In the American classic children’s story, *The Little Engine That Could* by Watty Piper, a little railroad train engine accepts the difficult task of pulling an unusually large load up a steep mountain railroad and eventually succeeds. In this story, the self-beliefs and positive emotional attitude of the train aided it in accomplishing its task. Similarly, research has indicated that the beliefs of students—particularly those of apprehension and self-efficacy—are connected to academic performance (Faigley, Daly, & Witte, 1981; Pajares & Johnson, 1994; Pajares, Johnson, & Usher, 2007; Sanders-Reio, Alexander, Reio, & Newman, 2014; Zorbaz, 2015). We designed the current study to understand the relationships between apprehension, self-efficacy, and performance in student writing at an undergraduate level, and the effects of mood on writing apprehension, writing self-efficacy, and writing performance.

In academic settings, writing assignments remain tools used by educators to evaluate the progress and learning of students. Researchers also continue to explore the benefits of other uses for writing in the classroom. Although much of writing stems from learning-to-write paradigms, there is also a movement toward using writing-to-learn methods to help students comprehend the material taught in academic classroom settings (Bangert-Drowns, Hurley, & Wilkinson, 2004; Emig, 2007; Reynolds, Thaiss, Katkin, & Thompson, 2012). Mynlieff, Manogaran, Maurice, and Eddinger (2014) found that writing assignments with metacognitive components in undergraduate biology courses had a significant impact on student learning. With

**ABSTRACT.** Current research has suggested that writing apprehension and writing self-efficacy share a negatively correlated relationship, and writing self-efficacy and writing performance share a positively correlated relationship. Moreover, mood states have been shown to affect the ability of individuals to judge and perceive. The present study combined mood and writing research methodologies to examine the effect of mood on writing apprehension, writing self-efficacy, and writing performance. One hundred seventeen undergraduate participants were asked to write about a positive or negative life event, or a set of instructions to prime their mood, and then complete the Writing Apprehension Test, Writing Self-efficacy Test, and a timed essay. The results were analyzed using Analysis of Variance and multiple correlation tests. Although the results of the mood manipulation check indicated that the mood prime was effective in shifting mood states, there were no significant effects of mood on writing apprehension, $F(2, 115) = 0.87, p = .421, \eta^2 = .015$, writing self-efficacy, $F(2, 115) = 1.13, p = .328, \eta^2 = .019$, or writing performance, $F(2, 115) = 0.07, p = .935, \eta^2 = .001$. As supported by previous research, writing self-efficacy and writing apprehension shared a significant moderate negative relationship, $r = -0.56, p < .05$. The absence of mood effects on writing apprehension, writing self-efficacy, and writing performance may be attributed to participants’ awareness of their moods.
research focusing on the role of writing in the learning process in recent years, it is important to consider the factors that influence the writing beliefs and performance of students.

An individual’s apprehension toward writing may come from various sources. Daly and Miller (1975) applied theories of anxiety and apprehension to writing. They conceptualized writing apprehension as the tendency of an individual to avoid writing situations because of writing anxiety. This type of apprehension may stem from a fear of evaluation, lack of confidence, and poor experiences in the past. To measure these concepts, they created the Writing Apprehension Test (WAT). Wachholz and Etheridge (1996) found that undergraduate students with high levels of writing apprehension reported negative experiences with writing that often involved failure, unrealistic expectations of what good writing looks like, and a lack of confidence in what they had learned from previous teachers. Conversely, those with low levels of writing apprehension reported more positive and successful experiences with writing, reasonable expectations of what good writing looks like, and believed that their writing skills would influence their success in social and professional roles in the future. Additionally, Zorbaz (2015) demonstrated that a negative relationship between levels of writing activity and writing apprehension, where high levels of writing activity such as consistently writing in a journal were present in individuals with low levels of writing apprehension. Additionally, there was a negative relationship between good reading habits and low levels of writing apprehension.

Although many of these sources of writing apprehension seem predictive of writing performance, research has provided conflicting evidence on whether writing apprehension is actually predictive of writing performance. More specifically, in one study, writers with high apprehension performed worse than their low apprehension counterparts in all but two assessments. In instances where the highly apprehensive individuals scored better, the assessments were narrative essays (Faigley et al., 1981). Sanders-Reio et al. (2014) also demonstrated that writers with high writing apprehension received lower grades on writing assignments scored on grammar. However, their results using Daly and Miller’s (1975) WAT did not show a relationship between writing apprehension and writing performance. Similar to Sanders-Reio and her colleagues, Pajares and Johnson (1994), who also used the WAT, did not find writing apprehension to be predictive of writing performance. These conflicting results indicate a need for further research in order to make the relationship between writing apprehension and writing performance clearer. However, although this relationship is unclear, both Faigley et al. (1981) and Sanders-Reio et al. (2014) indicated that an individual’s writing self-efficacy beliefs were predictive of writing performance.

