

USING WRITING TO PREDICT STUDENTS'
CHOICE OF MAJORS

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INTRODUCTION

The proliferation of communication programs in higher education could confuse students trying to select a major from the many available choices. College students and their academic advisors, as well as high school seniors and their guidance counselors, can pick and choose among journalism, communication studies, media studies, broadcasting, film, technical communication, public relations, advertising and other majors included under the broad umbrella of communication.

Given the wide selection, tracking students into the appropriate communication field for their skills, interests and career goals can be a challenge. This study will examine whether students' attitudes toward writing, as well as their writing skills, should be considered in choosing a communication major.

Despite the variety of specialty areas, communication students will find an emphasis on writing in many of their courses. Although Medsger noted a trend toward generic media writing courses instead of traditional news writing and reporting instruction, writing is still an essential skill for students in communication programs.¹ "Majors would be expected to know how to write a basic news story, script a spot news event, write a press release ... or write a headline," Brock noted in a study of communication students.² Furthermore, accrediting agencies often require universities to demonstrate that their graduates have competency in such basic skills as writing, Morello noted, making writing an essential part of the curriculum for college students in general.³

While Brock found no significant difference between communication majors and non-majors in their understanding of broad media and journalism issues, it is possible that majors and non-majors will differ in skills areas, such as writing.⁴ Within the communication field, students may have different attitudes toward writing. For instance, several authors have commented upon the differences between public relations students and journalism majors in their attitudes toward writing and reporting. Ceperley interviewed a public relations student who said he chose that major because he "hates" writing.⁵ Griffiths commented that many public relations students "want nothing to do with asking difficult questions and writing about crime, school boards, and sewer rates".⁶

People experience many emotional reactions toward writing. Writing is not only a cognitive process but also an emotional activity, according to McLeod, who identified the most important emotions as writing apprehension, motivation to write (including a writer's goals, which this study will label writing outcomes expectations), and students' beliefs about writing and their own skills as writers (called self-efficacy in this study).⁷ The affect of writing apprehension appears to be especially powerful, since two studies have concluded that writing apprehension influences a student's choice of a major.⁸

This study will examine the writing affects of apprehension, self-efficacy beliefs, and outcome expectations, as well as writing experience and skills. The purpose of this study is to examine discriminant analysis results, using the fore-mentioned five writing measures, in predicting the classification of students enrolled in communication courses into their majors. The goal of the present study is to develop a scale to differentiate academic majors in the communication field.

The study is important because, despite the variety of specialty areas, little attention has been paid to the differences among various types of communication students. Because all communication students will find an emphasis on writing in many of their courses, students and instructors could both benefit from being aware of any differences. Surprisingly, because many studies in the 1970s concluded that writing apprehension affects many people in a variety of ways, little research on the construct has been conducted since then. This study adds to the understanding of writing apprehension and how it may affect people's decisions about academic fields and careers.

The study is particularly relevant to the communication field, where few studies have been conducted on student writing characteristics. Nearly all of the studies in this area have come from the English composition field rather than from communication. The findings of those studies may not be generalizable to communication, because journalistic writing is different from English composition and other writing disciplines. In addition, most writing studies have been anecdotal rather than empirical.

As journalism programs enter what Medsger regards as a perilous era of mergers with other departments⁹, more knowledge about the distinctive nature of journalistic writing and journalism students' characteristics seems important to protect the integrity of the discipline from intrusive, disruptive influences by other academic areas.

Based upon the literature review, the following hypotheses seemed reasonable:

H1: Discriminant analysis will classify the student choice of majors based upon writing apprehension, self-efficacy, writing outcomes expectations, writing skills and experience.

H2: Writing apprehension will be the most powerful predictor of major.

LITERATURE REVIEW

The communication explosion is not a new development in academia. Medsger identified a dichotomy in communication and journalism education that began in the mid-1950s with the rise of communication studies as a recognized academic discipline.

