The relationship between middle and high school students' motivation to write, value of writing, writer self-beliefs, and writing outcomes

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Abstract: Most time spent writing in schools is typically in the form of writing practice, often in short-form writing assignments, and focused on the mechanics and cognitive approaches to writing, rather than motivation. Research has only recently begun to document a direct relationship between writing achievement and writing motivation, but so far concludes that the two constructs do inform each other. Therefore, for the present study, we independently examined the impacts of motivation to write, students' perceived value of writing achievement, and students' self-belief as writers on their writing outcomes. Focusing on middle and high school classrooms, we triangulated data through students' writing samples, students' writing scores from the *Test of Written Language-IV (TOWL-4)*, and students' writing achievement provided by teacher ratings. Our study adds support to previous work on writing motivation by demonstrating that middle and high school students' motivation to write is correlated strongly with their writing achievement. To expand on our results from this study, additional research is needed to better understand the relationships between writing motivation and the complex, intersecting identities students bring with them into their writing.

Keywords: writing motivation; writing achievement; expectancy-value theory; middle and high school students

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1. Introduction

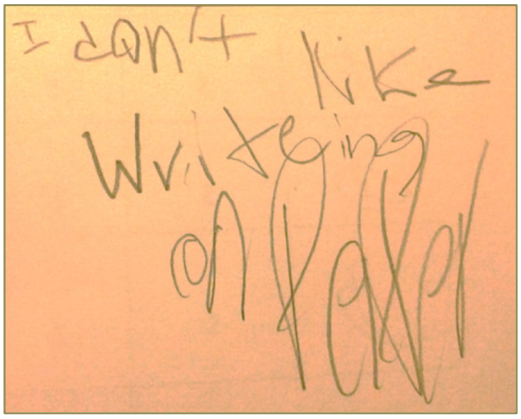

Figure 1. I don't like Writeing on Peper [sic], Student comment spontaneously included on writing survey.

"I don't like Writeing on Peper" – such a simple statement that can elicit a plethora of interesting questions about writing achievement and instruction in the middle and high school grades. In this example, a middle school student spontaneously wrote this comment to the research team while completing a survey about writing motivation. Clearly, the student had a strong opinion about writing, but what is less understood is how this opinion relates to his or her motivation to write and, more importantly, writing achievement. Questions such as: "does the student prefer other forms of writing, rather than using paper?", "what experiences with writing have led to this negative opinion?", or "could the students' writing skills, as evidenced by improper spelling and capitalization, be influencing their views on writing?" These questions are just three examples that indicate how writing achievement and writing motivation may inform one another.

Writing is a highly complex activity, which tasks the writer with simultaneously engaging in cognitive, metacognitive, and affective skills (Hidi & Boscolo, 2006), while also encompassing social and contextual factors such as the environment and social interactions (Graham, 2018). For example, to write the simple statement expressed in Figure 1, our student would have to employ cognitive skills (i.e., basic sentence structure, spelling, punctuation, and how to utilize those skills in writing), metacognitive skills (i.e., what is the best wording for my opinion?, does this convey my message effectively?), and affective skills (i.e., Am I motivated to practice writing?) (Graham, 2006; Graham, MacArthur, & Hebert, 2019). Conveying the intended message requires all three components working in concert, which can make the constructs and skills difficult to distinguish from one another.

When considering these components of writing, in research and practice writing motivation receives less attention than writing achievement. While strong theoretical evidence exists to suggest that motivation is important for developing writers (Eccles & Wigfield, 2002; Graham, 2006), to date little empirical evidence describes this connection. Troia et al. (2013) investigated this relationship by examining how 4th through 10th grade students' scores on their newly-created measure of motivational beliefs related to qualitative writing performance. Their findings indicated that for every standard deviation increase in motivational beliefs, students' quality of narrative writing increased by approximately two-tenths of a standard deviation. The authors note, however, that methodological limitations, such as use of a single writing sample, make it difficult to generalize their findings. Focusing more specifically on writing motivation, research has suggested several sub-components of this overarching variable, including self-efficacy for writing (Bruning et al., 2013), value for writing and the task (Eccles & Wigfield, 2002), and general beliefs about writing (Pajares, 2003). From this body of research, researchers know that elementary students' writing achievement is influenced in varied ways based on motivational factors such as attitude toward writing and writing self-efficacy (Graham et al., 2017). Yet, these same factors have not been explored beyond elementary grades. Building on this work, we wished to explore how the variables influenced writing achievement in the middle and high school grades, while also examining important variables related to writer self-beliefs. In adolescence, students are much more concerned with their emotional self and sense of belonging, which should be applied to the content they are learning as well.

2. The Present Study

Therefore, in response to this gap, our study examines the relationship between motivation and writing achievement. We answer the call from prior research by asking: *To what extent can students' motivation to write explain their writing outcomes?* We begin by examining the impacts of motivation to write, broadly speaking, on students' writing outcomes. Then, to understand better the impact of different factors related to motivation, we independently examine students' perceived value of writing achievement and students' self-beliefs as writers on their writing outcomes. As our participants include students from different grades, we also control for this variable.

