

A Multicomponent Measure of Writing Motivation With Basic College Writers

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Abstract

The purpose of the current study was to develop and validate a measure of motivation for use with basic college writers that would measure self-efficacy, achievement goals, beliefs, and affect. As part of a design research project on curriculum for community college developmental writing classes, 133 students in 11 classes completed the motivation scales at the beginning and end of the semester along with measures of writing quality. Single factors were found for self-efficacy and affect. For goal orientation, factors were found for mastery, performance, and avoidance goals. For beliefs, factors were found for beliefs related to the content of writing and to conventions. Anticipated patterns of correlations among the factors were found. The validity of the scales was further supported by significant differences in the anticipated direction between higher and lower level classes on five of seven factors. In addition, significant changes were noted from pretest to posttest in the anticipated direction on six of seven factors.

Keywords

writing motivation, self-efficacy, goal orientation, beliefs about writing, developmental writing

Writing is a complex and demanding task that presents motivational challenges even for proficient writers. Beginning with an often ill-defined task, writers must set goals, generate ideas, organize those ideas, and find appropriate language to express their meaning, all the while considering the needs of readers who are not present to provide feedback. In addition, struggling writers may also contend with problems of language, grammar, and transcription and may experience considerable anxiety about their writing ability.

The current study focuses on one large group of low-achieving writers—community college students in developmental (remedial) writing courses. About 40% of high school students who enter postsecondary education enter community colleges (National Center for Education Statistics [NCES], 2012). According to the NCES (2013), in 2011–2012, 40% of first-year students in public 2-year colleges and 30% in 4-year public colleges took at least one remedial course in reading, writing, or math. Substantially higher proportions of minority students took developmental courses. In 2-year public institutions, 32% of White students versus 54% of African American and 45% of Hispanic students took remedial courses. Data on participation in writing courses in particular not regularly reported. According to a NCES survey of beginning postsecondary students (Berkner & Choy, 2008), 29% of students took some developmental course, including 10% in writing and

8% in English. These estimates were acknowledged as low because they were based on self-report. Data on participation of students with learning disabilities (LD) in developmental education are sparse. One survey study (Beginning Postsecondary Students, NCES, 2014b) found that 29% students with LD compared with 21% of all students took developmental courses in their first year of postsecondary education; these figures based on self-report are substantially lower than numbers reported by colleges (NCES, 2013). On the 12th-grade National Assessment of Educational Progress (NAEP) writing test, students with disabilities scored, on average, just over 1 standard deviation below the mean (scaled score = 112; $M = 150$, $SD = 35$; NCES, 2014a). This suggests that many students with LD attending college would be placed in developmental writing courses. Although developmental courses offer an opportunity for struggling students to attend college, only a small minority of students complete the required developmental courses and go on to complete subsequent regular courses and finish a degree or certificate program (Attewell, Lavin,

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Domina, & Levey, 2006; Bailey, Jeong, & Cho, 2010; Bremer et al., 2013; Levin & Calcagno, 2008).

Motivational factors appear to play a large role in degree completion. In a qualitative study, Cox (2009) observed six first-year composition classes in a community college and interviewed 34 students. Although these students had passed the placement test to enter regular composition classes, and the interview did not ask about anxieties or fears, nearly all of the students (80%) mentioned past experiences of failure and expressed fears of failure. Many revealed counterproductive ways of dealing with that fear, such as postponing matriculation, withdrawing from class, or avoiding evaluation by not speaking in class or failing to submit required papers. For low-achieving college writers, improved motivation may be a critical outcome, as important as gains in quality of writing.

The purpose of the study was to develop and validate a measure of motivational factors among basic writers in community colleges. Research has found relationships between writing achievement and several motivational constructs (e.g., Bruning & Horn, 2000; Hidi & Boscolo, 2006; Pajares & Valiante, 2006), but little research has focused on the population of basic writers. This research study was conducted as part of a larger federally funded project with the goal of designing and evaluating a writing curriculum for basic writing students (MacArthur & Philippakos, 2012, 2013). The curriculum was based on the principles of self-regulated strategy development (SRSB; Graham & Harris, 2012; MacArthur, 2011), which incorporates a focus on developing motivation. In the curriculum, students learn strategies for planning, drafting, and revising compositions based on using knowledge of genre organization to guide planning and self-evaluation. They also learn self-regulation strategies, including goal setting, task management, progress monitoring, and reflection. Frequent feedback is provided on students' mastery of strategies and writing performance, and self-evaluation is emphasized, both of which help students see their progress. In addition, the self-regulation strategies help students feel an increased sense of control over the writing process and learn to manage tasks and motivational issues. Students are encouraged to understand that they can be successful if they use effective strategies for writing and self-management.

Theoretical Background

Early cognitive models of writing did not include motivation as a significant aspect of writing. Hayes and Flower (1980) included it only as "motivational cues" in the task environment, and Bereiter and Scardamalia (1987) made no mention of motivation in their model. However, researchers with an interest in motivation soon began to investigate writing, so that when Hayes (1996) proposed a new cognitive model for writing, he included motivation as a key

component; he pointed to the potential importance of goals and affective responses and encouraged researchers to pursue research on writing motivation. Motivation for writing has been studied using multiple theoretical constructs, because there are many factors that may influence engagement in writing (Bruning & Horn, 2000; Hidi & Boscolo, 2006). For this study, we chose to include self-efficacy, affect, achievement goals, and beliefs about writing.

