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An Evaluation of Writing Self-Efficacy and Writing Apprehension Self-Report Instruments

Jada Kennice White
jwhit179@vols.utk.edu

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To the Graduate Council:

I am submitting herewith a dissertation written by Jada Kennice White entitled "An Evaluation of Writing Self-Efficacy and Writing Apprehension Self-Report Instruments." I have examined the final electronic copy of this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy, with a major in School Psychology.

Merilee McCurdy, Major Professor

We have read this dissertation and recommend its acceptance:

Tara Moore, Robert Richardson, Laura Wheat

Accepted for the Council:

Dixie L. Thompson

Vice Provost and Dean of the Graduate School

(Original signatures are on file with official student records.)

**An Evaluation of Writing Self-Efficacy and Writing Apprehension Self-Report
Instruments**

**A Dissertation Presented for the
Doctor of Philosophy
Degree
The University of Tennessee, Knoxville**

**Jada Kennice White
August 2022**

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Abstract

This study examined the *Writing Self-Efficacy Scale* (WSES) and the *Daly-Miller Writing Apprehension Test* (WAT) as measures of writing self-efficacy and apprehension for middle school students. The purpose of this study was to expand on previous research regarding the reliability and validity of both the WSES and WAT to account for changes in student profiles as well as writing expectations throughout the years. The goal of this study was to evaluate current reliability and validity of the WSES and WAT to determine whether they remain appropriate measures for writing self-efficacy and apprehension. Data were collected from were examined for 65 children between the ages of 11 and 14 enrolled in a Boys & Girls Club in the Southeastern United States. The internal consistency of WSES and WAT test items were examined using Cronbach's Alpha, yielding coefficients of 0.7 and .75, respectively. Relationships between WSES scores, WAT scores, and Total Words Written (TWW) were analyzed using Pearson product-moment correlation coefficients as well as a multiple aggression analysis. Correlations indicate a statistically significant, moderate positive correlation between WSES scores and TWW ($r = .30$), and a statistically significant, moderate positive correlation between WAT scores and TWW ($r = .33$). Results from the multiple regression model indicate that when used together, WSES and WAT scores could reliably predict writing performance as well as when used together with gender. Results provide current evidence of a significant relationships between writing self-efficacy and performance as well as writing apprehension and performance. Limitations and implications are discussed.

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Chapter I

Review of the Literature

Writing is an important skill necessary for success in and out of the classroom and is a means of communicating knowledge and creativity (White & Bruning, 2005). The act of writing, however, is not always a simple task and requires many cognitive processes (Bruning & Horn, 2000; Jalaluddin et al., 2015). Students are expected to navigate the writing process efficiently by demonstrating advanced executive functioning skills. Setting goals, generating and organizing ideas, and translating and editing those ideas into their own words are only a few of the many exercises required of writers (Demirel & Aydin, 2019; Graham, Wijekumar, Harris et al., 2019).

The development of writing skills is time-consuming and requires sufficient guidance from teachers (Graham, Wijekumar, Harris et al., 2019). To help teachers ensure that students meet the writing expectations necessary for college and careers, Common Core Standards were developed. Evidence-based standards were designed for each grade level to focus on three main writing goals: expressing opinions, composing narratives, and writing informative pieces. The steps of the writing process are emphasized heavily throughout. Each grade level builds on the standards of the previous grade, with the intent that students will become accomplished writers by the time they finish high school (Shanahan, 2015).

Despite the necessity for proficient writing skills and the clear expectations outlined by the Common Core, students continue to have difficulty learning effective writing skills. According to the National Center for Educational Statistics (2012), only one-quarter of students in the eighth- and twelfth- grades performed at the proficient level in writing on the National Writing Exam. For eighth graders, those who spent between 30 to 60 minutes writing each day

had higher scores. For twelfth graders, those who wrote four to five pages of homework each week scored higher (National Center for Educational Statistics, 2012).

Furthermore, students continue to have difficulty with writing when they leave high school. On a survey, high school graduates reported not feeling adequately prepared for writing expectations at the college and career level (Achieve, Inc., 2005). About one-third (35%) of college students felt that there were significant differences in high school and college writing expectations. One-third (38%) of high school graduates who were not in college also felt that there were differences in high school and career writing expectations. Employers and college instructors indicated that graduates were not prepared for the expectations at their respective levels. Employers reported that one-third (38%) of high school graduates were not adequately prepared. College instructors reported that as many as one-half (50%) of students were not prepared (Achieve, Inc., 2005).

The disconnect between writing expectations and student performance emphasizes a need for additional writing research. However, writing has been characterized as the “neglected R” due to its limited research support when compared to reading and math (College Entrance Examination Board, 2003). Existing research suggests that a number of factors could contribute to declining writing performance and engagement, including motivational variables such as writing self-efficacy and apprehension (Graham, Daley et al., 2018; White & Bruning, 2005). However, the studies that examine writing self-efficacy and apprehension together are limited in nature. Thus, the proposed study may expand previous research by offering updated information regarding the relationship between writing self-efficacy, apprehension, and performance.

Writing Self-Efficacy

Self-efficacy, a theory developed by Albert Bandura, refers to the belief that a person has the ability to complete a task. Self-efficacy is one component of Social Cognitive Theory that explains how thoughts and beliefs can influence one's environment and behavior. Bandura suggested that self-efficacy influences one's choice of activities, the amount of effort one puts into a task, persistence, and achievement. Bandura postulated that those with high self-efficacy would be more likely to work hard and would be more persistent, given that these individuals believe they have the skills needed to complete the task (Bandura, 1997).

Current self-efficacy research supports Bandura's earlier hypotheses. Having high self-efficacy has been found to result in appropriate goal setting, use of effective learning strategies, and lower anxiety (Bruning et al., 2013). In addition to heightened anxiety, low self-efficacious individuals may struggle more with task-completion (Schunk, 1989). Self-efficacy theories also have been applied to academic performance. Previous research suggests that academic achievement and self-efficacy are positively related, regardless of academic level or area of study (Ekholm et al., 2015). Self-efficacy alone could serve as a potential explanation for low achievement scores. However, empirical support for this theory only leads to more questions, including whether or not self-efficacy levels explain low achievement scores in specific areas of study.

Writing self-efficacy is simply an application of self-efficacy theory applied to writing tasks. Bruning's model posits that there are three dimensions of writing self-efficacy: ideation, writing conventions, and self-regulation. More specifically, an individual can have beliefs about his or her abilities to generate ideas, articulate ideas in writing, and navigate the writing process without the help of others (Bruning et al., 2013). The application of self-efficacy theory to

writing is an effort to explain why some students perform better than others on writing tasks. It was hypothesized that, similar to general self-efficacy, those with higher writing self-efficacy would have lower writing anxiety and higher writing performance than their low efficacious counterparts (Bruning & Horn, 2000). Overall, those with low writing self-efficacy tend to be more reluctant to write altogether and may put less effort into a writing task than those with higher self-efficacy (Graham, Daley et al., 2018). This notion suggests that students with low self-efficacy lack the confidence necessary to motivate them to write. Moreover, they might expend lower levels of writing effort because they anticipate receiving the same poor marks earned on previous writing assignments.