Prior to understanding the role of self-efficacy in terms of writing, it is important to understand the basic theoretical perspective on self-efficacy beliefs in general. Bandura (1977) defined an individual’s perceived self-efficacy as a judgment of whether or not one’s ability to accomplish a specific task or skill would produce success. It is a judgment of one’s own capabilities. Two decades later, Bandura (1997) theorized that an individual’s self-efficacy comes from four main areas: mastery experiences, where individuals experience success and attainment with a certain task, skill, or situation; vicarious experiences, where an individual witnesses another individual model the successful accomplishment of a task, skill, or situation; verbal persuasion, where an individual is convinced verbally of one’s own capabilities by another; and, physiological and affective states, where mood, stress, and arousal influence one’s own perceived self-efficacy. He also found that self-efficacy beliefs affected performance at various tasks.

These self-efficacy beliefs also exist within the context of writing. Shell, Murphy, and Bruning (1989) developed two instruments to measure self-efficacy beliefs regarding specific reading and writing tasks and reading and writing skills. The instruments were based on Bandura’s earlier conceptualizations of self-efficacy (Bandura, 1977, 1997). They found that high self-efficacy and outcome expectancy beliefs for both reading and writing were correlated with high achievement in undergraduate students. Their research supports the findings of Bandura (1997) in that self-efficacy beliefs in writing also impact performance in the same way that other beliefs do, and support the relationship between reading beliefs and performance with writing beliefs and performance (Zorbaz, 2015). Also, Pajares et al. (2007) postulated that, utilizing the model of Bandura’s sources of self-efficacy, mastery experience accounted for the greatest proportion of the variance in the writing performance of elementary, middle, and high school students. This finding suggests that students with high sources of writing self-efficacy gained their self-efficacy beliefs through mastery.
experiences, or previous successes with writing assignments or projects. Interestingly, their results also showed a relationship between self-efficacy and writing anxiety. Higher levels of writing anxiety correlated with lower levels of self-efficacy. These results matched those reported in other studies (Pajares & Johnson, 1994; Sanders-Reio et al., 2014). Although students with high self-efficacy experienced mastery experiences, perhaps a lack of mastery experiences might have contributed to the presence of high anxiety in those students with low self-efficacy.

Writing self-efficacy beliefs may lead students to seek help in certain situations. Stewart, Seifert, and Rolheiser (2014) established that students with higher levels of writing self-efficacy are more likely to seek out help from others. Conversely, Williams and Takaku (2011) researched the connection between the help-seeking behavior, as defined by writing center visits, and self-efficacy beliefs of international English as a second language (ESL) students. They found that, although ESL students had lower self-efficacy beliefs than domestic students, the ESL students were more likely to seek out help for writing than their domestic counterparts. They explained this finding as the ESL students’ recognition of their own need for writing help in a new language. Although Williams and Takaku discussed the differences between ESL and domestic students, Stewart et al. (2014) did not address this possible difference. These findings would suggest that self-efficacy beliefs may produce varying effects within different populations.

Although the connection between help-seeking behaviors and self-efficacy is unclear, high levels of writing self-efficacy are positively correlated to high levels of writing performance. Pajares and Johnson (1994) used the same measure for writing self-efficacy that Shell et al. (1989) used in their study, the Writing Self-Efficacy Test (WSET). Pajares and Johnson (1994) found that an individual’s confidence in specific writing skills was predictive of writing performance. However, one’s confidence in completing a writing task was not predictive of writing performance. In this instance, the breakdown of the writing self-efficacy scale into two components, skills and tasks, was particularly useful in highlighting this specific difference in writing self-efficacy beliefs. Sanders-Reio et al. (2014) supported the results of Pajares and Johnson (1994) and also found that self-efficacy beliefs predicted writing performance, with high levels of self-efficacy predicting high levels of writing performance.

The findings of the studies reviewed thus far support a connection between writing apprehension, self-efficacy, and performance. Writing apprehension and self-efficacy are perceived through self-judgments. However, these self-perceptions and self-judgments may be influenced by different factors within certain contexts. Affect may be one of these factors that could distort individuals’ abilities to accurately make judgments on themselves. Bandura (1997) stated that one’s affective state is one of the sources of an individual’s self-efficacy perception. Furthermore, because apprehension is a hesitation stemming from feelings of anxiety, changes in one’s affective state may directly impact one’s writing apprehension. For these reasons, a mood state may influence the writing apprehension, self-efficacy, and performance of an individual and student.