Self-Efficacy

The largest body of research on writing motivation has focused on self-efficacy. Self-efficacy is defined as individuals' judgments "of their capabilities to organize and execute the courses of action required to attain designated types of performances" (Bandura, 1986, p. 391). Self-efficacy affects individuals' choice of activities, engagement, persistence in the face of obstacles, and affective reactions (Bandura, 1986, 1997; Pajares, 1996). Individuals tend to choose activities in which they feel competent and avoid tasks that they think are beyond their ability. Low confidence tends to produce feelings of anxiety that interfere with performance. Self-efficacy for writing has been shown consistently to correlate with academic performance, including writing achievement. Regression analyses have found that self-efficacy makes an independent contribution to predictions of writing performance even when measures of prior writing achievement and aptitude are included (for a review, see Bruning & Kauffman, in press).

Conceptually, self-efficacy refers to specific capabilities, and writing requires multiple skills, strategies, and knowledge, as well as self-regulation. Thus, individuals might vary in their self-efficacy for particular aspects of writing. Some research has identified separate factors within self-efficacy for writing. Shell, Murphy, and Bruning (1989) developed separate scales for self-efficacy for writing tasks (e.g., letter, essay, novel) and skills (e.g., spelling, grammar, organization), though they did not use factor analysis. Self-efficacy for skills but not for tasks was related to writing achievement in their college student sample. Pajares and his colleagues have conducted the most extensive program of research on self-efficacy for writing (Pajares, 1996; Pajares & Valiante, 2006). In most studies, they treated self-efficacy as a single construct. However, in a large study with elementary and secondary students, Pajares (2007) applied factor analysis and found two factors for basic skills (e.g., spelling, grammar) and composing (e.g., structuring paragraphs and essays). Writing achievement was predicted best for elementary students by the basic skills scale but for secondary students by the composing scale. Most recently, Bruning, Dempsey, Kauffman, McKim, and Zumbrunn (2013) used confirmatory factor analysis to validate a self-efficacy scale with three factors derived from cognitive theories of writing and

self-regulation: ideation, conventions, and self-regulation. In the middle and high school samples, conventions self-efficacy was most highly correlated with the statewide writing assessment, but ideation and self-regulation were more highly related to liking writing.

Other researchers have found single factors for self-efficacy. Zimmerman and Bandura (1994) developed a self-efficacy scale for college students that included items intended to capture three dimensions of self-efficacy: strategies for planning, organizing, and revising; creative aspects such as generating topics and using interesting examples, imagery, and words; and self-management of time, motivation, and competing activities. However, their factor analysis found a single interpretable factor, which included 23 of the 25 items.

The current study used a self-efficacy scale that included items for common writing tasks; strategies for planning, organizing, and revising; and self-regulation of time and motivation. These dimensions were consistent with the emphasis of the self-regulated strategy instruction approach used in the curriculum.

Goal Orientation

Another well-established motivational theory that has been applied to writing is achievement goal theory (Elliot & Church, 1997). The trichotomous model of achievement goals includes mastery, performance-approach, and performance-avoidance goals. Individuals with a mastery goal orientation focus on development of competence and task mastery. Performance-approach goals are focused on demonstration of competence relative to others. Performance-avoidance goals are focused on avoiding unfavorable judgments by others. In achievement goal theory, self-efficacy is seen as influencing the choice of goal, which, in turn, influences engagement and performance. Elliot and Church (1997) found that competence expectancy was positively related to mastery and performance goals but negatively related to avoidance goals. They also found that mastery goals predicted intrinsic motivation, performance-approach goals predicted grades, and performance-avoidance goals negatively predicted intrinsic motivation and grades. Subsequent research (for reviews, see Harackiewicz, Barron, Pintrich, Elliot, & Thrash, 2002; Senko, Hulleman, & Harackiewicz, 2011) has found that mastery goals were consistently related to interest, persistence, deep learning strategies, and positive affect; performance-approach goals were usually related to academic achievement; and performance-avoidance goals were correlated with low achievement, low interest, poor study habits, and anxiety. Also, mastery and performance-approach goals were positively correlated.

In writing, achievement goals have been studied along with self-efficacy and related constructs. Pajares, Britner, and Valiante (2000) assessed achievement goals, self-efficacy,

self-concept, self-efficacy for self-regulation, and apprehension with middle school students in English language arts (ELA) classes, using prior ELA grade point average (GPA) as an achievement measure. Mastery goals correlated positively with self-efficacy, self-concept, and self-regulation efficacy and negatively with apprehension. Performance-approach goals correlated positively with self-concept and self-regulation efficacy. Performance-avoidance goals correlated negatively with self-efficacy, self-concept, and positively with apprehension. Neither mastery nor performance goals were correlated with GPA, but avoidance was correlated negatively. Self-efficacy did correlate strongly with GPA (.50). Pajares and Cheong (2003) investigated differences in achievement goals across elementary, middle, and high schools. Self-efficacy was positively correlated with mastery goals and negatively correlated with avoidance goals at all ages. Achievement was not measured. Kauffman et al. (2010) developed a revised scale to measure achievement goals for writing. Both mastery and performance goals were positively correlated with self-efficacy, affect, and English grades; avoidance goals had small but significant negative correlations with affect and self-efficacy, but not with grades. In general, research on achievement goals in writing has found results similar to the much larger general body of research on goals and academic achievement.

The focus on learning goals was consistent with the emphasis on the self-regulation strategy of goal setting in the curriculum. Students were encouraged to set goals for use of strategies and for specific improvements in their writing, and then to monitor their progress toward those goals.

