Academic-Related Perceptions, Beliefs, and Strategies of Undergraduate Agricultural Students

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Samantha Lynn Jordan
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Acknowledgements

There are many names I can write to fill this space, but there is ultimately one name that carries a drive and ignites a passion to pursue this journey, my Beloved Jesus.

Abstract

A student's academic success is entwined with their perceived beliefs and strategies. However, the effects of personal factors have yet to be fully explored in undergraduate agricultural students. This study aims to investigate students' academic efficacy (AE), academic self-handicapping (SH) and skepticism about the relevance of school for future success (SR). AE, SH and SR were measured according to three scales from the *Patterns of Adaptive Learning Scales*. The scales required students to rate their level of disagreement or agreement (1 = *strongly disagree* to 5 = *strongly agree*). A response rate of 24% or 303 usable responses were obtained from student in the College of Agricultural Sciences and Natural Resources at the University of Tennessee (N = 1,286). Based on the population parameter of gender, the data were weighted, because the sample population was skewed towards females. The weighted-averages were 4.17 for AE, 1.67 for SH, and 2.01 for SR. In addition, a low negative association was found between academic efficacy and self-handicapping, a negligible relationship was found between academic efficacy and skepticism about the relevance of school for future success, and a moderate relationship was found between self-handicapping and skepticism about the relevance of school for future success. This population of students do not self-handicap themselves, do not doubt the relevance of their degree, and believe they are able to meet academic expectations. The lack of skepticism about the future of students' degrees may be due to the increasing pursuit of agricultural degrees, concurrent with a shortage of agricultural scientists. Since social cognitive theory proposes personal factors influence behavior and environmental events, these findings are promising. Therefore, instructors are encouraged to move past traditional lecture-based instruction and challenge their students at higher cognitive levels. This will allow students to realistically explore the complexities of agriculture.

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Chapter 1

Introduction

Rapid change in the world has unleashed extraordinary challenges and opportunities creating a sense of urgency concerning the fields of agricultural sciences and natural resources (National Research Council, 2009). Due to a rapid increase of the global population, the demand for food and supplies has reached an all-time high (National Research Council, 2009). In addition, the question of whether the United States is legitimately capable of satisfying these stringent demands on a long-term basis without addressing the continued development of our present agriculture system has been brought to the forefront of discussion (National Research Council, 2009).

Achieving sustainability would include preservation of natural resources that strengthens all economic activity, while embracing a global way of life (National Research Council, 2009). Furthermore, the global enterprise supporting production of agricultural products is vastly growing and thus creates a requirement for graduates to be able to work in an evolving work environment (National Research Council, 2009). Consequently, academic programs need to be revived and restructured to sustain the continuous revolving door of expectations that accompany evolving times, specifically in regards to undergraduate educational impact in the field of agriculture (National Research Council, 2009).

According to Goecker, Smith, Fernandez, Ali, and Goetz (2015), the coming years will offer baccalaureate college graduates in areas of food, agriculture, environment and renewable natural resources respectable employment opportunities nearing 57,900

annually. Such growth within the above areas will cause employers to struggle in finding enough graduates to fill these jobs (Goecker, Smith, Marcos Fernandez, Ali, & Goetz, 2015). To that end, only 61% of jobs in the areas of food, agriculture, environment and renewable natural resources are expected to be filled by new U.S. graduates (Goecker et al., 2015). Understandably, most employers will wish to hire these recent graduates with a proficient level of expertise. However, since job projections predict a greater number of job openings than that of which can potentially be filled, employers will be forced "to look to other areas such as biology, business administration, engineering, education, communication, and consumer sciences" (Goecker et al., 2015, Graduates section, para. 1) to fill the remaining openings. Another challenge in filling agricultural related jobs is many graduates will hold interests, abilities, and valued experiences that may potentially lead them to employment opportunities within other industries (Goecker, et al., 2015). Correspondingly, demand for traditional science, technology, engineering, and math occupations will increase and "are critical to the continued economic competitiveness of the U.S." (Thoron, Myers, & Barrick, 2016, p. 42). Unfortunately, this will further widen the gap between the present numbers of graduates with expertise and the growing number of employment opportunities (Goecker, et al., 2015).

