

Written Communication Competencies: Strength and Weaknesses of Agricultural Education Graduate Students

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Abstract

The purpose of this study was to assess and describe the written communication competency strengths and weaknesses of agricultural education graduate students. Content analysis techniques were used to analyze writing samples from 44 graduate students at three different universities. Using the overall writing strength rubric discussed above, three students (6.8%) demonstrated adequacy in competence to write an argument paper. Fifteen students (34.1%) suggested adequacy, 22 students (50.0%) suggested inadequacy and four students (9.1%) demonstrated inadequacy. Graduate students had the greatest difficulty with three competency areas the authors perceive as inextricably linked, namely argument, coherence, and grammar. Recommendations include a pre-acceptance assessment of student writing skills, an emphasis on the development of writing competence for proceedings and journals, an increase of faculty feedback of student writing skills, a peer review of writing assignments, and the development of a writing for publications course.

Introduction

Scholarship takes on many forms in academia. Boyer's (1990) original forms of scholarship (the scholarship of *discovery*; the scholarship of *integration*; the scholarship of *application*; and the scholarship of *teaching*), provided a starting point of discussion among faculty in the College of Agricultural Sciences at Oregon State University. Following a year of discussion, the group changed the teaching form to learning and teaching, and added creative artistry as the fifth type of scholarship, resulting in scholarship defined simply as "scholarship creates something new that is validated and communicated" (Weiser, 1990, p. 2). If we believe in advancing and promoting scholarship within our profession, then we owe it to future agricultural educators to prepare them to create something new that is validated and communicated. Creating something new and validating it may be the easiest part of this mandate. How scholarship is "communicated" may be the most difficult aspect of our profession, especially when considering written forms of communication.

The ability to express oneself correctly, clearly, and articulately may be the most important attribute for students to possess when entering a graduate program. Based on personal experiences, the researchers know that in many graduate courses, the sole evidence of a student's performance is measured by a single research paper or similar forms of advanced inquiry. Gone are the weekly quizzes and multiple tests, hallmarks of an undergraduate education, only to be replaced by individualized forms of self expression through the written word. In and of itself, the written form of communication encourages reflective thought processes, self directed inquiry, original thought, and scholarship. However, if so many positive things can be derived from promoting the written word in a graduate education, then we are left wondering, "What are the written communication competencies of agricultural education graduate students?"

Theoretical Framework

Emig (1988) argues that writing is one of the best tools for learning, as it involves the whole brain in all the processes: doing, depicting, and symbolizing (wording). Such whole brain processes should be started early in life, certainly prior to entering a college education. Nearly a decade has passed since Reaves, Flowers, and Jewell (1993) reported that high school students retained more of the information learned with writing-to-learn techniques than they did with traditional teaching methods. Additionally, exposure to writing-to-learn activities appeared to improve students' confidence in their ability to write.

The benefits gained from incorporating writing activities across the curriculum are not confined to the secondary school level. Post-secondary students develop further the whole brain processes, thereby allowing them to become engaged in the critical thinking activities that are evident at the undergraduate level. Sprecker and Rudd (1997, 1998), communication practitioners in Florida, found that job success relied upon attaining communication skills, especially the need to develop excellent oral and written skills. Communication skills were deemed more important than technical agricultural knowledge in a variety of communication functions.

In view of the role writing plays in people's academic, vocational, social, and personal lives, the development of students' abilities to write is a main priority of schooling. Since educators can

use writing to stimulate students' higher-order thinking skills—such as the ability to make logical connections, to compare and contrast solutions to problems, and to support adequately arguments and conclusions—authentic assessment seems to offer excellent criteria for teaching and evaluating writing. Merely incorporating writing-to-learn or writing across the curriculum activities from elementary to graduate education programs is not a valuable experience if those activities are not assessed in an appropriate manner. Chapman (1990) provided direction in structuring authentic assessments that are aimed at getting beyond writing as an isolated subject. Authentic writing assessments should reflect various types of writing as well as levels of complexity related to the task assigned in the writing activity.

