

# Sources of Writing Self-Efficacy Beliefs of Elementary, Middle, and High School Students

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Frank Pajares  
Emory University

Margaret J. Johnson  
Texas Tech University

Ellen L. Usher  
University of Kentucky

*The purpose of this study was to examine the influence of Albert Bandura's four hypothesized sources of self-efficacy on students' writing self-efficacy beliefs (N = 1256) and to explore how these sources differ as a function of gender and academic level (elementary, middle, high). Consistent with the tenets of self-efficacy theory, each of the sources significantly correlated with writing self-efficacy and with each other. As hypothesized, students' perceived mastery experience accounted for the greatest proportion of the variance in writing self-efficacy. This was the case for girls and for boys, as well as for students in elementary school, middle school, and high school. Social persuasions and anxiety also predicted self-efficacy, albeit modestly. Vicarious experience did not predict writing self-efficacy. Girls reported greater mastery experience, vicarious experience, and social persuasions, as well as lower writing anxiety. Girls also reported stronger writing self-efficacy and were rated better writers by their teachers. Elementary school students reported stronger mastery experience, vicarious experience, and social persuasions than did either middle school or high school students. Elementary school students also reported stronger self-efficacy. Findings support and refine the theoretical tenets of Bandura's social cognitive theory.*

## Introduction

Cognitive research in the area of writing has traditionally focused either on the skills that writers bring to this craft or on the instructional practices teachers use to improve their students' composition skills (e.g., Faigley, 1990; Hairston, 1990). Primarily, these efforts have been aimed at understanding the cognitive processes underlying students' compositions (see Hayes, 2006). More recently, however, various cognitive researchers have pointed out that the relationship between students' cognitive skills and the manner in which they engage text is mediated by the interpretations students make about the skills they possess (Beach, 1989;

Faigley, Cherry, Jolliffe, & Skinner, 1985; Hull & Rose, 1989; Pajares, 2006). To account for this, investigators have explored the self-beliefs that underlie student motivation in writing. Findings from this avenue of inquiry have led researchers to suggest that students' beliefs about their own writing competence are instrumental to their ultimate success as writers (Beach, 1989; Faigley et al., 1985; Pajares, 2003).

Albert Bandura's (1986) social cognitive theory is rooted in a view of human agency in which individuals are agents proactively engaged in their own development and can make things happen by their actions. Key to this sense of agency is the fact that, among other personal factors, individuals possess self-beliefs that enable them to exercise a measure of control over their thoughts, feelings, and actions, that "what people think, believe, and feel affects how they behave" (p. 25). Bandura provided a view of human behavior in which the beliefs that people have about themselves are critical elements in the exercise of control and personal agency.

Of all the self-beliefs that affect human functioning, and standing at the very core of social cognitive theory, are self-efficacy beliefs, which Bandura (1986) defined as "people's judgments of their capabilities to organize and execute courses of action required to attain designated types of performances" (p. 391). Self-efficacy beliefs provide the foundation for human motivation, well-being, and personal accomplishment. This is because unless people believe that their actions can produce the outcomes they desire, they have little incentive to act or to persevere in the face of difficulties. Much empirical evidence now supports Bandura's contention that self-efficacy beliefs touch virtually every aspect of people's lives: whether they think productively, self-debilitatingly, pessimistically or optimistically; how well they motivate themselves and persevere in the face of adversities; their vulnerability to stress and depression; and the life choices they make.

Because students' self-efficacy beliefs—the judgments that students hold about their capabilities to successfully perform academic tasks—are strong predictors of performance across academic areas, these self-beliefs offer a particularly promising avenue of research for informing writing instruction (see Pajares, 2003, for a review). Indeed, research findings have consistently shown that writing self-efficacy and writing performances are related (e.g., Pajares & Johnson, 1994, 1996; Pajares, Miller, & Johnson, 1999; Pajares & Valiante, 1997, 1999, 2001; Rankin, Bruning, & Timme, 1994; Schunk & Swartz, 1993; Shell, Colvin, & Bruning, 1995; Shell, Murphy, & Bruning, 1989; Wachholz & Etheridge, 1996; Zimmerman & Bandura, 1994; and see Bruning & Horn, 2000; Graham & Harris, 2005). Writing self-efficacy predicts various writing outcomes and mediates between previous and subsequent achievement in writing. This is the case even when powerful covariates such as writing ability or previous writing performance are controlled. Effect sizes between writing self-efficacy and writing outcomes in multiple regression and path analyses that control for such pre-performance assessments have ranged from .19 to .40. Correlations between writing self-efficacy and writing per-

formances typically range from .30 to .50, often depending on the age and competence of the students (Pajares, 2003).

### ***Sources of Self-Efficacy***

Noteworthy as these findings are, researchers have pointed to the need for greater attention to the sources underlying students' self-efficacy. Pajares (1996) suggested that investigating students' cognitive appraisals of the sources of self-efficacy beliefs would be especially instructive in tracing how students develop their academic confidence and how their beliefs alter their academic performances. Woolfolk (see Shaughnessy, 2004) recently observed that for teachers to foster and nurture their students' self-efficacy—and through these beliefs raise their academic competence across subjects—they must first attend to the sources underlying them. This observation is both sound and practical given that only by understanding the genesis of self-beliefs can educators engage in practices and create interventions aimed at nurturing adaptive self-conceptions or eradicating maladaptive ones. Despite these injunctions, only a handful of the thousands of investigations pertaining to self-efficacy have sought to unveil how efficacy beliefs are formed, and even fewer have investigated the genesis of the self-efficacy beliefs that pertain to academic functioning.