Learning from the work of Troia and colleagues (2013), who suggest that future research should consider utilizing a norm-referenced writing sample to obtain a more reliable measure of students' writing achievement, we examine three separate writing outcomes. First, we asked English teachers to rate the students' writing skills in comparison to their peers. Secondly, we administered a subtest of the *Test of Written Language* to collect a norm-referenced measure of students' writing ability.

Finally, we collected and scored three classroom assignments to obtain an estimate of students' writing performance in normal, classroom settings. Triangulating these data allows us to create a more robust picture of how students' motivation may be influencing their achievement in writing.

3. Exploring Writing Motivation in the Middle and High School Grades

Research indicates that as students progress through school, even as early as grade three, they show decreases in writing motivation which can be exacerbated through the middle and high school (Bruning et al., 2013; Koster et al., 2015). If students continue to struggle with writing in multiple grade levels, they may lose value for the task or view it as unimportant (James et al., 2017) and develop poor motivation to complete the task as undergraduate students (Limpo & Alves, 2017).Middle and high school students in the US are expected to write with flexibility, ease, and critical thought, as evidenced by timed assessments or classroom writing activities (National Governors Association, 2010). Given the various skills, processes, and constraints writers must juggle, writing can be an overwhelming task for many middle and high school students (Boscolo & Gelati, 2019; Bruning et al., 2013). As students are tasked with increasingly more challenging writing assignments, they may not only show decreased motivation to write but decreased value of writing as well (Wright et al., 2020).

Students who have struggled with writing may also be unmotivated to engage in its practice because they believe that writing skills are fixed rather than malleable (Limpo & Aves, 2017) – that is, as Limpo and Alves demonstrated with undergraduates, they do not believe they can improve their writing ability. To develop the writing skills and knowledge crucial for becoming a proficient writer, students require high levels of motivation to engage in continued practice (Graham, 2006; Hayes, 2012). According to Limpo and Aves (2017), "students' beliefs about the malleability of their writing skill predict the extent to which they pursued their mastery goals in writing" (p. 115). In other words, students who believed that writing skills were malleable were more successful at meeting their goals than those who perceived their writing abilities as fixed. Fixed self-perceptions led to students avoiding opportunities to demonstrate competence rather than taking risks in writing tasks (Limpo & Aves, 2017). Thus, having a fixed perception about writing ability leads to lower motivation, and potentially, achievement in writing outcomes. Besides developing writing skills, which can lead to increases in motivation, middle and high school students are also engaged in identity development, both personal and academic. From the academic writing perspective, middle and high school students are developing their identities as writers, including their level of knowledge related to writing and their ability to execute writing tasks successfully (Bruning et al., 2013). Specifically, Bruning and colleagues (2013) examined students' efficacy development regarding ideation (i.e., idea generation), conventions (i.e.,

grammar and presentation), and self-regulation (i.e., their ability to think about their writing as they produced it). Their findings suggest that students' identity as writers, and therefore motivation to write, can be informed by all three types of writing tasks.

4. Writer Beliefs, Self-Efficacy and Value of Writing

Before delving further into the present study, it is important to define our constructs of interest, namely writing motivation and its sub-components. We understand writing motivation to be the variety of reasons that an individual may or may not engage in writing practice (Wright et al., 2019a; Bruning & Horn, 2000; Graham, 2018). Writing motivation is multifaceted, and in the present study, we specifically examine writer self-beliefs and value of writing as these factors relate to writing motivation. These two sub-components developed from prior work on writing motivation (see, Bruning & Horn 2000; Bruning et al., 2013) as well as work, with elementary students that focused on how writing motivation and writing achievement are associated (Graham et al., 2017). We build on these foundational works to explore additional dimensions of writing motivation and examine how writing motivation influences writing achievement in the middle and high school grades. In the following sections, we explore and further define our writing motivation sub-components, writer self-beliefs, writing self-efficacy, and value of writing.

4.1 Writer Beliefs and Self-Efficacy

Students' beliefs about themselves as writers (i.e., *writer self-beliefs*) are important contributors to meeting writing goals and increasing motivation (Wright et al., 2019a). As has been demonstrated with undergraduate students, students with more negative perceptions about their writing abilities are less motivated to produce text (Limpo, 2018). Additionally, Graham and colleagues (2017) found that fourth-grade students with lower motivation to write produced less words and lower quality writing than their peers with higher motivation. Furthermore, students who lack positive self-beliefs are more likely to have writing apprehension due to negative thoughts, stress, and fear, which can ultimately lower their writing achievement (Pajares & Valinate, 2006). By contrast, Graham (2018) argues, "if one believes they are a good writer, a writing task may activate positive emotions such as joy and pride and result in greater effort and persistence than those who have doubts about their competence" (p. 34). Therefore, if students have positive self-perceptions about their writing abilities, they will choose the task over others for which they have negative feelings (Pajares & Valinate, 2006).