Writing Self-Efficacy Research

Writing self-efficacy has frequently been examined with elementary, middle, and high school students, and at the college level. In one of the most popular series of studies examining writing self-efficacy and performance, researchers found significant relationships between the two at elementary, middle, high, and collegiate levels (Pajares & Johnson, 1994; 1996; Pajares & Valiante, 1997; 1999). At the elementary level, fifth-grade students were asked to complete self-efficacy, perceived usefulness, and apprehension scales before writing a 30-min essay. Results indicated a significant positive correlation between writing self-efficacy and writing performance, suggesting writing self-efficacy to be a significant predictor of writing performance (Pajares & Valiante, 1997).

In a similar but more current study, Graham, Wijekumar, Harris et al. (2019) asked fourth graders to write a personal narrative and complete self-rating scales that measured writing skills, knowledge, motivation, and writing behavior. They found writing attitudes and self-efficacy to be significant predictors of writing quality and length. Both studies, over twenty years apart and

yielding similar results, provide evidence that self-efficacy can predict writing performance on various forms of writing tasks.

Comparable results were found at the middle and high school levels. For sixth-, seventh-, and eighth graders, writing self-efficacy was found to be the only motivation construct that predicted writing competence when compared to writing self-concept and apprehension. Additionally, sixth graders had the highest levels of self-efficacy, suggesting that writing self-efficacy may decrease over time (Pajares & Valiante, 1999).

For high schoolers, writing self-efficacy perceptions differed based on several factors, including gender, grade, and number of books read. Females reported higher levels of self-efficacy than males. Similar to the research on middle school students (Pajares & Valiante, 1997), self-efficacy perceptions for high schoolers also decreased as grade level increased (Demirel & Aydin, 2019). One explanation for this decline in writing self-efficacy could be related to increased writing expectations as students progress through grade levels. However, students who experienced a decrease in writing self-efficacy as they progressed through each grade still had higher levels of writing self-efficacy when compared to others.

Research at the collegiate level confirms that writing self-efficacy is a significant predictor of writing performance (Ekholm et al., 2015; Prat-Sala & Redform, 2012; McCarthy et al., 1985). In 2012, Prat-Sala and Redform examined the relationships between reading self-efficacy, writing self-efficacy, and student writing performance. First- and second-year undergraduate students were asked to complete scales that evaluated their perceived writing and reading self-efficacy beliefs. In addition, researchers evaluated student performance on an essay submitted for a psychology course. Results indicated a strong positive correlation between writing and reading self-efficacy scales for both first- and second-year students. Both reading

and writing self-efficacy were also positively correlated to writing scores. Findings suggest that students with high reading and writing self-efficacy performed better on collegiate writing assignments than students with low reading and writing self-efficacy.

In another study, Ekholm et al. (2015) examined the impact of writing self-efficacy and writing feedback perceptions on student writing self-regulation aptitude. In this study, undergraduate students that were enrolled in Education and English courses completed scales that measured their writing feedback perceptions, self-efficacy, and self-regulation aptitude. Results indicated that all three factors were moderately correlated. More specifically, significant relationships between writing self-efficacy and writing self-regulation as well as writing self-efficacy and feedback perceptions were found. Findings of the study suggest college students with high writing self-efficacy participate more, work harder, set higher goals, and have a higher rate of success than students with low writing self-efficacy (Ekholm et al., 2015).

The positive relationship between writing self-efficacy and writing performance is clear. However, other variables also may impact writing performance. Writing apprehension is another concept to consider.

Writing Apprehension

Writing apprehension, or writing anxiety, is often associated with writing self-efficacy in that it serves as a potential predictor of writing performance. Individuals with high writing apprehension tend to avoid writing, expect to fail, fear evaluation, and have high levels of anxiety when asked to write (Daly & Miller, 1975). Writing self-efficacy directly influences writing apprehension, with writing apprehension being negatively correlated to writing self-efficacy and performance (Pajares & Valiante, 1997).

Sanders-Reio et al. (2014) evaluated how student beliefs about writing impacted their writing self-efficacy, apprehension, and performance. In this study, undergraduate students enrolled in an educational psychology course completed surveys that assessed their writing self-efficacy, apprehension, and beliefs. In addition, students were assigned a 5- to 8-page writing assignment that was used to assess their writing performance. Findings indicated that student beliefs about their writing was positively related to their writing self-efficacy, apprehension, and performance. More specifically, students that had high writing self-efficacy tended to be better writers and were less apprehensive about engaging in writing tasks. Less apprehensive students also enjoyed writing more and received higher grades than students who were more apprehensive about writing (Sanders-Reio et al., 2014).

Comparable to research involving writing self-efficacy, current writing apprehension research only supports a correlational relationship between writing apprehension and writing self-efficacy. In addition, Sanders-Reio et al. suggested that student beliefs about writing can change as they acquire new knowledge and skills in different writing genres. Changes in writing beliefs can also be affected by the writing methods that are presented to the student as well as their openness to learning those methods (2014). Current research does not evaluate this change in writing beliefs or how they may be impacted by various writing strategies. Furthermore, researchers should evaluate which writing methods may be more effective in fostering a positive change in writing beliefs. Self-report measures could potentially provide additional information regarding which writing strategies impact writing self-efficacy and apprehension.

Assessing Writing Self-Efficacy and Apprehension

The Writing Self-Efficacy Scale

According to Pajares (2007), a writing self-efficacy scale “should provide multiple items of varying difficulty that collectively assess the domain of essay writing” (p. 240). In other words, rather than simply assessing a student’s confidence in performing a general writing skill (e.g., confidence in writing letters), items should specifically assess writing skills that are necessary when composing an essay (e.g., confidence in the ability to write a sentence free of grammatical errors). In addition, writing self-efficacy scales should be worded in such a way as to convey judgment rather than intention. Using “can” statements rather than “will” statements has been proven to be more effective in helping students accurately judge their writing abilities. Although these general guidelines were adapted from Bandura’s guidelines for defining and measuring self-efficacy beliefs (2006), understanding how to specifically measure writing self-efficacy would not be possible without previous research.

One of the first measures explicitly used to evaluate student writing self-efficacy was the “Self-Assessment of Writing” scale created by McCarthy et al. to evaluate the relationship between writing self-efficacy and performance (1985). College students were asked questions about their ability to adequately compose an essay. More specifically, students evaluated their confidence in performing 19 skills commonly used when writing expository essays. Results indicated that students with strong writing self-efficacy wrote better essays than students with weak writing self-efficacy. When compared to three other predictors of writing performance (perceived locus of control, anxiety, and cognitive processing), perceived efficacy was the only predictor to demonstrate a statistically significant effect (McCarthy et al., 1985).

