

PERSEVERANCE OF AGRICULTURAL EDUCATORS BY ACADEMIC ATTAINMENT

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Abstract

This study was designed to examine perseverance levels of agricultural education educators. The study design was descriptive and correlational with data collected using a written questionnaire that was mailed to a stratified, systemic sample drawn from a nationwide population. Ttests and analysis of variance were conducted to examine mean cumulative perseverance score by educational attainment and personal characteristics. Overall, agricultural educators indicated high levels of perseverance. Mean cumulative perseverance scores of agricultural educators did not differ by attainment of degree. Mean cumulative perseverance scores of agricultural educators did not differ by gender, status of enrollment, hours worked per week while a student, dependents, single parent status, or method of payment for most recent degree. Perseverance was not found to be a personality trait that distinguished educational attainment of agricultural educators.

Introduction

Have you ever wondered what the difference is between those who complete a degree in higher education and those who do not? Perhaps you have pondered if there is a personality trait that people who graduate share? Much research has been conducted to study perseverance or persistence and its role in the academic process. A certain amount of perseverance is required to attain an academic degree. Arkes (1999) noted that perseverance has been shown to be positively related to subsequent job success. Further, organizations rely on academic degrees as a measure of job performance potential. The Texas Agricultural Extension Service, for example, strongly encourages extension agents to complete a master's degree within a certain time of employment (Texas Agricultural Extension Service, 2001). Employers use academic degrees as a proxy to infer information about a potential employee's attributes, such as motivation and perseverance (Arkes, 1999).

Perseverance in academia is often defined narrowly as the attainment of a

degree. Students who matriculate and fail to graduate are considered to have low levels of persistence. Conversely, students who matriculate and graduate are considered to have high levels of persistence. Such a narrow definition fails to recognize traits and behaviors that contribute to perseverance. For the purpose of this study, perseverance was operationally defined as the ability to endure in the presence of deterrents (Kwong, Mok, & Kwong, 1997).

Perseverance has been shown to be one of the most influential factors in the success of an individual (Pascarella & Terenzini, 1980). Other studies have shown academic success to be dependent on participants' motivation, attitudes and beliefs, socio-economic characteristics, and social norms and pressures (Mok & Kwong, 1999). Although numerous studies have considered the attributes and indicators of perseverance, there is a lack of studies that have tried to quantify an individual's perseverance level. Furthermore, little is known about levels of perseverance needed to attain postsecondary degrees.

Contemporary ideas about factors

associated with perseverance have been shaped by the earlier works of Bean (1983), Pascarella and Terenzini (1980), and Astin (1975). Studies by Tinto (1975, 1987) helped conceptualize the relationship between perseverance and withdrawal. Tinto's research addressed perseverance with respect to the movement of individuals from one social group to another, and the role the social environment plays in incorporating or excluding an individual. Based on the findings of these works, Tinto asserted that a student's academic and social integrations at an institution are key contributors in decisions to stay or leave.

Theoretical Framework

Mok and Kwong (1999) noted that persistence was best understood in terms of individuals' motivations and deterrents; personal dispositions, attitudes, and beliefs; demographic and socio-economic status; and social norms and pressures. Many factors influence the motivation for an individual to persist in a certain activity. Williamson and Creamer (1988), and Pascarella, Smart, and Ethington (1986) found that academic and social integration motivated individuals to persist toward a degree. Elder and Paul (1998) noted that perseverance was an intellectual trait that could be manipulated.

Deterrents are unfavorable conditions in which people perceive they have little or no control. In academia, deterrents include life stress and social adjustment. Baker and Siryk (1989) found that students who were able to socially adjust to college had higher levels of perseverance. Napoli and Wortman (1997) found that students with high levels of life stress tended to demonstrate lower levels of perseverance than students with low levels of life stress.