Beliefs About Writing

Beliefs about the nature of writing and what constitutes good writing are likely to affect students' engagement and motivation. Students who believe writing is a way of expressing feelings and ideas and of learning new information are likely to be more engaged in writing tasks than others who believe writing is primarily a skill to be developed. When asked about good writing and good writers (Graham, Schwartz, & MacArthur, 1993), higher achieving students were more likely to talk about content and meaning compared with students with LD who were more likely to focus on conventions. In an often-cited article on recommendations for enhancing writing motivation, Bruning and Horn (2000) pointed to the importance of beliefs about writing as meaningful, authentic communication. White and Bruning (2005) developed a questionnaire measure of beliefs about writing that contrasted the belief that writing is primarily a process of transmitting the knowledge of experts (transmission beliefs) with the belief that writing is a process of constructing meaning and gaining new knowledge (transaction

beliefs). College students who wrote higher quality essays scored higher on transaction beliefs and lower on transmission beliefs than students who wrote lower quality essays. White and Bruning also measured self-efficacy and apprehension, but found only a small correlation between self-efficacy and transaction beliefs. One limitation of the scale used in their study is that it did not include beliefs about writing as primarily a skill. Given that many low-achieving students overemphasize conventions, the scale in the current study contrasted beliefs about the importance of content and conventions in writing. The curriculum emphasized the content and organization of writing with only modest amounts of instruction in grammar and mechanics.

Affect

Affective responses to writing may be an important component of motivation. Individuals who like to write may engage in writing more often or devote more effort to writing well. In this study, affect was conceptualized as a continuum of general emotional responses to writing from positive to negative; items asked about liking writing and finding it satisfying. Bruning et al. (2013) included a similar measure called simply "liking writing." Graham, Berninger, and Fan (2007) included a measure of writing attitude comprised of items asking whether various writing tasks made one feel happy or unhappy. Both studies found a single factor.

The Current Study

The purpose of the current study was to develop a measure of motivation for use with basic college writers that would measure self-efficacy, achievement goals, beliefs, and affect. The self-efficacy scale included items to measure self-efficacy for writing tasks; strategies for planning, organizing, and revising; and self-regulation of time and motivation. The achievement goals scale included items for mastery, performance-approach, and performance-avoidance goals. The Beliefs About Writing scale included items to measure beliefs about the importance of ideas or content and of writing conventions or mechanics. An affect scale included a single set of items about liking writing and finding it satisfying. In addition to identifying construct dimensions using factor analysis, the study examined validity by examining correlations among the motivational factors and correlations with writing achievement, by comparing higher and lower achieving students, and by investigating sensitivity to instruction.

Method

Participants

The study included 133 students from two levels of developmental writing courses in a community college in a

suburban area on the east coast of the United States. The college offered two levels of developmental writing courses below the credit-bearing first-year composition. The study included 45 students from five lower level classes taught by three instructors and 88 students from six higher level classes taught by four teachers. The full sample of 133 comprised 50% male and 49% White (23% African American, 10% multiracial, 10% Hispanic, 4% Asian American, and 4% Other); 22% were not born in the United States, and 19% primarily spoke a language other than English at home. Mean age was 20 years, and two thirds (65%) had graduated from high school the previous spring. The higher and lower level classes differed on age, gender, ethnicity, and reading and writing achievement (see Table 1). Data on disabilities were not available; very few students self-identified as LD.

The study was part of a larger design research project to develop and evaluate a basic writing curriculum based on SRSD (MacArthur & Philippakos, 2012, 2013). Students learned strategies for planning, drafting, and revising compositions, as well as self-regulation strategies for goal setting, task management, progress monitoring, and reflection. Both levels of the curriculum included narrative, informative, and persuasive writing; the higher level classes required longer essays and concluded the semester with an introduction to writing from sources. The instructors were participating in their second round of implementation, having collaborated in developing the curriculum and using it in the previous semester. However, none of the students had been in project classrooms previously. Informed consent was obtained from both students and instructors.

Measures

Placement test. Students took writing and reading subtests of the online computerized-adaptive Accuplacer test (College Board, 2003) as part of registration and placement. The writing test was the Sentence Skills test, which included multiple-choice questions on sentence correctness and logic. The reading test was Reading Comprehension, which included multiple-choice questions based on brief passages. The scores are scaled from 0 to 120 that are criterion-referenced, and colleges make their own decisions about cut-points for course placement. Internal consistency reliabilities are .91 for Sentence Skills and .87 for Reading (College Board, 2003).

Standardized writing tests. Two subtests from the *Woodcock-Johnson Tests of Achievement—Third Edition* (WJ-III; Woodcock, Mather, & McGrew, 2001) were used: Writing Fluency and Writing Samples. The WJ-III is a well-known test with generally adequate reliability and validity (Bradley-Johnson, Morgan, & Nutkins, 2004). A recent review of the adequacy of the test for older students, aged 16 to 25

Table 1. Demographic Data and Standardized Test Scores.