In a follow-up study, Shell et al. more thoroughly evaluated the dimensions of writing self-efficacy by using two subscales: a task subscale and a component skills subscale (1989). In the task subscale, students evaluated their confidence in clearly communicating what they needed to say in writing for sixteen writing tasks. In the component skills subscale, students recorded their judgments about executing eight different writing skills. Using Cronbach's alpha to measure internal consistency, reliability was .92 for the task subscale and .95 for the component skill subscale. Factor analyses yielded positive correlations between items and subscale scores, exceeding .40 for all items. Results suggested that all items discriminated well among subjects as well as had high internal consistency (Shell et al., 1989).

In order to evaluate the usefulness of the same two subscales in younger students, Shell et al. measured the differences in the writing self-efficacy of fourth, seventh, and tenth graders. Items on subscales were altered to take into account the different levels of writing for each respective grade. In addition, scales were adjusted to coincide with the developmental level of the participants in the study. Students answered items using a 5-point scale ranging from "I'm sure I can't" to "I'm sure I can." Reliability estimates were .69 for the task subscale and .76 for the skills subscale, again suggesting overall internal consistency for all items (Shell et al., 1995).

Items from the writing task and component skills subscales (Shell et al., 1995) would in turn influence the development of one of the most empirically supported writing self-efficacy measures to date. The Writing Self Efficacy Scale (WSES) was initially developed by Pajares and Valiante (1999) based on findings from previous research (Shell et al. 1995; 1989). When completing the WSES, students are asked to determine their confidence in their abilities to successfully execute proper grammar, usage, composition, and mechanical skills. Items from Shell et al.'s Writing Skills Self-Efficacy Scale were adapted to use universally across grade

levels. Additionally, instead of using a 5-point scale, students provide judgments of their writing self-efficacy by filling in any number from 0 (no chance) to 100 (completely certain) for a total of 10 items.

For the WSES, the Cronbach's alpha coefficient is reported at .88 for elementary school students (Pajares & Valiante, 1997) and .92 for middle school students (Pajares & Valiante, 1999). A more recent reliability analysis reported a Cronbach's alpha coefficient of .91, suggesting that the WSES can continue to be confidently used to measure writing self-efficacy with students from fourth grade to high school (Pajares, 2007). Furthermore, findings from additional analyses suggest that a scale using a 0-100 response format is psychometrically stronger than a traditional Likert scale ranging from strongly disagree to strongly agree. While the 0-100 scale predicted both GPA and teacher ratings of student writing performance, the Likert Scale did not. In addition, the 0-100 scale accounted for 37% of the variance in GPA and 28% of the variance in teacher ratings, whereas the Likert-scale yielded insignificant results (Pajares & Valiante, 2001).

Current research involving the WSES is limited in nature, with the most recent study dating back over a decade. Given changes in the demands of student writing expectations, it is possible that previous measures used to assess student confidence in writing may no longer accurately capture student beliefs. It is possible that, along with student writing expectations, the dimensions of student writing self-efficacy may have evolved, therefore emphasizing the importance of reevaluating the effectiveness of writing self-efficacy measures such as the WSES. The purpose of this research is to examine the reliability and validity of the WSES to determine whether it continues to be an accurate measure of student writing self-efficacy. In addition,

researchers should re-evaluate whether or not scores on the WSES continue to predict the relationship between writing self-efficacy and performance.

The Daly-Miller Writing Apprehension Test

Since its conceptualization in 1975, one of the most popular measures used to assess student writing apprehension is the *Daly-Miller Writing Apprehension Test* (WAT; Daly & Miller, 1975), the first scale to evaluate dimensions of writing apprehension. The WAT consists of 20 items, both positive and negative, each scored on a 1 (strongly disagree) to 5 (strongly agree) scale. Scores are then calculated using the following formula: $WAT = 48 - \text{negative scores} + \text{positive scores}$. Initial items were created based on measures of communication apprehension, receiver apprehension, unwillingness to communicate, and general public speaking apprehension. These items were adapted to include specific areas of writing apprehension, including anxiety about writing in general as well as teacher, peer, and professional evaluations of writing. Items also considered writing environments, writing specifically for tests, letter writing, and self-evaluation of writing. Initially sixty-three items, Daly and Miller used factor analysis to condense the instrument down to 26 items, all of which having factor loadings above .60 and accounting for 46% of the total variance. Using a split half technique, initial reliability of the final instrument was .94 (Daly & Miller, 1975).

Currently, research regarding the reliability and validity of the WAT is limited, and it is unclear whether or not a measure of writing apprehension created over 40 years ago continues to serve as an accurate depiction of writing apprehension. Just as expectations of writing have evolved over the years, student feelings of writing may have changed, possibly aligning with new writing standards. Future research should reevaluate whether or not measures such as the WAT continue to serve as adequate measures of writing apprehension for students across

different academic levels. Furthermore, researchers should continue to evaluate whether or not these measures can be adequately used to assess the relationship between writing apprehension and performance.

Summary

Writing is an important skill for success. However, increasing expectations and cognitive demands impact the performance of young writers (Bruning & Horn, 2000; Graham, Wijekumar, Harris et al., 2019; Jalaluddin et al. 2015). Despite the creation of Common Core Standards to clearly outline writing expectations at each grade level, the majority of students are still below the proficient level in writing (National Center for Educational Statistics, 2012; Shanahan, 2015). Current research suggests that writing self-efficacy, or one's beliefs about his or her ability to complete writing tasks, plays a role in declining writing performance (e.g., Pajares & Valiante, 1999; Demeril & Aydin, 2019). Writing apprehension, or writing anxiety, is also associated with depressed writing self-efficacy and performance (Pajares & Valiante, 1997; Sanders-Reio et al., 2014). While the relationship between writing self-efficacy, writing apprehension, and writing performance are clear, the measures used to evaluate these dimensions are not as empirically supported. While the *Writing Self-Efficacy Scale* (WSES) offers a reliability coefficient of .91, this scale has not been evaluated for its effectiveness since 2007 (Pajares, 2007). Similarly, the reliability coefficient for the *Daly-Miller Writing Apprehension Test* (WAT), although encouraging ($\alpha = .94$), has not been reevaluated since the initial development of the measure in 1975.

Purpose of the Current Study

The purpose of this study was to expand on previous research regarding the reliability and validity of both the WSES and WAT to account for changes in student profiles as well as

writing expectations throughout the years. The goal of this study was to evaluate the relationships between WSES and WAT scores and writing performance to determine whether they remain appropriate measures for writing self-efficacy and apprehension. This study evaluated the Writing Self-Efficacy Scale (WSES) and the Daly-Miller Writing Apprehension Test (WAT) in measuring the writing self-efficacy and apprehension of middle school students.

