

Authenticated Writing Competencies of Agricultural Education Graduate Students:
A Comparison of Distance and On-campus Students

Tim H. Murphy, Texas A&M University
James R. Lindner, Texas A&M University
Kathleen D. Kelsey, Oklahoma State University

Abstract

Content analysis techniques were used to analyze writing samples. The students were enrolled in two different courses at three different universities. A course entitled Advanced Methods in Agricultural Education was delivered to 15 on-campus students at Texas A&M University, while 17 students were taking a separate section of the course at a distance through a joint degree program offered by Texas A&M and Texas Tech Universities. There were 12 students enrolled (4 on- and 8 off-campus) in the course entitled Research Methods in Agricultural Education offered by Oklahoma State University. The instrument used to gather data, was designed by Texas A&M University's Department of English's Writing Program's Office (WPO). The WPO also performed the double-blind content analysis of the writing samples. Data from the content analysis was summarized by the authors using descriptive and inferential statistical techniques.

The location of the student, whether on- or off-campus, was not significant in explaining writing ability. Moore's theory of transactional distance (1980) grounded this study. In this theory, distance is described in terms of the responsiveness of an educational program to the learner, rather than in terms of the geographical or chronological separation of the instructor and the learner. Technologically mediated learning environments rely on written communications to a greater extent than do traditional face-to-face environments. If students are able to surmount the technological barriers to interaction through electronic communications technologies, then they will have a more satisfying and meaningful experience in the graduate program. This assumes that students have the basic skills required, namely the ability to communicate via the written word. Given this assumption, this study sought to understand graduate students' writing ability as a fundamental core competency of a successful graduate program.

This study has advanced the knowledge base concerning the writing ability of on- and off-campus students at three major universities in the Southwest, and serves as a call to action for the profession. Only 7% of the students sampled were able to demonstrate adequate writing. While another 34% achieved a score that suggested that their writing ability may be adequate, the authors were astonished that over half the students (60%) either suggested or demonstrated inadequacy in their writing ability. Using this single measure, 93% of graduate students in this sample were unable to demonstrate adequate writing techniques when given a structured writing task.

Introduction

Distance education has always taken advantage of developments in communications technologies. Improvements in the postal service spurred the development of correspondence study courses by mail. Today, modern digital communication technologies have assumed this role. Easy to use and powerful computer workstations are, or soon will be, available to anyone with sufficient motivation.

In most preceding distance delivery strategies, the only medium available for student-generated communications was writing. Modern communications technologies have made it possible to provide students with additional media. The telephone has been available for over 100 years, audio tape recorders and video cameras have been widely available for decades, and now H.323 desktop videoconferencing is diffusing rapidly throughout our schools. Still, none of these technologies has made significant progress in replacing the written word as the preferred communications medium for student-generated communications. Nor do the authors believe they will. The written word, regardless of how it is transmitted and published, will remain the dominant medium for student-generated communications in educational settings.

The Boyer Commission (1998) reported, “the best teachers and researchers should be thinking about how to design courses in which technology enriches teaching rather than substitutes for it” (p.2). As the demand on faculty to make their courses available off-campus increases, the need to analyze the types and levels of competencies necessary for student success and satisfaction in these environments grows more urgent.

Lindner, Dooley, and Murphy (2001) found differences in the self-reported writing competence levels of two groups of distance learners in graduate programs in Texas. Recognizing the limitations of self-reported data, they recommended others “conduct authentic assessment of student competencies through testing” (p. 38). This study used authentic assessment to measure the writing competence of graduate students in two on-campus and three off-campus graduate degree programs.

Theoretical Framework

Russell (1998) provided a metaanalysis of over 240 studies indicating that in properly designed learning environments, the methods employed to overcome geographical or chronological distance produced no significant differences in learner achievement. While achievement may be unaffected by these methods, learner satisfaction has been found to be related to interaction. Learners prefer a setting that includes interaction between and among other learners and instructors (Fulford and Zhang, 1993; Garrison, 1990; Ritchie and Newby, 1989). One way to organize thinking about interaction is through the theory of transactional distance.

Moore (1980) introduced the concept of transactional distance. Moore and Kearsley (1996) suggested that transactional distance be included as a variable in the analysis of distance education courses and programs. Transactional distance is a measure of distance, not as a geographical but as a "pedagogical phenomenon" (p.200). It involves the interplay among the instructors, the learners, the content, and the learning environment. Distance is described in

terms of the responsiveness of an educational program to the learner, rather than in terms of the separation of the instructor and the learner in space or time or both. According to Moore and Kearsley (1996), there is always some transactional distance involved in a learning environment—even when the students are collocated with the instructor. By this measure, some on-campus courses designs have greater transactional distance, are in fact more distant, than some courses designed to use technology to overcome geographical and chronological distances.