By the 1990s, communication programs could be professional units offering journalism, advertising and public relations, hybrid units offering interpersonal and mass communication, or specialized units consisting only of interpersonal communication, according to Dickson.¹⁰

The Association for Education in Journalism and Mass Communication's annual directory and The Dow Jones Newspaper Fund's career guide identified 463 colleges and universities with journalism and/or mass communication programs in 2003.¹¹ Enrollment in those programs has jumped 50% in the last decade. However, in 2003, fewer than 8 percent of the undergraduates in the survey were news-editorial majors, down from 20 percent in 1988. In 2000, about 45 percent of the students in the survey were enrolled in majors outside of journalism, telecommunications, advertising and public relations, up from about 23 percent two years prior. The authors noted that this trend reflects complex changes in journalism and mass communication education, including mergers with communication departments and the creation of hybrid programs with speech communication and English.

Noting the expansion of academic programs and students graduating in communication fields, Gutierrez pointed out that the proliferation is "confusing for students seeking careers in the news."¹²

In many communication schools, students in all majors must take interdisciplinary core courses, often including news writing. Griffiths said that the communication department at his university even uses its basic news writing course to screen out weak public relations writers from the public relations major.¹³

Moberg observed that many mass communication schools use entrance exams to "weed out" unprepared students from crowded programs.¹⁴ Many entrance tests, though, are multiple choice and true/false exams that can arbitrarily prevent some students from studying in their chosen field of mass communication. To evaluate students' writing competence, he proposes also using essay tests that blend speech communication and mass communication.

Writing apprehension

Writing apprehension is a construct that attempts to differentiate people who find writing enjoyable and those who experience high levels of anxiety when writing is required, according to Daly and Miller.¹⁵ A brief flurry of studies ensued after writing apprehension was identified in 1975, but only scant research in the last decade, and relatively few of those studies involved undergraduate college students.¹⁶ Daly found that students with high levels of writing apprehension consider writing to be unrewarding, and they will avoid classes with writing assignments, if possible.¹⁷ Apprehensive students will choose academic majors that they believe will require less writing, while non-apprehensive students will seek out majors where more writing is required, Daly and Shamo concluded.¹⁸ The effects of writing apprehension can continue after college. High-apprehensive students tend to enter occupations where less writing is required as part of the job, a previous study found.¹⁹ Daly's study of 3,602 undergraduate composition

students concluded that low-apprehension students tend to have higher writing skills than do high-apprehension students.²⁰ Riffe and Stacks found that journalism majors generally tended to be less apprehensive than broadcasting, public relations and advertising majors.²¹ A subsequent study found that mass communication majors' attitudes were significantly different from non-majors' attitudes in three areas: career skills, audience salience and writing about facts versus writing about ideas.²²

Writing self-efficacy

Writing apprehension is negatively correlated with related self-concept, self-esteem and self-competence measures that contribute to items in the writing self-efficacy instruments used in this study.²³ Riffe and Stacks commented that fear of writing obviously is related to enjoyment of writing.²⁴ Daly and Wilson found writing apprehension was significantly and inversely related to self-esteem.²⁵ McCarthy, Meier, and Rinderer defined writing self-efficacy as students' evaluation of their own writing skills.²⁶ Writing self-efficacy consists of three components -- writing skills, tasks and outcome. Writing skills self-efficacy beliefs are students' confidence in their ability to successfully perform certain writing mechanics, such as spelling and punctuation. Writing task self-efficacy beliefs are students' confidence in their ability to successfully complete specific writing problems, such as a letter to a friend or a job resume. Writing outcome expectations are how students rate the importance of writing for achieving various life goals, such as getting a job or being financially secure.

Shell, Murphy, and Bruning found that while self-efficacy was a significant predictor of writing performance, outcome expectations were not significant.²⁷ However, the sample consisted of education majors, who may be different from the mass

communication student sample for the present experiment. Pajares and Johnson found no correlation between education students' writing self-efficacy and their outcome expectations.²⁸ However, Wiltse's later study of mass communication students found that writing apprehension was inversely correlated with both writing self-efficacy and writing outcome expectations. Self-efficacy and outcome expectations were also correlated.²⁹

However, students' beliefs in their writing abilities may exceed their actual abilities. In a study of beginning journalism students, Bissell and Collins found a statistically significant correlation between self-efficacy and writing performance, but the relationship was low.³⁰ They concluded that despite high writing self-efficacy scores, students' news writing performance was generally mediocre. They concluded that the difference between self-efficacy and performance may have been due to students' unfamiliarity with the unique aspects of news writing.