One important component of writer self-beliefs is students' self-efficacy towards writing, or the belief that one has the skills and strategies necessary to complete successfully a challenging writing task (Bandura, 1997, 2001). Middle and

high school students who lack writing self-efficacy are more likely to give up on tasks, which inhibits their potential achievements (Bruning et al., 2013; Troia, 2009). In addition, a high sense of self-efficacy determines the amount of effort, perseverance, and resilience a student puts forth, and therefore, self-efficacious students will overcome more obstacles in writing compared to those who lack self-efficacy (Pajares & Valinate, 2006; Tschannen-Moran & Johnson, 2011). When examining undergraduate students, Sanders-Reio and colleagues (2014) found high writing self-efficacy was correlated with writing enjoyment, whereas low self-efficacy was correlated with writing apprehension. Although Sander-Reio and colleagues' (2014) study indicates self-efficacy is important for writing achievement, their participants were college undergraduates and therefore, there are still unanswered questions about how self-beliefs affect writing performance in middle and high school children.

4.2 Value of Writing

In a similar vein, perceiving writing to be a valuable task (i.e., value of writing) also contributes to writing outcomes. For students to be successful, they need to see the value and utility in writing (Graham, 2018). Inauthentic writing assignments can reduce the value of writing, and therefore decreases the effort put forth by high school students (Lam & Law, 2007). Authentic writing tasks allow students to see how the skills are used in the real world and the value writing holds outside of the classroom. According to Hidi and Boscolo (2006), increased belief in the usefulness of writing leads to positive effects on writing outcomes. Furthermore, Mata (2011) concluded that kindergarteners' value and importance of a writing assignment were the greatest motivator, with self-concept coming in a close second. These findings suggest that value and self-concept in writing may also be important to motivating middle and high school students.

4.3 Expectancy-Value Theory to Support Writing Motivation

Based on prior research, we can conclude that writing self-beliefs and value of writing are important constructs related to writing motivation, which positively impact writing achievement in elementary grades, yet this same research has not been extended to middle and high school grades (Graham et al., 2017). Our belief that students' motivation to write may be related to their writing achievement is grounded in Expectancy-Value Theory (EVT). According to this theory, students' expectations of their own success combined with their subjective value of a task help explain their choice to engage or not engage in that task (Eccles & Wigfield, 2002). In the case of writing, we apply EVT to understand that students' *motivation to write* would be influenced by their *writer self-beliefs* and *value of writing* (Wigfield & Eccles, 1992).

EVT posits that engagement is dependent upon the individual perceiving some value in the task. This value could be based upon the intrinsic enjoyment of the task or belief that there is some use in engaging in the task (Wigfield & Eccles, 2000). Additionally, if students' self-beliefs as writers are poor (that is, they believe they are not competent at writing) they are not likely to engage in the task even if they believe writing is important. Previous research has demonstrated that, even when controlling for actual performance, students' beliefs about their abilities and their expectations for success are strong predictors of mathematics outcomes (Wigfield & Eccles, 2000). In a similar manner, we hypothesize that students' beliefs that they can be successful at writing will predict their writing outcomes.

Later work in EVT suggests that children asked to perform tasks in academic domains where they experience threats to salient social identities also factor the cost of that participation in their level of motivation (Eccles, 2007). For example, adolescent Black and Latinx students as well as girls across racial identities face stereotype threats in STEM education environments (e.g., Aronson & Good, 2002; Steele & Aronson, 1995). These costs are directly tied to academic and social identities, which are critical for middle and high school students still developing their academic identities. While research on the impact of perceived cost on writing motivation, particularly regarding groups of students under identity threat, is limited, research from social psychology suggests that cost could be an important factor for writing as well.

Based upon this framework, we propose that motivation to engage in writing practice depends on students' belief that there is value to learning to write well and that success in the writing task is likely. If motivated, the student will engage in the (often difficult) task of writing and develop stronger skills as a writer. Additionally, we hypothesize that, while global motivation for writing may have some ability to explain students' writing outcomes, students' perceived value of writing achievement, and their beliefs about themselves as writers may also be significant predictors.

5. Study Rationale

Existing research indicates that students' value of writing and self-beliefs as writers may develop independently (Eccles et al., 1998). Building on these arguments, we posit that children who do not value writing will not engage in a writing task, even if they have sufficient writing skills. Likewise, children who value writing are unlikely to write if they see themselves as poor writers who are unlikely to succeed at the task. While research exists examining the relationship between reading motivation constructs and reading achievement (Baker & Wigfield, 1999; Schiefele et al., 2012; Schaffner et al., 2013), fewer studies examine this relationship in writing, and to our knowledge, those do not focus on value and self-beliefs as independent, yet related, constructs. Finally, more research is needed to examine the relationship

between middle and high school students' motivation to write and their writing achievement. Therefore, in the present study, we examine these relationships through multiple measures by posing the following question: *To what extent can students' motivation to write explain their writing outcomes?* Answering this question required us to examine both students' overall motivation for writing, as well as two factors of motivation related to Expectancy-Value Theory, namely value of writing and beliefs about the self as a writer.

