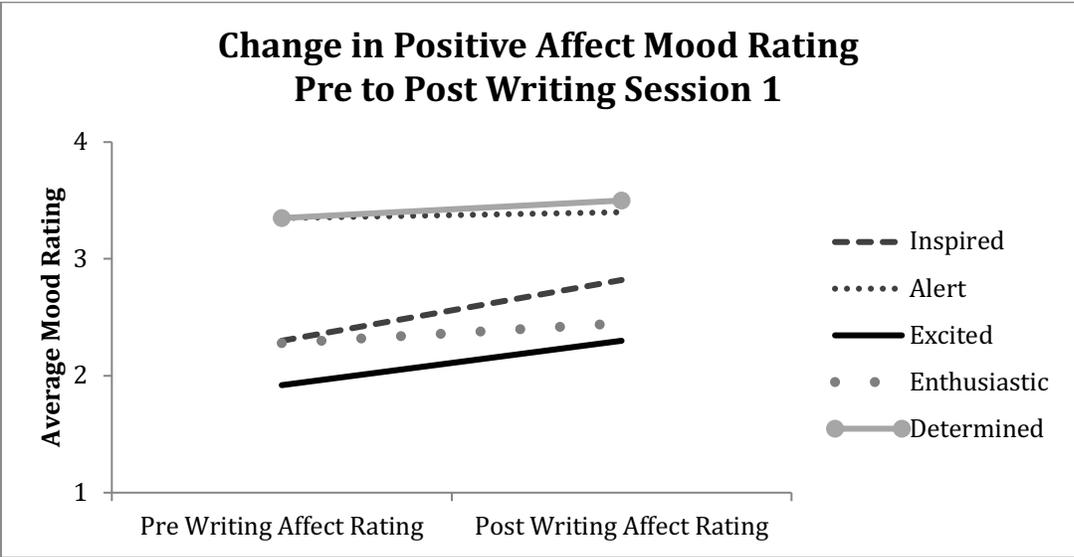
Figure 7. Pre to post individual mood ratings for positive affect across the first writing session.
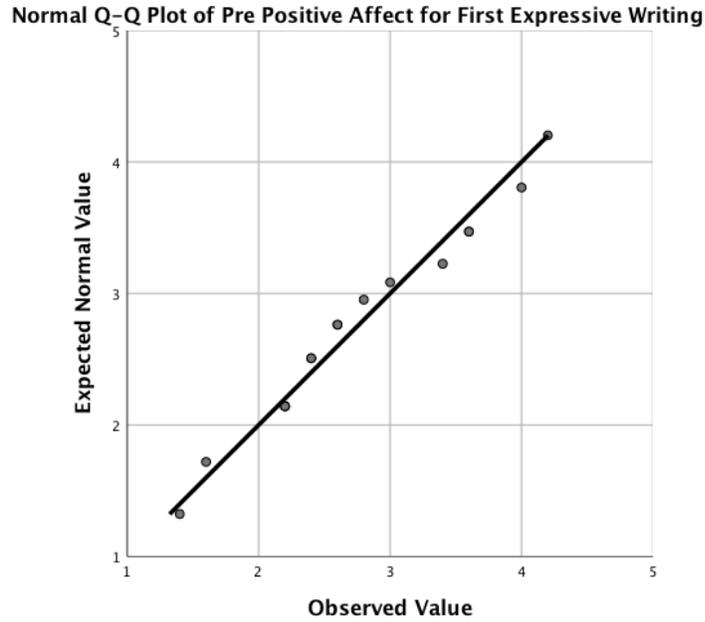
Figure 8. Q-Q Plot of pre positive affect for first expressive writing (including participants who completed the second expressive writing session), demonstrating an approximately normal distribution.
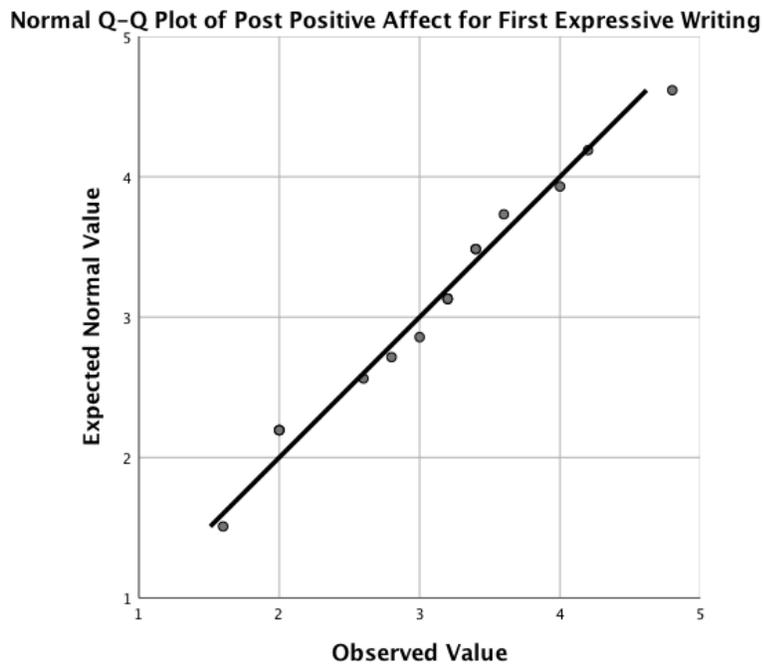