There may be other factors that affect self-efficacy. Collins and Bissell, for instance, found that high school journalism experience was a predictor of high self-efficacy in college media-writing students.³¹

Although they are separate constructs, self-efficacy and writing apprehension can exert similar influences on students. Maier and Curtin suggested that self-efficacy beliefs can affect education choices since students may discard some majors based upon their perceptions of their capabilities.³² For instance, journalism students may have chosen that major because they doubt their abilities in math or other areas of study but are confident working with words.

Writing characteristics

Communication students may also differ from non-majors in the type of writing instruction they are required to take. Most universities require all students to pass an English composition course. A survey conducted by Huber found that 95% of the schools responding required at least one composition course for all arts and sciences students. However, English composition classes differ from journalism writing classes in terms of audience.³³ Much composition writing is private, such as keeping journals, while journalism writing is intended for a mass audience. In addition, composition students commonly write essays in which they express their ideas, while journalism students write stories based upon facts.³⁴

There is some evidence that the type of academic writing can affect levels of writing apprehension. Faigley, Daly, and Witte found that high-apprehensives were significantly different from low-apprehensives in their writing performance on personal narrative essays, but not on argumentative essays.³⁵ Walsh stated that high-apprehensive students enjoyed personal forms of writing, such as letters, more than did low-apprehensives.³⁶ Olson conducted an experiment in which one section of freshman composition students received a half-semester of news-writing instruction while other sections received traditional instruction.³⁷ However, he found no significant difference in self-efficacy, motivation, attitudes, grammar and mechanics, and anxiety between the two groups.

Students who write more often may improve their writing skills and perhaps reduce writing apprehension. Writing skills also may differentiate students. According to Flower and Hayes' cognitive learning theory, students who are poor writers may not have rehearsed basic writing knowledge such as sentence structure in their short-term memory

and, therefore, it was never moved to permanent, long-term memory.³⁸ For skilled writers, retrieving sentence structure knowledge from long-term memory is nearly automatic, freeing them to perform higher writing tasks, such as content and organization. Fox noted that many students may have limited writing experience, and that writing apprehension might be reduced by increasing their writing opportunities.³⁹ However, Daly raised the question of whether writing apprehension causes poor writing skills or writing deficiencies result in apprehension.⁴⁰

Bandura noted that competency requires both skills and self-beliefs of one's efficacy to use those skills.⁴¹ Even though people have high levels of self-efficacy that they possess the skills to complete a task, unless they actually possess those skills, they probably will not succeed. Data that measured writing skills were collected for this study because several researchers suspect that writing apprehension and poor writing skills may be reciprocal; that is, poor writing may cause writing anxiety or vice versa.⁴²

METHODOLOGY

A demographic questionnaire was completed by 229 students attending a 13,000-enrollment university in the Rocky Mountain region in 2004 and 2000. The sample consisted of 128 females and 101 males enrolled in nine courses offered by the communication and journalism department.

To measure writing skill, participants were asked for their grade in the required freshman composition. Some writing experts recommend measuring writing skills by having expert readers use holistic scoring on timed, in-class writing samples from students.⁴³ However, other researchers have used self-reported grades as an indicator of writing performance. For instance, Daly and Miller asked subjects to provide their SAT-

Verbal scores for a study on writing apprehension.⁴⁴ While there may be questions about the accuracy of self-reported grades, they reported that students were surprisingly accurate when reporting their SAT-Verbal scores. Because of the size of the sample in this study ($N = 229$), it was decided that conducting holistic scoring would be impractical. Writing skill was reported by grade point average on a scale of 0-4.

To measure writing experience, participants were asked for the number of required college writing classes they had taken, including freshman composition. Writing experience was reported on a scale of 0-3.