Mood states influence the perceptions and judgments of one’s own well-being. Schwarz and Clore (1983) found that individuals perceive their well-being differently depending on the weather. Individuals rated their well-being more positively when asked on a sunny day; individuals rated their well-being more negatively when asked on a rainy day. The sunny or rainy weather induced a positive or negative mood state, which altered the individuals’ perceptions of their well-being. Furthermore, they found that participants perceived themselves as happier after writing about a positive life event, and perceived themselves as sadder after writing about a negative life event. In these ways, a positive or negative mood state, induced by either the weather or the writing task, altered individuals’ perceptions and judgments of their own affective experience. If mood influences self-perceptions, then they may also alter individuals’ perceived confidence in their own writing abilities.

Perceptions of value and risk are also influenced by mood state. Individuals exposed to happy faces were more likely to pour and drink alcohol; those who were exposed to angry faces were less likely to pour and drink alcohol. The perceived value of the alcohol increased when primed with positive facial expressions and decreased when primed with negative facial expressions (Winkielman, Berzinger, & Berridge, 2005). Johnson and Tversky (1983) obtained similar results by presenting participants with a fabricated news story involving death, thus creating a negative affective state. Participants were more likely to rate their perceived worry or concern for 18 different types of deaths higher than those who were presented with positive news stories.
with an average news story not involving death. Also, these participants in the negative affect group were more likely to expect themselves to die from one of the 18 different types of deaths. Like with Schwarz and Clore (1983), mood influences one’s judgment or perception of risk. When students encounter a writing assignment or task, they may also be more likely to experience worry or concern over an impending evaluation or expected failure. Additionally, the value students place on the writing assignment or on the grade eventually obtained may also differ depending on the students’ affective states. In these ways, students’ perceptions and judgments of value and risk involved in a writing situation may influence their writing apprehension or self-efficacy.

Although mood may impact writing apprehension and writing self-efficacy, it may also directly impede individuals’ process of generation as they write. Gasper (2004) found that mood states impact the ability to generate new ideas. Gasper utilized a mood manipulation, which required participants either to write about a positive or negative life event to manipulate their mood (Schwarz & Clore, 1983). After this writing activity, participants then completed crossword puzzles in which each word was connected in some way to flying. Next, participants were told to write down as many things they could think of that could fly. She found that participants exposed to a sad mood prime thought of fewer new ideas than those participants exposed to a happy mood prime. This suggests that sad mood states inhibit the ability of the mind to generate new ideas and concepts represented by words. Frederickson (2001) described this effect of emotions on the mind’s ability to generate new ideas and concepts as the broaden-and-build theory. This theory posits that negative emotions narrow momentary thoughts and potential behaviors, or thought-action repertoires, while positive emotions broaden, or increase the availability of, thought-action repertoires. Essentially, negative emotions narrow an individual’s attention onto a limited number of ideas, and positive emotions broaden an individual’s attention to include many different types of ideas (Frederickson, 2001; Frederickson & Branigan, 2005). From the perspective of both Frederickson and Gasper, affective states impact an individual’s ability to generate new words and ideas. This generativity is integral in writing, creating, and organizing sentences and ideas (Crossley, Muldner, & McNamara, 2016; Flower & Hayes 1981), and so the mood state of the writer may inhibit access to ideas, and therefore the ability to translate thoughts into a cohesive and comprehensible narrative or argument.

Although recent researchers have sought to understand the connections between writing self-efficacy, apprehension, and performance and the influence of mood on perceptions, judgments, and generativity, little known research has combined both of these approaches. Furthermore, the relationships among writing apprehension, writing self-efficacy, and writing performance requires further exploration. The current study continued to explore the relationship between writing self-efficacy, apprehension, and performance, and examined if the mood state of an individual impacts that person’s writing beliefs and performance. Participants in this study experienced a process of mood induction prior to completing the WAT, WSET, and a 30-minute timed essay to measure writing apprehension, writing self-efficacy, and writing performance, respectively.

The main hypothesis was that a positive mood prime would produce lower levels of writing apprehension and higher levels of writing self-efficacy and writing performance, while a negative mood prime would result in higher levels of writing apprehension and lower levels of writing self-efficacy and performance. Additionally, it was hypothesized that, consistent with previous research, writing self-efficacy would be positively related to writing performance, but writing apprehension would not have a relationship with writing performance. Writing apprehension and writing self-efficacy would also be negatively related to each other.