Figure 9. Q-Q Plot of post positive affect for first expressive writing (including participants who completed the second expressive writing session), demonstrating an approximately normal distribution.
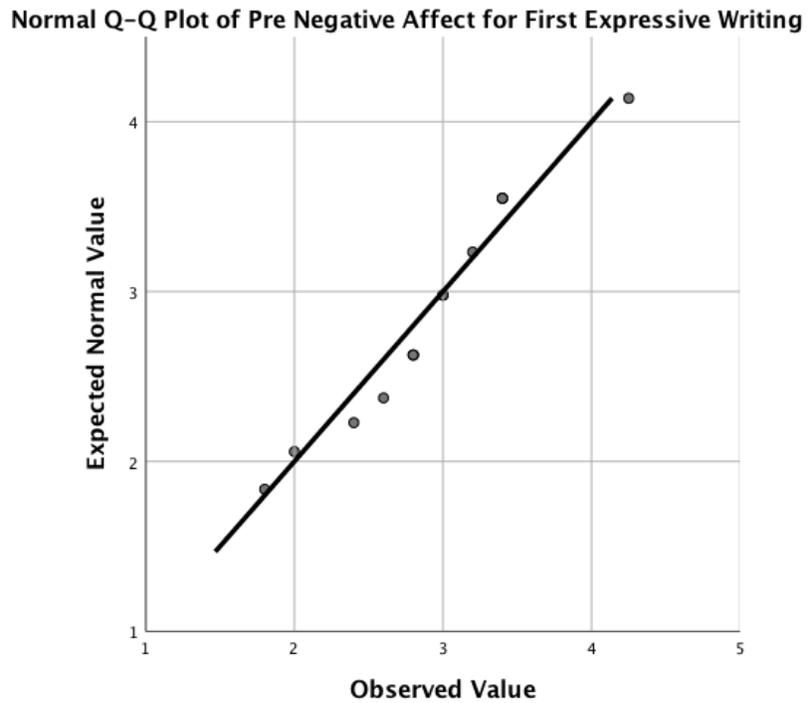
Figure 10. Q-Q Plot of pre negative affect for first expressive writing (including participants who completed the second expressive writing session), demonstrating an approximately normal distribution.
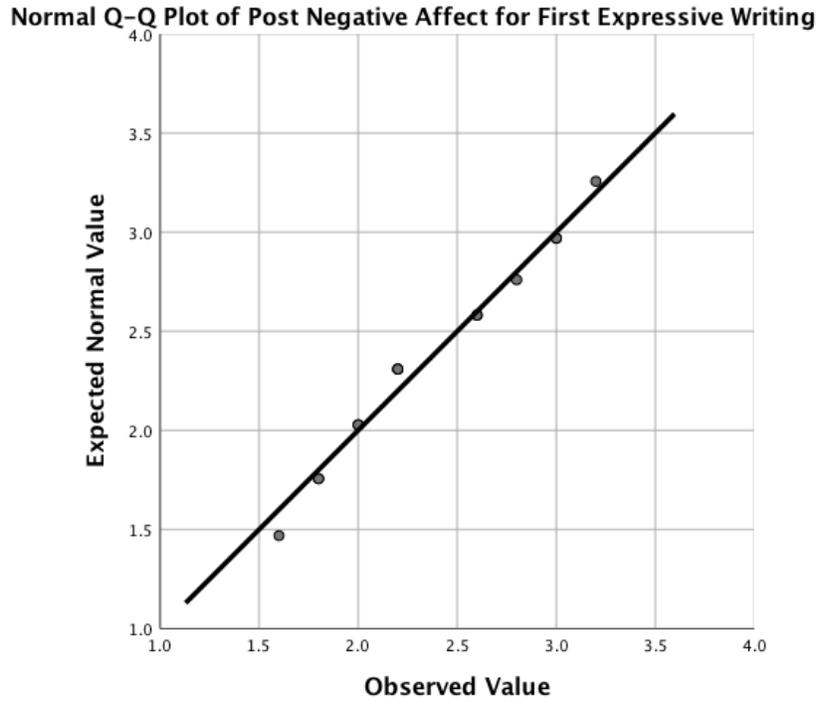