Writing apprehension was measured by the Daly-Miller Writing Apprehension Test, which has been found to be valid and reliable in numerous studies. Scores on the 26-item instrument may range from a low of 26 to a high of 130. High scores indicated low levels of writing apprehension.

Writing self-efficacy was measured by three instruments developed by Shell et al. to measure writing skills self-efficacy, writing tasks self-efficacy and writing outcome expectations. The instruments have been found to be valid and reliable in other studies. The eight-item writing skills and 20-item writing tasks instruments allow participants to choose a score from 0 (no chance) to 100 (completely certain) to rate their self-efficacy. Scores were then averaged, and the writing tasks and skills subscales were combined. The writing outcome expectations instrument used a seven-point Likert scale ranging from extremely unimportant to extremely important. Scores were calculated by averaging the ratings across all 20 items. High scores indicated high self-efficacy beliefs and writing outcome expectations.

RESULTS

Descriptive Statistics

There were no significant differences in writing experience, grade point average, writing apprehension, self-efficacy and writing skills scores between the 2000 ($N = 181$) and 2004 ($N = 48$) groups. The mean age of the sample was 21.6 years old ($SD = 3.62$) with ages ranging from 18 to 58. Caucasians composed the largest ethnic group, 92.6%, in the study ($N = 212$).

The majority of students in the study were majoring in the communication and journalism department, with 74 listing communication and 63 reporting journalism as their majors. The remaining 92 respondents majored in other academic areas or were undeclared. Participating in the study were 39 freshmen, 52 sophomores, 63 juniors, and 74 seniors, as well as one graduate student.

Only 46 participants had taken just one of the three required writing courses at the university, while 110 had taken two and 65 had taken three. Eight participants did not respond to the question.

The mean grade point average in the required freshman composition course was 3.35 ($SD = .66$).

The mean score on the 100-point writing tasks self-efficacy subscale was 76.58 ($SD = 12.14$). Scores ranged from 43 to 100. The mean score on the 100-point writing skills self-efficacy subscale was 87.63 ($SD = 11.67$). Scores ranged from 32.5 to 100. For further data analysis, the twenty-eight items composing the writing skills and writing tasks self-efficacy subscales were averaged into a single score. The mean for the full-scale self-efficacy scores was 79.74 ($SD = 10.58$), and scores ranged from 49.29 to 98.93.

The mean score on the seven-point writing outcome expectations instrument was 4.94 ($SD = 1.02$). Scores ranged from 1.65 to 7.00.

The writing apprehension test mean score was 97.26 ($SD = 15.87$) on a possible scale from 26 to 130. Scores ranged from 50 to 130.

Table 1: Mean Scores for Journalism, Communication and Non Majors

Major	Journalism	Communication	Non-major
Writing apprehension*	25.35	35.48	37.97
Outcome expectations	5.09	5.01	4.79
Self-efficacy	81.04	79.20	78.13
Experience**	2.19	2.02	1.83
Skills (GPA)***	3.50	3.22	3.36

* Scores were recoded so low scores indicate low levels of apprehension.

** Based on number of three required writing courses completed.

***Grade in required freshman composition course

Discriminant Analysis

Discriminant analysis is a statistical technique for classifying an observation (e.g., writing apprehension test score) into one of two or more mutually exclusive categories (e.g., communication, journalism or non-major) based upon the observation's individual characteristics.

To test whether the assumption of homogeneity of the covariance matrices for each dependent variable was tenable, the Box's M was calculated to test the null hypothesis. The Box's M was found not to be statistically significant. Therefore, the

assumption was determined to be tenable, and discriminant analysis was determined to be the appropriate statistical test for the study.

A discriminant analysis of the 221 complete surveys was conducted to determine whether five discriminating variables -- writing skill, writing experience, writing apprehension, writing self-efficacy, and writing outcome expectations -- could predict students' choice of academic major.