Variable	Lower level classes (<i>n</i> = 45)	Higher level classes (<i>n</i> = 88)	Total (<i>n</i> = 133)
Age*	23.3	19.7	20.9
<i>M</i> (<i>SD</i>)	(8.9)	(5.0)	(6.8)
Gender (% female)*	35.6	58.0	50.4
Ethnicity* (%)			
White	37.8	56.8	50.4
African American	31.1	20.5	24.1
Hispanic	13.3	6.8	9.0
Asian American	8.9	1.1	3.8
Multiethnic	4.4	11.4	9.0
Other	4.4	3.4	3.8
Born in United States	71.1	84.1	79.7
Home language English	73.3	84.1	80.5
Accuplacer Reading Comprehension ^{a***} , <i>M</i> (<i>SD</i>)	47.5 (16.2)	65.1 (16.0)	59.2 (18.1)
Accuplacer Sentence Skills ^{a***} , <i>M</i> (<i>SD</i>)	48.4 (13.4)	70.8 (11.0)	63.3 (15.8)
WJ-III Writing Fluency ^{b***} , <i>M</i> (<i>SD</i>)	16.0 (4.9)	19.9 (4.5)	18.6 (4.9)
WJ-III Writing Samples ^{b***} , <i>M</i> (<i>SD</i>)	10.8 (4.4)	14.5 (3.9)	13.3 (4.4)

Note. WJ-III = Woodcock–Johnson Tests of Achievement–Third Edition.

^aAccuplacer scaled scores. ^bWoodcock Johnson–III Writing Fluency and Writing Samples subtests, raw scores.

p* < .05. **p* < .001. Difference between higher and lower level classes.

(Krasa, 2007), concluded that these two subtests had an adequate ceilings and item gradients. In the current study, two raters scored a random sample of 24 tests independently; interrater reliabilities were .96 and .98 for the two subtests, respectively.

Essays. Students wrote essays on persuasive topics at pretest and posttest. Persuasion was chosen because of its fundamental importance to academic writing (Nussbaum & Kardash, 2005). Students had a choice of three topics at each occasion; topics were selected based on a survey of students and consultation with instructors. All essays were scored using two rubrics that had been developed and used in prior design research (MacArthur & Philippakos, 2012, 2013). The quality rubric addressed ideas/content, organization, and word choice. The conventions rubric addressed grammar, usage, and mechanics. Each rubric used a 7-point scale with descriptions and anchor papers. Two raters scored all papers independently with separate pairs scoring quality and conventions; raters were undergraduate education students unfamiliar with the study. Interrater reliability was adequate with correlations (Pearson's *r*) of .78 for quality and .75 for conventions (Brown, Glasswell, & Harland, 2004).

Questionnaire. A motivation questionnaire was developed with four scales: Self-Efficacy for Writing, Achievement Goal Orientation for Writing, Beliefs About Writing, and Affect Toward Writing. Some items were adapted from

prior research (Bruning et al., 2013; Kauffman et al., 2010; MacArthur & Philippakos, 2010; White & Bruning, 2005); others were written to fit college writers and the project emphasis on strategies and self-regulation. The scales had been pilot tested in a previous semester and revised based on feedback from instructors and preliminary exploratory factor analysis.

The self-efficacy scale was designed to measure efficacy for writing tasks (e.g., persuasive essay, introduction to an essay), strategies (e.g., organizing ideas, revising), and self-regulation (e.g., avoiding distractions, evaluating progress). The scale had 18 items, equally divided among the categories. Five of the self-regulation items were adapted from Bruning et al. (2013). Strategies items were based on our own work, and task items were written to fit the college setting. Consistent with research recommendations (Pajares & Valiante, 2006), the scale ranged from 0% to 100% confidence. The achievement goal orientation scale included mastery, performance-approach, and performance-avoidance goals and consisted of 12 items, 4 per goal. Half of the items were adapted from Kauffman et al. (2010) and the others were new. The beliefs scale included 12 items equally divided between beliefs about content (i.e., clarifying and discovering ideas) and conventions (i.e., grammar, spelling, fluency). The pilot version had included items to assess transmission versus translation beliefs from White and Bruning (2005), as well as skills items, but the analysis found only two factors. The affect scale included five items (e.g., liking writing and finding it satisfying).

Procedures

Motivation questionnaire. The questionnaire was administered in class during the second week of the semester and again during the last week of class. Graduate research assistants read the directions for each section before students completed that section. For example, the directions for the self-efficacy section were as follows:

Students differ in how confident they are about doing various writing activities and assignments in courses. Please rate your confidence that you can do each of these writing tasks by circling a number for your percent confidence. For example, 100% means you are positive you can do it; 0% means you are sure you cannot do it; 50% means you think there is an equal chance that you could do it or not. Read each sentence and circle the number that best represents how confident you are about doing that task.

Let's do an example. How confident you feel you can jump one foot? Most of you would be 100% confident, so you would circle the number 100 on the scale. How confident are you that you can jump three feet? Some of you might be positive that you can do that, so you would circle 100. Others might think that they have a pretty good chance but aren't sure, so they might circle 70 or 80. Or maybe you think there is a 50/50 chance, and you would circle 50. How confident are you that you can jump ten feet? Probably most of you are sure you cannot do that, so you would circle 0. Do you have any questions? Read each sentence and circle the number that best represents how confident you are about doing that task.

Essays. Instructors administered retest and posttest essays in the classroom. Similar prompts were used for both essays, and students worked independently without a time limit. However, the assessment conditions were not the same. The pretest essay was written in the first week of class and presented to students as a baseline writing sample to provide information to the instructor on their writing; it was not graded. The posttest was part of the final examination for the course. Despite these differences, the conditions were the same for all students; consequently, the correlations with the motivation scales in this study are meaningful.