Figure 11. Q-Q Plot of post negative affect for first expressive writing (including participants who completed the second expressive writing session), demonstrating an approximately normal distribution.
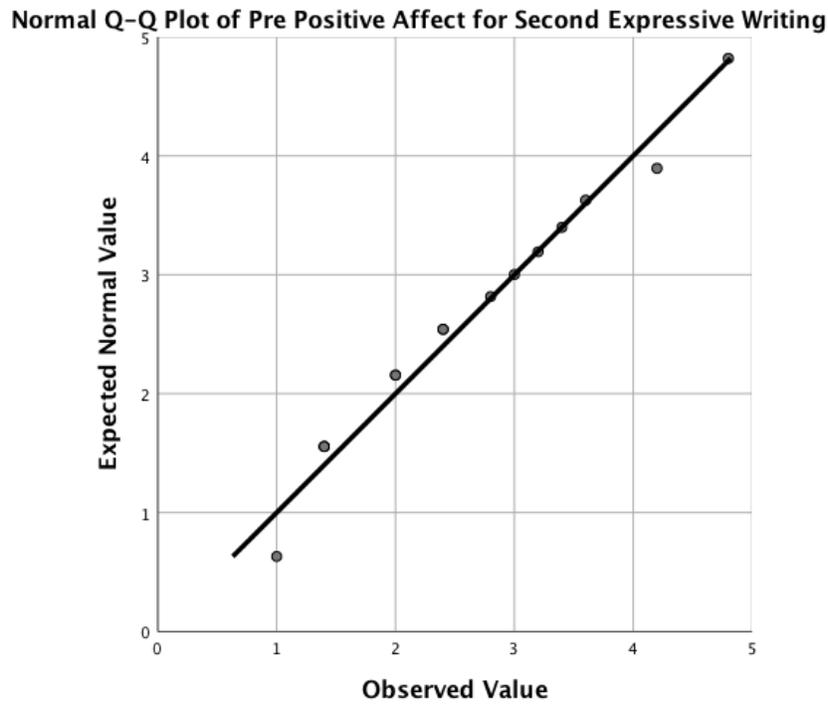
Figure 12. Q-Q Plot of pre positive affect for second expressive writing, demonstrating an approximately normal distribution.
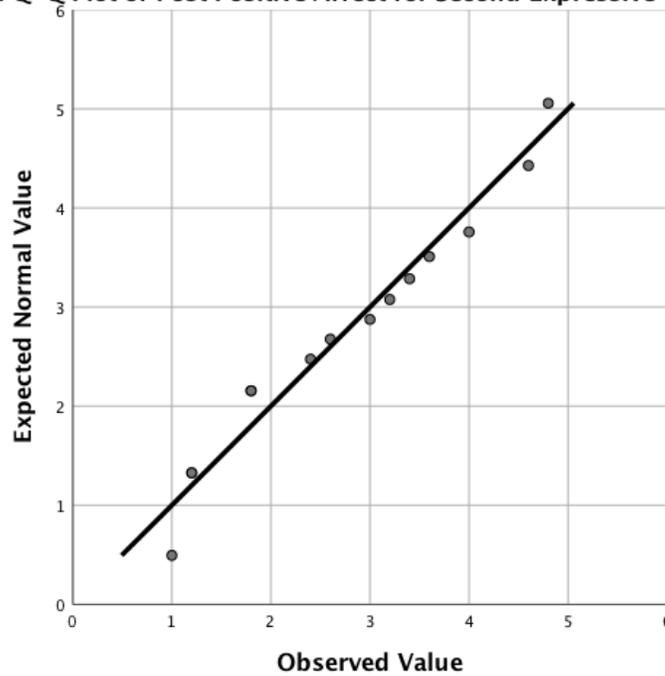
*Figure 13.* Q-Q Plot of post positive affect for second expressive writing, demonstrating an approximately normal distribution.
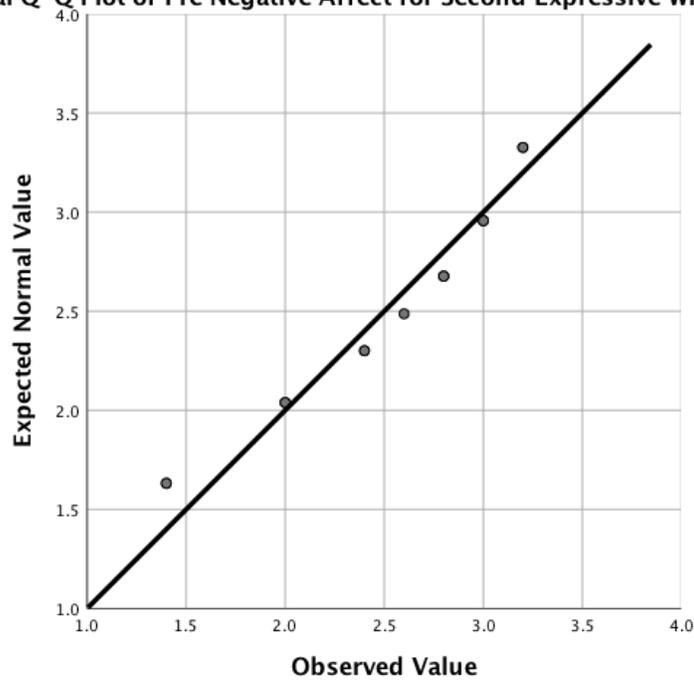