Graduates with expertise in food, agriculture, renewable natural resources, and the environment are crucial to our ability to address the priorities "of food security, sustainable energy, and environmental quality" (Goecker, et al., 2015, Graduates section, para. 2). Furthermore, graduates are expected to meet these growing challenges while exerting "global leadership in providing sustainable food systems, adequate water

resources, and renewable energy in a world of population growth and climate change" (Goecker, et al., 2015, Graduates section, para. 2). Addressing both societal and industry challenges will bring forth the requirement for a more diverse workforce that includes professionals with a stronger knowledge base and skill sets beyond today's standards (Roberts, Harder, & Brashears, 2016). Estepp and Roberts (2011) presented a parallel argument by reinforcing the idea that colleges will continue to struggle with equipping students with the necessary tools to succeed in the workforce unless obligatory change in higher education occurs.

According to the National Research Council (2009), this change would carry a shift in undergraduate curricula, student experiences offered within the program and overall keeping pace with the ever-changing needs. When these desired educational reform occurs, agriculture colleges will have the potential to address major problems facing current programing, including undergraduate education and agriculture relevance although there will always be opportunities for institutions to promote change (National Research Council, 2009).

Educational reform in agricultural programs would assist in the further development of an intensified and diverse approach to curriculum and instruction while allowing students to gain access to not only transferable skills, but a wide knowledge base in a specified content area, in this particular case agriculture (National Research Council, 2009). Instructors would be led to instill a multitude of connections between the curricula and *real-world* relevance within agricultural studies facilitating the catalyst for faculty members to redefine a sense of purpose and obtain much needed practices to

support the endeavors of agricultural undergraduate populations (National Research Council, 2009). Consistent with earlier findings, the National Research Council (2009) stated students generally overlook the multi-dimensional or challenging nature that agricultural disciplines offer and the vast career opportunities available. This change would correspondingly foster a connection between the undergraduate student and the relevance of their agricultural degree in a strained society (National Research Council, 2009).

The National Research Council (2009) stated that motivating such a stringent change depends heavily on the existing generation, followed by the next, to reform the curricula, enhancing the necessary skill sets of which include "problem-solving, critical thinking, team-building, leadership, communication, conflict and financial management, and thriving in diverse environments" (p. 18). Simultaneously, this will also provide employment ready graduates who exceed the public's standard (National Research Council, 2009). Improving the learning experiences that occur within the undergraduate agricultural classroom is vital in promoting an environment that can indeed foster the above characteristics (National Research Council, 2009). As learners become engaged, they are given the opportunity to evaluate their learning process as well as other factors and supports within their learning (National Research Council, 2009).

Statement of the Problem

Students' academic-related perceptions, beliefs, and strategies are fundamental elements that may have the potential of addressing present challenges and opportunities in teaching and learning, specifically within agriculture. Current research provides

minimal data about the effect of personal factors, including academic efficacy (AE), academic self-handicapping (SH), and skepticism about the relevance of school for future success (SR) in relation to undergraduate agricultural students. This study will aid in closing the gap in research, while developing a deeper understanding of the above factors and how they directly impact the educational environment.

Purpose of the Study

The purpose of this study was to investigate undergraduate agricultural students' academic-related perceptions, beliefs, and strategies.

Statement of Objectives

The following objectives framed this study:

1. Describe the academic efficacy of undergraduate students in the College of Agricultural Sciences and Natural Resources at the University of Tennessee.
2. Describe the academic self-handicapping of undergraduate students in the College of Agricultural Sciences and Natural Resources at the University of Tennessee.
3. Describe the skepticism about the relevance of school for future success of undergraduate students in the College of Agricultural Sciences and Natural Resources at the University of Tennessee.
4. Describe the relationship between academic efficacy, academic self-handicapping, and skepticism about the relevance of school for future success.

Significance of the Study

This study seeks to add to the limited knowledge of undergraduate agricultural students' academic efficacy, academic self-handicapping, and skepticism about the relevance of school for future success. The results of this study may provide valuable insight into improving undergraduate programs in agricultural and natural resources. Information on academic efficacy, academic self-handicapping, and skepticism about the relevance of school for future success will be relevant to university educators and administrators seeking to improve teaching and learning in the agricultural sciences. Furthermore, this research answers the call of the National Research Council (2009) to assess teaching and learning in academic institutions offering undergraduate education in agriculture as a means of improving the learning experiences of undergraduate students.

Definition of Terms

(1) Academic Self-Efficacy (AE) "refers to students' perceptions of their competence to do their class work" (Midgley et al., 2000, p. 20). In this study, academic self-efficacy was defined by student's responses to the five-item *Academic Efficacy Scale* (Midgley et al., 2000).