We hoped to further the understanding of researchers and educators on the influences and implications of mood states, writing apprehension, self-efficacy, and performance. Findings on the impact of mood on these aspects of writing may help students, teachers, and curriculum coordinators understand the role of mood in the writing process and in both learning-to-write and writing-to-learn settings in academia.

Method

Participants

One hundred seventeen undergraduate students ($M_{age} = 19.85, SD = 0.29$) enrolled in introductory psychology and English courses at a medium-sized southwestern university in the United States were recruited. Among participants, 71 were women and 46 were men; 82% identified as European American, 9% as Hispanic, and 9% of the sample
were small proportions of African American, Asian, and Pacific Islander. Participants were all proficient English language speakers and writers who were recruited through class visits and flyers containing the research details. Participants in the psychology courses received two credits toward their four required research participation assignments. All participants were entered into a drawing to receive a gift card to the campus bookstore: three $25 gift cards, and one $75 gift card.

Materials
Writing apprehension. Writing apprehension was measured using the WAT created by Daly and Miller (1975). The 26 questions on this instrument provide statements regarding teacher evaluation, emotional feelings, and self-beliefs in regard to writing. Responses are given on a 5-point Likert scale from 1 (strongly agree) to 5 (strongly disagree). Of the 26 questions, 12 are reverse coded. The total score combines the sum from responses to the eight coded questions with the sum from responses from the 12 reverse-coded questions, resulting in a total sum between 20 and 100. The WAT has been shown in past research to have adequate reliability (1975). According to their study, the split half technique produced a reliability coefficient of 0.94, which indicates high reliability. They also found that those with high writing apprehension selected professions that were less writing intensive, and those with low writing apprehension selected professions that were more writing intensive. These results suggest good predictive validity. Our sample also demonstrated adequate reliability ($\alpha = .94$).

Writing self-efficacy. The writing self-efficacy of each participant was measured using a writing self-efficacy test developed by Shell et al. (1989). The writing self-efficacy scale is broken down into self-efficacy for writing skills and self-efficacy for writing tasks. The respondents are required to rate their confidence level to effectively communicate in a given writing situation or to effectively use a specific writing skill on a scale from 0% to 100%. The writing tasks section of this measure has 16 questions, and the writing skills section has eight questions. The WSET has been shown to be reliable (Shell et al., 1989). In our sample, a reliability of .87 was observed using Cronbach’s alpha for the task subscale and .93 for the skills subscale. This instrument, for measuring writing self-efficacy, has demonstrated good predictive validity. For example, high self-efficacy, as measured by this instrument, shared a positive relationship with writing performance (Pajares & Johnson, 1994; Sanders-Reio et al., 2014). These results matched the results found by Bandura (1997) predicting high self-efficacy beliefs associated with high performance.

Timed essay. Each participant responded to the following writing prompt: “What do you believe to be the qualities of a successful student?” Shell et al. (1989) used a similar question, except the question asked for the successful qualities of a teacher rather than a student. This topic change made the essay prompt more relatable for the student. This essay was a 30-minute timed essay, and was graded by three graders, all tutors at the university writing center. All writing center tutors are required to take a training course and receive additional monthly training. Because of the consistent training among the graders, the writing center tutors were seen as qualified to grade the essays. All graders used a grading rubric to improve consistency (see Appendix).

Procedure
After the Institutional Review Board of Southern Utah University gave its approval (#14-110215), participants were randomly assigned to one of three conditions: positive mood prime, negative mood prime, and neutral mood prime. Within the three mood groups, participants were assigned to one of three orders for the presentation of the dependent variables to control for order effects: (a) writing apprehension, writing self-efficacy, and writing performance; (b) writing self-efficacy, writing performance, and writing apprehension; (c) writing performance, writing self-efficacy, and writing apprehension. Before beginning the study, participants signed an informed consent document and were given initial instructions.

Next, participants completed a writing task intended to alter their mood states. They were randomly assigned to one of three writing conditions and asked to write about: (a) a sad or negative event, (b) a happy or positive event, or (c) a set of instructions explaining how to tie a shoe. These three writing subjects represented the negative, positive, and neutral mood conditions respectively. Research conducted by Schwarz and Clore (1983) shows these writing manipulations to be effective activities for mood manipulation. Participants then answered a few self-report questions as a mood manipulation check. Specifically, participants were asked to describe their feelings of emotionality by completing a discrete emotions checklist styled...
like the Positive and Negative Affect Schedule, and then to report their mood state by answering three bipolar questions anchored with happy to unhappy, positive to negative, and pleasant to unpleasant.