Figure 14. Q-Q Plot of pre negative affect for second expressive writing, demonstrating an approximately normal distribution.
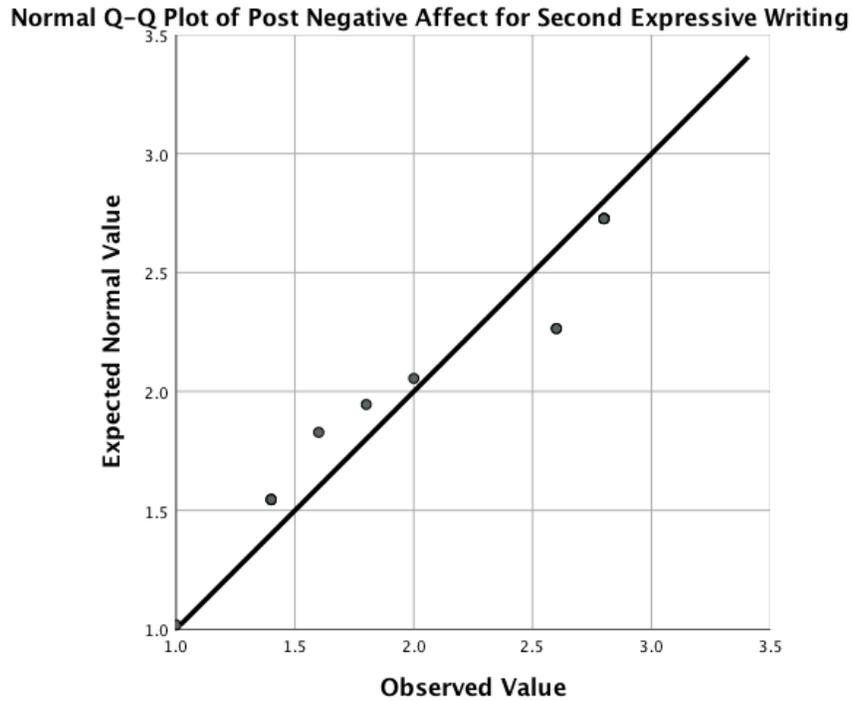
Figure 15. Q-Q Plot of post negative affect for second expressive writing, demonstrating an approximately normal distribution.
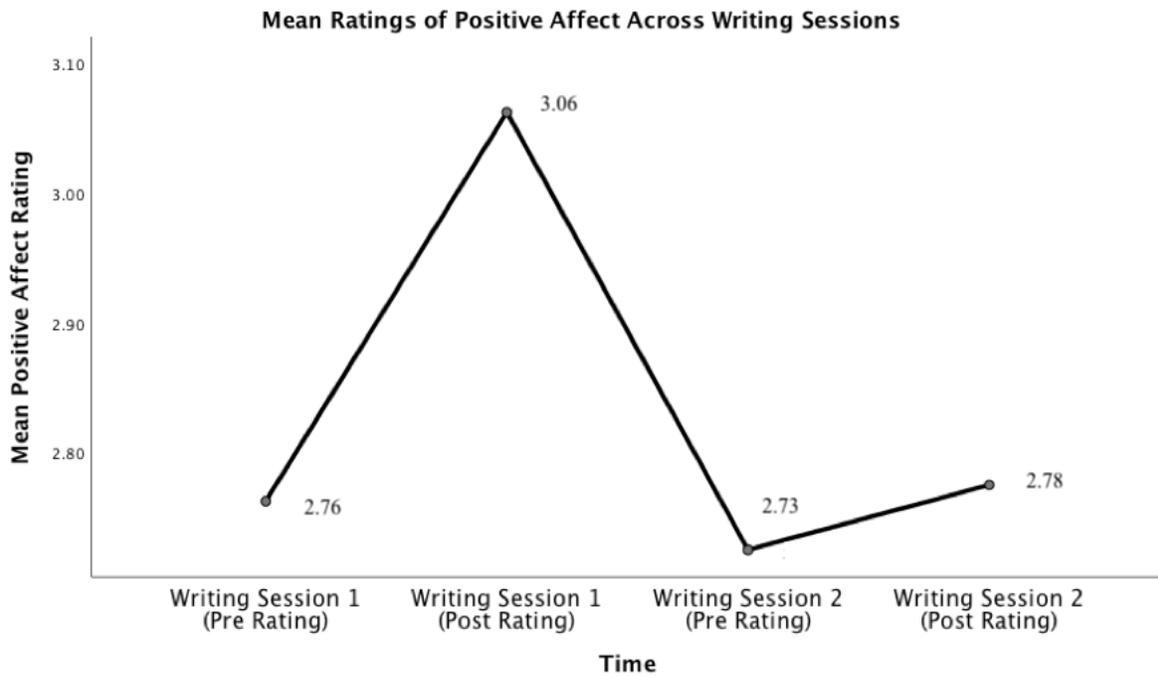