Parraton's (1988) list of 14 hypotheses forms a theory of distance education. Pertinent to this study are her first and twelfth hypotheses. The first is, "You can use any medium to teach anything," and the twelfth is "Feedback is a necessary part of a distance learning system" (p. 37). The importance of interaction through communication, particularly in those environments where communications are mediated through technology, has long been stressed by Moore (1973, 1980, 1983). Communications are central to any learning environment and the focal point of any distance learning system.

High quality written expression may in fact be more essential to minimizing transactional distance in those environments that separate instructors and learners in space and time. Students should be able to write with sufficient clarity to overcome the lack of non-verbal cues, and they may be required to do so without the luxury of time afforded to traditional students. Hawisher and Moran (1997) found that text-based electronic dialogues tend to be rapid, informal, and public.

Regardless of the amount of geographical distance present in a course design, much of the interaction used to reduce the transactional distance in the course will occur through the written word. This study addressed the fundamental question of how well graduate students are able to communicate through the written word.

Purpose

The purpose of this study was to establish baseline data for the evaluation of the writing ability of on- and off-campus graduate students in agricultural education programs at three universities. Specific objectives of the study included:

1. Describe on-campus and distance graduate students competence to write an argument paper.
2. Assess differences in graduate students' authenticated writing score by location of student.
3. Assess differences in graduate students' authenticated writing score by institution of student.
4. Describe differences in graduate students' authenticated writing score within writing competency category by location.

Methods

Content analysis techniques were used to analyze writing samples from 44 graduate students (Fraenkel & Wallen, 1996). The students were enrolled in two different courses at three different

universities. A course entitled *Advanced Methods in Agricultural Education* was delivered to 15 on-campus students at Texas A&M University, while 17 students were taking a separate section of the course at a distance through a joint degree program offered by Texas A&M and Texas Tech Universities. There were 12 students enrolled (4 on- and 8 off-campus) in the course entitled *Research Methods in Agricultural Education* offered by Oklahoma State University.

The instrument used to gather data was designed by Texas A&M University's Department of English's Writing Program's Office and the researchers. The authors considered using the GRE Writing Assessment (GRE, 2002) because of its nationally-normed reliability, but wanted the level of detail available from a sentence level structure assessment. The GRE Writing Assessment provides only an overall writing assessment.

The instrument used in this study consisted of three parts: Two articles, instructions, and APA documentation guidelines. All students were given two articles discussing the role of computing technology in K-12 classrooms. One of the articles presented arguments in favor of using technology in the classroom (Pea, 1998), and one presented arguments against (Cuban, 1998). The instructions directed students to write a well-formed, grammatically correct essay based on their reading of the two position papers; to write this essay in the form of an argument; to consider the audience to be other graduate students; to begin with an overview; to use references in the essay following APA guidelines; and to proofread and correct their paper before turning it in. The APA documentation guidelines provided students with information on how to reference citations and use quotes.

Students were given a copy of the two articles and an informed consent document one week in advance of the writing activity. Students were told to read, highlight, mark-up, and reflect upon the articles before coming to the next class. Students were told that their writing assignment would be based on the articles, but were not told the format or structure of the writing activity. Upon entering the testing situation, students were given oral instructions, written instructions, APA documentation guidelines, additional copies of the articles if needed, and two bound and blank writing journals often called bluebooks.

Before beginning the writing assessment, students were instructed to spend 15-20 minutes outlining and drafting their argument paper onto one of the bluebooks, and then to spend 40-55 minutes writing, and 10-15 minutes proofing their final paper onto the other bluebook. Students were also directed to carefully read the written instructions. Students had 1.5 hours to complete the writing test. All students completed the writing test and submitted a complete paper.

Papers were collected by the researchers and delivered to the Director of the Writing Center at Texas A&M University for analysis (Gibson, n.d.). The researchers contracted with the Writing Center to hire two professionally trained evaluators to score each essay using an overall writing strength rubric and a sentence level structure assessment rubric. There were four possible scores on the overall writing strength rubric. These were: 4=demonstrates adequacy; 3=suggests adequacy; 2=suggests inadequacy; and 1= demonstrates inadequacy. Evaluators reached consensus on each student's overall writing strength.