6. Method

The present study's data were collected as part of a larger writing-to-learn intervention study (see Wright et al., 2019b). In this mixed methods study, we measured students' motivation to write using the Self-Beliefs, Writing-Beliefs, and Attitude Survey (SWAS; Wright et al., 2019a). We also analyzed students' writing achievement using three measures: (1) teacher evaluations of writing, (2) norm-referenced writing samples, and (3) classroom writing samples. Together, these measures helped us analyze the relationship between secondary students' writing achievement and motivation to write. In the following sections, we provide additional details about our participants, context, measures, data collection procedures, and data analysis.

6.1 Participants and Setting

The participants were 48 middle- and high-school students (grades 6 through 11) who attended a private college-preparatory school in the southwestern United States. There were slightly more males (58.3%) than females, and most students' first language was English. Additionally, our participants included students in grades 6, 7, 10, and 11. Grades eight and nine were not included at their classroom teachers' requests. Demographic information is presented in Table 1.

Table 1. Participant Demographic Information

	6th grade	7th grade	10th grade	11th grade
n	18	8	13	12
% Male	66.6%	37.5%	53.9%	83.4%
% Female	33.3%	62.5%	46.1%	16.6%
n English Language Learner	0	0	4	0

Because of the school's small size, there were only two English teachers for grades 6 through 12. This meant the teachers had known most of the students for multiple school years and were deeply knowledgeable about individuals' strengths and areas for growth. While the two teachers worked together to ensure some alignment between grade levels, they also reported having significant freedom in designing

their curriculum. Students engaged in novel studies using contemporary literature (such as *The Kite Runner,* Hosseini, 2003, being read by tenth graders at the time of this study), as well as direct instruction in different genres of writing. According to the teachers, little whole-class time was spent on grammar and mechanics as the focus of instruction leaned towards the content of students' writing. When necessary, teachers were able to work one-on-one with students to develop their use of writing conventions.

6.2 Measures and Data Collection Procedures

Writing Motivation

To measure writing affect, we administered the Self-Beliefs, Writing Beliefs, and Attitude Survey (SWAS; Wright et al., 2019a). This survey presents statements about writing and asks students to rate, on a scale of one to four, whether each statement is "a lot like me" or "very different from me." The SWAS is a 30-item measure of students' overall motivation for writing. The higher-order factor of writing is comprised of three related sub-constructs: attitude toward writing; beliefs about writing, and writer self-beliefs (see Figure 2). Our prior research provides validity evidence for this hierarchical model and demonstrates that this model is a strong fit for data from adolescent students (Wright et al. 2019a; Wright et al. 2020).

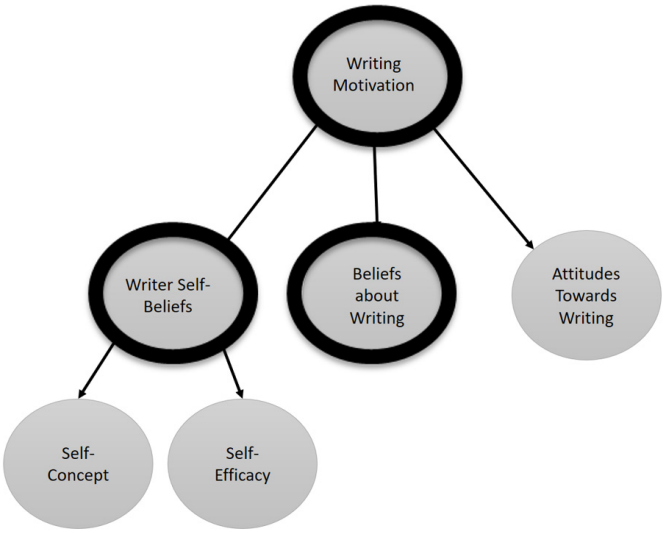

Figure 2: Factorial structure of the SWAS.

Notes: Dark outlines indicate factors related to Expectancy Value Theory and included in the present study. For consistency, we refer to the "Beliefs about Writing" factor as "Value of Writing" throughout this manuscript.

We utilize the overall score on the SWAS as a measure of students' motivation for writing. However, as motivation is a multidimensional construct (Collie et al., 2016), we also examined how factors related to motivation differentially impacted writing achievement. More specifically, based in our theoretical framework of Expectancy-Value Theory (Eccles & Wigfield, 2002), we examined the factors on the SWAS related to students' beliefs about their ability to write (i.e., expectancies) and the value they place on writing well. While the SWAS does provide estimates of other factors related to motivation, these were outside the scope of the current study and theoretical framework.

The Writer Self-Beliefs factor probes both students' self-efficacy for writing (e.g. "When I get a good grade on a paper, it is because I tried really hard") as well as their self-concept (e.g. "I feel confident in my overall writing abilities"). As this factor measures students' feelings about their ability to be successful at writing tasks, we used this as a proxy for their writing expectancy. The factor contains 14 items, and the alpha for our administration was 0.912.