Research Questions and Hypotheses

Research Question 1

Are the WSES and WAT reliable measures of their respective constructs? Previous research suggests that both the WSES and the WAT are reliable measures of writing self-efficacy and writing apprehension, respectively (Daly & Miller, 1975; Pajares, 2007). Thus, it was hypothesized that both measures would continue to accurately measure writing self-efficacy and writing apprehension.

Research Question 2

What is the relationship between WSES scores and writing performance for middle school students? Based on previous research suggesting that there is a positive relationship between writing self-efficacy and writing performance (Pajares & Valiante, 1999), it was hypothesized that there would be a positive relationship between WSES scores and TWW.

Research Question 3

What is the relationship between WAT scores and writing performance for middle school students? Previous research indicates that students with lower levels of writing apprehension perform better on writing assignments (Sanders-Reio et al., 2014). High WAT scores indicate lower levels of writing apprehension (Daly & Miller, 1975). Therefore, it was hypothesized there would be a positive relationship between WAT scores and writing performance.

Research Question 4

To what extent do scores on the WSES predict writing performance for middle school students? Based on previous research suggesting that scores on the WSES are positively correlated to different dimensions of writing performance (Pajares & Valiante, 1999), it was hypothesized that scores on the WSES would predict writing performance for middle school students.

Research Question 5

To what extent do scores on the WAT predict writing performance for middle school students? Previous research indicates that writing apprehension is negatively correlated with writing performance (Pajares & Valiante, 1997). Thus, it was hypothesized that scores on the WAT would predict writing performance for middle school students.

Chapter II

Method

Participants

69 middle school students between the ages of 11 and 14 years old participated in the study. Data were analyzed only for students with assent and parental consent. There were no exclusionary or inclusionary criteria related to student academic performance. Complete data were available for 65 students, including 34 sixth grade students, 21 seventh grade students, and 10 eighth grade students. Of those students, 39 were male and 26 were female. CBM probes and self-report instruments were group administered by trained researchers during the designated academic hour.

Setting and Materials

Data for this study were collected at two Boys & Girls Clubs in the Southeastern region of the United States. Study materials included UTK IRB approved consent/assent forms, a pencil, and a research packet. The research packet included the *Writing Self Efficacy Scale*, the *Daly-Miller Writing Apprehension Test*, and a curriculum-based measure (CBM) in written expression. The writing CBM consisted blank lined paper with a story starter (e.g., The best thing about summer is...) typed across the top. Other study materials included researcher-developed scripts and procedural integrity checklists to ensure researchers implemented the procedures with integrity.

Dependent Measures

Writing Performance

Participants' writing performance was assessed by measuring Total Words Written (TWW). TWW refers to a group of letters separated by a space, but it does not take into

consideration spelling, punctuation, or grammar. McMaster and Campbell (2009) found the alternate form reliability of TWW to range between .60 and .76. Correlations between TWW and the Test of Written Language as well as TWW and the Stanford Achievement are in the moderate to high range, suggesting criterion validity (Jewell & Malecki, 2005). TWW has been linked to improvements in writing quality (Powell-Smith & Shinn, 2004). In addition, production-independent measures such as TWW have been found to be strongly correlated with teachers' holistic ratings of writing for middle school students (Gansle et al., 2006).

Writing Self-Efficacy

Writing self-efficacy was measured using the *Writing Self-Efficacy Scale* (WSES; Pajares & Valiante, 1997) [Appendix A]. The WSES is an 8-item measure where participants rate their confidence in performing specific writing tasks. Participants rate each item on a scale of 0 (no chance) to 100 (complete certainty). High scores suggest high levels of confidence in performing a specific writing task (Pajares & Valiante, 1997). Cronbach's alpha coefficient is reported at .88 for elementary school students (Pajares & Valiante, 1997) and .92 for middle school students (Pajares & Valiante, 1999).

Writing Apprehension

Writing Apprehension was measured using the *Daly-Miller Writing Apprehension Test* (WAT; Daly & Miller, 1975) [Appendix B]. The WAT is a 20-item measure that asks participants to answer questions regarding their feelings toward writing. Participants rate each item on scale of 1 (strongly disagree) to 5 (strongly agree). Scores are then calculated by using the following formula: $WAT = 48 - \text{sum of scores from negative items} + \text{sum of scores from positive items}$. A final WAT score should range from 20 to 100. Lower scores suggest higher

levels of writing apprehension. The WAT has a reliability coefficient of .92 (Daly & Miller, 1975).

Procedures

Approval for the study was obtained through IRB at the University of Tennessee as well as from the director of the Boys & Girls Club. Parent Consent forms were given to all students in the sixth, seventh, and eighth grades asking permission for their child's participation in the study. Students also completed assent forms prior to participation in the study.

Students participated in group administrations of the *Writing Self Efficacy Scale* (WSES, Pajares & Valiante, 1997), the *Daly-Miller Writing Apprehension Test* (WAT; Daly & Miller, 1975), and a 5-min curriculum-based measure (CBM) in written expression. The CBM prompt was obtained from Intervention Central (2017). Items were administered to students with parental consent in groups of approximately 5-20 students. Order of the WSES, WAT, and writing CBM was randomized in each group and directions were read aloud. Students were provided blank lined paper with a story starter (e.g., The best thing about summer is ...) typed across the top. They were then given 1-min to plan and 5-min to write their essays. Stories were then scored for total words written (TWW). WSES and WAT responses were scored and examined for patterns.

Procedural Integrity and Interscorer Agreement

To ensure administration of all procedures with integrity, a script was developed for researchers to follow (Appendix C). A checklist was derived from the script for procedural integrity. Procedural integrity was calculated for all sessions by taking the total number of items completed and dividing it by the total number of items on the checklist and multiplying by 100. Procedural integrity was calculated at 100% across all phases.

All CBM probes were scored by a trained researcher. A second trained researcher randomly selected and independently scored at least 30% of CBM probes collected. Agreement for TWW was calculated by dividing the total number of agreements by the total number of agreements plus disagreements and multiplying by 100. Overall average interscorer agreement for TWW was calculated at 99% (range: 88-100).

Data Analysis

To analyze results, WSES scores, WAT scores, and TWW were examined using descriptive statistics. Data were disaggregated by grade level and gender. The internal consistency of WSES and WAT test items were examined using Cronbach's Alpha. The relationships between TWW, WSES scores, and WAT scores were examined using Pearson product-moment correlation analyses. Correlations were evaluated using Cohen's (1988) criteria for interpreting strength of correlations. Coefficients of Determination (r^2), which represent the percentage of variance between two variables, were also reported. Finally, a standard multiple regression analysis was run to evaluate whether TWW can be predicted based on WSES scores, WAT scores, and gender. Prior to running the analyses, eight assumptions were considered and met. Additional information regarding tests of assumptions are detailed in the results section.

Chapter III

Results

The purpose of the current study was to evaluate the current reliability and validity of the WSES and WAT. Preliminary analyses as well as the results for each research question are described below.