*Figure 16.* Pre to post ratings of positive affect across the first two writing sessions. *(N = 16)*
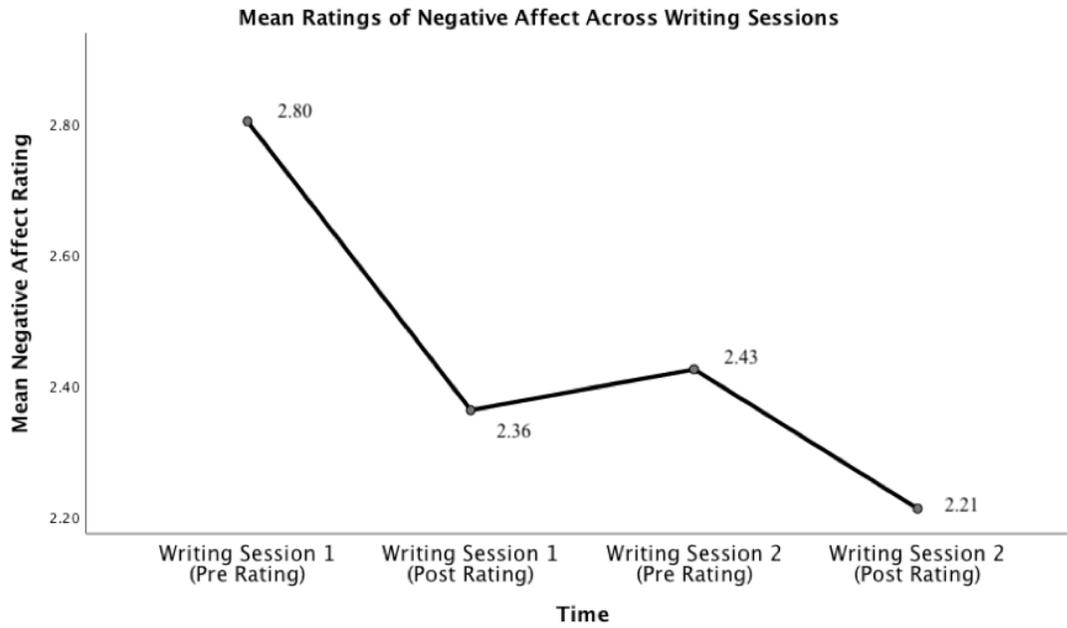
Figure 17. Pre to post ratings of negative affect across the first two writing sessions. *(N = 16)*