Students form their self-efficacy beliefs by interpreting information primarily from four sources (Bandura, 1997). The most influential source is the interpreted result of one's own previous performance, or *mastery experience*. As students engage in academic tasks, they interpret the results of their efforts, use the interpretations to develop beliefs about their capability to engage in subsequent tasks, and act in concert with the beliefs created. Efforts interpreted as successful raise self-efficacy; those interpreted as failures lower it. Calkins (1994) provided examples of children writing persuasive essays to convince school board members to support classroom libraries. Students who perceive their writing as instrumental in accomplishing goals may also perceive their writing performance as successful.

Students also form their self-efficacy beliefs through the *vicarious experience* of observing others perform tasks. This source is typically weaker than mastery experience in helping create self-efficacy beliefs, but when students are uncertain about their own abilities or when they have limited experience, they become more sensitive to it. The effects of modeling are particularly relevant in this context, as observing models can powerfully influence a student's self-efficacy beliefs. Teachers may themselves serve as writing models, perhaps modeling editing skills for a class. In classrooms where writing is shared, students may have opportunities to observe their peers as they write. Teachers may use student examples of student writing or provide students with published works to use as mentor texts (Ray, 2002).

Self-efficacy beliefs are also influenced by the *social persuasions* received from others, including the verbal judgments that others provide. Persuaders play an important part in the development of a student's self-beliefs. Effective persuaders cultivate students' beliefs in their capabilities while at the same time ensuring that the envisioned success is attainable. And, just as positive persuasions may work to encourage and empower, negative persuasions can work to defeat and weaken self-efficacy beliefs. In fact, it is usually easier to weaken self-efficacy beliefs through negative appraisals than to strengthen such beliefs through positive encouragement. The infamous red pen is likely to weaken self-efficacy beliefs more than will a teacher's positive comments strengthen them.

*Physiological and emotional states* such as anxiety, stress, arousal, and mood states also provide information about efficacy beliefs. Students can gauge their degree of confidence by the physiological state they experience as they contemplate an academic task. Strong emotional reactions to the task provide cues about anticipated success or failure. When students experience negative thoughts and fears about their capabilities, those affective reactions can lower self-efficacy perceptions and trigger additional stress and agitation that help ensure the inadequate performance feared. Perhaps it is because of the personal nature of writing that writing anxiety can prove such a strong emotion.

### ***Previous Research on the Sources of Self-Efficacy***

Research studies conducted on the sources of self-efficacy have focused for the most part on academic areas other than writing. With the exception that mastery experiences typically emerge as the strongest predictor of self-efficacy (Hampton, 1998; Klassen, 2004; Lent, Brown, Gover, & Nijjer, 1996; Lent, Lopez, & Bieschke, 1991; Lent, Lopez, Brown, & Gore, 1996; Lopez & Lent, 1992; Matsui, Matsui, & Ohnishi, 1990; Usher & Pajares, 2006), previous findings have yielded inconsistent results. Some researchers have reported that vicarious experience makes an independent contribution to self-efficacy (Hampton, 1998; Matsui et al., 1990); others have reported no such influence (Anderson & Betz, 2001; Lent et al., 1991; Lopez & Lent, 1992). And, although some researchers have found that social persuasions predict the efficacy beliefs of middle school students (Klassen, 2004; Usher & Pajares, 2006), no other researchers have found social persuasions to predict self-efficacy. Some researchers have reported that physiological state predicts self-efficacy (Anderson & Betz, 2001; Lopez & Lent, 1992; Matsui et al., 1990); others have found no such relationship (Britner & Pajares, 2006; Hampton, 1998; Lent et al., 1991).

The inconsistent findings may in part be explained by the context-sensitivity of self-efficacy beliefs. It is likely, for example, that different sources influence self-efficacy differently in different academic areas and at different academic levels. For example, younger children who are less clear about the skills required to suc-

ceed on an academic task may rely more on social persuasions (Bandura, 1997). Or physiological states such as anxiety and stress may play a stronger role in school subjects such as mathematics and science, subjects typically perceived as “tough” by most students.

Correlations between the sources of self-efficacy previously measured in other academic domains have ranged from .12 to .76 (Anderson & Betz, 2001; Hampton, 1998; Klassen, 2004; Lent et al., 1991; Lopez & Lent, 1992; Lopez, Lent, Brown, & Gore, 1997). There is reason to expect that the sources should also correlate in the domain of writing. Students who write excellent expository essays are likely to receive excellent grades in language arts, they likely receive a good deal of praise for their efforts, and they are apt to approach writing tasks with serenity and even joyful expectation. In many cases, such students have been exposed to models proficient at writing. It bears noting, however, that a statistical correlation between the sources does not suggest that all sources correlate for all students. One need not search far to find a masterful writer who nonetheless approaches the task of writing with anxiety or even dread.

Similarly, although the sources of self-efficacy have typically been found to correlate, each source remains conceptually distinct. A young writer may feel a sense of accomplishment after crafting a single sentence well, but this small and private mastery experience may remain unnoticed by others. Ultimately, then, whether an experience becomes a source of self-efficacy depends on how it is cognitively appraised by the learner. Earning an A on a writing assignment may serve as both a powerful mastery experience and a social persuasion. A student’s interpretation of such an experience is, of course, shaded by myriad contextual factors. For example, a student might consider the typicality of receiving an A from her given teacher, the effort she put forth on the given assignment, and the degree to which she felt her work was original, all of which influence the weight she will give to her “A” experience as a determinant of her capability.