Ruth and Murphy (1988) address what they consider to be a “neglected variable” in writing assessment and research—that of the specific writing task and its interpretation by the writer as well as by the reader/assessor. Little research has been completed on what makes a good topic. Ruth and Murphy discovered that the topic, the method and language with which it is introduced to the writer, the rhetorical aspects demanded by the task, and several other variables all have major effects upon the quantity and quality of writing being produced. Therefore, an assessment of a student's writing includes not only the technical and creative quality of the written work, but also the topic being addressed, the format in which it is requested and how the evaluator interprets the writing. In short, agricultural education graduate students who are competent in creating something new that is validated and communicated (scholarship) should excel in writing a well-formed, grammatically correct, argumentative essay when presented with sufficient data and instructions to write such an essay.

The ability to communicate information and ideas in writing so others will understand is essential for most academic endeavors in a graduate program (Lindner, Dooley, & Murphy, 2001). Little is known about minimally acceptable writing standards needed by agricultural education graduate students to be successful in a graduate program. Low levels of writing competence may manifest into problems such as attrition among graduate students, or it may result in opportunities for faculty to gain a better understanding of student characteristics. This study explores baseline data to support the notion that agricultural education graduate students' writing competencies and the assessment of those competencies must be established to provide a focal point for increasing the *scholarship* among all future agricultural educators.

Purpose

The purpose of this study was to assess and describe the written communication competency strengths and weaknesses of agricultural education graduate students. Specific objectives of the study included the following.

1. Describe graduate students' competencies in writing an argument paper.
2. Describe graduate students' writing ability by the following writing competencies: coherence, audience awareness, argument, summary, source, and grammar.
3. Describe graduate students' papers that received a failing grade by the primary reason for its failure.

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 papers before turning them in. The APA documentation guidelines provided students with information on how to reference citations and use quotations.

Students were given a copy of the articles and an informed consent document one week in advance of the writing activity. Students were told to read, mark-up, and think about the articles before coming to the next class. Students were told that they would be writing on the articles; they knew nothing in advance about 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 into one of the bluebooks, and then to spend 40-55 minutes writing, and 10-15 proofing their final paper into 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 their finished papers.

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 as follows: 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, 1996). The instrument has been shown 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 tended to remain constant over time. 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 recognized 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

The following section presents findings by objective.

Objective one

The first objective was to describe graduate students' competencies in writing an argument paper. For this objective, the professional evaluators reached consensus on each students' score. Using the overall writing strength rubric discussed above, three students (6.8%) demonstrated adequacy in competence to write an argument paper. Fifteen students (34.1%) suggested adequacy, 22 students (50.0%) suggested inadequacy, and four students (9.1%) demonstrated inadequacy.

Objective two

The second objective was to describe graduate students' strengths and weaknesses by specific writing competencies. Using the sentence level structure assessment rubric discussed above, students' writing tests were assessed against six competency categories (coherence, audience awareness, argument, summary, sources, and grammar) that contained numerous specific writing competencies.

Within the competence category "coherence" were three sub-categories (thesis, introduction, body), each with specific writing competencies. Regarding thesis, the professional evaluators reached consensus that there were no significant problems in 23 student papers (52.3%). Both evaluators identified significant problems in 21 papers (47.7%). Table 1 shows specific student writing competencies with respect to thesis, introduction and body.

Table 1

Agricultural Education Graduate Student Assessment on Coherence Competence (n=44)

	Number of Professional Evaluators Who Identified Items					
	Zero		One		Both	
	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%
Competence: Coherence						
<i>Thesis</i>						
No significant problems	21	47.7	0	0	23	52.3
Other problems ^a	43	97.7	0	0	1	2.3
Thesis makes no argument	42	95.5	0	0	2	4.5
Thesis is missing	42	95.5	0	0	2	4.5
Unclear thesis	25	56.8	2	4.5	17	38.6
<i>Introduction</i>						
No significant problems	28	63.6	8	18.2	8	18.2
Introduction missing	42	95.5	0	0	2	4.5
Introduction is melodramatic	37	84.1	7	15.9	0	0
Fails to introduce topic	40	90.9	3	6.8	1	2.3
Introduction is trite	35	79.5	3	6.8	6	13.6
Introduction overgeneralizes	33	75.0	8	18.2	3	6.8
Other problems ^b	20	45.5	11	25.0	13	29.5
<i>Body</i>						
No significant problems	21	47.7	10	22.7	13	29.5
Paragraphs lack topic sentences	39	88.6	3	6.8	2	4.5
Paragraphs exhibit weak transitions	33	75.0	9	20.5	2	4.5
Other problems ^c	18	40.9	14	31.8	12	27.3