After completing the manipulation check, participants completed the WAT, WSET, and the 30-minute timed essay. The order for the next three tests varied according to the order group to which the participant was assigned, as mentioned earlier. All completed written works, tests, and short essays were given to the researcher conducting the session. Before leaving the experiment, participants were debriefed and thanked for their participation.

The short essays were given to three graders, who individually graded all of the short essays written by participants. The graders were blind to the scores of the other graders. The scores from the three graders were averaged together for an overall essay score. To determine the interrater reliability of the essay graders, an intraclass correlation (ICC) was conducted. The average measure ICC was .693 with a 95% confidence interval from .511 to .801, \( R(116, 232) = 4.025, p < .01 \).

### Results

**Planned Analyses**

Three one-way independent Analyses of Variance (ANOVAs) were used to determine the effects of mood on each of the three dependent variables: writing apprehension, writing self-efficacy, and writing performance. For all three one-way independent ANOVAs, the between-subjects factor was the mood prime group—with the positive, neutral, and negative mood groups as the levels. In the first one-way independent ANOVA, the dependent variable was the score of the participants on the WAT. The results were not significant, \( F(2, 115) = 0.87, p = .42, \eta^2 = .02 \). For the second one-way independent ANOVA, a composite score of the participants on the skills and tasks scales on the WSET was the dependent variable; this combined self-efficacy score is consistent with previous research (Pajares & Johnson, 1994). The results were not significant, \( F(2, 115) = 1.13, p = .33, \eta^2 = .02 \). Lastly, the overall score for writing performance (i.e., the sum total of each grade on the rubric given by the essay graders) was the dependent variable in the final one-way independent ANOVA. The results were also not significant, \( F(2, 115) = 0.07, p = .94, \eta^2 = .00 \). See Table 1 for the means and standard deviations for these three ANOVA tests.

The effectiveness of the mood prime was analyzed by examining the self-report scores for the questions measuring positive emotions from the mood manipulation check by a one-way independent ANOVA. The test on the positive emotions indicated significant results, \( F(2, 115) = 14.02, p < .001, \eta^2 = .20 \), and a post-hoc comparison using the Scheffe test indicated a significant difference \((p < .001)\) between the positive prime \((M = 10.16, SD = 7.35)\) and the negative prime \((M = 4.08, SD = 3.65)\), and a significant difference \((p < .005)\) between the positive prime and the neutral prime \((M = 6.33, SD = 3.38)\). However, the difference between the neutral and negative prime was not significant \((p = .151)\). The one-way ANOVA for the negative emotions showed a significant difference between the mood prime groups, \( F(2, 114) = 13.42, p < .001, \eta^2 = .19 \), and a post-hoc comparison with the Scheffe test produced a significant difference \((p < .001)\) between the positive mood prime \((M = 1.76, SD = 0.53)\) and negative mood prime \((M = 5.21, SD = 0.52)\), and a significant difference \((p < .001)\) between the negative mood prime and neutral mood prime \((M = 2.02, SD = 0.52)\). There was not a significant difference between the positive and neutral mood primes \((p = .939)\). A one-way ANOVA examining the negative emotions approached a significant difference between the mood prime groups, \( F(2, 115) = 3.01, p = .053, \eta^2 = .05 \). The means and standard deviations for the questions measuring neutral emotions for the mood prime groups are as follows: positive prime \((M = 4.21, SD = 0.52)\), neutral prime \((M = 5.48, SD = 0.50)\), and negative prime \((M = 5.92, SD = 0.52)\).

<table>
<thead>
<tr>
<th>TABLE 1</th>
</tr>
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<tbody>
<tr>
<td>Means and Standard Deviations for Mood Groups Across the Scores</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Writing Apprehension</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive</td>
<td>67.68</td>
</tr>
<tr>
<td>Neutral</td>
<td>73.40</td>
</tr>
<tr>
<td>Negative</td>
<td>69.85</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Writing Self-efficacy</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive</td>
<td>71.46</td>
</tr>
<tr>
<td>Neutral</td>
<td>67.77</td>
</tr>
<tr>
<td>Negative</td>
<td>67.14</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Writing Performance</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive</td>
<td>19.85</td>
</tr>
<tr>
<td>Neutral</td>
<td>20.04</td>
</tr>
<tr>
<td>Negative</td>
<td>19.94</td>
</tr>
</tbody>
</table>

**Note**: The means and standard deviations for these three dependent measures reflect values for the raw scores.
The Effects of Mood on Writing | Vanhille, Gregory, and Corser

SD = 0.51). See Table 2 for the means and standard deviations of the reported emotionality of participants across mood prime groups.