The effects of the sources have been shown to differ as a function of gender. Girls and women tend to report stronger vicarious experiences and social persuasions than do boys and men (Anderson & Betz, 2001; Lent, Lopez, et al., 1996; Usher & Pajares, 2006). Zeldin and Pajares (2000) explored the personal stories of women who excelled at careers in areas of mathematics, science, and technology to better understand the ways in which the sources of their self-efficacy beliefs were created and influenced their academic and career choices. They found that verbal persuasions and vicarious experiences nourished the self-efficacy beliefs of women as they set out to meet the challenges required to succeed in male-dominated academic domains. Findings suggested that girls develop higher mathematics self-efficacy in homes and classrooms in which parents and teachers stress the importance and value of mathematical skills, encourage girls to persist and persevere in the face of academic and social obstacles, and break down stereotypical

conceptions regarding academic domains. In judging their own capabilities, women also relied on a “relational efficacy” based on the confidence that others had in them.

Self-efficacy beliefs themselves can vary as a function of gender and schooling. Researchers have found that girls report stronger confidence in their writing capabilities than do boys, at least through middle school (Pajares, et al., 1999; Pajares & Valiante, 1997, 1999, 2001; Wigfield, Eccles, MacIver, Reuman, & Midgley, 1991; and see Wigfield, Eccles, & Pintrich, 1996). These differences may begin at early ages (Crain, 1996; Eccles, Wigfield, Harold, & Blumenfeld, 1993), and it is possible that they diminish, or even reverse, as students get older. Pajares and Johnson (1996) reported that at Grade 9 boys held stronger writing self-efficacy than did girls. Researchers have observed that girls experience a drop in their academic motivation in general and in their perceptions of competence as they reach high school (Bruning & Horn, 2000; Phillips & Zimmerman, 1990), perhaps because they begin to encounter classroom structures that emphasize a masculine form of discourse (Cleary, 1996).

Other findings have shed light on the development of writing self-efficacy beliefs as a function of schooling. Shell, Colvin, and Bruning (1995) assessed the writing self-efficacy of students in Grades 4, 7, and 10 and found no differences in students’ confidence that they possessed various grammar, usage, and composition skills. Since older students are in better possession of those skills, one wonders why confidence in skills does not increase proportionately. Other researchers have reported that students in the first year of middle school hold stronger confidence in their writing skills than do students in Grades 7 and 8 (Pajares & Valiante, 1999) even though older students show greater writing competence. Perhaps greater expectations—both those that students hold for themselves and those communicated by teachers—account for the lower confidence.

The area of writing has received modest attention in self-efficacy research, and none in investigations of the sources. This is a noteworthy omission given the foundational status of writing in the academic curriculum, the acknowledged importance of writing skills to students’ academic success, and the strong relationship typically reported between writing self-efficacy beliefs and students’ writing performances and achievement (see Pajares, 2003). Researchers have also not explored the influence of these sources as a function of academic level. Students may be more or less attentive to these sources at different times in their academic career. Moreover, if it is the case that the sources predict writing self-efficacy differently for boys and girls or for students at different academic levels, then attending differently to the different sources in schooling practices and academic interventions is warranted.

In keeping with the theoretical tenets of social cognitive theory and previous research findings, the purpose of this study was to examine the influence of the

four hypothesized sources of self-efficacy on the writing self-efficacy beliefs of students. In addition, we aimed to explore how the sources informing self-efficacy differ as a function of gender and academic level.

## **Methods**

### ***Participants***

Participants were 1256 students enrolled in Grades 4 to 11 attending one public elementary school (Grades 4 and 5) in the South, one middle school (Grades 6, 7, and 8) in the Northeast, and one high school (Grades 9, 10, and 11) in the South of the United States (633 girls, 623 boys; 296/24% elementary school, 497/39% middle school, 463/37% high school). The socioeconomic status of the schools and of the areas the schools serve were middle class, students were primarily White, and only regular education students were part of the sample; gifted, special education, and students with limited English proficiency were not included. Instruments were group administered in individual language arts classes. Items were read aloud to students at the elementary school levels, and students completed the instrument jointly and one item at a time. The study took place during the second semester of the academic year.

### ***Instruments***

Instruments and variables used in the present study to assess the motivation variables have been used by researchers in numerous investigations of writing self-efficacy and motivation (e.g., Pajares et al., 1999; Pajares & Valiante, 1997, 1999, 2001; Zimmerman & Bandura, 1994; Zimmerman & Martinez-Pons, 1990). All items asked students to provide judgments about how true or false they found a particular statement along a 6-point Likert-type continuum.

Items for the *Sources of Self-Efficacy* scale were adapted from those used by Lent and his colleagues (Lent et al., 1991; Lent, Lopez, et al., 1996) and consisted of 28 items assessing students' evaluations of the four sources theorized to inform self-efficacy beliefs. Items on the scales used by Lent and his colleagues were originally developed to assess the sources in the area of mathematics and have also recently been adapted for use with younger students in the area of science (Britner & Pajares, 2006) and general academics (Usher & Pajares, 2006). We adjusted the items to reflect the domain of writing. Sample items: "I get good grades in writing," "When I come across a tough writing assignment, I work on it until I complete it" (mastery experience); "Many of the adults I admire are good writers," "Most of my friends are poor writers" (vicarious experience); "People often tell me that I am a good writer," "My relatives believe that I am a good writer" (social persuasions); and "Just thinking about writing makes me nervous," "Writing makes me feel uneasy and confused" (physiological indexes). Because they had not previously been used in the area of writing, we conducted exploratory factor analysis

to identify the latent constructs underlying the sources items. The analysis included all items used to assess mastery experience, vicarious experience, social persuasions, and physiological indexes. Results suggested a five-factor solution in which Factor 1 comprised the 7 social persuasion items, with loadings ranging from .39 to .77; Factor 2 comprised the 7 physiological indexes items, with loadings ranging from .51 to .86; and Factor 3 comprised the 7 mastery experience items, with loadings ranging from .47 to .80. Factors 4 and 5 comprised the 7 vicarious experience items, with 3 of the items tapping vicarious experiences from peers (loadings ranged from .57 to .77) and the other 4 from adults (loadings ranged from .55 to .80). None of the items showed double loadings. As have previous researchers, we combined the two vicarious experience factors into one score so that results could be compared with those reported in previous studies.