Analysis. Exploratory factor analyses for the four scales (i.e., goals, beliefs, self-efficacy, and affect) were conducted using principal components analysis (PCA), followed by Varimax rotations of the factors with Kaiser normalization (Field, 2009; Tabachnick & Fidell, 2007). The pretest scores were used for the factor analysis to avoid influence from the curriculum. Assumptions were examined and met for each of the separate analyses (i.e., Kaiser–Meyer–Olkin measure of sampling adequacy $> .7$; Bartlett's test of sphericity $< .001$, indicating that correlations between items were sufficiently large for PCA). Displayed coefficients were sorted by size and small coefficients with the absolute value $< .4$ were suppressed.

Results

Self-Efficacy

The initial analysis extracted two factors. However, an examination of the scree plot suggested that there was one factor, and the eigenvalues for the factors were very different (9.9 and 1.3). Also, the second factor shared loadings with the majority of the items from the first one, and its interpretability was problematic; items intended to measure self-regulation were shared between the two factors, as were items on processes and tasks. Therefore, the analysis was rerun with forced extraction of one factor. The factor explained 55% of the variance and reliability was high (Cronbach's $\alpha = .95$). Factor loadings on all 18 items were above .60 (see Table 2).

Goals

In the initial analysis, four factors were extracted. However, Factor 4 had only one item with a unique loading; furthermore, the scree test for this analysis indicated the presence of three factors (Bryant & Yarnold, 1995). Therefore, the item was removed, and the analysis was repeated. Three factors were extracted from this analysis, explaining, respectively, 22%, 21%, and 16% of the variance. The four items intended to measure avoidance goals loaded on the first factor. Five items loaded on the second factor and four on the third factor with two items loading on both factors. Both items were placed according to the higher loadings, which resulted in meaningful factors. The second factor included four items intended to measure performance goals and one item ("be a better writer") originally intended to measure mastery, but which can be interpreted as consistent with performance goals. The third factor included three items, all intended to measure mastery goals. Reliabilities among items for avoidance, performance, and mastery factors were adequate to high ($\alpha = .79$; $\alpha = .72$; $\alpha = .57$, respectively; see Table 3).

Beliefs

In the initial analysis, three factors were extracted. However, only one item loaded uniquely on the third factor, and the eigenvalue for the third factor was relatively small (1.1). In addition, the items on the second and third factors were conceptually similar. Therefore, the analysis was repeated with forced extraction of two factors. The first and second factor each included six items. The first factor was called content beliefs and accounted for 27% of the variance. The second factor was called conventions beliefs and accounted for 22% of the variance. Reliability was high for content beliefs (Cronbach's $\alpha = .82$) and for conventions beliefs ($\alpha = .74$; see Table 4).

Table 2. Self-Efficacy for Writing—Rotated Component Matrix.

Variable	Self-efficacy
12. I can write an interesting introduction that makes the reader want to read the paper.	.815
14. I can find the right words to express my ideas.	.804
4. I can organize my ideas into a plan that makes sense.	.796
10. I can evaluate whether my paper is well written.	.796
13. I can revise my papers to make them better.	.795
6. I can write paragraphs with details to support the main ideas.	.780
3. I can write a good persuasive essay.	.772
9. I can write an essay with a strong conclusion.	.749
2. I can think of good ideas to include in my writing when I am planning.	.730
1. I can write a paragraph that has a clear topic sentence.	.725
18. I can edit my papers to fix errors.	.724
5. I can keep writing even when it's difficult.	.713
15. I can focus on my writing for at least 1 hr.	.705
11. I can plan time to get my writing done by the deadline.	.697
17. I can evaluate whether I am making progress in learning to write.	.695
7. I can use a chart or graphic organizer to plan how to present my ideas.	.695
8. I can avoid distractions while I write.	.680
16. I can write a summary of the important points from an article I read.	.645
Eigenvalue	9.89
% of variance	55.0
Cronbach's α	.95

Affect

The two negatively stated items (2 and 5) were reversed prior to conducting the analysis. One factor was identified, which explained 71% of the variance. Cronbach's α was high (.90; see Table 5).

Correlations Among Factors and With Achievement

To explore further the construct validity of the motivation factors, we examined correlations among the scales and between the scales and achievement measures, including the reading and writing placement tests, two standardized writing tests, and pretest and posttest essay quality (see Table 6). Pretest motivation scores were used for all analyses. Correlations among the motivation factors were

generally consistent with theoretical expectations. Affect, self-efficacy, and content beliefs were all positively correlated (range = .45–.60). Mastery goals were positively correlated with performance goals (.44), as well as with content beliefs (.38). Content beliefs were positively correlated with self-efficacy, mastery goals, and affect (range = .38–.60). Performance-avoidance goals were negatively correlated with self-efficacy (–.38) and affect (–.32).

The only significant correlations ($p < .01$) between achievement measures and motivation factors were negative correlations with conventions beliefs and with avoidance goals. Conventions beliefs were negatively correlated with all six achievement measures (range = .32–.47, $p < .01$). Avoidance goals were negatively correlated with five of the six measures (range = .20–.35). Contrary to prior research (e.g., Pajares & Valiante, 2006), self-efficacy was not significantly correlated with any of the measures of writing achievement. As a side note unrelated to the current study, all five writing measures were significantly correlated with each other ($p < .01$, range = .36–.56).

Group Comparisons

To further investigate the validity of the factors, we compared the motivation scores for students in the two levels of developmental writing courses. Prior research has found differences between higher and lower achieving writers in self-efficacy (Pajares & Valiante, 2006), goal orientation (Senko et al., 2011), and beliefs about writing (White & Bruning, 2005). Multivariate analyses of variance were followed by univariate tests.