A Pearson’s Correlation was used to test the relationships among writing apprehension, writing self-efficacy, and writing performance. Writing apprehension and writing self-efficacy shared a significant moderate negative relationship, \( r(115) = -0.56, p < .01 \). However, writing performance did not share a significant relationship with either writing apprehension or writing self-efficacy, \( r(115) = -0.17, p = .07 \) and \( r(115) = 0.14, p = .13 \), respectively. See Table 3 for the results of this test.

### Exploratory Analyses

The essay prompts for the timed essay told students to “feel free to brainstorm or outline prior to writing, but [to] remain aware of how much time [they had] left to complete [their] essay.” Many participants used some form of prewriting, either with a concept map or with only words, to brainstorm and organize information. Although research questions regarding prewriting techniques were not an intended purpose of this study, the frequency of prewriting techniques by participants provided an opportunity for exploratory analyses. To determine whether the use of prewriting, and the type used, improved exam scores, a one-way independent ANOVA was conducted. The between-subjects factor was the presence of prewriting with three levels: no prewriting (\( N = 58 \)), prewriting with only words (\( N = 36 \)), and prewriting using a concept map (\( N = 23 \)). The dependent variable was the overall score on the essay. The test showed a significant difference among the prewriting groups for the overall essay scores, \( F(2, 115) = 4.66, p = .011, \eta^2 = .08 \). A post-hoc comparison using the Scheffe test showed a significant difference (\( p = .018 \)) between the no prewriting group (\( M = 19.33, SD = 0.29 \)) and the words only prewriting group (\( M = 20.69, SD = 0.37 \)). There was not a significant difference (\( p = .177 \)) between the no prewriting group and concept map group (\( M = 20.35, SD = 0.461 \)), nor was there a significant difference (\( p = .850 \)) between the words only and concept map groups.

Because prewriting techniques often seem to help organizational structures in writing, an exploratory one-way independent ANOVA was conducted to test the effects of prewriting on organization in the essay. The between-subjects factor was the presence of prewriting, and the dependent variable was the organization score on the essay rubric. The test indicated a significant difference among the prewriting groups, \( F(2, 115) = 3.40, p = .037, \eta^2 = .06 \). A post-hoc comparison using the LSD test showed a significant difference (\( p = .024 \)) between the word group (\( M = 4.24, SD = 0.12 \)) and the no prewriting group (\( M = 3.89, SD = 0.10 \)). There was not a significant difference (\( p = .965 \)) between the word group and the concept map group (\( M = 4.23, SD = 0.15 \)), nor was there a significant difference between the concept map group and the no prewriting group (\( p = .056 \)).

### Discussion

This study examined the effects of mood on writing apprehension, writing self-efficacy, and writing performance. The results of the one-way independent ANOVAs measuring the differences between mood groups for the WAT, WSET, and timed essay were not significant. Furthermore, the results of the one-way independent ANOVAs regarding the positive and negative mood induction indicated that the mood

### Table 2

<table>
<thead>
<tr>
<th>Emotional State</th>
<th>Mood Prime</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive Emotions</td>
<td>Positive Prime</td>
<td>10.16</td>
<td>7.35</td>
</tr>
<tr>
<td></td>
<td>Neutral Prime</td>
<td>6.33</td>
<td>3.38</td>
</tr>
<tr>
<td></td>
<td>Negative Prime</td>
<td>4.08</td>
<td>3.65</td>
</tr>
<tr>
<td>Neutral Emotions</td>
<td>Positive Prime</td>
<td>1.76</td>
<td>0.53</td>
</tr>
<tr>
<td></td>
<td>Neutral Prime</td>
<td>2.02</td>
<td>0.52</td>
</tr>
<tr>
<td></td>
<td>Negative Prime</td>
<td>5.21</td>
<td>0.52</td>
</tr>
<tr>
<td>Negative Emotions</td>
<td>Positive Prime</td>
<td>4.21</td>
<td>0.52</td>
</tr>
<tr>
<td></td>
<td>Neutral Prime</td>
<td>5.48</td>
<td>0.50</td>
</tr>
<tr>
<td></td>
<td>Negative Prime</td>
<td>5.92</td>
<td>0.51</td>
</tr>
</tbody>
</table>

Note. The means and standard deviations for these three dependent measures reflect the self-reported emotional state of participants.