Preliminary Analyses

Table 1 displays measures of central tendency for the total sample. Means and standard deviations for WSES scores, WAT scores, and TWW, disaggregated by gender, were also examined. Means across all variables were higher for females than for males, suggesting that on average, female participants in this study exhibited higher levels of writing self-efficacy, lower levels of writing apprehension, and wrote more words than their male counterparts.

WSES score means and standard deviations, disaggregated by grade level, were examined. The mean WSES score was higher for seventh than sixth and eighth graders, suggesting seventh graders in this sample had slightly higher levels of writing self-efficacy than their sixth and eighth grade peers. The mean WAT score for eighth graders was higher than for participants in the sixth and seventh grades. Higher scores on the WAT indicate lower levels of writing apprehension. Thus, these results suggest that, when compared to other participants in the study, eighth grade participants on average had the lowest levels of apprehension while seventh grade participants had the highest. Mean words written increased across grade level, with seventh graders averaging more words written than sixth graders, and eighth graders averaging more words written than all other participants.

Internal Consistency of Self-Report Measures

Are the WSES and WAT reliable measures of their respective constructs? To answer this question, a Cronbach's alpha procedure was run to measure the internal reliability of both the WSES and the WAT. Both measures had a high level of internal consistency, as determined by a Cronbach's alpha of 0.7 for the WSES and a Cronbach's alpha of .75 for the WAT.

Relationship Between Scores on Self-Report Measures and Writing Performance

Writing Self-Efficacy Scale

What is the relationship between WSES scores and writing performance for middle school students? To answer this question, a Pearson's product-moment correlation was run to examine the relationship between WSES scores and TWW. Examination of the correlation coefficient suggests that there was a statistically significant, moderate positive correlation between WSES scores and TWW, $r(63) = .30, p = .016$ (see Table 2). Additionally, WSES scores statistically explained 9% of the variance in TWW for middle school students ($r^2 = .09$).

Writing Apprehension Test

What is the relationship between WAT scores and writing performance for middle school students? A Pearson's product-moment correlation was run to assess the relationship between WAT scores and TWW for middle school students. There was a statistically significant, moderate positive correlation between WAT scores and TWW, $r(63) = .33, p = .008$ (see Table 3). In addition, WAT scores statistically explained 11% of the variance in TWW for middle school students ($r^2 = .11$).

Self-Report Measures as Predictors of Writing Performance

First, a multiple regression analysis exploring whether WSES and WAT scores could reliably predict student writing performance, both independently and together, was run to answer

research questions three and four. There was linearity as assessed by partial regression plots and a plot of standardized residuals against the predicted values. There was homoscedasticity, as assessed by visual inspection of a plot of standardized residuals versus standardized residual values. There was no evidence of multicollinearity, as assessed by tolerance values greater than 0.1. The multiple regression model statistically significantly predicted writing performance, $F(2,62) = 5.40, p = .007, \text{adj. } R^2 = .12$. These results indicate that, when used together, WSES and WAT scores could reliably predict writing performance. Additionally, WAT scores were found to be significant predictors in the model. WAT scores added statistically significantly to the prediction, $p = .04$. For every 1 unit increase in WAT scores, a .52 unit increase in writing scores is predicted, holding all other variables constant. In addition, only 12% of the variance of the dependent variables can be accounted by the model, a small effect size according to Cohen (1988).

Confidence intervals within each model were reviewed to provide more information regarding the true value of the standardized coefficient. A 95% confidence interval was used, indicating that for each variable, there was a 95% probability that the true value of the standardized coefficient was included in the interval. The confidence interval for WAT scores indicates that the true value of the impact of WAT scores on writing performance, holding all things constant, lies between .02 and 1.03. Given that the lower and upper limits of the interval are positive, it is certain that there is a positive point increase in TWW for every unit increase in WAT scores.

For WSES scores, the confidence interval indicates that the true value of the impact of these scores on writing performance lies between -.04 and .63. Translated, holding all things constant, for every 1 unit increase in WSES scores there could be a decrease of -.04 points on the

TWW score, or there could be a .63 point increase on the TWW score. Because the WSES score coefficient was not statistically significant, the true value of increase or decrease is unknown. In addition, considering that the confidence interval contains a negative lower bound and a positive upper bound, it is uncertain whether there is an increase or decrease in points for every unit increase in WSES scores. Regression coefficients and standard errors for this model can be found in Table 4.

An additional multiple regression analysis was run to include gender as an additional independent variable. Similar to the first regression model, tests of assumptions were run and there was linearity, homoscedasticity, and no evidence of multicollinearity. The multiple regression model statistically significantly predicted writing performance, $F(3,61) = 4.23$, $p = .009$, $\text{adj. } R^2 = .13$. These results suggest, when used together, gender, WSES scores, and WAT scores could reliably predict writing performance. Within this model, coefficients for gender, WSES scores, and WAT scores were not statistically significant. These results suggest that, there was no linear relationship between each independent variable and writing performance. In other words, WSES scores, WAT scores, nor gender can be solely used to predict writing performance (see Table 5). In addition, only 13% of the variance of the dependent variables can be accounted by the model, a small effect size according to Cohen (1988).

To further evaluate the relationships between each independent variable and writing performance, confidence intervals were analyzed. A 95% confidence interval was used. For WSES scores, the confidence interval indicates that the true value of the impact of these scores on writing performance lies between $-.05$ and $.62$. The confidence interval for WAT scores indicates that the true value lies between $-.03$ and $.97$. For gender, the confidence interval indicates that the true value lies between 04.51 and 22.28 . These intervals suggest that, when

everything is held constant, for every 1 unit increase in a particular independent variable, there could be a decrease or an increase on the TWW score. Because the standardized coefficient for each independent variable was not statistically significant, the true value of increase or decrease remains unknown. In addition, because the confidence intervals contain negative lower limits and positive upper limits, it is uncertain whether the true value indicates an increase or decrease.

Chapter IV

Discussion

Existing research indicates that several factors may contribute to deficits in student writing performance, including writing self-efficacy, and writing apprehension. Two scales commonly used to measure writing self-efficacy and writing performance, the *Writing Self-Efficacy Scale* (WSES; Pajares and Valiante, 1999) and the *Daly-Miller Writing Apprehension Test* (WAT; Daly and Miller, 1975), were initially created to evaluate levels of writing self-efficacy and apprehension to provide additional information about factors impacting student writing. However, despite being frequently used, these measures have rarely been evaluated for their reliability and validity. Thus, the purpose of the current study was to examine the reliability and validity of the WSES and the WAT. In general, results suggested that WSES and WAT have high internal consistency. WSES and WAT scores were also both found to be positively related to writing performance. Furthermore, when used together, these scores can be used to predict student writing performance. However, results indicated that WSES and WAT scores cannot be used independently to predict student writing performance. In the next section, results are further explained, limitations are outlined, and future directions are recommended.