The overall Wilks' lambda was significant, $\Lambda = .83$, $\chi^2(10, N = 221) = 39.87$, $p < .001$, indicating that overall the predictors differentiated among three academic major groups. However, the residual Wilks' lambda was not significant. This test indicated that the predictors did not differentiate significantly among the three academic major groups after partialling out the effects of the first discriminant function. Because the first test was significant, only that discriminant function will be interpreted in this study.

In Table 2, the within-groups correlations between the predictors, the discriminant functions, and the standardized weights are presented. Based on these coefficients, the writing apprehension test scores demonstrate the strongest relationship with the discriminant function, while the other predictors showed weaker relationships. On the basis of the results presented in Table 2, the discriminant function was labeled the writing apprehension dimension.

Table 2: Standardized Coefficients and Correlations of Predictor Variables with the Discriminant Function

	Correlation coefficients with discriminant function	Standardized coefficients for discriminant function
Writing self-efficacy beliefs	-.40	.18
Writing outcome expectations	-.28	-.01

Freshman comp grade	-.22	-.04
Number of writing classes	-.64	-.52
Writing apprehension	.86	.85

The means on the discriminant function are consistent with this interpretation. Non-majors had the highest scores on the writing apprehension test, indicating higher levels of apprehension, while communication majors and journalism majors had lower mean scores.

When the study tried to predict students' choice of academic major, it was able to classify correctly 53% of the participants in the sample (See Table 3). The discriminant analysis performed better in placing journalism majors correctly than it did non-majors and communication majors.

Table 3: Cases Correctly Classified into Majors

Major	Classified	Total	Percentage
Communication	35	73	48%
Journalism	41	63	65%
Non-major	42	85	49%

To take into account chance agreement, a kappa coefficient was computed and a value of .20 was obtained, which is a low value. To assess how well the classification procedure would predict in a new sample, the percent of students accurately classified using the leave-one-out technique was estimated. About 49% of the cases were correctly classified.

By squaring the canonical correlation for the discriminant function ($.329^2 = .108$), the eta squared was obtained that would result from conducting a one-way ANOVA on the discriminant function. About 11 percent of the variability of the scores for the discriminant function is accounted for by differences among the three majors. The true hit rate, which refers to the classification of a future sample based upon the discriminant function from this sample, is lower, as would be expected. Using the "leave-one-out" method, the true hit rate was about 49%. Journalism majors were correctly classified in 59% of the cases, while communication majors were correctly classified 42% of the time. Non-majors were correctly classified in 47% of the cases.

Factor Analysis

Because discriminant analysis suggested relationships among the variables, factor analysis was conducted to analyze interrelationships among the five variables and to explain these variables in terms of their common underlying dimensions.

The initial data extraction produced two components with eigenvalues higher than 1, which represented about 60% of the variance in the data. They were retained for further analysis. Consequently, the two components were rotated using a Varimax rotation procedure. The rotated solution yielded two interpretable factors, Writing Skills and Writing Attitudes. The Writing Skills component consisted of the freshman composition scores, numbers of writing classes taken, and self-efficacy scores. The Writing Attitudes component was observed to consist of writing apprehension and writing outcomes expectations scores.

The variables were combined using their sum weighted factor analysis loadings. However, a new discriminant analysis using the sum weighted factors as discriminating

variables had less predictive results than the original discriminant analysis using the five discriminating variables, classifying only 46% of the cases compared to 53% for the original.

Analysis of Variance

For future study, it was decided to see whether there were differences among journalism majors, communication majors and non-majors. Data were analyzed with between-subjects, univariate analyses of variance to evaluate the relationships between the two components identified by factor analysis -- Writing Skills and Writing Attitudes. The grouping variable was student major.

Because n's were unequal for the groups in the three independent variables, Leven's Tests of Equality of Error Variances were calculated to ensure that the assumption of homogeneity of variance was tenable, and that ANOVAs were the appropriate statistical tests. The homogeneity of variance was tenable for the three ANOVAs.

The ANOVA for Writing Skills was significant, $F(2,226) = 12.54$, $p < .001$. The ANOVA for Writing Attitudes also was significant, $F(2,226) = 3.20$, $p = .04$.