### Table 3

<table>
<thead>
<tr>
<th></th>
<th>WAT</th>
<th>WSET</th>
<th>WP</th>
</tr>
</thead>
<tbody>
<tr>
<td>WAT</td>
<td>1.000</td>
<td>-0.556*</td>
<td>-0.168</td>
</tr>
<tr>
<td>WSET</td>
<td>1.000</td>
<td>0.142</td>
<td>0.000</td>
</tr>
<tr>
<td>Overall WP</td>
<td>1.000</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. WAT = Writing Apprehension Test; WSET = Writing Self-Efficacy Test; WP = timed essay. \( p < .01 \).
mood manipulation design did not significantly affect writing self-efficacy beliefs. Another part of the study aimed to identify the relationship among writing apprehension, writing self-efficacy, and writing performance. The significant moderate negative relationship between writing apprehension and writing self-efficacy coincides with the findings of other researchers and supports part of the hypothesis regarding writing beliefs (Pajares & Johnson, 1994; Sanders-Reio et al., 2014). The absence of a significant relationship between writing performance and apprehension, and between writing performance and self-efficacy has also been substantiated by other research (Pajares & Johnson, 1994; Sanders-Reio et al., 2014). Practical implications of the negative relationship observed in the current study may indicate that educators including tutors should, in addition to understanding the cognitive processes associated with writing, understand the psychological impacts of efficacy beliefs on writing and tailor their instruction to include these psychological effects. Given that greater self-efficacy leads to increases in engagement, investment, and persistence (Bandura, 1981), educators should strive to enhance student self-efficacy through appropriate constructive feedback. This feedback should include explicit information conveying what the student has done well, areas in which the student demonstrates weakness, along with ways to improve these areas of perceived weakness by focusing on changeable behaviors (Bandura, 1977). As students develop and strengthen their writing skills, educators should explicitly incorporate longitudinal self-comparison as evidence of improvements in areas that formerly were not as strong. Given that personal mastery experiences are the most powerful sources of self-efficacy (Bandura, 1977), educators should incorporate these comparisons between past performance and current performance to help empower students with greater confidence in their writing abilities.

Although not an original research question, the significant difference in overall essay scores between the no prewriting group and the prewriting using only words group adds to a different discussion than the main topic of this study. Much of the prewriting in the word prewriting group involved making an outline, or at least ordering the supporting points of their argument. Drawing from the cognitive process model of Flower and Hayes (1981), the word prewriting technique might have aided participants in translating their ideas into a cohesive argument. Furthermore, the difference between the organizational score for the two prewriting groups versus the no
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Prewriting group would also suggest that prewriting leads to better organized papers. Although, just as probable, individuals who tend to write more organized papers may also be more likely to utilize prewriting techniques. However, it should again be noted that the roles and effects of prewriting were not included in the original research questions or hypotheses, thus the assumptions included above are purely speculative due to the exploratory nature of the effects of prewriting observed in the current study. Therefore, it cannot be assumed that the cognitive processes involved with prewriting caused increased cohesiveness in prewriters’ arguments.

Limitations
Because participants responded to three different measures and continued participating for up to 45 minutes after the end of the exposure to the mood prime, it is possible that participants experienced testing fatigue. The use of writing as the mood prime might also have contributed to testing fatigue, making the later measures less accurate in describing their performance or self-perceptions. Also, because the testing continued for 45 minutes after the exposure to the mood prime, the effects of the mood prime might not have been as potent after the first testing measure. This diminished potency may also help explain the lack of significant effects of mood on self-efficacy beliefs.

The lack of a filler task and participants’ awareness of their mood state might have led to the nonsignificant effects of mood. In some research, participants engage in a filler task after the mood manipulation has occurred (Gasper, 2004; Schwarz & Clore, 1983). This filler task distracts participants from the mood manipulation just used and allows time for the new mood to fully develop. With this in mind, it is likely that participants in the present study were alerted to their mood state by the mood manipulation check before they completed the WAT, WSET, and timed essay. As mentioned previously, it is possible that the affective states of individuals may in fact influence writing apprehension, writing self-efficacy, and writing performance when those individuals are not made consciously aware of their mood through the manipulation check prior to completing the WAT, WSET, and timed essay. This explicit alerting, combined with the absence of a filler task, might have contributed to the results of the study.