Mezirow (1991) suggested that adults, in making sense of their life experiences, have attained and formed certain perceptions of themselves, their abilities, and their everyday social life world around them. Personal dispositions are perceptions of an individual's strengths and weaknesses. Cross (1981) noted that students must be self-confident and have a positive attitude toward learning if they are going to persevere in formal education. With respect

to academia, students' personal dispositions, attitudes, and beliefs appear to be substantially interrelated as well as substantially related to academic attainment and perseverance (Mok & Kwong, 1999; Pace, 1980).

Self-efficacy is another characteristic of perseverance that differentiates between successful and unsuccessful students (Quinn & Hemmings, 1999). Self-efficacy is the judgment of a person's ability to perform a task within a specific domain. Quinn and Hemmings (1999) found that high levels of self-efficacy were substantially related to and predictors of student persistence.

Students' socio-economic status and personal characteristics have been shown to be related to perseverance (Stolzenberg, 1994); however, gender has not been shown to be related to persistence (National Center for Education Statistics [NCES], 2000). Students who were enrolled part-time, paid for their own education, worked full-time, had dependents, were single parents, and had low grade point averages have been shown to have lower levels of persistence than students who were enrolled full-time, received monetary support for education, worked part-time or not at all, did not have dependents, were single, and had high grade point averages (NCES, 1997). Yang, Blunt, and Butler (1994) found that social norms and pressures affected student matriculation and perseverance.

Numerous studies in psychology, sociology, and education have been conducted to identify attributes and indicators of perseverance. In agricultural education, however, few studies have been conducted to identify such attributes and indicators. Lockaby and Vaughn (1999) found that agricultural education teachers "strongly agreed" that perseverance was a value that should be taught. They further found that teachers who exhibited higher levels of persistence than teachers with lower levels, were more likely to teach perseverance to their students. Tilburg (1989) found that Extension agents were more likely to be persistent in pursuing additional education when they experienced self-improvement, had minimal negative learning experiences, had minimal barriers to participation, and liked the instructor.

Johnson, Taylor, and Owens (1994) noted the need for additional research on persistence and degree attainment. This study addressed the need for additional research, specifically in agricultural education and generally in psychology, sociology, and education, with respect to an individual's level of perseverance needed to attain a postsecondary degree.

Purpose

The purpose was to examine perseverance and academic attainment of agricultural educators in the United States.

The specific objectives of the study were to

1. describe agricultural educators by their level of perseverance;
2. describe agricultural educators by their educational attainment;
3. describe perseverance by educational attainment;
4. describe perseverance by the personal characteristics of agricultural educators; and
5. explore and identify subcategories of perseverance.

Methods

The research design used for this study was descriptive and correlational in nature. Data for this study were collected using a mailed questionnaire. Dillman's (2000) general procedures for mailed questionnaires were followed. The study was designed to examine the educational attainment and personal characteristics of agricultural educators with respect to their perseverance levels. The target population ($N = 8,016$) was all agricultural educators in the United States who were listed in the Agricultural Education Directory 2000 edition and those who were listed in the American Association for Agricultural Education Directory of University Faculty September 2000 edition. Systematic sampling procedures of a stratified sample were used for this study (Gall, Borg, & Gall, 1996). The sample was stratified to ensure participants with bachelor's, masters', and doctoral degrees

were included (1/3 from AAAE Directory and 2/3 from the Agricultural Education Directory). The sample number was derived by using the table "Determining Sample Size for Research Activities" (Krejcie & Morgan, 1970). The sample ($n = 366$) consisted of agricultural educators who had attained, at the minimum, a bachelor's degree. A response rate of 65% ($n = 237$) was obtained for the study.