Group comparisons by level of writing class were conducted with the pretest motivation scores as dependent variables (see Table 7). The overall multivariate analysis was statistically significant, $F(7, 125) = 2.717, p < .001$. Univariate comparisons were statistically significant and in the anticipated direction for five of seven motivational factors. Students in lower level classes scored lower in self-efficacy, $F(1, 131) = 12.7, p < .001$, and higher in beliefs about the importance of conventions, $F(1, 131) = 8.1, p < .01$. Students in the lower level classes scored lower in mastery goals, $F(1, 131) = 4.3, p < .05$, and performance goals, $F(1, 131) = 11.5, p < .001$, but higher on avoidance goals, $F(1, 131) = 8.6, p < .01$. All of these differences are consistent with theoretical expectations. No difference was found on content beliefs. Surprisingly, no difference was found on affect.

Changes in Motivation After Instruction

A useful measure of motivation should be sensitive to change based on instruction. Thus, analyses of motivational change from pretest to posttest were conducted with the full group and with the two levels separately, including 36 lower level and 75 higher level students who had complete

Table 3. Goal Orientation for Writing—Rotated Component Matrix.

Variable	Factor		
	Avoidance	Performance	Mastery
When I'm writing in this class, I'm trying to			
4. hide that I have a hard time writing.	.810		
8. avoid making mistakes in front of my classmates.	.800		
12. hide how nervous I am about writing.	.775		
2. keep people from thinking I'm a poor writer.	.727		
3. get a good grade in the class.		.790	
9. complete all the assignments for the class.		.756	
6. pass this class.		.718	
5. become a better writer.		.552	.438
10. persuade others with my writing.			.777
7. better organize my ideas.			.712
1. improve how I express my ideas.		.449	.505
Eigenvalue	2.97	2.53	1.02
% of variance	22.4	21.3	15.5
Cumulative % of variance	22.4	43.7	59.2
Cronbach's α	.79	.72	.57

Table 4. Beliefs About Writing—Rotated Component Matrix.

Variable	Factor	
	Content	Conventions
11. Writing is one of the best ways to explore new ideas.	.794	
6. I learn new things from writing.	.763	
3. Writing helps me think about my topic in a new way.	.759	
1. Writing helps make my ideas clearer.	.723	
12. Revising helps me clarify my ideas.	.663	
7. Good writers discover new ideas while writing.	.592	
4. Good writers do not make errors in grammar.		.770
9. Good writers need little revision because they get it right the first time.		.745
8. Writing quickly is an important part of good writing.		.668
10. Good writers have to be able to write long complex sentences.		.652
5. The main problem of poor writers is using incorrect grammar.		.637
2. Revising is mostly about fixing errors in grammar and spelling.		.470
Eigenvalue	3.58	2.31
% of variance	26.6	22.5
Cumulative % of variance	26.6	49.1
Cronbach's α	.82	.74

Table 5. Affect About Writing—Rotated Component Matrix.

Variable	Affect
1. I usually enjoy writing.	.890
2. I don't like to write (reversed).	.869
3. The process of writing is satisfying for me.	.850
4. I think that writing is interesting.	.849
5. I try to avoid writing as much as possible (reversed).	.754
Eigenvalue	3.56
% of variance	71.2
Cronbach's α	.90

posttest data (see Table 8). We anticipated that students would make gains in self-efficacy and affect. We also anticipated that students' goals would move from performance and avoidance to mastery goals, and that their beliefs would move from an emphasis on conventions to a greater emphasis on the content of writing.

The overall repeated-measures multivariate analysis was statistically significant, $F(7, 104) = 18.9, p < .001$. Univariate comparisons for the combined higher and lower level groups were statistically significant and in the anticipated direction for six of seven motivational factors. Students made significant gains in self-efficacy, $F(1, 110) = 52, p < .001$. A significant increase in positive affect was also found, $F(1, 110) = 53.7, p < .001$. On goal orientation, a significant increase was found in mastery motivation, $F(1, 110) = 12.4, p < .001$; significant decreases were found in performance motivation, $F(1, 110) = 18.3, p < .001$, and

Table 6. Correlations Among Motivation Scales and Achievement Measures.

Factor	S-E	G-M	G-P	G-A	B-Cont	B-Conv	A
S-E	1						
G-M	.075	1					
G-P	.116	.436**	1				
G-A	-.377**	.246**	-.025	1			
B-Cont	.447**	.384**	.230**	-.129	1		
B-Conv	-.075	.038	-.085	.128	.180*	1	
A	.497**	.131	.170*	-.316**	.602**	.049	1
Pre-essay quality	.126	.078	.220*	-.116	-.020	-.328**	-.043
Post-essay quality	.162	.012	.163	-.196*	-.103	-.365**	-.095
Accuplacer Reading ^a	.023	.086	.113	-.209*	-.058	-.320**	-.111
Accuplacer Writing ^a	.164	-.085	.170	-.348**	-.183*	-.370**	-.048
WJ-III Fluency ^b	.164	-.104	.028	-.309**	-.191*	-.373**	.065
WJ-III Samples ^b	.086	-.048	.026	-.285**	-.225**	-.474**	-.095

Note. WJ-III = Woodcock–Johnson Tests of Achievement–Third Edition; S-E = self-efficacy; G-M = Goals–Mastery; G-P = Goals–Performance; G-A = Goals–Avoidance; B-Cont = Beliefs–Content; B-Conv = Beliefs–Conventions; A = affect.