(2) Academic Self-handicapping (SH) "refers to strategies that are used by students so that if subsequent performance is low, those circumstances, rather than lack of ability, will be seen as the cause" (Midgley et al., 2000, p. 22). In this study, academic self-handicapping was defined by the students' responses on the six-item *Academic Self-handicapping Strategies Scale* (Midgley et al., 2000).

(3) Skepticism about the relevance of school for future success (SR) "refers to students' beliefs that doing well in school will not help them achieve success in the future" (Midgley et al., 2000, pg. 8). In this study, skepticism about the relevance of school for future success was defined as the student's responses on the six-item *Skepticism About the Relevance of School for Future Success Scale* (Midgley et al., 2000).

Limitations of the Study

The findings of the study may not be generalizable beyond the target population of undergraduate students in the College of Agricultural Science and Natural Resources at the University of Tennessee. Therefore, readers should use caution when generalizing the results of this study unless data confirms the target population of this study is representative of other populations of undergraduate agricultural students.

Assumptions of the Study

The following assumptions were made for the purposes of this study:

1. Participants involved in the study performed to the best of their ability.
2. Participants involved in the study responded truthfully.
3. Academic efficacy, academic self-handicapping, and skepticism about the relevance of school for future success were measured accurately.

Chapter 2

Literature Review

Chapter 1 described the need for postsecondary graduates in agricultural science and natural resources and discussed the call to improve undergraduate education in colleges of agriculture. The purpose of this study was outlined with specific objectives. Key terms were defined and assumptions and limitations were stated. Chapter 2 will describe the theoretical framework used to guide this study and prominent literature related to the variables of interest.

Social Cognitive Theory – Theoretical Framework

Albert Bandura's (1986) social cognitive theory explains cognitive developmental changes experienced by people during a lifetime and provides a foundation for social learning. "Human functioning is explained in terms of a model of triadic reciprocality [Figure 1] in which behavior, cognitive and other personal factors, and environmental events all operate as interacting determinants of each other" (Bandura, 1986, p. 18). The triadic reciprocality model visually represents the identified variables and their possible interactions through influence, suggesting that each person maintains the ability to both shape and redirect their own experiences. In addition, each determinate may carry different weights, per individual, and will ultimately be impacted through time while holding the opportunity to disburse unequal amounts of leverage defined additionally through circumstance, influence, and personal experience (Bandura, 1997).

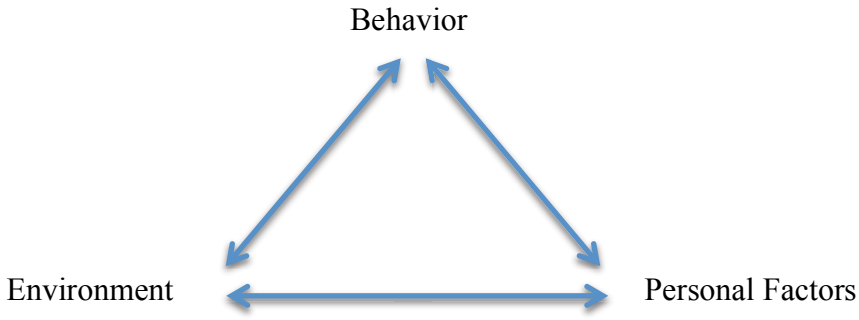


Figure 1. Triadic reciprocality model (Bandura, 1986, p. 24)

The aforementioned variables can potentially impact a student's academic success and are also influenced by one's perceived beliefs and strategies (Bandura, 1986). Bandura (1986) purported human functioning is also influenced by one's ability to symbolize, have forethought, learn vicariously, self-regulate behavior, and self-reflect about one's own thought processes and experiences. Symbolizing is being able to draw on past experiences and prior knowledge to assist in testing possible outcomes, whether they are supported with a rational thought or not (Bandura, 1986). Furthermore, Bandura (1986) mentioned "even if people know how to reason logically, they make faulty judgments when they base their inferences on inadequate information or fail to consider the full consequences of different choices" (p. 19). Therefore, people often misinterpret information or events, which lead to "erroneous conceptions about themselves and the world around them" (Bandura, 1986, p. 19).