We used the Beliefs about Writing factor as a measure of students' *value of writing*. For clarity, we refer to this factor as "value of writing" in this study. The seven items on this factor ask students to rate items related to the purpose of writing (e.g., "writing helps me learn") and the importance of writing achievement (e.g., "I believe it is very important to be a good writer"). Students with a high score on this factor would likely believe that writing is important and worthy of their time and energy. The alpha for this factor was 0.872.

We administered the SWAS (Wright et al., 2019a) to the students on two separate occasions, approximately six weeks apart. Because shifting beliefs about motivation is not a goal of the present study, we hypothesized that using an average score from two administrations would yield a result closer to students' true score (Kang & MacDonald, 2010). This true score accounts for any differences that could occur in students' responses based on external factors, such as how whether they slept sufficiently the night before, rather than their motivation to write.

The Cronbach's alpha estimate for overall reliability from the two administrations was 0.945, indicating the instrument yielded reliable scores from the sample. Motivation generally takes a long time to change (Bandura, 2001), and paired samples *t*-test comparisons of the scores from the two administrations did not demonstrate any statistically significant differences (see Table 2). Furthermore, the results for the two administrations were highly correlated for all factors ($p <$ 0.000), providing additional evidence that students' motivation did not shift from one administration to the next. All writing samples were collected between the two administrations of this measure.

Table 2. SWAS Administrations Scores, Cronbach's Alphas, and Correlations

Factor	Administration 1		Administration 2		Correlation (Administrations 1 & 2)
	Mean		Mean		
Writer Self-Beliefs	2.85 (0.64)	0.913	2.95 (0.65)	0.907	0.865*
Value of Writing	2.91 (0.71)	0.896	2.94 (0.63)	0.828	0.820*
Motivation (full scale)	2.72 (0.61)	0.947	2.80 (0.59)	0.938	0.889*

* Correlation significant at $p < 0.000$

Teacher Evaluations of Writing

We asked the students' English teachers to rate each student's writing skills. Our goal in including this measure was to provide a holistic view of students' writing performance over time (rather than a one-off measure of writing, such as a standardized assessment). As this study took place in a small school, there were only two English teachers who had known most of the students for multiple years and were very familiar with their writing and achievement. These teachers were well equipped to evaluate the students' writing skills in different genres and for different purposes. We asked teachers to "provide an informal assessment of the student's overall writing and composition skills as compared to his or her peers and other students at this grade level". Scores ranged from 1 ("writes well below grade level") to 5 ("writes well above grade level").

Norm-referenced Writing Scores

Students completed the spontaneous writing subtest (form A) of the *Test of Written Language-IV* (TOWL-IV; Hammil & Larsen, 2009). We presented students with a picture and allocated 20 minutes for them to write a story based upon the visual. This test has been normed for ages nine years to 17 years 11 months (McCrimmon & Climie, 2011). We used the students' scaled scores for contextual conventions as the outcome variable. This score represents the students' ability to adhere to both orthographic and grammatical conventions of English writing.

Classroom Writing

Students' performance on an exam, such as the TOWL-IV, represents how they will write when the stakes are high and their attention is focused on the writing task. We also wanted to examine the relationship between students' motivation to write and the writing they complete in classroom settings. To do so, we collected three separate writing samples the students completed as part of their business-as-usual

science classes. We chose writing samples from science, rather than English, hoping that the writing would better reflect students' true tendencies and be less susceptible to Hawthorne effects (Thompson, 2006).

All writing samples were scored using the Rubric for Scientific Writing (Wright, 2016). This rubric yields two factor scores, one for science knowledge and one for English composition; however, for the present study, we focused only on the English Composition scores. This factor describes students' overall organization, attention to audience, and presentation of the writing (i.e., grammar and mechanics). Cronbach's alpha estimate for this factor was .910, indicating a high-level of internal consistency.

Two graduate students with classroom teaching experience (one in science, one in English/Language arts) completed the scoring. We calculated inter-rater reliability based upon near-matched scores. As scoring writing is a subjective task, it is common practice to consider close agreement to be a match for the sake of research and scoring (Johnson et al., 2000). For the purpose of this study, two scores were considered a near-match if the scores were within one-point of each other on a scale of 1 to 4. On the organization, audience, and presentation factors, 90.5%, 87.4%, and 94.5% (respectively) of samples met this criterion. Where scorers disagreed, we calculated an average score. This approach allowed the scores on the classroom writing tasks to be authentic representations both of what students produce in school as well as how writing is evaluated by classroom teachers.

6.3 Analysis

We first examined students' overall scores on the Writing Motivation variable. Next, we examined how the students' writer self-beliefs and value of writing could explain their writing achievement. We conducted hierarchical regression analyses examining how much of the total variance in writing scores from the various measures could be predicted by the motivation variables and grade level. We included grade level as a predictor in all analyses as previous research has demonstrated that students' age impacts their writing motivation and the overall effectiveness of writing-to-learn interventions (Bangert-Drowns et al., 2004). As grade level is an imperfect proxy for age and our samples from each grade are relatively small, we are not attempting to draw any conclusions about age or grade level; rather, we argue that if the motivation variables are significant predictors of the variance in achievement when accounting for grade level variance, we have a stronger case for the importance of motivation in predicting achievement.