The sentence level structure assessment rubric consisted of six writing competency categories (coherence, audience awareness, argument, summary, sources, and grammar) that contained numerous specific writing competencies (see Tables 1-6). Coherence was defined as the development of a clear thesis and introduction that sets the stage for the argument and well-constructed paragraphs in the body of the text. Audience awareness was defined as the ability to write on an appropriate level for an identified audience and to make appropriate appeals using correct tone and voice. Argument was defined as the development of a supported and logical argument about an issue with important consequences for both author and audience. Summary was defined as the development of a clear summary drawing on the established argument and references. Sources were defined as the appropriate use of references in the paper following APA guidelines. Grammar was defined as the ability to write a grammatically correct paper.

The writing program has a long and sustained reputation for scoring student writing tests using both the overall and sentence level structure assessment rubrics. Reliability and validity have been previously established by the Writing Program (Ashe, 1994). The instrument has been shown to be able to predict students' success in later assessments of writing. In establishing predictive validity, ninety-five percent of students who received a passing score, as judged by the Writing Program, also passed the National College CLEP College Composition Test. Reliability was established by looking at variability: within an evaluator's score; in scoring between pairs of evaluators; and in scoring across all students over time (Breland, 1987). Evaluator's scores tend to remain constant over time. Those raters that score outside the norm are retrained or released. To ensure inter-rater reliability, a consensus of evaluators must agree on a student's score. Over time individual student's scores have remained relatively stable.

While the data were gathered from three courses delivered by three institutions, the researchers recognize the sampling limitations of using intact classes. Caution is warranted against generalizing these findings beyond the sample population. Additional research is needed to support and prove the external and ecological generalizability of findings and recommendations. Data were analyzed using SPSS, and appropriate descriptive statistics (e.g. frequencies and percentages) were presented.

Findings and Conclusions

Objective one was to describe graduate students competence to write an argument paper (Table 1). The professional evaluators reached consensus on each students' score. Using the overall writing strength rubric four students (9.1%) demonstrated inadequacy in competence to write an argument paper. Twenty-two students (50.0%) suggested inadequacy in competence to write an argument paper. Fifteen students (34.1%) suggested adequacy in competence and three students (6.8%) demonstrated adequacy in competence to write an argument paper. There were no differences between on- and off-campus students for this variable.

The second objective was to assess differences in graduate students' authenticated writing score by location of student. Overall, students tended to demonstrate inadequacy ($M=2.39$) in writing an argument paper. There were no statistically significant differences between on-campus or distance learners and writing scores, $t(42)=.54, p>.05$. Based on authenticated writing scores it

was concluded that on-campus and distance learners had similar writing competence. These data are summarized in Table 2.

Table 1

Authenticated Writing Scores for On-campus and Distance Learners

	Total (n=44)		On-campus Learners (n=19)		Distance Learners (n=25)	
	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%
Demonstrates Adequacy	3	6.8	0	0	3	12.0
Suggests Adequacy	15	34.1	7	36.8	8	32.0
Suggests Inadequacy	22	50.0	11	57.9	11	44.0
Demonstrates Inadequacy	4	9.1	1	5.3	3	12.0

Table 2

Comparison of On-campus and Distance Learners by Authenticated Writing Score (n=44)

Writing Competency	<i>n</i>	<i>M</i>	<i>SD</i>	<i>t</i>	<i>p</i>
Distance Learners	25	2.44	.87	.54	.59
On-campus Learners	19	2.32	.58		

Note: Scale 1=demonstrates inadequacy, 2=suggests inadequacy, 3=suggests adequacy, 4=demonstrates adequacy; $M=2.39$, $SD= .75$; A small effect size, $d=.17$ was calculated; $p>.05$.

The third objective of the study was to describe differences in graduate students' authenticated writing score by institution of student. Students tended to have similar writing scores regardless of institution (Table 3). There were no statistically significant differences between students institution by authenticated writing score, $F(2,41)=.73$, $p>.05$. It was concluded therefore that students authenticated writing scores did not differ by whether they were enrolled at Texas A&M University, Texas A&M and Texas Tech Universities Joint Program, or Oklahoma State University.