*Writing self-efficacy* was operationalized as students' judgments of their confidence that they possessed the various composition, grammar, usage, and mechanical skills appropriate to their academic level. The Writing Skills Self-Efficacy scale consisted of 10 items asking students how sure they were that they could perform specific writing skills on a scale from 0 (no chance) to 100 (completely certain). The skills ranged from basic (e.g., "write simple sentences with good grammar") to more ambitious ("write a well-organized and well-sequenced paper that has a good introduction, body, and conclusion"). Using a similar measure, researchers have reported coefficient alpha reliabilities ranging from .85 to .92, as well as positive and above .68 correlations between items and scale scores (Pajares et al., 1999; Pajares & Valiante, 1999, 2001). We obtained coefficients of .88, .92, and .91 for elementary, middle, and high school students, respectively.

Teacher ratings of students' *writing competence* is acknowledged as a reliable assessment of students' writing capability (Hoge & Butcher, 1984; Hoge & Coladarci, 1987). Consequently, the students' language arts/English teachers were asked to rate, on a 5-point scale, their students' writing competence relative to other students in that grade level. This assessment was made during the second semester of the academic year, after teachers had become well familiar with students' writing (see Pajares & Valiante, 1999, 2006; Wigfield et al., 1991, for similar procedures).

### **Analyses**

Multiple regression analyses were conducted to determine the influence of the sources on writing self-efficacy on the full sample, by gender, and by academic level. These analyses were supplemented by regression commonality analysis (Rowell, 1996) and by obtaining regression structure coefficients (Thompson & Borrello, 1985). Commonality analyses provide a uniqueness indicator that can be used to determine the proportion of the explained variance, accounted for by an independent variable that is uniquely associated with a dependent variable (i.e.,

ranging from 0% to 100%). In other words, the uniqueness indicator denotes an independent variable's relative contribution to an outcome variable when other variables are in the model. Unlike typical beta coefficients, structure coefficients—the zero-order correlation between a dependent and an independent variable divided by the multiple correlation—are not suppressed or inflated by co-linearity between the independent variables. Consequently, interpreting the magnitude of structure coefficients provides a more accurate assessment of the relationship between a predictor and an outcome. This interpretation also prevents researchers from relying solely on the beta weight of any individual predictor, which can lead to erroneous conclusions about the relative explanatory power of a given independent variable when other variables are in the model (see Courville & Thompson, 2001, for further information). Multivariate analysis of variance (MANOVA) was used to explore whether the sources of writing self-efficacy differ as a function of gender and academic level.

## Results

Consistent with the tenets of self-efficacy theory, each of the sources significantly correlated with writing self-efficacy and with each other (see Table 1). Girls reported greater mastery experience, vicarious experience, and social persuasions, as well as lower anxiety. Girls also reported stronger writing self-efficacy and were rated better writers by their teachers. Differences by school level revealed that

**TABLE 1. Means, Standard Deviations, and Zero-Order Correlations for Variables in the Study**

Variables	<i>M</i>	<i>SD</i>	1	2	3	4	5	6
1. Mastery Experience	4.43	0.98						
2. Vicarious Experience	3.51	0.96	.33***					
3. Social Persuasion	4.03	1.13	.62***	.48***				
4. Anxiety/Stress	2.49	1.04	-.45***	-.12***	-.26***			
5. Writing Self-Efficacy	76.80	16.72	.61***	.22***	.44***	-.35***		
6. Writing Competence	2.18	0.18	.32***	.02	.19***	-.24***	.33***	
7. Gender			-.16***	-.13***	-.12***	.10**	-.10***	-.13***

*Note.* Means for all variables reflect the 6 points of the Likert-type scale.

\* $p < .05$ . \*\* $p < .001$ . \*\*\* $p < .0001$ .

TABLE 2. Means and Standard Deviations for Variables in the Study by Gender and School Level

Variables	GENDER				SCHOOL LEVEL					
	BOYS		GIRLS		ELEMENTARY		MIDDLE		HIGH	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Mastery Experience	4.3a	1.0	4.6b	0.9	4.7a	0.9	4.3b	1.1	4.3b	0.9
Vicarious Experience	3.4a	0.9	3.6b	1.0	4.2a	0.9	3.3b	0.9	3.3b	0.9
Social Persuasion	3.9a	1.1	4.2b	1.1	4.7a	1.0	3.8b	1.2	3.9b	1.0
Anxiety/Stress	2.6a	1.0	2.4b	1.0	2.6a	1.2	2.3b	1.0	2.7a	1.0
Writing Self-Efficacy	75.1a	17.6	78.5b	15.6	81.5a	16.3	75.0b	17.9	75.7b	16.3
Writing Competence	2.0a	1.1	2.3b	1.1	2.2	1.1	2.1	1.0	2.2	1.1

Note. Mean scores for the four sources of self-efficacy range from 1 (low) to 6 (high). Scores for self-efficacy range from 0-100, and competence ratings range from 0 to 4. Group means for a dependent variable (row) that are subscripted by different letters are statistically different (experimentwise  $\alpha \leq .05$ ) computed on an effect identified by MANOVA.

elementary school students reported stronger mastery experience, vicarious experience, and social persuasions than did either middle school or high school students. Elementary school students also reported stronger self-efficacy. We found no gender by academic level interactions. Table 2 presents results of the MANOVA analysis.