Internal Consistency of Self-Report Measures

Prior to evaluating each research question, the overall internal consistency of the WSES and the WAT were assessed. Results indicated a high level of internal consistency for both the WSES and the WAT, as determined by Cronbach's alpha coefficients of 0.7 and .75, respectively. These results suggested that items from both the WSES and the WAT are consistent with another and reliably measuring their respective constructs. This finding aligns with previous research indicating that the WSES and the WAT were reliable methods of measuring both

writing apprehension and writing self-efficacy. In a previous study analyzing the reliability of the WSES, a high level of internal consistency was found with a reported Cronbach's alpha coefficient of .91 (Pajares, 2007). For the WAT, initial internal consistency was also high, with a reported coefficient of .94 (Daly & Miller, 1975). Although results from the current study are not as high as those of previous studies, it can be concluded that the WSES and the WAT can continue to be confidently used with middle school students to measure their respective factors. Additionally, current findings offer a more recent confirmation of the internal reliability and consistency of the WSES and the WAT.

Relationship Between Scores on Self-Report Measures and Writing Performance

To examine the relationship between WSES scores, WAT scores, and writing performance, two hypotheses were made. It was hypothesized that there would be a positive relationship between WSES scores and writing performance. Specifically, it was hypothesized that as scores on the WSES increased, TWW would also increase. A similar hypothesis was made regarding WAT scores and writing performance. Results supported both hypotheses; positive relationships were found between WSES scores and writing performance as well as WAT scores and writing performance.

These findings support previous research suggesting that there is a significant relationship between writing self-efficacy and writing performance. In a series of earlier studies where researchers examined writing self-efficacy and performance across various populations, a significant positive correlation was found between the two. Additionally, writing apprehension was found to be negatively correlated to performance (Pajares & Johnson, 1994; 1996; Pajares & Valiante, 1997; 1999). Results of the current study yielded similar results. A significant, moderate positive relationship was found between WAT scores and writing performance. As

previously mentioned, higher scores on the WAT suggest lower levels of writing apprehension. Therefore, a positive relationship between WAT scores and writing performance indicates a negative relationship between writing apprehension and performance. Thus, it can be concluded that students who had lower levels of writing apprehension performed better than those who were more apprehensive. This conclusion also aligns with previous research specifying that students who were less apprehensive about writing performed better on writing tasks (Sanders-Reio et al., 2014).

Results from the evaluation of the relationship between WSES scores and writing performance also supported previous findings suggesting a significant positive relationship between the two. However, only a moderate positive correlation was found between writing self-efficacy scores and writing performance. It is possible that the small number of participants in this study contributed to the smaller effect size. Nevertheless, while the relationship evaluated in the current study is not as strong, it can still be concluded that there is a significant, positive relationship WSES scores and writing performance. This conclusion also supports previous research indicating that writing self-efficacy can serve as a predictor of writing competence for middle school students (Pajares & Valiante, 1999). Overall, current findings support the notion that competent writers perform better on writing tasks, given the positive relationships between writing self-efficacy, competency, and performance.

Self-Report Measures as Predictors of Writing Performance

Writing Self-Efficacy Scale

It was hypothesized that scores on the WSES would predict writing performance for middle school students. This hypothesis was grounded in previous research suggesting that WSES scores are positively correlated to writing performance (Pajares & Valiante, 1999).

Normally, when there is a strong, positive relationship between two variables, one variable can be used to predict the other. Results from the current study did not support the initial hypothesis, and WSES scores alone were not found to be a significant predictor of writing performance. However, both regression models indicate that WSES scores can serve as predictors of writing performance when used in a model that also includes WAT scores or a model that includes WAT scores and gender.

In previous studies, results suggested that writing self-efficacy could serve as a significant predictor of writing performance due to the strong, positive correlations between the two (Graham, Wijekumar, Harris et al., 2019; Pajares & Valiante, 1999). However, previous research does not include linear regression analyses to further evaluate these relationships. A linear regression provides a more thorough assessment of the relationship between two variables and is often used to further evaluate predictive validity (Laerd Statistics, 2015). Thus, previous studies are unable to confidently conclude that writing self-efficacy can serve as a predictor of writing performance. These studies can only suggest that such a relationship may occur and recommend further evaluation of the relationship between the two.

Although results from the current study indicate the WSES remains a suitable measure of writing self-efficacy, further evaluation of the relationship between WSES scores and writing performance reveal that WSES scores alone cannot predict writing performance. Perhaps this conclusion cannot be drawn due to the current study yielding only a moderate correlation between WSES scores and writing performance rather than a much stronger one. It may be concluded, however, that WSES scores can be a significant predictor of writing performance when used in conjunction with WAT scores. More specifically, within this model, the knowledge of a student's scores on both the WSES and WAT can be used to predict writing performance. It

may also be concluded that WSES scores can predict writing performance when used with WAT scores and gender. Knowledge of a student's gender as well as their scores on the self-report measures increases the ability to predict the student's writing performance. These results align with previous research that suggests gender can play an important role in determining writing self-efficacy and performance (Pajares & Valiante, 1997). The equation for the multiple regression model used in this study can be used to make predictions about student writing performance. Future studies should identify whether the regression model in this study remains good fit across different populations.

Writing Apprehension Test

Similar to scores on the WSES, it was hypothesized that scores on the WAT would predict writing performance for middle school students. This hypothesis was grounded in previous research suggesting that writing apprehension is negatively correlated to writing performance (Daly & Miller, 1975) and the notion that a strong correlation between two variables can be used to make predictions (Cohen, 1988). Results from the current study did not support the initial hypothesis. WAT scores alone were not found to be a significant predictor of writing performance. However, results suggest that when used with WSES scores as well as with WSES scores and gender, WAT scores can predict writing performance.

Results from the current study does not align with previous research. Previous studies, however, have not thoroughly evaluated the relationship between WAT scores and writing performance. Instead, they have only highlighted that there is a negative relationship between writing performance and writing apprehension (Pajares & Valiante, 1997; Sanders-Reio et al., 2014). Additionally, research regarding the WAT specifically is limited, and there is yet to be a study that explicitly evaluate the predictive validity of WAT scores. Current results suggest that

the WAT is a reliable measure of writing apprehension. The current study also confirms that a negative relationship exists between writing apprehension and writing performance, with WAT scores being positively correlated with writing performance. However, results indicate that this relationship is not strong enough alone to conclude that WAT scores can predict writing performance. Again, perhaps a moderate correlation between WAT scores and writing performance in this case is not strong enough to make predictions. However, similar to WSES scores, it can be concluded that WAT scores can be used to predict writing performance only when used with other variables, such as WSES scores and gender.

Limitations and Future Research

Although results suggest that the WSES and WAT are useful measures for evaluating writing self-efficacy and apprehension, there are significant limitations of the current study that should be addressed in future research. First, future researchers should recruit a larger and more representative sample size to increase generalizability of results. For the current study, data were collected at a Boys & Girls Club in the Southeastern region of the United States. The sample size is small ($n = 65$), and somewhat homogenous (all from the same region), therefore impacting the generalizability of this study. In addition, data were only collected from middle school students, with there being a disproportionate amount of sixth graders compared to eighth grade students. Future researchers should recruit a more representative sample of participants with a similar number of participants from each grade. Future research should also consider the effectiveness of WAT and WSES scores at other grade levels as well, including elementary and high school.