Note: ^aVague; ^bRhetorical, incomplete, development, organization, lopsided, no context, egocentric, short summary, rambles, no discussion of argument, transition, and/or long; ^cOrganization, long, development, confusing, does not get to point

Additional analyses in the thesis coherence revealed that neither evaluator identified other problems in 43 student papers (97.7%). One evaluator identified other problems in one paper (2.3%). Neither evaluator identified problems with missing thesis or no argument in thesis in 42 student papers (95.5%); both evaluators identified it as a problem in two student papers (4.5%). Neither evaluator identified an unclear thesis as a problem in 25 papers (56.8%). Both identified it as a problem in 17 papers (38.6%); one evaluator identified it as a problem in two papers (4.5%).

Concerning introduction, evaluators agreed that no significant problems existed in eight student papers (18.2%). With respect to body, both evaluators agreed that there were no significant problems in 13 papers (29.5%).

Table 2 shows that for the writing competence audience awareness, the professional evaluators agreed that there were no significant problems in 16 student papers (36.4%). One evaluator identified no significant problems in 11 student papers (25.0%), and both identified significant problems in 17 student papers (38.6%). Specific student writing strengths and weaknesses were also identified.

Neither evaluator identified passive voice as a problem when considering its use in all 44 student papers (100%). When considering making appropriate appeals and using sarcasm, neither evaluator identified problems with their use in 42 student papers (95.5%). Neither evaluator identified informal tone as a problem in 25 student papers (56.8%). One evaluator identified it as a problem in ten papers (22.7%). Both evaluators identified it as a problem in nine papers (20.5%). Students tended to have problems with “tone is too informal,” “hyperbolizes,” “sentence structure unvaried,” and “other problems.”

Table 2

Agricultural Education Graduate Student Assessment on Audience Awareness Competence (n=44)

Competence: Audience Awareness	Number of Professional Evaluators Who Identified Items					
	Zero		One		Both	
	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%
No significant problems	17	38.6	11	25.0	16	36.4
Voice is predominantly passive	44	100.0	0	0	0	0
Makes inappropriate appeals	42	95.5	2	4.5	0	0
Uses sarcasm	42	95.5	1	2.3	1	2.3
Sentence structure unvaried	38	86.4	3	6.8	3	6.8
Hyperbolizes	37	84.1	4	9.1	3	6.8
Other problems ^a	34	77.3	10	22.7	0	0
Tone is too informal (slang, etc)	25	56.8	10	22.7	9	20.5

Note: ^aMelodramatic, pompous language, not appropriate audience, answered like an exam question

Regarding argument, evaluators reached consensus that there were no significant problems in nine student papers (20.5%). One evaluator identified no significant problems in three student papers (6.8%), and both identified significant problems in 32 student papers (72.7%). As shown in Table 3, specific student writing strengths and weaknesses were identified.

Neither evaluator identified forecasting points as a problem in 43 student papers (97.7%) and one evaluator identified it as a problem in one paper (2.3%). When considering illogical arguments, neither evaluator identified problems with its use in 39 student papers (88.6%). Neither evaluator identified unsupported argument as a problem in 27 student papers (61.4%). One evaluator identified it as a problem in 14 papers (31.8%). Both evaluators identified it as a problem in three papers (6.8%). Neither evaluator identified unclear argument as a problem in 28 student papers (63.6%). One evaluator identified it as a problem in nine papers (20.5%). Both evaluators identified it as a problem in seven papers (15.9%). Students tended to have the most problems with “unsupported,” “unclear,” and “other problems.”