A review of the literature did not reveal a perseverance scale that could be used in this study. The instrument, therefore, was designed based on the review of literature (Kwong, Mok, & Kwong, 1997; Melcher, 1980; Napoli & Wortman, 1997; Pace, 1980; Pascarella & Terenzini, 1980; Quinn & Hemmings, 1999; Stolzenberg, 1994;). The questionnaire was divided into two parts. The first part was designed to measure the participants' perseverance level. The participants were asked to indicate their agreement with 18 statements by marking their response on a five point Likert-type scale. These statements were based on perseverance attributes and indicators identified in the literature. The points on the scale were as follows: 1 = Strongly Disagree; 2 = Disagree; 3 = Undecided; 4 = Agree; 5 = Strongly Agree. The second part of the instrument was designed to gather data on personal characteristics of the participants. These questions were based on personal characteristics that were shown in the literature to be related to perseverance attributes and indicators: completed educational experience, gender, estimated method of payment for most recent degree as a percentage, status of enrollment, worked 40 or more hours per week while enrolled, had dependents other than spouse while enrolled, was a single parent while enrolled in most recent degree, and cumulative GPA upon graduation with bachelors. The variable GPA was recoded into one of four categories (2.0-2.49, 2.5-2.99, 3.0-3.49, 3.50-4.0). The variable method of payment was recoded into one of three categories (0%, 1-49%, 50-100%).

The instrument was field tested for content and face validity by a panel of experts consisting of five faculty members at Texas A&M University who have expertise

in the field. Minor wording and structuring of the instrument were made based on the recommendations of the panel of experts. The instrument was pilot tested with 26 agricultural education graduate students not included in the sample. Reliability was estimated by calculating a Cronbach's Alpha Coefficient and was estimated at .80 for the scaled version of the instrument. To control for nonresponse error, late respondents were compared to early respondents on the variables: perseverance score and completed educational experience. Method 1 was used and late respondents ($n = 52$) were operationally defined as those who responded to the last follow-up to the questionnaire. There were no significant differences found, $t(235) = .83, p > .05$; therefore, the results of the study are generalizable to the target population (Lindner, Murphy, & Briers, 2001). Alpha for all statistical procedures was set a priori at .05.

Findings

Males comprised the largest portion (81.9%) of respondents. A majority of participants (55.3%) paid for their most recent degree by themselves. Most participants (70%) indicated they were full-time students. A majority of participants (51.5%) worked 40 or more hours while enrolled in their most recent degree. Over one half of the participants (54.0%) had no dependents (other than spouse) while

enrolled in their most recent degree, and also, only 2.1% were single parents. Approximately half of the participants (49.9%) had a GPA between 3.0 and 3.49

Objective 1

The first objective was to describe agricultural educators by their level of perseverance. Table 1 shows agricultural educators' responses toward indicators of perseverance. Using "strongly agree" and "agree" to describe perseverance levels, participants had high levels of perseverance. For 17 of the 18 indicator of perseverance items, participants "strongly agreed" or "agreed" a majority of the time. Items that agricultural educators indicated the highest levels of perseverance were as follows. "Whenever I take on a task, I feel that I must be able to produce high-quality results for it to be acceptable" (94.1%); "my degree(s) is/were directly responsible for the job that I have now" (92.4%); and "I always believed that I would be able to complete my degree plan" (90.7). Items that agricultural educators indicated the lowest levels of perseverance were the following: "I believe that the non-academic demands on my time, while enrolled, did not affect achievement of my degree" (62.4%); "I believe that the higher your degree, the greater the positive impact in your life" (60.3%); and "getting career or vocational counseling while I was a student was a factor in achieving my degree" (35.5%).

Table 1
 Agricultural Educators' Response Toward Indicators of Persistence (n = 237)

Statement	<u>Strongly Disagree</u>		<u>Disagree</u>		<u>Undecided</u>		<u>Agree</u>		<u>Strongly Agree</u>	
	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%
Whenever I take on a task, I feel that I must be able to produce high-quality results for it to be acceptable.	2	0.8	6	2.5	6	2.5	112	47.3	111	46.8
My degree(s) is directly responsible for the job that I have now.	6	2.5	8	3.4	4	1.7	36	15.2	183	77.2
I always believed that I would be able to complete my degree program(s).	2	0.8	9	3.8	11	4.6	76	32.1	139	58.6
I was familiar with the type of work done by people who had graduated with my most recent degree.	4	1.7	12	5.1	11	4.6	89	37.6	121	51.1
I was very confident that I made the right decision to enroll in my degree program(s).	1	0.4	8	3.4	18	7.6	91	38.4	119	50.2
I believe my psychological adjustment to college was good.	2	0.8	11	4.6	17	7.2	117	49.4	90	38.0
The courses provided in my most recent degree obtained were adequate for my intended career choice.	2	0.8	9	3.8	21	8.9	120	50.6	85	35.9
I have performed academically as well as I anticipated.	3	1.3	13	5.5	19	8.0	119	50.2	83	35.0
The faculty of my most recent degree contributed greatly to the achievement of my degree.	3	1.3	16	6.8	23	9.7	88	37.1	107	45.1
I believe that my degree(s) has/have helped me achieve a higher social status.	6	2.5	14	5.9	23	9.7	99	41.8	95	40.1
I always finish a task once I start.	1	0.4	30	12.7	17	7.2	123	51.9	66	27.8