Another limitation of this study is the decision to collect data from the Boys & Girls Club. Data were collected during the academic hour, which is one hour set aside for completing school work. Once that hour is over or work is completed, children are free to engage in more

exciting, recreational activities. In addition, attendance at the Boys & Girls Club is not required, causing attendance to be somewhat variable day to day. It is unknown whether attendance could have been higher on a different day, potentially generating a larger sample for the study.

Additionally, it remains unclear if students worked quickly to be able to have more time for preferred activities. Future researchers should consider collecting data in a school setting where sample size can be more accurately estimated, and children do not feel as if they are missing out on a more exciting activity.

In addition to the above recommendations, future studies should consider incorporating a writing quality measure as an additional measure of writing performance. In the current study, writing performance was only defined as Total Words Written (TWW), which does not take into consideration spelling, punctuation, or grammar (Powell-Smith & Shinn, 2004). Participants in this study who wrote more groups of letters (each separated by a space) were considered better writers than those who wrote fewer words. Longer essays with poor punctuation, spelling, and grammar could have higher scores than short, succinct essays with proper punctuation, spelling, and grammar. Without a quality measure, it remains unclear if essays that contained more words were a true indication of a better performer.

Implications and Summary

In summary, results support the reliability of the *Writing Self-Efficacy Scale* (WSES; Pajares and Valiante, 1999) and the *Daly-Miller Writing Apprehension Test* (WAT; Daly and Miller, 1975) in measuring writing self-efficacy and writing apprehension, respectively. In addition, results provide current evidence of the significant, positive relationship between writing self-efficacy and writing performance as well as the significant, negative relationship between writing apprehension and writing performance. Although results from this study suggest that

WSES and WAT scores cannot be used independently to predict writing performance, predictions can be made if both scores are used together. Additionally, gender can potentially play a role in predicting writing performance when used together with WSES and WAT scores.

Findings from this study can help to inform the creation of interventions that may improve student writing performance. More specifically, future research should focus on creating and evaluating interventions that could decrease levels of writing apprehension and encourage students to become more comfortable with writing. Such interventions should be effective and easy for teachers to implement inside the classroom. One way to do so might be to target low writing self-efficacy through strategies like cognitive-behavioral coaching (CBC). CBC is an effort to apply cognitive-behavioral techniques specifically to writing to improve the quality and quantity of writing in adults (Gardiner and Kearns, 2012). Current research suggests that using these cognitive-behavioral techniques in conjunction with strategy instruction could be useful in targeting and improving writing production and self-efficacy. Future research that evaluates the effectiveness of these techniques more closely might help better inform the future of writing self-efficacy interventions (Daniels et al., 2020). Overall, this study provides a present-day evaluation of the relationships between writing self-efficacy, apprehension, and performance that can help to inform the generation of future writing interventions.

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Appendices

Appendix A
Writing Self-Efficacy Scale
(Pajares & Valiante, 1999)

Directions: **In relation to writing**, rate how confident you are that you can do each of the following tasks. Rate your degree of confidence by recording a number from 0 to 100 using the scale given below. You may **assign any number** between 0 (*no chance*) and 100 (*completely certain*).

0 10 20 30 40 50 60 70 80 90 100

_____ I can correctly spell all words in a one-page story or composition.

_____ I can correctly punctuate a one-page story or composition.

_____ I can correctly use all parts of speech in a written composition.

_____ I can write simple sentences with good grammar.

_____ I can correctly use singulars and plurals, verb tenses, prefixes, and suffixes.

_____ I can write a strong paragraph that has a good topic sentence or main idea.

_____ I can structure paragraphs to support ideas in the topic sentences.

_____ I can end paragraphs with proper conclusions.

_____ I can write a well-organized and sequences paper with good introduction, body, and conclusion.

_____ I can get ideas across in a clear manner by staying focused without getting off topic.

Appendix B
Daly-Miller Writing Apprehension Test
(Daly & Miller, 1975)

Writing Apprehension Test (WAT)

Directions: Below are twenty statements that people sometimes make about themselves. Please indicate whether or not you believe each statement applies to you by marking whether you: **Strongly Disagree = 1; Disagree = 2; are Neutral = 3; Agree = 4; Strongly Agree = 5**

- _____ 1. I avoid writing.
- _____ 2. I have no fear of my writing being evaluated.
- _____ 3. I look forward to writing down my ideas.
- _____ 4. My mind seems to go blank when I start to work on a composition.
- _____ 5. Expressing ideas through writing seems to be a waste of time.
- _____ 6. I would enjoy submitting my writing to magazines for evaluation and publication.
- _____ 7. I like to write my ideas down.
- _____ 8. I feel confident in my ability to clearly express my ideas in writing.
- _____ 9. I like to have my friends read what I have written.
- _____ 10. I am nervous about writing.
- _____ 11. People seem to enjoy what I write.
- _____ 12. I enjoy writing.
- _____ 13. I never seem to be able to clearly write down my ideas.
- _____ 14. Writing is a lot of fun.
- _____ 15. I like seeing my thoughts on paper.
- _____ 16. Discussing my writing with others is an enjoyable experience.
- _____ 17. It is easy for me to write good compositions.
- _____ 18. I don't think I write as well as most other people do.
- _____ 19. I don't like my compositions to be evaluated.
- _____ 20. I am no good at writing.

Scoring: To determine your score on the WAT, complete the following steps:

- Step 1. Add scores for items 1, 4, 5, 10, 13, 18, 19, and 20
- Step 2. Add the scores for items 2, 3, 6, 7, 8, 9, 11, 12, 14, 15, 16, 17
- Step 3. Complete the following formula:

$$\text{WAT} = 48 - \text{Total from Step 1} + \text{Total from Step 2}$$

Your score should be between 20 and 100. If your score is below 20 or above 100, you have made a mistake in computing the score.