Multiple regression results, accompanied by results of the regression commonality analyses and of the structure coefficients, revealed that mastery experience ( $\beta = .490$ ), social persuasions ( $\beta = .119$ ), and anxiety/stress ( $\beta = -.103$ ) predicted writing self-efficacy for the full sample. Vicarious experience did not prove predictive. Effects were similar for boys and for girls. In both cases, effects were strongest for mastery experience, which accounted for greater unique variance than did the other sources combined.

The sources differently influenced writing self-efficacy as a function of academic level. At the elementary and middle school levels, only mastery experience and anxiety proved predictive. Again, mastery experience accounted for greater unique variance. At the middle school level, anxiety had a quadratic relationship with self-efficacy, such that low or high anxiety proved predictive of self-efficacy beliefs but modest anxiety did not. At the high school level, only mastery experiences and social persuasions predicted self-efficacy. Table 3 presents results of the

**TABLE 3. Standardized Regression Coefficients, Structure Coefficients, and Uniqueness Indicators for the Prediction of Writing Self-Efficacy for Total Sample and by Gender and School Level**

Variables	WRITING SELF-EFFICACY											
	FULL SAMPLE		GENDER				SCHOOL LEVEL					
	$\beta$	<i>U</i>	Boys		Girls		Elementary		Middle		High	
			$\beta$	<i>U</i>	$\beta$	<i>U</i>	$\beta$	<i>U</i>	$\beta$	<i>U</i>	$\beta$	<i>U</i>
(SC)		(SC)		(SC)		(SC)		(SC)		(SC)		
Mastery Experience	.490***	33%	.538***	37%	.416***	27%	.425***	25%	.622***	38%	.364***	29%
	(.976)		(.982)		(.961)		(.922)		(.990)		(.935)	
Vicarious Experience	-.010	0%	-.006	0%	-.010	0%	.010	0%	-.003	0%	-.077	2%
	(.360)		(.327)		(.374)		(.251)		(.351)		(.222)	
Social Persuasion	.119***	2%	.101*	1%	.140*	3%	.081	1%	.078	1%	.183**	7%
	(.715)		(.704)		(.722)		(.654)		(.638)		(.776)	
Anxiety/Stress	-.103***	2%	-.078*	1%	-.136**	4%	-.257***	14%	-.362* <sup>†</sup>	1%	-.079	2%
	(-.572)		(-.520)		(-.627)		(-.714)		(-.598)		(-.557)	
Model <i>R</i> <sup>2</sup>	.38***		.41***		.34***		.40***		.47***		.26***	

Note. Structure Coefficients (SC) are in parentheses below beta coefficients. *U* represents the percentage of the explained variance (*R*<sup>2</sup>) in the dependent variable associated uniquely with the independent variable.

<sup>†</sup> The quadratic term for anxiety/stress was significant for writing self-efficacy in the model for the middle school students, hence estimates presented in the model for this variable represent the quadratic term. Note that beta coefficients for quadratic terms should be interpreted appropriately.

\**p* < .05. \*\**p* < .001. \*\*\**p* < .0001.

multiple regression analyses. In interpreting these differences, readers should of course keep in mind that data were gathered in not one, but three schools. Therefore, mean differences across grade levels could be in part a reflection of school differences.

Because our sample size permitted it, we also analyzed the influence of the sources by academic level as a function of gender. With the exception that social persuasions proved significant predictors of the writing self-efficacy of elementary school girls ( $\beta = .193$ ), findings were consistent with those of the academic level analyses.

## Discussion

As hypothesized, students' perceived mastery experience accounted for the greatest proportion of the variance in the writing self-efficacy beliefs of the students in our study. This was the case both for girls and for boys, as well as for students in elementary school, middle school, and high school. Beyond the

expected influence that mastery experience wielded on their writing confidence, elementary and middle school students reported that writing anxiety informed their self-efficacy beliefs about writing. At the high school level, social persuasions proved instrumental in creating students' writing self-efficacy beliefs.

As have other researchers, we also found that the self-efficacy beliefs of girls are stronger than are those of boys in the area of writing, and this holds true from elementary school through high school. It is thus consistent that girls should also report stronger sources of self-efficacy and should be judged better writers. Also consistent with what other researchers have already discovered, we found that writing self-efficacy beliefs diminish as students move from elementary school to middle school, and then remain at that level during high school. As previously documented, middle school seems to be the critical juncture at which academic motivation, in this case self-efficacy, decreases (Wigfield et al., 1991, 1996).

The contention that one's mastery experiences are the most influential source of self-efficacy information speaks directly to the self-enhancement model of academic achievement that contends that, to increase student achievement in school, educational efforts should focus on enhancing students' self-conceptions. Traditional efforts to accomplish this have included programs that emphasize building self-esteem through self-persuasion methods or praise. Self-efficacy theorists shift the emphasis from self-enhancement to skill development—to raising competence through genuine success experiences with the performance at hand, through *authentic* mastery experiences. Our findings support this conclusion, and educational interventions targeting young writers should be designed with this critical point in mind.