Table 1 (continued)

Statement	Strongly Disagree		Disagree		Undecided		Agree		Strongly Agree	
	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%
I had already decided on my career prior to my enrollment in my last degree program.	10	4.2	27	11.4	16	6.8	73	30.8	111	46.8
My peer group interactions during my enrollment were an important factor in achievement of my degree(s).	6	2.5	25	10.5	31	13.1	105	44.3	70	29.5
During my most recent degree, my non-classroom interactions with faculty had a positive influence on my intellectual growth and interest in ideas.	6	2.5	34	14.3	36	15.2	95	40.1	66	27.8
During my most recent degree, my contact with faculty outside of class was frequent.	9	3.8	46	19.4	34	14.3	83	35.0	65	27.4
I believe that the non-academic demands on my time (job, family obligations, etc...) while enrolled did not affect achievement of my degree(s).	12	5.1	60	25.3	22	9.3	96	40.5	47	19.8
I believe that the higher your degree, the greater the positive impact in your life.	16	6.8	34	14.3	54	22.8	74	31.2	59	24.9
Getting career (vocational) counseling while I was a student was a factor in achieving my degree(s).	40	16.9	82	34.6	31	13.1	58	24.5	26	11.0

Note: Scale, 1 = Strongly Disagree, 2 = Disagree, 3 = Undecided, 4 = Agree, 5 = Strongly Agree; A mean cumulative perseverance score was calculated by summing item responses: $M = 71.9$, $Min = 28$, $Max = 88$, $SD = 8.7$

Objective 2

The second objective was to describe agricultural educators by their educational attainment. Table 2 shows the educational attainment of respondents. Slightly more than a third of respondents (38.8%) had completed a doctoral degree. Approximately

a third (32.5%) of respondents had a master's degree (Master's = 14.8%; Master's and some graduate classes = 17.7%). Slightly less than a third of respondents (28.7%) had completed only a bachelor's degree (Bachelor's = 8%; Bachelor's and some graduate classes = 20.7%).

Table 2
Completed Educational Experience of Participants

Degree	<i>f</i>	%
Bachelors	19	8.0
Bachelors (some graduate classes)	49	20.7
Masters	35	14.8
Masters (some graduate classes)	42	17.7
Doctoral	92	38.8
Total	237	100.0

Objective 3

The third objective was to describe the perseverance by educational attainment. To aid in analysis and interpretation of data, and to help reduce measurement error (Hair, Anderson, Tatham & Black, 1998), mean cumulative perseverance scores were computed by summing individual item

responses into a single composite measurement (perseverance) and subsequently used to compare participants' level of perseverance by personal characteristics. As shown in Table 3, mean cumulative perseverance scores for agricultural educators did not differ by educational attainment, $F(4,232) = 1.72, p > .05$

Table 3
Completed Educational Experience by Perseverance Scores

Completed Educational Experience	<i>n</i>	<i>M</i> ^a	<i>SD</i>	<i>F</i>
Bachelors	19	71.2	12.5	1.72
Bachelors (some graduate classes)	49	70.9	8.9	
Masters	35	69.6	8.8	
Masters (some graduate classes)	42	71.5	6.0	
Doctoral	92	73.6	8.5	