Table 3

Comparison of Authenticated Writing Score by Institution (n=44)

Institution	<i>n</i>	<i>M</i>	<i>SD</i>	<i>F</i>	<i>p</i>
Texas A&M University	17	2.41	.94	.73	.73
Texas A&M and Texas Tech Universities ^a	15	2.27	.59		
Oklahoma State University	12	2.50	.67		

Note: Scale 1=demonstrates inadequacy, 2=suggests inadequacy, 3=suggests adequacy, 4=demonstrates adequacy; $M=2.39$, $SD= .75$; A medium effect size, $f=.13$ was calculated; $p>.05$, ^aDoctoral degree offered jointly by both institutions.

Objective four was to describe differences in graduate students' authenticated writing score within writing competency category by location. Using the sentence level structure assessment rubric discussed above, students' writing tests were assessed against six competency categories (coherence, audience awareness, argument, summary, sources, grammar) that contained numerous specific writing competencies.

Students, on average, were deficient on 32% of the items used to measure the six competency categories (Table 4). On-campus and distance learners tended to have similar deficiencies. Students showed the most deficiency in the competency category argument (17%) and coherence (16%). There were no statistically significant differences between on-campus and distance learners by argument, $t(42)=.81, p>.05$, and coherence, $t(42)=.42, p>.05$. The next most deficient competency categories were grammar (12%), summary (11%), and audience awareness (10%). No statistically significant differences were found between on-campus and distance learners by grammar, $t(42)=.74, p>.05$, summary, $t(42)=.11, p>.05$, and audience awareness, $t(42)=1.70, p>.05$.

The competency category that students demonstrated the least amount of deficiencies was sources (3%). No statistically significant differences were found between location and sources, $t(42)=.91, p>.05$. It was concluded that student writing scores within the six competency categories did not differ by whether they were on-campus or distance learners.

Table 4

Comparison of Writing Competency Category by Location (n=44)

<i>Competency Category</i>	<i>n</i>	<i>M^a</i>	<i>SD</i>	<i>t</i>	<i>p</i>
Argument -Development of a supported and logical argument about an issue with important consequences for both the author and the audience					
Distance Learners	25	.15	.12	.81	.42
On-campus Learners	19	.18	.12		
Grand Mean ^b	44	.17			
Coherence -Development of a clear thesis and introduction that sets the stage for the argument and well constructed paragraphs in the body of the text					
Distance Learners	25	.17	.12	.42	.68
On-campus Learners	19	.15	.09		
Grand Mean ^c	44	.16			
Grammar -Ability to write a grammatically correct paper					
Distance Learners	25	.13	.15	.74	.47
On-campus Learners	19	.10	.12		
Grand Mean ^d	44	.12			
Summary -Development of a clear summary that draws on the established argument and references					
Distance Learners	25	.11	.11	.11	.91
On-campus Learners	19	.12	.10		
Grand Mean ^e	44	.11			
Audience Awareness -Ability to write paper on appropriate level for identified audience and make appropriate appeals using correct tone and voice					
Distance Learners	25	.07	.11	1.70	.10
On-campus Learners	19	.13	.12		
Grand Mean ^f	44	.10			
Sources -Uses appropriate references in the paper following APA documentation					
Distance Learners	25	.02	.05	.91	.37
On-campus Learners	19	.04	.07		
Grand Mean ^g	44	.03			

Note: ^a $M=.32$, $SD=.21$; ^bA medium effect size, $d=.25$ was calculated; ^cA small effect size, $d=.14$ was calculated; ^dA small effect size, $d=.15$ was calculated; ^eA medium effect size, $d=.46$ was calculated; ^fA large effect size, $d=.51$ was calculated; ^gA medium effect size, $d=.28$ was calculated; $p>.05$

Discussion and Recommendations

This study has advanced the knowledge base concerning writing ability for on- and off-campus students at three major universities in the Southwest. While we celebrate the 7% who demonstrated adequate writing and the 34% who achieved a score that suggested that their writing ability may be adequate, we are dismayed that over half our students (60%) either suggested or demonstrated inadequacy in their writing ability. Recognizing the limitations of using a single measure, 93% of graduate students in this sample were unable to demonstrate adequate writing techniques when given a structured writing task with ample preparation. There was no significant difference in writing ability based on the location of the student, whether on- or off-campus.

Moore's theory of transactional distance (1980) grounded this study. If students are able to surmount the technological barriers to interaction through electronic communications technologies, then they will have a more satisfying and meaningful experience in the graduate program. It is implied; however, that students have the basic skills required to be successful after they navigate through the technology, namely the ability to communicate via the written word. Given this assumption, this study sought to understand graduate students' writing ability as a fundamental core competency for success in a graduate program. Without excellent written expression abilities, transactional distance will increase in both environments. To overcome limitations in verbal visual communications imposed by technology, technologically mediated learning environments rely on written communications to a greater extent than do traditional face-to-face environments. So, while important to all graduate programs, writing assessment is critically important to successful graduate programs offered in technologically-mediated learning environments.