Appendix C
Researcher Script

Introduction

1. **Hi everyone, I'm (introduce researchers present) and we are graduate students at the University of Tennessee and we would like your help with a project we are working on. We want to know how confident you are in writing and we have two short surveys that will ask you some questions about your confidence in certain writing skills and your anxiety towards writing. Then you will write a short story. We should be finished in about 30 minutes!**
-

Youth Assent

1. Pass out youth assent forms
 2. **Before we get started, we have a research permission form that we would like you to sign. Everyone is going to participate in the activities today but we need your permission to use your stories and survey information. We will not use your name, so no one will know what you wrote or how you answered the survey questions. Before we leave the building, we are going to give you a number code and remove your name from all our papers so that no one will know that it is yours. So, if you will let us use your stories and surveys, print and sign your name on the permission form."**
 3. Collect Youth Assent Forms
-

Writing Self-Efficacy Scale

1. Pass out Writing Self Efficacy Scale
2. **First we are going to take a short survey. Start by writing your first and last name at the top. Remember, we will assign everyone a code before we leave. So no one will know which answer you give. Does anyone have any questions? (Pause to give students time to write their name).**
3. **Next write your gender at the top of the page. So you can write boy/male or girl/female.**
4. **Now write what grade you are currently in.**
5. **And last, write your birthday. Start with the month, then the day, followed by the year.**

6. **Now we are going to start the survey. This is a survey about your confidence in writing. It is not a test, so there are no right or wrong answers! But the answers you give are important and will really help our research, so please answer honestly.**
 7. **The directions say, in relation to writing, rate how confident you are that you can do each of the following tasks. Rate your degree of confidence by recording a number from 0 to 100 using the scale given below. (Point to Scale). You may assign any number between 0 - no chance and 100 - completely certain. Are there any questions?**
 8. **You may begin! If you have any questions while you are taking the survey just raise your hand and we will come help you.**
 9. **When you are finished with the survey, flip it over so we know that you are done.**
 10. Collect Writing Self-Efficacy Scale
-

Writing Apprehension Test

1. Pass out Writing Apprehension Test
 2. **This is a survey about writing apprehension or anxiety. Just like the other survey, this is not a test, so there are no right or wrong answers! But the answers you give are important and will really help our research, so please answer honestly.**
 3. **Start by writing your name at the top.** (Pause to give students time to write their name)
 4. **The directions say, Below are twenty statements that people sometimes make about themselves. Please indicate whether or not you believe each statement applies to you by marking whether you: Strongly Disagree = 1; Disagree = 2; are Neutral = 3; Agree = 4; Strongly Agree = 5. Does anyone have any questions?**
 5. **Great, you may begin! Again, if you have any questions while you are taking the survey just raise your hand and we will come help you.**
 6. **When you are finished with the survey, flip it over so we know that you are done.**
 7. Collect Writing Apprehension Test
-

Writing CBM

1. Give each student the paper with the story starter written at the top – (provided).

2. **I want you to write a story. I am going to read the first few words of the story to you first and then I want you to write a story about what happens. You will have 1 minute to think about the story you will write, and then you'll have five minutes to write it. At three minutes, I'm going to ask you to circle the word you just wrote. You will circle to word and then continue writing. Do your best work. If you don't know how to spell a word, you should guess. Use the words written at the top of your paper as your first sentence. Are there any questions? For the next minute think about 'The best thing about summer is ...'.**
 3. Begin timing
 4. If students start writing, instruct them to wait until you tell them to begin writing.
 5. After 30 seconds say, **"You should be thinking about 'the best thing about summer...'"**
 6. After 1 minute, say, **"Start Writing."** (Restart the stop watch.) Walk around the classroom to ensure the students are writing.
 7. After 90 seconds, say, **"You should be writing about 'the best thing about summer'."**
 8. At three minutes, say **"Please circle the word you just wrote and then continue writing."**
 9. At five minutes say, **"Stop and put your pencil down."**
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Thank students for participation

1. We are all finished! Thank you all so much for your help!

Appendix D
Tables

Table 1. Means and Standard Deviations of WSES, WAT, and TWW

	Total (<i>n</i> = 65)	Male (<i>n</i> = 39)	Female (<i>n</i> = 26)	Sixth (<i>n</i> = 34)	Seventh (<i>n</i> = 21)	Eighth (<i>n</i> = 10)
Measure	<i>M</i> (SD)	<i>M</i> (SD)	<i>M</i> (SD)	<i>M</i> (SD)	<i>M</i> (SD)	<i>M</i> (SD)
WSES	68.63 (20.60)	67.29 (22.84)	70.64 (16.91)	65.84 (22.39)	74.60 (16.66)	65.60 (20.96)
WAT	62.20 (13.90)	60.36 (14.00)	64.90 (13.48)	62.46 (14.34)	59.05 (11.81)	67.80 (15.63)
TWW	71.82 (28.01)	67.03 (29.14)	79.00 (25.05)	65.74 (25.71)	76.90 (30.33)	81.80 (28.27)

Note. WSES = Writing Self-Efficacy Scale, WAT = Writing Apprehension Test, TWW = Total Words Written

Table 2. Pearson correlation for WSES and TWW

	TWW	WSES
WSES	.30*	1.00
TWW	1.00	.30*

Note. WSES = Writing Self-Efficacy Scale Score, TWW = Total Words Written, * = statistically significant at $p < .05$ level.

Table 3. Pearson correlation for WAT and TWW

	TWW	WAT
WAT	.33*	1.00
TWW	1.00	.33*

Note. WAT = Writing Apprehension Test Score, TWW = Total Words Written, * = statistically significant at $p < .05$ level.

Table 4. Multiple Regression Results for WSES and WAT scores

	<i>B</i>	95% CI for <i>B</i>		<i>SE B</i>	β	R^2	ΔR^2
		<i>LL</i>	<i>UL</i>				
Model						.15	.12**
Constant	19.32	-13.56	52.21	16.45			
WSES	.29	-.04	.63	.17	.22		
WAT	.52*	.02	1.02	.25	.26*		

Note. Model = “Enter method in SPSS Statistics; *B* = unstandardized regression coefficient; CI = confidence interval; *LL* = lower limit; *UL* = upper limit; *SE B* = standard error of the coefficient; β = standardized coefficient; R^2 = coefficient of determination; ΔR^2 = adjusted R^2 .

* $p < .05$. ** $p < .01$.

Table 5. Multiple Regression Results for WSES scores, WAT scores, and Gender

	<i>B</i>	95% CI for <i>B</i>		<i>SE B</i>	β	R^2	ΔR^2
		<i>LL</i>	<i>UL</i>				
Model						.17	.13**
Constant	19.20	13.50	51.90	16.35			
WSES	.29	-.05	.62	.17	.21		
WAT	.47	-.03	.97	.25	.23		
Gender	8.88	-4.51	22.28	6.70	.16		

Note. Model = “Enter method in SPSS Statistics; *B* = unstandardized regression coefficient; CI = confidence interval; *LL* = lower limit; *UL* = upper limit; *SE B* = standard error of the coefficient; β = standardized coefficient; R^2 = coefficient of determination; ΔR^2 = adjusted R^2 .

* $p < .05$. ** $p < .01$.

Vita

Jada Kennice White earned a Bachelor of Interdisciplinary Studies degree with a concentration in Human Learning and Development from Georgia State University in May 2017. Jada began the University of Tennessee's School Psychology Ph.D. Program shortly thereafter in August 2017. In December 2019, she earned a Master of Science degree in Teacher Education with a concentration in Applied Behavior Analysis. Jada will earn her Ph.D. in August 2022 upon completion of a year-long pre-doctoral internship with the Munroe-Meyer Institute through the Nebraska Internship Consortium in Professional Psychology.