Appendix A

Social Media Advertisement

I am a School Psychology doctoral student at the University of Maryland and my lab is very interested in learning more about the ways that COVID-19 is impacting teachers. Given the impact that COVID-19 has had on the education system and the stressful experiences that have arisen, we are interested in identifying ways to support teachers through this time. Specifically, we are interested in learning about the experiences that teachers have had and the impact of expressive writing on processing those experiences.

- Phase I of the study is completely anonymous and should take about 30 minutes to complete.
- Phase II of the study is optional and involves receiving follow-up surveys over the next three months and each survey should take about 20 minutes.

Any professional teachers or intern teachers in the United States who are 18 years or older are eligible to participate. Please use the following link if you are interested in learning more about our study or if you would like to participate! (Insert Link to Qualtrics Phase I). If you have questions or would like more information please feel free to contact our research team at temperamentlabumd@gmail.com.

Appendix B

Informed Consent

Project Title: The Impact of Expressive Writing on Teachers' Affect During the COVID-19 Pandemic

Purpose of the Study: This research is being conducted by Dr. Hedwig Teglasi, at the University of Maryland, College Park, with a team of school psychology doctoral students. We are inviting you to participate in this research project because you are an intern teacher or professional teacher. Given the impact that COVID-19 has had on the education system and the stressful experiences that have arisen, we are interested in identifying ways to support teachers through this time. The purpose of this research project is to understand the experiences that teachers are having and to investigate the impact of expressive writing.