The authors were disappointed by the degree of writing inadequacy demonstrated by the students; however, we were not surprised. Writing competency among graduate students has been a topic of discussion among the faculty at all three universities, yet faculty members have reported feeling powerless to improve writing competency among their graduate students. This study is a positive first step toward understanding the problem and working with students to improve their writing proficiency. Using the methodology outlined in this study Agricultural Educators can diagnose students' writing ability upon entry into the graduate program and prescribe a writing improvement strategy that can be implemented over time to advance the overall writing skills of students. It should be the student's responsibility to seek out tutoring to improve his/her writing skills, but motivation, encouragement, and accountability should come from the student's dissertation advisor.

Parraton (1988) advocated faculty feedback as a necessary element of successful teaching. Providing feedback regarding students' writing as well as misunderstanding of content is critical for helping students to improve their writing skills. Most Agricultural Educators are excellent at providing content related feedback to students, but many shy away from correcting students writing for various reasons, insecurity with grammar rules being one. Feedback does not have to be at the level of citing exact grammar usage, but rather can be as simple as placing a check mark

next to an incorrect sentence and asking the student to review and improve that sentence. This technique empowers students to seek out the error for themselves and reinforces self-learning.

Additional research needs to be conducted to explore new ways to respond to and correct student writing in distance education environments. Hawisher and Moran (1997) suggested that responding to students' writing online using comments in text may not evoke the same response from students as margin comments and error markings on printed pages.

We recommend that this study be replicated in other on- and off-campus graduate programs to determine if this regional finding can be generalized nationally. We suspect that our students represent the norm for Agricultural Education graduate students nation-wide, but cannot be certain without empirical evidence. If these findings are indeed reflective of the current writing competency of the graduate student population in on- and off-campus degree programs, then we recommend that systematic efforts be undertaken to improve writing abilities in all Agricultural Education graduate programs.

We also recommend that Agricultural Education students be compared with other disciplines to determine if the deficiency is unique to our population. Are Agricultural Education students less prepared for the rigors of graduate study than other majors? If so, why and what can be done at the undergraduate level to increase writing proficiency? This study is evidence that our profession has failed our students in the area of writing ability. It is now our responsibility to close the gap between the 7% who demonstrated adequacy in their writing and the 93% who proved to be less than adequate. The road to better writing is paralleled with thorny steamed shrubs, but often times results in a rose.

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Authenticated Writing Competencies of Agricultural Education Graduate Students: A Comparison of Distance and On-Campus Students

A Critique by:

David M. Coffey
Western Kentucky University

Contribution and Significance of Research: The researchers are to be congratulated on addressing an issue that is discussed much, but seldom acted upon in higher education: writing competency. Allowing Oklahoma State to collaborate with both Texas A & M and Texas Tech is also rare but refreshing among higher educational institutions.

The major finding is that only 7 percent of 44 graduate students were deemed “adequate” in their writing ability by two professionally trained evaluators in the TAMU Department of English’s Writing Program’s Office (WPO). The paper does not place blame on any individuals or institutions in particular but holds the student and the dissertation advisor accountable for needed improvements in writing skills.

This paper contributes to the field because it provides meaningful data from three universities. While the conclusions cannot be generalized beyond the sample, many professionals in agricultural education would agree that improving writing quality from elementary to higher education is a major issue. The paper hints at the “failure” of professionals to prepare the student for the rigors of proficiency in writing.

Procedural Questions:

1. Did the students know the writing sample they completed was to be included as part of a study of their proficiencies before being given the assignments?

For Consideration:

1. Were you surprised at the results?
2. “...motivation, encouragement, and accountability should come from the student’s dissertation advisor.” What is the role of the dissertation advisor in ensuring writing quality? Is the dissertation advisor the only faculty person responsible to the student? What is the responsibility of the student?
3. Should Admission committee members revisit their writing requirements?
4. “Many (advisors, teachers) shy away from correcting students writing for various reasons, insecurity with grammar being one.” Should teacher educators utilize University Writing Centers for their individual self-improvement?
5. What should be the exit writing requirements for a graduate of our institutions?
6. Has our profession failed our students in the area of writing proficiency?