We analyzed the data using SPSS version 25 and entered the variables into the regression model in one block using the "Enter" method. As our predictor variables were in different units, we converted all scores to z-scores to minimize the sources of variance present in raw scores (Colan, 2013).

6.4 Results

Our first two independent variables (grade and writing motivation) yielded a non-statistically significant correlation of -0.102, indicating that our model was not at risk for collinearity and we could proceed with the analyses. Because they are factors in the overall scale, the individual value of writing and writer self-beliefs were highly correlated with motivation, and therefore could not be included in one regression model (see Table 3).

Table 3. Variable Correlations

	Grade	SWAS Motivation	SWAS Value of Writing	SWAS Writer Self- Beliefs	Norm-Referenced Scores	Teacher Evaluation	Classroom Writing
Grade	1						
SWAS Motivation	-0.102	1					
SWAS Value of Writing	0.029	0.880**	1				
SWAS Self-Writer Beliefs	-0.115	0.914**	0.699**	1			
Norm-Referenced Scores	-0.240	0.463**	0.409**	0.407**	1		
Teacher Evaluation	0.019	0.466**	0.346*	0.535**	0.371**	1	
Classroom Writing	0.171	0.424**	0.378**	0.421**	0.483**	0.537**	1

* Correlation is significant at the 0.05 level (2-tailed).

** Correlation is significant at the 0.01 level (2-tailed).

To avoid issues of multicollinearity, we analyzed two regression models for each outcome variable to describe the impact of the full-scale writing motivation variable and the sub-factors of value of writing and writer self-beliefs. Table 4 details the results of all regression models.

Table 4. Standardized β weights for each regression analysis

Predictors (from SWAS)		Teacher Evaluation of writing	Norm-Referenced Writing Scores	Classroom Writing
Motivation	Standardized *β*	.478	.440	.425
	p value	.001	.001	.002
Value of Writing	Standardized *β*	-.123	.325	.101
	p value	.526	.064	.583
Writer Self-Beliefs	Standardized *β*	.635	.162	.372
	p value	.002	.350	.048

Note. Grade level was included as a predictor in each analysis.

6.5 Teacher Evaluation of Writing

While we had 51 participants in this study, three students were not enrolled in a traditional English/Language Arts class as they had completed advanced high school coursework. We were therefore unable to collect data from their English teachers and did not include them in this model. A total of 48 students were included in the regression analyses explaining teacher evaluations of student writing.

The teacher's evaluation of student writing ability was gathered using a Likert scale, and we treat this as interval data. Although potentially controversial, this is a common practice in educational research (Jamieson, 2004), and according to Allen and Seaman (2007) Likert scores can be considered interval when the data itself is interval in nature. As these teachers were familiar with the students' writing performance and frequently evaluated writing on interval scales (i.e., grades), we view these scores as summarizes of interval information, and thus appropriate for regression analysis. In the following sections, we explain the relationship between teacher evaluation of writing and writing motivation.

Writing Motivation

The prediction model was statistically significant, $F(2, 46) = 6.774$, $p = .003$, and accounted for approximately 22% of the variance within the teachers' evaluation of the student writing skills ($R^2 = .228$). This variable was explained to a greater extent by writing motivation (Standardized β = .478), which was a statistically significant predictor ($p = .001$). Grade level, by contrast, was not a statistically significant predictor and yielded a much lower beta weight ($p = .927$, Standardized β = .012).

Therefore, the teacher's evaluation of the students' writing was predicted by the students' motivation to write. Students with higher scores of writing motivation also had higher scores on the teacher evaluation.

Value of Writing and Writer Self-Beliefs

This prediction model was statistically significant, $F(3, 45) = 6.374$, $p = .001$, accounting for 29.8% of the variance ($R^2 = .298$). Both grade level and students' value of writing were non-statistically significant predictors ($p = 0.830$ and 0.526, respectively). However, students' writer self-beliefs were statistically significant predictors of their achievement ($p = 0.002$, Standardized $\beta = 0.635$). This result indicates that the writer's self-beliefs predicted the teacher evaluation score, though value of writing did not. Students who believed they could accomplish writing tasks scored higher teacher evaluations, though value did not necessarily relate to the teacher evaluation scores.

6.6 Norm-Referenced Writing Scores

One student was absent the day we administered the TOWL-4 and, due to extracurricular activities, could not complete the assessment. Therefore, we included 50 students in the regression analyses explaining variance in norm-referenced writing scores.

Writing Motivation

We conducted an analysis examining how writing motivation and grade level explained students' scores on the TOWL-4. This prediction model was also statistically significant, $F(2, 48) = 8.549$, $p = .001$, and accounted for approximately 26% of the variance ($R^2 = .263$). Again, grade level was not a statistically significant predictor ($p = .067$, Standardized $\beta = -0.233$), while motivation for writing was ($p = .001$, Standardized $\beta = .440$). This result indicates that writing motivation does predict student scores on the TOWL-IV.