^aAccuplacer standard scores, not norm-referenced. ^bWoodcock Johnson–III Writing Fluency and Writing Samples subtests, raw scores.

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

Table 7. Pretest Motivation Scores by Group.

Motivation factor	Lower classes ($n = 45$)	Higher classes ($n = 88$)
Self-efficacy, M (SD)	59.6 (19.7)	70.3*** (14.7)
Goals–Mastery, M (SD)	3.67 (0.73)	3.94* (0.69)
Goals–Performance, M (SD)	4.56 (0.57)	4.82** (0.32)
Goals–Avoidance, M (SD)	3.17 (1.07)	2.61** (1.01)
Beliefs–Content, M (SD)	3.80 (0.60)	3.85 (0.67)
Beliefs–Conventions, M (SD)	2.73 (0.76)	2.33** (0.77)
Affect, M (SD)	3.05 (0.56)	3.06 (0.61)

Note. All measures are on a scale of 1 to 5, except for self-efficacy with a scale 0 to 100.

* $p < .05$. ** $p < .01$. *** $p < .001$.

avoidance motivation, $F(1, 110) = 7.8$, $p < .01$. On beliefs, a significant increase was found for content beliefs, $F(1, 110) = 17.9$, $p < .001$, but not for conventions beliefs. Interaction effects showed that lower level students made greater gains than higher level students on self-efficacy ($p < .001$) and content beliefs ($p < .05$). Separate t tests were run to check gains for the lower level and higher level groups separately (see Table 8). The same pattern of results was found, though not all comparisons were statistically significant for the smaller sample in the lower level group.

Discussion

The overall goal of this study was to develop and validate a measure of motivation for writing that would be useful with struggling writers at the college level. The study developed a reliable measure of multiple motivation constructs, including self-efficacy, goal orientation, beliefs about writing, and

affect. The results indicate that the scales can differentiate between writers of different levels of performance and are sensitive to motivational changes from learning.

For self-efficacy for writing, only a single factor was found, although the scale included items designed to measure self-efficacy for writing tasks, writing processes, and self-regulation. Previous research has found from one to three factors for self-efficacy. Pajares (2007) found two factors: basic skills and composing. Bruning and his colleagues (2013) found three self-efficacy factors: ideation, conventions, and self-regulation. However, most of Pajares work used a single factor for self-efficacy (Pajares & Valiante, 2006). Zimmerman and Bandura (1994) developed a self-efficacy scale for college students that included processes, creative aspects, and self-management, but found that all converged as a single factor. The current study was limited to a sample of participants with a limited range of writing achievement. Future research with a wider range of students might find multiple self-efficacy factors. In addition, future research should include items designed to assess self-efficacy for basic skills.

Three factors were found for goal orientation as expected based on theory (Elliot & Church, 1997) and prior research (Kauffman et al., 2010; Pajares et al., 2000; Pajares & Cheong, 2003). Reliable factors were found for mastery goals, performance-approach goals, and performance-avoidance goals.

Beliefs about writing have not been studied as extensively as self-efficacy and goal orientation. However, beliefs about writing seem likely to affect student engagement and motivation. Students who believe that writing is a way to explore ideas and learn are apt to devote more effort to writing than students who see writing as primarily a

Table 8. Pretest and Posttest Motivation Scores by Group.

Motivation factor	Lower classes (<i>n</i> = 36)		Higher classes (<i>n</i> = 75)		Total (<i>n</i> = 111)	
	Pre	Post	Pre	Post	Pre	Post
Self-efficacy, <i>M</i> (<i>SD</i>)	57.6 (19.9)	76.5*** (12.2)	72.5 (13.0)	79.8*** (11.6)	67.6 (17.0)	78.7*** (11.9)
Goals–Mastery, <i>M</i> (<i>SD</i>)	3.68 (0.72)	3.99* (0.60)	3.99 (0.69)	4.16* (0.65)	3.89 (0.71)	4.11*** (0.64)
Goals–Performance, <i>M</i> (<i>SD</i>)	4.53 (0.60)	4.38 (0.66)	4.86 (0.26)	4.65*** (0.50)	4.75 (0.43)	4.56*** (0.57)
Goals–Avoidance, <i>M</i> (<i>SD</i>)	3.26 (1.10)	3.04 (0.98)	2.62 (1.01)	2.37* (0.95)	2.83 (1.07)	2.59** (1.00)
Beliefs–Content, <i>M</i> (<i>SD</i>)	3.81 (0.63)	4.18*** (0.48)	3.90 (0.65)	4.04* (0.62)	3.87 (0.64)	4.08*** (0.59)
Beliefs–Conventions, <i>M</i> (<i>SD</i>)	2.79 (0.73)	2.63 (0.77)	2.31 (0.77)	2.24 (0.77)	2.47 (0.79)	2.36 (0.79)
Affect, <i>M</i> (<i>SD</i>)	2.98 (0.58)	3.52*** (0.82)	3.13 (0.57)	3.53*** (0.91)	3.08 (0.57)	3.53*** (0.88)

Note. All measures are on a scale of 1 to 5, except for self-efficacy with a scale 0 to 100.

p* < .05. *p* < .01. ****p* < .001.

matter of producing text with correct conventions. Bruning and Horn (2000) pointed to the importance of beliefs about writing as meaningful communication, and White and Bruning (2005) developed a measure that contrasted transmission beliefs with transaction beliefs about writing. The current study found two reliable factors: beliefs about the importance of substantive content and beliefs about the importance of conventions. Beliefs about writing as a way to explore and clarify content may be important to academic learning. Issues of conventions may be especially salient to struggling writers (Graham et al., 1993).