Note: ^a mean cumulative perseverance score

Objective 4

The fourth objective was to describe perseverance by personal characteristics. Mean cumulative perseverance scores for agricultural educators did not differ by Gender, $t(235) = 1.03, p > .05$; status of enrollment, $t(235) = 0.15, p > .05$; hours worked per week, $t(235) = 1.33, p > .05$; had dependents, $t(235) = 0.78, p > .05$; was a single parent, $t(235) = 0.82, p > .05$; or GPA upon graduation with bachelors' $F(3,233) = 0.34, p > .05$. Mean cumulative perseverance scores for agricultural educators did not differ by method of payment for most recent degree: Student loans, $F(2,234) = 0.63, p > .05$; scholarship, $F(2,234) = 1.59, p > .05$; grants, $F(2,234) = 0.80, p > .05$; parents, $F(2,234) = 0.55, p > .05$; or self, $F(2,234) = 1.62, p > .05$.

Objective 5

A post hoc analysis of the data was conducted to explore patterns of correlations (identify underlying structures) within the set of observed variables (Hair, et.al, 1998). Factor analysis was conducted to explore and identify subcategories of perseverance. Only factors with eigenvalues equal to or greater than 1.0 were considered in the analysis. A varimax type orthogonal rotation solution produced five factors with loadings of .4 or higher. The researchers named the factors based on their interpretation of the factor loadings for each variable. Perseverance was defined by an individual's self-efficacy, competency, preparation, achievement, and predisposition (See Table 4). Self-efficacy can be defined as the judgment of a person's ability to perform a task within a specific domain. Competency refers to the relevance of the degree to occupation. Preparation can be defined as an individual's discernment of a connection between degrees obtained and career choices. Achievement can be defined as an individual's academic performance. Predisposition refers to an individual's psychological set a priori.

Conclusions and Recommendations

Overall, agricultural educators indicated high levels of perseverance. Eleven percent

of respondents indicated overall they "strongly agreed" that they were, based on the indicators of persistence, persistent. A majority of respondents (79%) indicated, overall, they "agreed" that they were persistent. Less than ten percent of agricultural educators indicated, overall, they were "undecided" or "disagreed" that they were persistent. Participants agreed or strongly agreed the most with the two statements that reflected that if a task were to be completed, it must be done with a high quality product in mind and that academic degrees were what enabled participants to enter into the professions they were currently engaged in. The two lowest scoring statements dealt with the belief that higher education improves the quality of life and that vocational counseling had a positive impact in degree achievement.

The degree to which a student works hard on academic and non-academic tasks, or one's quality of work effort, has been associated with academic achievement (Pace, 1980). Pace investigated the influence of "quality of work effort" and observed a significant correlation between the quality of effort and actual academic achievement. Stolzenberg (1994) found that job value measures do affect school continuation attitude measures, and through them, educational persistence. Our study reinforces both of these findings in that over 90% of the participants "agreed" or "strongly agreed" with these two principles. This supports the hypotheses that "quality of work" and beliefs that academic degrees lead to more valuable jobs are significantly correlated with perseverance.

Gooderham (1993) suggested that one reason for adult participation in higher education was a need for social mobility. The finding, presented in this study, that 56.1% of agricultural educators "strongly agreed" or "agreed" that "the higher your degree, the greater the positive impact in your life" is consistent with Gooderham's findings. Melcher (1980) found that freshman college students who received career counseling while enrolled in higher education were more likely to be persistent in attaining a bachelor's degree than students who did not receive such counseling. The findings presented in this