Value of Writing and Writer Self-Beliefs

This prediction model was statistically significant, $F(3, 47) = 5.893$, $p = .002$, accounting for 27.3% of the total variance. In this model, grade level was the only statistically significant predictor ($p = 0.037$) with a Standardized β of -0.273. Both students' writer self-beliefs ($p = 0.350$, Standardized $\beta = 0.163$) and their value of writing ($p = 0.064$, Standardized $\beta = 0.325$) were non-statistically significant predictors.

6.7 Classroom Writing

Writing Motivation

Finally, we examined how the two independent variables explained students' classroom writing performance. Once again, this prediction model was statistically significant, $F(2, 49) = 5.860$, $p = 0.005$, and accounted for approximately 19% of the variance ($R^2 = 0.193$). Grade level continued to be non-statistically significant ($p = 0.212$, Standardized $\beta = 0.163$). Writing motivation, however, was a statistically significant predictor at $p = 0.002$, Standardized $\beta = 0.425$. This result indicates that writing motivation predicted scores on the classroom writing tasks.

Value of Writing & Writer Self-Beliefs

This prediction model was statistically significant, $F(3, 48) = 3.610$, $p = .009$, explaining 16.5% of the total variance. Grade level ($p = .227$, Standardized $\beta = 0.160$) and value of writing ($p = 0.583$, Standardized $\beta = 0.181$) were not statistically significant predictors. However, writer self-beliefs was ($p = .048$, Standardized $\beta = 0.372$). This result shows that writer self-beliefs predicted classroom writing achievement, while value of writing and grade level did not.

7. Discussion

This study examines the extent to which students' motivation to write can explain writing outcomes. Learning from previous research (i.e., Troia et al., 2009), we used multiple measures of writing achievement to triangulate data and strengthen our findings. In this section, we first discuss how each motivation variable helped to explain the variance in the students' writing outcomes. Then, we explore the implications of these findings and areas for future research.

7.1 Writing Motivation

Our results suggest that writing motivation explains between 19% and 26% of the variance in students' writing outcomes. These results indicate that motivation can help explain, and perhaps predict, students' writing outcomes. While a statistically significant predictor in all models, motivation explained the most variance in students' norm-referenced writing scores. This was especially noteworthy as grade level yielded a negative Standardized β weight, suggesting that older students tended to have lower scores on the norm-referenced writing measure. This result may be explained by prior research, which has indicated that students' motivation for writing decreases as they progress through school (James et al., 2017). As such, attention to student motivation may help protect writers against the challenges of writing in upper grades. However, it must be noted that our normed-referenced scores only accounts for orthographic and grammatical writing elements, and findings may differ when other writing traits are considered.

The overarching motivation variable also explained a large percentage of the variance in teachers' evaluation of students' writing skills. The teachers in this school were unique in that they had small class sizes and had taught many of their students for multiple academic years. Research has long shown that positive teacher beliefs about students' abilities translate to improved achievement scores (Rosenthal & Jacobson, 1968). Therefore, there may have been a reciprocal relationship between the students' motivation and their teachers' perceptions of their skills. In other words, if the students perceived that their teacher believed they would succeed in writing, they had higher motivation to write, and vice-versa.

7.2 Value of Writing and Writer Self-Beliefs

As the overarching writing motivation variable proved to be a statistically significant predictor for writing achievement, we examined the sub-factors of value of writing and writer self-beliefs to probe which aspects of motivation had the strongest relationship to achievement. Our goal was to determine how students' expectancies of their performance (i.e., Writer Self-Beliefs) and the value they placed on writing are related to writing outcomes.

Writer Self-Beliefs

Writer Self-Beliefs was a statistically significant predictor of students' classroom writing and teachers' evaluation of writing scores. In the model explaining teachers' evaluations, writer self-beliefs yielded the strongest Standardized β (i.e., 0.635). Because the amount of explained variance in teachers' evaluation is greater than any of the other models, it is essential to consider whether there is a special relationship between students' beliefs of themselves as writers and their teachers' perceptions of their writing abilities. When examining college students, Hodges (2015) found that the instructor's view of writing was among a top predictor of students' self-beliefs about their own writing. Our results may indicate that similar results are present in the middle and high school grades.

Value of Writing

Interestingly, value of writing was not a statistically significant predictor in any of the models. This finding contradicts much literature and conventional knowledge about writing, which emphasizes the importance of authentic tasks to increase students' perceived value of writing. In fact, Lam and Law (2007) argue that it is important for students to value the writing task they are assigned. These researchers encourage the use of authentic audiences which will lead students to put more effort into persuading, describing, and expressing their thoughts and feelings, thus, allowing the student to create a quality piece of writing (Lam & Law, 2007).

We are not arguing that, based upon these results, teachers and researchers should reject the importance of students' perceived value of writing on writing outcomes. Our results could be a result of the strength of grade level and writer self-beliefs as

predictors in these models, or perhaps the small sample size. Alternatively, the students in this study may not have been engaging in writing they found to be particularly personal or valuable, which may have influenced their overall feelings towards writing. A final explanation why value of writing did not reveal statistically significant results is that there may have been little to no variability among students' responses to this item. Given the unique sample in a private, college-preparatory school, the students may have overwhelmingly valued writing, as opposed to Writer Self-Beliefs in which they may not have viewed themselves as efficacious writers. Future researchers could repeat similar investigations with other populations to better understand how and when students' value of writing is predictive of their writing achievement.