Forethought regulates behavior and allows one to guide actions based on a desired future (Bandura, 1986). Additionally, forethought also allows an individual to develop a cognitive representation of future outcomes of a behavior that can be used as a behavioral

motivator (Bandura, 1986, p. 19). "Forethought is the product of generative and reflective ideation" (Bandura, 1986, p. 19).

In addition, social cognitive theory contends that behavioral views of learning are incomplete, and learning can occur vicariously through observation (Bandura, 1986). This allows humans the ability to learn and develop without trial and error (Bandura, 1986). Also, Bandura (1986) purported modeling a behavior for the learner can shorten the time needed to acquire a new pattern of behavior. Another distinctive feature of social cognitive theory is the capability to self-regulate (Bandura, 1986). According to Bandura, most behaviors are internally motivated through one's own individual standards and self-reflection following a chosen action. It may be necessary, in some circumstances, for an individual to elicit external supports and motivation, however this does not refute the previous statement.

> Self-directedness is exercised by wielding influence over the external environment as well as enlisting self-regulatory functions. Thus, by arranging the facilitative environmental conditions, recruiting cognitive incentives for their own efforts, people make casual contribution to their own motivation and actions. (Bandura, 1986, p. 20)

The final capability, "is the capability for reflective self-consciousness…, [which] enables people to analyze their experiences and to think about their own thought processes" (Bandura, 1986, p. 21). Additionally, this capability contributes to the development of self-efficacy (Bandura, 1986). Self-efficacy influences the behaviors one chooses and the effort and persistence related to those behaviors (Bandura, 1986, 1997).

Self-reflectivity aids in determining how well one's thinking assisted in daily functioning (Bandura, 1986). Therefore, if one has faulty thinking or fails, one can reject failure and amend their original course of action (Bandura, 1986). As a result, people are able to set goals for themselves to pursue a discerned future or direct their behavior (Bandura, 1986).

For this study, the behaviors of interest are academic performance and self-handicapping. The personal factors under investigation are academic self-efficacy and skepticism about the relevance of school for future success. The environment in which these behaviors and personal factors are observed is the College of Agricultural Sciences and Natural Resources at the University of Tennessee.

Behavior: Academic Performance and Self-Handicapping

Academic Performance

Multiple facets within a university environment affect ones' academic performance. Bandiera, Larcinese, and Rasul (2015) investigated the role of academic feedback in undergraduate education and found previous performance and the quality of the feedback facilitated individual drive towards degree completion. Bandiera et al. (2015) concluded average students increased in academic performance after receiving consistent feedback on past performances, especially when the given feedback is directly related to academic effort. Furthermore, regardless of academic ability, undergraduate students were not discouraged by any amount of feedback they received suggesting that "students have imperfect information on how their effort translates…[and that,] "the provision of feedback might be a cost-effective means to increase" academic

performance (Bandiera et al., 2015, p. 13, 21); simply put, students were not discouraged by the feedback they received (Bandiera et al., 2015).

Núñez-Peña (2015) investigated academic feedback and found that it could reduce the negative effect of anxiety in higher education by increasing students' self-confidence through academic feedback - thus improving the learning process. Núñez-Peña also found classes with higher feedback rates also held higher attendance rates creating a positive correlation between this particular factor and students' self-confidence in academic performance. Similarly, Stinebrickner and Stinebrickner (2013) suggested that the lack of academic feedback students have in relation to how their effort converts into academic grades greatly impacts their perception and performance; feedback on past performances would then allow students to access additional information or carry a stronger knowledge base ultimately impacting their future academic choices promoting an increase in said academic performance.

In addition to academic feedback, additional factors including prior learning involvement, life experience, and ongoing performance in academic achievement continue to play a vital role in student momentum or academic progress (Martin, Wilson, Liem & Ginns, 2013). Student momentum facilitates a structure in which students can maintain a functioning part in today's academic culture (Martin et al., 2015). Martin et al. (2015) mentioned continuous ongoing academic affiliation, beginning with early achievement in high school, including summer course participation lends itself to a greater sense of persistence. Furthermore, when academic momentum stalls (i.e., time off

from school or family circumstances), increased academic self-handicapping surfaces, thus decreasing the likelihood of degree completion (Martin et al., 2015).

Osterman (2000), loosely connected to Martin et al., presented the need for students to experience belongingness in the school environment discussing the vital role this plays into individual life experiences. Although Osterman makes the necessary connections to previously discussed educational reforms, her main argument sits with instructions and students and the need for them to work together as a unit through collaboration addressing the basic psychological need of student belonging while creating the optimal learning environment to curb academic performance.