Procedures: The procedures involve two phases. Phase I involves completing this Qualtrics Survey (Approximate Time: 30 minutes). During Phase I you will be asked to answer some demographic questions as well as general questions about changes that have occurred because of COVID-19. You will then be asked to complete a mood check-in (the Positive and Negative Affect Schedule) before and after a writing task about a recent significant teaching situation. The PANAS asks you to rate the extent to which you are feeling specific emotions in the moment. You will also be asked to rate the impact that the situation had on you by rating the extent to which you thought about and experienced difficulties because of the situation you wrote about (Impact of Events Scale). You will then be given the option to participate in Phase II in the future or you can submit the survey and only complete Phase I.

Phase II will involve you providing an electronic signature (by typing your name into a text a box), which indicates that you consent to receiving three follow-up surveys across the span of three months. If you provide the electronic signature, you will be asked to provide an email address where you can receive the follow-up Qualtrics Surveys. Some research indicates that expressive writing can be more beneficial over time (Pennebaker, 2000). To further investigate this, the surveys in Phase II will include the same mood check-in task (PANAS), the writing task, and rating the significance of the event (IES). **If you choose to participate in Phase II you would receive one Qualtrics survey per month over the course of three months (1 survey per month for 3 months). Phase II is completely optional and you also reserve the right to skip prompts or to discontinue at any point. Each Phase II survey should take about 20 minutes.**

Potential Risks and Discomforts: There are no foreseeable risks from participating in this study. Although we cannot guarantee confidentiality absolutely when conducting research via the internet, as described in the Confidentiality section below, we have taken multiple steps to maintain confidentiality. Additionally, participants may experience some discomfort if they choose to write about a stressful topic, but participants are always allowed to stop writing or skip any questions that they choose.

Potential Benefits: There are no direct benefits from participating in this research. Based on previous research it is possible that participants may experience lessened negative affect or increased positive affect following the journaling, though this may not occur for all participants (Pennebaker, 2000). We hope that, in the future, other people might benefit from this study through improved understanding of beneficial interventions for teachers during times of stress and that the findings could help inform educational policy.

Confidentiality: Any potential loss of confidentiality will be minimized by the following procedure: All participant data is entered into Qualtrics and stored in a password-protected database. Eight school psychology graduate students and the Principal Investigator will have access to the data. Additionally, all participants who take part in Phase I of the study will be participating anonymously, which further protects confidentiality and data. Those participants who opt into participating in Phase II of the study will be providing an electronic signature (by typing their name into a text box) and email address. When the Qualtrics responses are transferred to a password-protected cloud-based storage system, email addresses and electronic signatures will be removed so that personal information is not stored with data. Additionally, all participants in Phase II will be assigned a study ID number. When they are contacted with the follow-up writing experiences they will be instructed to enter their study ID number before completing the Qualtrics survey so that no identifying information is associated with their data. Further the document that has the assigned study ID numbers and email addresses will be password protected and stored in a cloud-based password protected database and no response data will be in that document.

The data will be retained indefinitely and any reports or articles written about the project will protect your identity to the maximum extent possible. Your information may be shared with representatives of the University of Maryland, College Park or governmental authorities if you or someone else is in danger or if we are required to do so by law.

Right to Withdraw and Ask Questions: Your participation in this research is completely voluntary. You may choose not to take part at all. If you decide to participate in this research, you may stop participating at any time. If you decide not to participate in this study or if you stop participating at any time, you will not be penalized or lose any benefits to which you otherwise qualify.

If you decide to stop taking part in the study, if you have questions, concerns, or complaints, or if you need to report an injury related to the research, please contact the investigator:

Hedwig Teglasi
Department of Counseling, Higher Education, and Special Education
3214 Benjamin Building University of Maryland, College Park, MD hteglasi@umd.edu
301-405-2867

Participant Rights: If you have questions about your rights as a research participant or wish to report a research-related injury, please contact:

University of Maryland College Park
Institutional Review Board Office
1204 Marie Mount Hall
College Park, Maryland, 20742
E-mail: irb@umd.edu
Telephone: 301-405-0678

For more information regarding participant rights, please visit:
https://research.umd.edu/irb-research-participants

This research has been reviewed according to the University of Maryland, College Park IRB procedures for research involving human subjects.

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