Of course, enhancing the opportunity for a student to experience mastery in writing does not in itself ensure that the corresponding self-efficacy beliefs will be enhanced. Although success typically raises self-efficacy and failure lowers it, the ultimate impact of these experienced outcomes will much depend on what a youngster makes of them. A young writer may well write an effective essay that impresses her teacher and peers, but her internal standards may be so high that the same essay will neither please her nor strengthen her confidence as a writer. Such a student fails to perceive her success as an experience of mastery. In other words, her subjective interpretation does not match her objective performance. Teachers can help students *interpret* their writing experiences in ways that are more adaptive (Pajares, 2006).

Calkins (1994) observed that it is not enough for teachers of writing to ask, "Did my students *work*?" Teachers must also ask whether their students were engaged in the writing process, whether they planned and made decisions, and whether they had concerns about their writing. In short, teachers must monitor their students' subjective experiences as well as their objective ones. Indeed, by

helping young writers find and pursue their own projects and goals, teachers make it more likely that students will become “productive and committed rather than disillusioned and bitter” (p. 172).

Another way to help ensure that students interpret their performances in adaptive ways is for teachers to maintain a high level of interaction with their students and to seek to understand the self-evaluations students make as they write. Au (1997) asserted that frequent self-assessment leads to more successful writing. She described a classroom in which students regularly engaged in self-evaluation through compiling portfolios of work to share with peers, teachers, and parents; students learned to determine quality criteria for writing and to look more closely at their own writing efforts. Hansen (1998) argued that as students learn to evaluate themselves as writers, they also learn to set goals and strategies for improving their writing and to document their growth. This self-awareness helps students interpret their achievements in ways that will boost their confidence.

But these writing strategies, popular as they have been in the primary years, have been recently crowded out by lockstep approaches to literacy instruction. As they face increasing pressures to meet state standards, many teachers have traded authentic writing experiences for quicker, more scripted approaches to literacy instruction (Schuster, 2004; Yatvin, Weaver, & Garan, 2003). And, although interactive workshop approaches still populate some primary school writing programs, they are not frequently a part of secondary English instruction (Pritchard, 1987). High school writing teachers also face the pressures of a tight schedule and a demanding curriculum, neither of which fosters the flexibility and interpersonal attention inherent in excellent writing instruction. Consequently, students are too often uninvolved in their own learning and thus may have little reason to modify the beliefs they hold about their capabilities. Secondary school teachers must rely on “the power of small, individual encounters” (Calkins, 1994, p. 168) to help cultivate their students’ self-efficacy beliefs. Providing private feedback in a personal encounter can be a powerful way of ensuring that experiences are interpreted optimally. Our findings also suggest that the messages these students receive from adults and peers about their writing are directly related to the degree of confidence students feel toward themselves as writers. Bomer (1995) was correct that “sometimes just a vote of confidence is all that’s needed to keep a writer writing” (p. 37). Such a vote is not likely to be cast in classrooms that follow lockstep instructional designs.

Our findings also indicate that students’ anxiety and stress about writing were related to a diminished sense of writing efficacy. To ensure that students approach writing with less anxiety and stress, it is wise for teachers to frame writing feedback in terms of gains rather than shortfalls (Bandura, 1997). In other words, it pays dividends for a teacher to provide students with feedback focusing on how far they have come rather than how far they have yet to travel. When encouraged

to reflect on their writing progress rather than their writing deficiencies, young people develop robust efficacy beliefs that lead to growth and perseverance. Conversely, students who are often reminded of the distance between their current and their ideal performance often lose heart and give up. In many cases, students' apprehension about their writing is a product of the type of feedback they receive in school. To help young writers avoid the paralysis produced by the type of apprehension commonly known as writer's block, a teacher can encourage students to read their own feelings and to express these feelings as they approach writing tasks (Pajares, 2006). Once aware of their emotional states and the reasons behind them, students are better equipped to handle them. Yet another way to decrease anxiety, of course, is to increase a student's attention to the task at hand. Because attention has limited capacity, a mind well focused on the writing task cannot easily shift that focus to its fears and apprehensions.

It has by now been well established that the beliefs students hold about their writing capabilities powerfully influence their writing performances, as well as the academic choices they make in high school and college (Hackett, 1995). Less is known, however, about how these self-beliefs take hold and are developed. Consequently, we believe that a logical next step for writing researchers is to discover how students interpret and evaluate their writing performances, the import they give to the messages they receive about their writing, and the role played by the physiological conditions they undergo as they engage writing tasks and activities. Researchers should also identify and investigate sources of writing self-efficacy information other than those already hypothesized so as to trace the genesis and development of these important self-beliefs. These additional sources may include self-talk, invitations, experiences of flow, and self-regulatory strategies, as well as psychological processes such as hope and optimism.

McLeod (1987) rightly observed that, because writing is as much an emotional as a cognitive activity, affective components strongly influence all phases of the writing process. She urged researchers to explore affective measures with an eye toward developing a "theory of affect" to help students understand how these affective processes may inform their writing. It seems clear that students' writing self-efficacy beliefs, and the sources of information on which the beliefs are formed, should play a prominent role in such a theory.

## REFERENCES

- ANDERSON, S. L., & BETZ, N. E. (2001). Sources of social self-efficacy expectations: Their measurement and relation to career development. *Journal of Vocational Behavior*, 58, 98-117.
- AU, K. H. (1997). Ownership, literacy achievement, and students of diverse cultural backgrounds. In J. T. Guthrie, & A. Wigfield (Eds.), *Reading engagement* (pp. 168-182). Newark, DE: International Reading Association.