8. Limitations & Future Research

Because the goal of this study was to examine how motivation related to a variety of writing outcomes, the most salient of limitations was our small, homogeneous sample. This small sample allowed us to collect multiple data points for each participant, yet limits the generalizability of our findings. However, as statistical significance is highly related to sample size (Thompson, 2006), we believe that the fact that we found statistical significance with such a small population is noteworthy. Most of our results are indeed modest; however, that does not mean they are insignificant results. Applying similar methodology with larger, more diverse groups of students will improve the generalizability of these results. .

The limited sample size of this study also prevented us from examining the variability of identity groups across contexts. We know from research on expectations and goal setting that salient social identities, beyond grade level, interact with motivation (e.g., Super & Harkness, 2002; Wigfield et al., 2004). In particular, future studies should disaggregate students within grade level in order to examine the relationship between individual and intersecting salient identities, such as race, gender, and family demographic characteristics, and motivation for writing. As we found a relationship between teacher ratings and student self-beliefs, it is especially important to examine students in the disaggregate given the research on the impact of critical feedback on learning and the reluctance of Caucasian teachers to give critical feedback to diverse students on their writing (Harber et al., 2010).

Examining the role of identity in writing motivation becomes even more critical when examining disciplinary writing in fields such as mathematics and science. In Expectancy-Value Theory, Eccles (2007) underscores the significance of understanding the perceived cost of an activity in addition to the perceived value and likelihood of success. She argues that the decisions girls and women make about the cost of investing in science and mathematics courses are influenced by threats unique to their gender identity, such as math anxiety and violating societal

norms (Eccles, 2007; Eccles et al., 1998). Given what we know about identity-based threats and performance in the sciences and mathematics for girls as well as Black and Latinx students across genders (e.g., Aronson & Good, 2002; Steele & Aronson, 1995), we need additional quantitative and qualitative studies to understand the relationships between different aspects of an Expectancy-Value Theory of motivation and the complex, intersecting identities students bring with them into their writing. This is especially necessary since research suggests that these relationships have meaningful within-group-variation for women across racial affiliations (e.g., Enright, 2016) and collapsing students into grades obscures those important differences in experience for students with one or multiple threatened identities. Conducting this research across academic domains would also contribute to our understanding of the relationship between motivation, identity, and subject area, given that identity threats are domain specific and writing motivation might also be domain dependent.

Finally, more needs to be discovered about the potential impact achievement has on motivation. While we examined motivation as a predictor of writing achievement, there is likely a reciprocal relationship between these variables and future researchers may want to consider how achievement can predict motivation. This is especially interesting when examining how feedback on writing – both positive and negative – might influence later writing motivation. Giving students constructive, specific feedback with a chance to fix their mistakes may enhance self-beliefs in writing. According to Bruning and Horn (2000), teacher feedback and guidance is crucial for motivation and the development of different writing strategies. Feedback should be focused on the specific skills the student did well on and a few strategies they can explore as they continue to revise their work (Bruning & Horn, 2000). Focusing on the positive aspects of the students' papers can raise their confidence. More recently, Truax (2017) demonstrated that objective and growth mindset feedback led to increased writing motivation in third grade students. While this is beyond the scope of the present study, the type and quality of teacher-feedback is a closely related construct that may influence motivation and achievement in the middle and high school grades as writing tasks become more challenging.

9. Implications & Conclusions

When compared to reading, writing is drastically under researched (Parsons & Gallagher, 2016), and many questions remain regarding how to best support developing writers. Our results suggest that in addition to providing instruction on the writing process, teachers also need to be cultivating students' motivation to write. Specifically, as we demonstrate that writing outcomes are impacted by a writer's self -beliefs, students would benefit from writing tasks that develop their confidence and enhance their self-efficacy. To enhance self-efficacy and

confidence, teachers can assign tasks that are challenging but achievable (Lam & Law, 2007). If a task is too easy, students will be bored with the task and not put forth much effort, whereas, if the task is too hard, students may give up easily (Bruning & Horn, 2000).

In conclusion, middle and high school students have unique writing needs. They are tasked with eloquently presenting information, attending to proper English conventions, and synthesizing increasingly complex discipline-specific information. Much of the research on middle and high school students' writing has emphasized achievement (Graham et al., 2017; Graham & Perin, 2007), and further research is needed to understand the role motivation plays in the development of writing skills. Our study indicates that students' motivation to write is correlated with their writing achievement. Moreover, students' value of writing and writer self-beliefs play different roles in predicting writing achievement. Finally, our study reopens questions addressed in previous research regarding the relationship between differences in writing achievement, motivation, and grade level. Building on prior work, our study suggests that other factors may be influencing students' motivation and achievement, such as teacher knowledge of writing or content knowledge.

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