Post hoc tests were conducted using the Tukey multiple comparison method. The post hoc tests indicated a significant difference between journalism and communication majors on the Writing Skills component ($p = .006$) and between Journalism and non-majors ($p < .001$). Effects sizes were small (eta squared = .10), suggesting that the magnitude of the differences was low.

On the Writing Attitudes component, there were no significant differences among the majors.

Reliability of Instruments

The Cronbach alpha coefficient for reliability was calculated for each instrument used in the study. The reliability of the writing tasks self-efficacy instrument in the study was .88, compared to .92 reported by Shell, et al. The writing skills self-efficacy subscale used in the study had a .90 Cronbach alpha, compared to .95 reported by Shell, et al. The combined skills and tasks self-efficacy subscales in the study had a .90 Cronbach alpha. Shell, et al. did not report reliability for the combined subscales. Reliability for the writing outcomes instrument in the study was .93, and Shell, et al. reported a .93 Cronbach alpha. The writing apprehension test had a .95 Cronbach alpha, compared to .94 reported by Daly and Miller.

Summary

Roughly 53% of the cases in the study were correctly classified based upon the functions derived from the sample. While it would be desirable to have a higher apparent hit rate, with this classification function the study predicted group membership better than chance (33.3%). The function performed best in classifying journalism students, nearly twice as well as chance.

DISCUSSION

The results of this study partially supported the first hypothesis that discriminant analysis would classify the student choice of majors based upon the five discriminating variables. Three of the variables were useful in the discriminant function: writing apprehension, writing experience and writing outcomes expectations. Writing skills and writing self-efficacy did not contribute to the discriminant function.

The second hypothesis was supported. In this study, writing apprehension appears to be the best predictor of whether students will choose communication, journalism or other majors. This result is not surprising because the literature strongly suggests that writing apprehension distinguishes between people who approach writing and those who avoid it. Furthermore, Daly found that apprehensive students will avoid classes with writing assignments.⁴⁵ Journalism majors should be expected to have low levels of apprehension because writing is an integral part of their curriculum and future careers. Communication majors might be expected to have higher levels of apprehension because their field of study largely involves speech communication rather than writing-intensive instruction. Non-majors could be anticipated to have the highest levels of apprehension since many may have chosen majors in which they expect there will be fewer writing assignments. The results support earlier findings that apprehensive students will choose majors with less perceived writing, while non-apprehensive students will pick majors with more writing.⁴⁶ However, the findings extend previous writing apprehension research into the communication field. They suggest apprehension may affect student choice of major even within schools of communication, where writing is an important component of the curriculum.

Writing experience had a positive relationship with the writing apprehension dimension. Journalism majors and communication majors had both taken at least two of the three required writing classes, while non-majors had taken fewer than two. Again, these results were not entirely unexpected. Journalism majors, who have low levels of writing apprehension, likely chose their major because they wanted to write. They also likely took as many required writing classes as quickly as they could so they could

advance to upper-division writing courses. One might suspect the differences could be due to age differences, and that journalism majors may simply have been in school longer than communication and non-majors. However, the mean age for journalism majors was 22.0, compared to 21.6 for communication and 21.2 for non-majors.

Writing outcome expectations also had a positive relationship with the writing apprehension dimension, but it was the weakest of the three. The results were similar for this discriminating variable. Journalism majors had the highest outcome expectations, which seem likely considering that many journalism majors plan careers in the mass media and see the value of writing in attaining their career goals.

Self-efficacy beliefs had a negative relationship with student choice of majors. Although several studies have found that writing apprehension and self-efficacy beliefs were inversely correlated, it is important to note that they are distinct constructs rather than two ends of a continuum with high apprehension at one end and high self-efficacy at the other. That is, people might not experience anxiety about writing, but at the same time, they also may not have strong self-efficacy beliefs in their ability to write. For example, Pajares and Johnson found the writing apprehension levels of the students did not change even though their sense of self-efficacy improved.⁴⁷ The results of the discriminant analysis in the present study support the independent nature of the two constructs.