- BANDURA, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Englewood Cliffs, NJ: Prentice-Hall.
- BANDURA, A. (1997). *Self-efficacy: The exercise of control*. New York: Freeman.
- BEACH, R. (1989). Showing students how to assess: Demonstrating techniques for response in the writing conference. In C. M. Anson (Ed.), *Writing and response* (pp. 127-148). Urbana, IL: NCTE.
- BOMER, R. (1995). *Time for meaning: Crafting literate lives in middle and high school*. Portsmouth, NH: Heinemann.
- BRITNER, S. L., & PAJARES, F. (2006). Sources of science self-efficacy beliefs of middle school students. *Journal for Research in Science Teaching*, 43, 485-499.
- BRUNING, R., & HORN, C. (2000). Developing motivation to write. *Educational Psychologist*, 35, 25-38.
- CALKINS, L. (1994). *The art of teaching writing* (2nd ed.). Portsmouth, NH: Heinemann.
- CLEARY, L. M. (1996). I think I know what my teachers want now: Gender and writing motivation. *English Journal*, 85(1), 50-57.
- COURVILLE, T., & THOMPSON, B. (2001). Use of structure coefficients in published multiple regression articles: Beta is not enough. *Educational and Psychological Measurement*, 61, 229-248.
- CRAIN, R. M. (1996). The influence of age, race, and gender on child and adolescent multidimensional self-concept. In B. A. Bracken (Ed.), *Handbook of self-concept: Development, social, and clinical considerations* (pp. 395-420). New York: Wiley.
- ECCLES, J. S., WIGFIELD, A., HAROLD, R. D., & BLUMENFELD, P. B. (1993). Age and gender differences in children's achievement self-perceptions during the elementary school years. *Child Development*, 64, 830-847.
- FAIGLEY, L. (1990). Competing theories of process: A critique and a proposal. In R. L. Graves (Ed.), *Rhetoric and composition* (pp. 38-53). Portsmouth, NH: Heinemann.
- FAIGLEY, L., CHERRY, R. D., JOLLIFFE, D. A., & SKINNER, A. M. (1985). *Assessing writers' knowledge and processes of composing*. Norwood, NJ: Ablex.
- GRAHAM, S., & HARRIS, K. R. (2005). *Writing better: Effective strategies for teaching students with learning difficulties*. Baltimore, MD: Paul H. Brookes.
- HACKETT, G. (1995). Self-efficacy in career choice and development. In A. Bandura (Ed.), *Self-efficacy in changing societies* (pp. 232-258). New York: Cambridge University Press.
- HAIRSTON, M. (1990). The winds of change: Thomas Kuhn and the revolution in the teaching of writing. In R. L. Graves (Ed.), *Rhetoric and composition* (pp. 3-15). Portsmouth, NH: Heinemann.
- HAMPTON, N. Z. (1998). Sources of academic self-efficacy scale: An assessment tool for rehabilitation counselors. *Rehabilitation Counseling Bulletin*, 41, 260-277.
- HANSEN, J. (1998). *When learners evaluate*. Portsmouth, NH: Heinemann.
- HAYES, J. (2006). *New directions in writing theory*. In C. A. MacArthur, S. Graham, & J. Fitzgerald (Eds.), *Handbook of writing research* (pp. 28-40). New York: Guilford Press.
- HOGUE, R. D., & BUTCHER, R. (1984). Analysis of teacher judgments of pupil achievement levels. *Journal of Educational Psychology*, 76, 777-781.
- HOGUE, R. D., & COLADARCI, T. (1989). Teacher-based judgments of academic ability: A review of the literature. *Review of Educational Research*, 59, 297-313.
- HULL, G., & ROSE, M. (1989). Rethinking remediation: Toward a social-cognitive understanding of problematic reading and writing. *Written Communication*, 6, 139-154.
- KLASSEN, R. M. (2004). A cross-cultural investigation of the efficacy beliefs of South Asian immigrant and Anglo Canadian nonimmigrant early adolescents. *Journal of Educational Psychology*, 96, 731-742.