Another limitation may reside in the agreement among the essay graders. The researcher and the essay graders only met once for an hour and a half to review sample papers and the grading rubric. Although the graders are all tutors at the university writing center and receive the same training through the writing center, this training focuses on peer-tutoring and not on grading. Therefore, the lack of training on grading essays with the rubric might have contributed to the reliability score for the graders. The training of the writing center tutors and their working hours spent analyzing papers certainly qualifies the tutors to be able to evaluate a paper for the purposes of tutoring, but there is not sufficient training in grading assignments. If there had been more agreement among the essay graders, the results of the mood manipulation and multiple correlation might have been different with more reliable scores.

Future Recommendations
Researchers in the future should consider conducting three smaller experiments to test the effects of mood on writing apprehension, writing self-efficacy, and writing performance individually because this method may decrease test fatigue. Also, these smaller studies should administer the mood manipulation check at the end of the experiment and insert filler tasks between the exposure to the mood prime and the desired measure such as the WAT or WSET. By addressing these design issues, researchers may indeed find that mood affects writing apprehension, writing self-efficacy, and writing performance.

Other researchers should consider multiple meetings with the essay graders to review sample essays and discuss the essay rubric to increase consistency among graders. In fact, during the course of the meeting, the graders made adjustments to the grading rubric. It is important to establish a well-designed rubric, which encourages consistency, prior to training the essay graders. More than one meeting is advised to establish a tighter agreement among the graders.

Researchers studying writing should explore the influence of prewriting on the performance of individuals. This exploration may take the form of studies examining the factors that lead to prewriting in the first place, or it may seek to understand how different types of prewriting may influence writing performance in certain ways such as in specific areas of writing as designated by the grading rubric. Furthermore, the field may also benefit from research that draws on the broaden-and-build theory to examine the impact of affective states on generativity in prewriting (Frederickson, 2001; Frederickson & Branigan, 2005).
Although this study did not yield results indicating significant effects of mood on writing apprehension, self-efficacy, and performance when individuals are aware of their mood state, it does address important design components for testing affective influences on these aspects of writing. There is also room for further explorations regarding how self-efficacy and apprehension in writing develop, and perhaps on how these factors may influence prewriting behavior. As researchers continue to study various facets of writing, the purposes of writing instruction and applications of diverse methods should be reevaluated to integrate new findings to improve skills and experiences of students in writing.

References


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# APPENDIX

## Grading Rubric for the Timed Short Essay

<table>
<thead>
<tr>
<th></th>
<th>5 (superior)</th>
<th>4</th>
<th>3 (good)</th>
<th>2</th>
<th>1 (poor)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Punctuation and grammar</strong></td>
<td>Three or fewer grammar or punctuation errors.</td>
<td>At least two or three grammar and/or punctuation errors occur in most paragraphs.</td>
<td>Grammar and punctuation errors occur in most sentences.</td>
<td>The grammar and punctuation errors drastically impedes the readability of the essay.</td>
<td></td>
</tr>
<tr>
<td><strong>Style</strong></td>
<td>The essay has a wide variety of sentence structures and uses effective word choice.</td>
<td>Lack of sentence variety. Word choice is average.</td>
<td>The evidence and support is more a detailed elaboration rather than concrete examples, but the elaboration connects to the point.</td>
<td>The lack of sentence variety detracts from the overall flow and argument. Incorrect word choice is used.</td>
<td></td>
</tr>
<tr>
<td><strong>Evidence and support</strong></td>
<td>The supporting points to the thesis are backed up by specific examples.</td>
<td>The evidence and support is more a detailed elaboration rather than concrete examples, but the elaboration connects to the point.</td>
<td>The paragraphs and/or sentences are structured reasonably well. Transitions are jarring from time to time.</td>
<td>The supporting points to the thesis do not have any evidence or support backing the claims.</td>
<td></td>
</tr>
<tr>
<td><strong>Organization</strong></td>
<td>The thesis, supporting points, and conclusion are structured logically. Ideas within the paragraphs and throughout the paper connect together.</td>
<td>The paragraphs and/or sentences are structured reasonably well. Transitions are jarring from time to time.</td>
<td>The paper may have a thesis and/or overall focus, but the writer does not articulate it well or continually stick to it.</td>
<td>The paragraph and sentence organization are basically nonexistent, making the argument and reasoning difficult to follow.</td>
<td></td>
</tr>
<tr>
<td><strong>Thesis and purpose</strong></td>
<td>The essay has a clear and concise thesis and a strong focus throughout.</td>
<td>The paper may have a thesis and/or overall focus, but the writer does not articulate it well or continually stick to it.</td>
<td>The essay does not have a thesis, and the paper is disjointed and not cohesive.</td>
<td>The essay does not have a thesis, and the paper is disjointed and not cohesive.</td>
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