Writing skills, as measured by students' grades in freshman composition, also had a negative relationship with student choice of majors. This result may have been due to the use of grade-point average to measure writing skill. Although some previous studies have used self-reported grades to measure writing performance, the results of this study

suggest that freshman composition grades perhaps are not good indicators of writing skills.

While writing apprehension seems to be the best predictor among the discriminating variables, apparently there are other factors that account for the rest of the variance in student choice of majors. Further study could consider other independent variables in a discriminant analysis. Other factors might include participation in high school activities such as debate team, newspaper or yearbook.

Because this study involved predictive discriminant analysis, removing some variables from the statistical analysis could yield greater classification accuracy, as Huberty and Julian noted.⁴⁸ In particular, the removal of writing self-efficacy beliefs and writing skills as predictor variables might improve the accuracy of the discriminant function.

Although results were not hypothesized for the factor analysis and subsequent ANOVA tests of the data, their results suggest several directions for future research inquiries. The factor analysis that found relationships among writing skills, experience and self-efficacy also may deserve further inquiry. Bandura wrote that in order for people to succeed, they must have self-confidence in their ability to perform a task, as well as some degree of skill in the given task.⁴⁹ The relationships found in this study could be interpreted according to Bandura's theory. However, it is also possible that success in freshman composition courses and the experience gained from taking two or more writing classes also could result in increased writing self-efficacy. Students also could have writing self-efficacy beliefs much greater than their actual writing skills, as one recent study concluded.⁵⁰ Further study could help clarify these relationships.

The ANOVAs found significant differences between journalism and communication majors in both writing skills and writing attitudes, which raise questions about the direction of journalism education as mergers continue between communication and journalism programs. According to Medsger, one school of thought is that communication schools will offer an integrated curriculum that trains students for a wide range of communication fields, including journalism, public relations and advertising⁵¹. The opposing school advocates maintaining journalism as a separate academic discipline with a curriculum that combines writing and reporting skills instruction with courses in journalism history, law and ethics. Critics contend that an integrated curriculum serving all majors within a communication school is “watered down” compared to a more strenuous, traditional journalism curriculum. Future research could investigate whether differences among students regarding writing are related to the type of writing curriculum offered in merged communication/journalism programs.

The discriminant function from this study may be of assistance to students, advisors and guidance counselors in making decisions about academic majors. Their scores on the instruments in this study, particularly the writing apprehension test, could be generally used to advise students whether they should pursue majors inside or outside of the communication field. Of course, an advisor or counselor also should take into consideration a student's other academic abilities, educational and career goals, extracurricular interests, etc. Combined with those other factors, this model could help students pursue realistic programs of study in college.

Academic advisers might closely consider a student's level of anxiety toward writing when discussing majors. The discriminant function in this study apparently would

be more useful for directing students to a major in journalism, rather than to communication or other majors outside the communication field. However, the cost of misclassification in this study has relatively low stakes. Students commonly change majors during their college lives. Their career goals may change, or their academic interests may lead them to new intellectual pursuits. They may find their talents lie elsewhere. While there may be temporary setbacks for misclassified students, such as taking and paying for additional classes when they transfer to another program, the damage done is not irreparable.

The results could be particularly valuable for journalism programs that require students to be admitted to the program, rather than allowing students to simply declare journalism as a major. Besides pretesting applicants for basic writing skills, journalism schools with admission standards also might test for writing apprehension. Students with high levels of anxiety but exceptional writing skills could be admitted on a provisional basis since research has found that anxiety can paralyze some students but also can motivate other students to improved performance⁵².

Furthermore, writing apprehension can be treated. Instructors may consider using more non-graded assignments. They also may consider the type of feedback because apprehensive students may be discouraged by any evaluation other than positive comments. In addition, the more writing a student does, the less apprehension they experience. So instructors may also provide additional writing opportunities in classes. Other remedies for writing apprehension include discussion groups, student-centered workshops, learning-centered writing, journal writing, student-teacher conferences, and

increased special attention from the instructor. Basing some writing assignments on students' first-person experiences also may be effective.⁵³

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