- LENT, R. W., BROWN, S. D., GOVER, M. R., & NIJER, S. K. (1996). Cognitive assessment of the sources of mathematics self-efficacy: A thought-listing analysis. *Journal of Career Assessment*, 4, 33-46.
- LENT, R. W., LOPEZ, F. G., & BIESCHKE, K. J. (1991). Mathematics self-efficacy: Sources and relation to science-based career choice. *Journal of Counseling Psychology*, 38, 424-430.
- LENT, R. W., LOPEZ, F. G., BROWN, S. D., & GORE, P. A. (1996). Latent structure of the sources of mathematics self-efficacy. *Journal of Vocational Behavior*, 49, 292-308.
- LOPEZ, F. G., & LENT, R. W. (1992). Sources of mathematics self-efficacy in high school students. *The Career Development Quarterly*, 41, 3-12.
- LOPEZ, F. G., LENT, R. W., BROWN, S. D., & GORE, P. A. (1997). Role of social-cognitive expectations in high school students' mathematics-related interest and performance. *Journal of Counseling Psychology*, 44, 44-52.
- MATSUI, T., MATSUI, K., & OHNISHI, R. (1990). Mechanisms underlying math self-efficacy learning of college students. *Journal of Vocational Behavior*, 37, 223-238.
- MCLEOD, S. (1987). Some thoughts about feelings: The affective domain and the writing process. *College Composition and Communication*, 38, 426-435.
- PAJARES, F. (1996). Self-efficacy beliefs in academic settings. *Review of Educational Research*, 66, 543-578.
- PAJARES, F. (2003). Self-efficacy beliefs, motivation, and achievement in writing: A review of the literature. *Reading and Writing Quarterly*, 19, 139-158.
- PAJARES, F. (2006). Self-efficacy and adolescence: Implications for teachers and parents. In F. Pajares & T. Urdan (Eds.), *Adolescence and education, Vol. 5: Self-efficacy beliefs of adolescents*. Greenwich, CT: Information Age Publishing.
- PAJARES, F., & JOHNSON, M. J. (1994). Confidence and competence in writing: The role of writing self-efficacy, outcome expectancy, and apprehension. *Research in the Teaching of English*, 28, 313-331.
- PAJARES, F., & JOHNSON, M. J. (1996). Self-efficacy beliefs in the writing of high school students: A path analysis. *Psychology in the Schools*, 33, 163-175.
- PAJARES, F., MILLER, M. D., & JOHNSON, M. J. (1999). Gender differences in writing self-beliefs of elementary school students. *Journal of Educational Psychology*, 91, 50-61.
- PAJARES, F., & VALIANTE, G. (1997). Influence of writing self-efficacy beliefs on the writing performance of upper elementary students. *Journal of Educational Research*, 90, 353-360.
- PAJARES, F., & VALIANTE, G. (1999). Grade level and gender differences in the writing self-beliefs of middle school students. *Contemporary Educational Psychology*, 24, 390-405.
- PAJARES, F., & VALIANTE, G. (2001). Gender differences in writing motivation and achievement of middle school students: A function of gender orientation? *Contemporary Educational Psychology*, 26, 366-381.
- PHILLIPS, D. A., & ZIMMERMAN, B. J. (1990). The developmental course of perceived competence and incompetence among competent children. In R. J. Sternberg & J. Kolligian (Eds.), *Competence considered* (pp. 41-67). New Haven, CT: Yale University Press.
- PRITCHARD, R. J. (1987). Effects on student writing of teacher training in the National Writing Project Model. *Written Communication*, 4, 51-67.
- RANKIN, J. L., BRUNING, R. H., & TIMME, V. L. (1994). The development of beliefs about spelling and their relationship to spelling performance. *Applied Cognitive Psychology*, 8, 213-232.
- RAY, K. W. (2002). *What you know by heart*. Portsmouth, NH: Heinemann.

- ROWELL, R. K. (1996). Partitioning predicted variance into constituent parts: How to conduct regression commonality analysis. In B. Thompson (Ed.), *Advances in social science methodology* (Vol. 4, pp. 33-43). Greenwich, CT: JAI Press.
- SCHUNK, D. H., & SWARTZ, C. W. (1993). Goals and progress feedback: Effects on self-efficacy and writing achievement. *Contemporary Educational Psychology, 18*, 337-354.
- SCHUSTER, E. H. (2004). National and state writing tests: The writing process betrayed. *Phi Delta Kappan, 85*, 375-378.
- SHAUGHNESSY, M. F. (2004). An interview with Anita Woolfolk: The educational psychology of teacher efficacy. *Educational Psychology Review, 16*, 153-176.
- SHELL, D. F., COLVIN, C., & BRUNING, R. H. (1995). Self-efficacy, attributions, and outcome expectancy mechanisms in reading and writing achievement: Grade-level and achievement-level differences. *Journal of Educational Psychology, 87*, 386-398.
- SHELL, D. F., MURPHY, C. C., & BRUNING, R. H. (1989). Self-efficacy and outcome expectancy mechanisms in reading and writing achievement. *Journal of Educational Psychology, 81*, 91-100.
- THOMPSON, B., & BORRELLO, G. M. (1985). The importance of structure coefficients in regression research. *Educational and Psychological Measurement, 45*, 203-209.
- USHER, E. R., & PAJARES, F. (2006). Sources of academic and self-regulatory efficacy beliefs of entering middle school students. *Contemporary Educational Psychology, 31*, 125-141.
- WACHHOLZ, P. B., & ETHERIDGE, C. P. (1996). Writing self-efficacy beliefs of high- and low-apprehensive writers. *Journal of Developmental Education, 19*, 16-24.
- WIGFIELD, A., ECCLES, J., MACIVER, D., REUMAN, D., & MIDGLEY, C. (1991). Transitions at early adolescence: Changes in children's domain-specific self-perceptions and general self-esteem across the transition to junior high school. *Developmental Psychology, 27*, 552-565.
- WIGFIELD, A., ECCLES, J. S., & PINTRICH, P. R. (1996). Development between the ages of 11 and 25. In D. C. Berliner & R. C. Calfee (Eds.), *Handbook of educational psychology* (pp. 148-185). New York: Simon & Schuster Macmillan.
- YATVIN, J., WEAVER, C., & GARAN, E. (2003). Reading First: Cautions and recommendations. *Language Arts, 81*, 28-33.
- ZELDIN, A. L., & PAJARES, F. (2000). Against the odds: Self-efficacy beliefs of women in mathematical, scientific, and technological careers. *American Educational Research Journal, 37*, 215-246.
- ZIMMERMAN, B., & BANDURA, A. (1994). Impact of self-regulatory influences on writing course attainment. *American Education Research Journal, 31*, 845-862.
- ZIMMERMAN, B. J., & MARTINEZ-PONS, M. (1990). Student differences in self-regulated learning: Relating grade, sex, and giftedness to self-efficacy and strategy use. *Journal of Educational Psychology, 82*, 51-59.