Table 4
 Rotated Factor Loadings for Perseverance

<i>Factor</i>	<i>Item</i>	<i>Factor Loadings</i>
Self-Efficacy	During my most recent degree, my non-classroom interactions with faculty had a positive influence on my intellectual growth and interest in ideas.	.86
	During my most recent degree, my contact with faculty outside of class was frequent.	.86
	My peer group interactions during my enrollment were an important factor in achievement of my degree(s).	.70
	The faculty of my most recent degree contributed greatly to The achievement of my degree.	.66
Competency	I believe that my degree(s) has/have helped me achieve a higher social status.	.70
	The courses provided in my most recent degree obtained were adequate for my intended career choice.	.63
	I always finish a task once I start.	.60
	I was very confident that I made the right decision to enroll in my degree program(s).	.53
	My degree(s) is/were directly responsible for the job that I have now.	.51
Preparation	I had already decided on my career prior to my enrollment in my last degree program.	.76
	I was familiar with the type of work done by people who had graduated with my most recent degree.	.74
	I always believed that I would be able to complete my degree program(s).	.63
Achievement	I believe that the higher your degree, the greater the positive impact in your life.	.79
	I believe that the non-academic demands on my time (job, family obligations, etc...) while enrolled did not affect achievement of my degree(s).	.58
	I have performed academically as well as I anticipated.	.45
Predisposition	Getting career (vocational) counseling while I was a student was a factor in achieving my degree(s).	.64
	I believe my psychological adjustment to college was good.	.61
	Whenever I take on a task, I feel that I must be able to produce high- quality results for it to be acceptable.	.52

study do not support those of Melcher. A majority of participants in this study “strongly disagreed” or “disagreed” that getting career or vocational counseling while they were students helped them attain a degree. Additional research on perseverance is needed on samples of students who matriculate but fail to graduate, and on samples of people who have never matriculated. Longitudinal research is also needed to describe whether indicators of perseverance change as students attain degrees in agricultural education.

The stratification of the sample resulted in proportional samples of doctoral (38.8%), master’s (32.5%), and bachelor’s (28.7%) graduates participating in the study. Over 75% of the sample drawn from the American Association for Agricultural Education Directory (doctoral graduates) responded to the survey. Almost 60% of the sample drawn from the Agricultural Education Directory (master’s and bachelor’s graduates) responded to the survey. Participants who had completed a doctoral degree were more likely to respond to the survey than master’s or bachelor’s graduates. The overall response rate for this national study was 65%. Future national studies of agricultural educators should consider these findings and conclusion when selecting and stratifying samples. An implication exists that doctoral graduates listed in the American Association for Agricultural Educators Directory are more likely to participate in research studies than master’s or bachelor’s graduates listed in the Agricultural Education Directory.

Mean cumulative perseverance scores of agricultural educators did not differ by attainment of degree. Educators with a doctoral, master’s, or bachelor’s degree all had high levels of perseverance. An implication exists that the level or amount of perseverance needed to attain a bachelor’s degree is sufficient to attain a master’s or doctoral degree. Perseverance is not a personality trait (Elder & Paul, 1998) that distinguishes educational attainment of agricultural educators. As noted earlier, in order to attain an academic degree, a person needs a certain amount of perseverance; the participants in this study had, at a minimum,

“that amount.” Further research is needed to determine what amounts of perseverance are needed, if at all, to complete a degree in agricultural education. Given that respondents overall had indicated high levels of perseverance, Lockaby and Vaughn’s (1999) recommendation is well placed that agricultural education teachers should teach and help students understand the importance of perseverance.

Mean cumulative perseverance scores of agricultural educators did not differ by gender, status of enrollment, hours worked per week while a student, dependents, single parent status, or method of payment for most recent degree. Respondents tended to be male, have paid for their most recent degree by themselves, be full-time students, work full-time, not have dependent children, and not be single parents. An implication exists that perseverance may not be related to gender, status of enrollment, hours worked per week while a student, dependents, single parent status, or methods of payment for most recent degree. Findings are not consistent with NCES (1997), which found students who worked full-time, had dependents, were single parents, and paid for their own education had lower perseverance levels. This research, however, did not include people who failed to matriculate or matriculated and failed to graduate. Research is needed to describe whether such populations have similar persistence scores and whether such scores would differ by personal characteristics.

Results of factor analysis showed that perseverance could be defined by an individual’s self-efficacy, competency, preparation, achievement, and predisposition. Further studies should attempt to reconstitute the research instrument used in this study to group statements into the categories of self-efficacy, competency, preparation, achievement, and predisposition.

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