Table 3

Agricultural Education Graduate Student Assessment on Argument Competence (n=44)

	Number of Professional Evaluators Who Identified Items					
	Zero		One		Both	
Competence: Argument	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%
No significant problems	32	72.7	3	6.8	9	20.5
Does not forecast points	43	97.7	1	2.3	0	0
Illogical	39	88.6	3	6.8	2	4.5
Does not exist	35	79.5	3	6.8	6	13.6
Rambles	31	70.5	8	18.2	5	11.4
Other problems ^a	29	65.9	11	25.0	4	9.1
Unclear	28	63.6	9	20.5	7	15.9
Unsupported	27	61.4	14	31.8	3	6.8

Note: ^aWeak support, generalizes, underdeveloped, inappropriate, repetitive, unorganized

Concerning summary, evaluators agreed that there were no significant problems in 17 student papers (38.6%). One evaluator identified no significant problems in five student papers (11.1%). Both evaluators identified significant problems in 22 papers (50.0%). Table 4 shows specific student writing strengths and weaknesses. Students tended to have the most problems with “overly developed,” “unclear,” and “not adequately developed.”

Table 4

Agricultural Education Graduate Student Assessment on Summary Competence (n=44)

	Number of Professional Evaluators Who Identified Items					
	Zero		One		Both	
	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%
Competence: Summary						
No significant problems	22	50.0	5	11.4	17	38.6
Other problems ^a	41	93.2	3	6.8	0	0
No Summary	40	90.9	1	2.3	3	6.8
Overly developed/too detailed	39	88.6	2	4.5	3	6.8
Unclear	38	86.4	4	9.1	2	4.5
Not adequately developed	29	65.9	6	13.6	9	20.5

Note: ^aSummary does not include introduction; does not refer to references; overuse of quotes

As shown in Table 5, evaluators reached consensus on the writing competence sources that there were no significant problems in 33 student papers (75.0%). One evaluator identified no significant problems in five student papers (11.4%). Both evaluators identified significant problems in six papers (13.6%). Students tended to have strong writing competencies with respect to sources.

Table 5

Agricultural Education Graduate Student Assessment on Sources Competence (n=44)

	Number of Professional Evaluators Who Identified Items					
	Zero		One		Both	
	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%
Competence: Sources						
No significant problems	6	13.6	5	11.4	33	75.0
Over-introduced	44	100.0	0	0	0	0
Cited incorrectly	43	97.7	0	0	1	2.3
Not cited/plagiarized	43	97.7	0	0	1	2.3
Not introduced	40	90.9	2	4.5	2	4.5
Misused	42	95.5	2	4.5	0	0
Other problems ^a	41	93.2	2	4.5	1	2.3

Note: ^aOverused quotes

Evaluators reached consensus on grammar where no significant problems were found in 12 student papers (27.3%). One evaluator identified no significant problems in ten student papers (22.7%). Both identified significant problems in 22 papers (50.0%). Table 6 shows specific student writing strengths and weaknesses. Students tended to have the most problems with “faulty sentence construction,” “punctuation errors,” and “weak pronoun reference.”

Table 6

Agricultural Education Graduate Student Assessment on Grammar Competence (n=44)

	Number of Professional Evaluators Who Identified Items					
	Zero		One		Both	
	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%
Competence: Grammar						
No significant problems	22	50.0	10	22.7	12	27.3
Pronoun-antecedent agreement errors	43	97.7	1	2.3	0	0
Word confusion	42	95.5	2	4.5	0	0
Spelling errors	41	93.2	2	4.5	1	2.3
Other problems ^a	41	93.2	2	4.5	1	2.3
Subject-verb agreement errors	38	86.4	2	4.5	4	9.1
Weak pronoun reference	30	68.2	11	25.0	3	6.8
Punctuation errors	29	65.9	9	20.5	6	13.6
Faulty sentence construction	28	63.6	7	15.9	9	20.5

Note: ^aWordiness, confusing, fragments, repetitive, expression, verb construction, rhetorical questions, word choice, word confusion, awkward phrasing

Objective three

The third objective was to describe graduate student papers that received failing grades by each one's primary reason for failure. If a student had an overall score that suggested or demonstrated inadequacy, then a primary reason for such a failure was recorded. For this objective, the professional evaluators were required to reach consensus. The primary reason for 22 (86.6%) of the 26 students who failed was problem with the argument. Three students (11.5%) failed due to problems with the summary, and one student (3.8%) failed because of grammar problems.