In addition, as expected, a single factor was found for overall affect toward writing, that is, whether students liked writing and found it satisfying. Correlations among the scales were consistent with theory and prior research. The strongest correlations were found among self-efficacy, affect, and content beliefs (range = .45–.60). Students who are confident about their writing ability are more likely to find writing satisfying and enjoyable. Bruning and his colleagues (Bruning et al., 2013; Kauffman et al., 2010) found positive correlations between self-efficacy and affect, and others have found negative correlations between self-efficacy and writing apprehension (Pajares et al., 2000). The positive correlations of belief in the importance of content with self-efficacy and affect have not been reported before. White and Bruning (2005) found a small correlation between self-efficacy and transaction beliefs, but the beliefs scale was not comparable with the scale in the current study. It makes sense that students who view writing as a way to explore ideas and learn would find writing more satisfying and have more confidence. The relationship suggests that an instructional focus on content and learning might have beneficial effects compared with a focus on conventions.

Previous research both in writing (Kauffman et al., 2010) and in academics in general (Senko et al., 2011) has reported positive correlations among performance and mastery goals and self-efficacy but negative correlations of avoidance goals with self-efficacy and affect. In the current study, performance goals and mastery goals were positively

correlated, and avoidance goals were negatively correlated with affect and self-efficacy. The current study did not find a significant positive correlation between self-efficacy and either performance or mastery goals; correlations were small and non-significant. However, overall, the pattern of correlations among the motivation factors was consistent with theoretical expectations.

Correlations with achievement did not produce the expected strong positive correlation with self-efficacy. None of the six measures of achievement, including four standardized measures of writing, or reading, and pretest and posttest writing quality, were positively correlated with self-efficacy. Furthermore, none of the achievement measures were correlated with mastery goals, and only pretest writing quality was correlated with performance goals. Previous research has consistently found correlations between self-efficacy and performance (Bruning & Kauffman, in press). The most likely explanation for the current result is that the sample of students was preselected into basic writing based on low achievement scores; the mean Accuplacer Writing score of 63 was at about the 23rd percentile compared with a national sample. Future research with a broader range of students might find the anticipated correlation.

Two of the motivation scales had consistent negative correlations with achievement measures. A belief in the importance of the conventions of writing had moderate negative correlations with all six achievement measures. Also, avoidance goal orientation had small to moderate correlations with five of six measures. Avoidance goals have been found to negatively predict grades and achievement in general academics (Senko et al., 2011) and in writing (Pajares et al., 2000). The correlation with belief in conventions may be influenced by the fact that all three standardized writing measures focused on sentence-level skills. It may also be due to the higher salience of conventions for students who struggle the most with basic writing.

The study examined the relationship between writing achievement and motivation in a second way—by

comparing differences in motivation between students in the higher and lower levels of developmental writing classes. Students were placed in these levels based on their scores on the Accuplacer Writing test. These comparisons found significant differences between groups on five of the seven motivation scales. Students in the higher level classes had higher self-efficacy, mastery goals, and performance goals, and lower avoidance goals and belief in conventions. These differences were all consistent with prior research and theory.

As a final analysis of the validity of the motivation scales, the study investigated sensitivity to instruction. Beyond utility in research, motivation scales should have practical application in measuring changes in motivation in college courses. Given the importance of motivation to continued persistence in college and success in academic study, changing students' motivation is an important outcome, particularly in entry-level developmental courses. Significant changes from pretest to posttest were found for six of the seven motivation factors. All changes were consistent with theoretical expectations and in the direction that would predict improved achievement outcomes. As anticipated, students made gains in self-efficacy and affect. Their goals moved from performance and avoidance to mastery goals, and their beliefs moved from an emphasis on conventions to a greater emphasis on the content of writing. These positive gains in motivation were consistent with qualitative analysis of student interviews after participation in the course (MacArthur & Philippakos, 2013).

Limitations

Some limitations result from the fact that the research was conducted as part of a larger design research project to develop a curriculum based on self-regulated strategy instruction (MacArthur & Philippakos, 2012, 2013). First, the sample of students was relatively small, and second, it was limited to basic writers with a limited range of writing proficiency. Future research is needed to evaluate the motivation scales with a larger and more diverse population. Third, sensitivity to instruction was evaluated under highly favorable conditions. The curriculum placed a considerable emphasis on development of writing strategies, self-regulation strategies, and positive beliefs. Conscious efforts were made to enhance motivation by engaging students in self-evaluation of their writing, and students made substantial gains in writing achievement during the course of the semester (MacArthur & Philippakos, 2012, 2013).

Future Research and Concluding Comments

Future research is needed to evaluate these motivation scales with a larger and more diverse population of college

students. Ideally, such a study would include students in regular first-year composition classes as well as basic writers and would be large enough to permit comparisons across groups. Research should also continue to apply the scales in instructional studies to determine whether they are sensitive to change across time and to differential change between different approaches to instruction.

Overall, the study developed a set of motivation scales for measuring four constructs important to motivation: self-efficacy, goal orientation, beliefs about writing, and affect. The scales were shown to be internally consistent, to be correlated with each other in ways consistent with theory, to differentiate between basic writers with higher and lower achievement, and to be sensitive to change in basic writers after instruction. The scales have potential practical application in measuring motivational change, or the lack of it, in composition courses. This potential is especially important with basic writers who often struggle with motivational issues.

Authors' Note

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