Conclusions and Recommendations

Over 40% of the students in this study either suggested or demonstrated adequacy in their writing ability. We often fail to celebrate our successes, and we should recognize that this level of competence would be astounding in many other groups of people. The authors maintain that all graduate students in agricultural education should reach these upper two categories of ability in writing competency. Agricultural education is, at its core, involved with the communication of ideas to a wide variety of audiences. Written communications is a core competency needed for scholarship.

The authors recognize that writing assessment is a complex task, and that multiple measures of writing should be included in any assessment (Breland, 1987, Ruth & Murphy, 1988; Chapman, 1990). Based on the findings of this study, graduate students in agricultural education had difficulty with several of the competency categories described. Listed in order from most to least difficult, these were argument, coherence, grammar, summary, audience awareness, and sources. In the three programs included in this study, we will target our own writing development programs to address these areas.

The graduate students in this study had the greatest difficulty with three competency areas the authors perceive as inextricably linked, namely argument, coherence, and grammar. Coherence was defined as the ability to development a clear thesis and introduction for an argument, while argument was defined as the development of a logically supported position on an issue. Grammar was defined as the ability to write a grammatically correct paper. Our graduate students need immediate assistance with these tasks.

The following recommendations are made based on the findings and conclusions of this study. We recommend that this study be replicated in other graduate programs in agricultural education to determine if this regional finding can be generalized nationally.

If these findings are indeed reflective of the current writing competence of the graduate student population, then we recommend that systematic efforts be undertaken to improve writing abilities in graduate programs throughout agricultural education. These efforts should include systematic assessment and development efforts that begin before admittance and continue throughout the graduate program.

To accomplish this admittedly ambitious goal, we recommend the following steps. First, a pre-acceptance assessment of student writing skills should be implemented to identify students who may need additional help. The GRE Writing Assessment, if universally adopted as an admissions criterion for graduate programs in agricultural education would provide reliable data that could be shared nationally to address this issue. Other methods of assessment, including simply requiring and evaluating writing samples in admissions packets, would provide useful information, but the authors would question its reliability.

Secondly, we recommend that faculty members in agricultural education assess their own writing abilities to determine if we are, in fact, qualified to assist our students in developing their writing competence. Recognizing their own weaknesses, the authors recommend that the AAEE provide professional development opportunities for faculty to strengthen their writing abilities. We further recommend that the peer review process for conference proceedings and journal articles be amended to emphasize the development of writing competencies.

Based on the findings and the review of the literature, we recommend that all graduate courses in agricultural education include demonstrated writing skills as a criterion for grading. Faculty should increase the amount and quality of the feedback they provide with respect to writing assignments. Graduate students should be encouraged to peer review each others writing prior to submission for grading, and that one or more 'writing intensive' courses be identified and required on degree plans. Procedures should also be implemented to direct deficient students to remedial programs to improve their writing. This may be accomplished through additional course work or by collaborative work with the writing program within each institution.

Finally, we recommend that writing for publication be adopted as either a stand-alone course, or as a component of an existing course in graduate programs throughout the profession.

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Written Communication Competencies:
Strength and Weaknesses of Agricultural Education Graduate Students

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The topic of this study is one not anticipated to be part of such research proceedings. However, it's area of inquiry is certainly one worthy of consideration. The importance of communication skills cannot be overstated. The authors are congratulated for exploring this area. Intrigue raises the question, why did you decide to explore the area?

In the report's theoretical framework, it is stated, "presented with sufficient data and instructions to write...." This discussant believes that often assignments within technical areas are made without sufficient information and expectations of style. This omission complicates the communication process for writer outcome.

Consideration of the methodology for this research raises some questions. Was the instrument used to collect data for this study validated prior to use? Validation would seem relevant to the issue of article relevancy to the subjects, as well as clarity and adequacy of instructions. This issue relates to cognitive dissonance, or lack there of created in the subjects. A second question involves the aspect of time limitation, and the manual writing of content by the subjects. Given the electronic technology commonly available for issues of spelling accuracy, grammatical agreement, and correction of errors, did the assignment of manual writing further complicate the time limitation issue? Both issues could contribute directly to coherence, grammar, and summary.

Beyond the methodology issues, a list of excellent recommendations is presented. These recommendations are worthy of consideration by managers of graduate programs. However, the challenge of additional credit integration into graduate programs may be difficult.