Self-Handicapping

Berglas, Jones and Greenwald (1978) introduced self-handicapping as an action or choice of performance that improves an opportunity to externalize one's failure, and yet still internalize success. Students hold the potential to exhibit an overwhelming academic fear of failing and other common elicited threats to their self-esteem often leading to a self-regulatory approach or self-handicapping (Berglas, Jones & Greenwald, 1978). "Self-handicaps are obstacles to successful performance that are constructed by a person to protect or enhance self-esteem" (Berglas et al., 1978, p. 1619). Urdan (2004) identified self-handicapping behaviors to include, but not remain limited to procrastinating, getting drunk before an exam, becoming overwhelmed with social obligations, and leaving little to no time for studying. Arazzini and De George-Walker (2014) defined self-handicapping as a performance-debilitating characteristic that includes such behaviors as procrastination, overcommitting, lack of effort, and little to no

practice. McCrea (2008) linked self-handicapping to withdrawing one's effort by listening to distracting music or consuming drugs and alcohol when one is again uncertain of their performance. McCrea proceeded to link the protection of one's self-esteem and the ability to shift attributions of poor self-performance to the designated handicap (p. 275). Regardless of the behavior, researchers (Berglas, 1978; Arazzini & De George-Walker, 2014); McCrea, 2008; Urban, 2004) agreed that self-handicapping involves one creating impediments to inhibit or explain performance.

Schwinger, Wirthwein, Lemmer, and Steinmayr (2014) found a negative association between chronic self-handicapping and various educational outcomes, specifically relating to academic accomplishments. Schwinger et al. (2014) discussed the potential for "negative effects on important educational processes and outcomes such as motivation and achievement" (p. 744). Schwinger et al. noted that by engaging behavioral or claimed self-handicapping, students' discounted their ability as a casual attribution and their image of competence and self-esteem would consequently remain in-tact. Similarly, Zuckerman, Kieffer, and Knee (1998) presented,

> If one fails, attribution to poor ability can be discounted because of the presence of another potential cause (the obstacle). If one succeeds, attribution to ability can be augmented because the good performance occurred despite the presence of the obstacle. (p. 1619)

According to Schwinger et al. (2014), behavioral handicaps hold more validity, since they are more easily connected to the negative trend associated in successful student performance; whereas, claimed handicaps ultimately provide an excuse for failure

and do not necessarily indicate one's chances of failing or the inability to succeed (Schwinger, et al., 2014). In mentioning a similar cause of employment of self-regulating, Arazzini and De George-Walker (2014) stated self-handicapping "enables the individual to externalize failure and protect self-worth by obscuring the relationship between competence and performance" (p. 160).

> Although handicapping may support self-esteem in the short-term by providing a plausible excuse for poor performance, chronic self-handicapping is fundamentally a maladaptive strategy characterized by task-avoidance, failure expectations, excuses and external attributions that overtime has significant negative effects on self-concept." (Arazzini & De George-Walker, 2014, p. 160)

Ultimately, Schwinger et al. (2014) agreed the need for educational reforms to occur in order to promote a shift within education as they find it necessary to apply adequate academic interventions against self-handicapping. Attending trainings, setting mastery-approach goals, and teaching students to develop a self-worth that is not contingent on their abilities would support a decrease in self-handicapping (Schwinger et al., 2014). Arazzini and De George-Walker (2014), on the other hand, discussed the need to improve more than just what lies on the surface in regards to this specific personal factor, but also what lies underneath. Arazzini and De George-Walker stated self-efficacy has the potential to "mediate the effects of perfectionists and locus of control on self-handicapping" (p. 161). Bandura (as cited in Arazzini & De George-Walker, 2014) implied with an existence of sufficient "levels of skills and motivation, self-efficacy would exert a positive influence on task initiation and persistence, whereas low self-

efficacy could lead to task avoidance, disengagement, and other self-handicapping behaviors" (p. 161). In turn, this reconnects with the development of one's self-efficacy and the bearing self-efficacy plays within the ever-changing education system.

Personal Factors: Academic Self-Efficacy and Relevance of School

Academic Self-Efficacy

Bandura (1986) advocated for the vital role self-efficacy plays in academic motivation defining self-efficacy as

> people's judgment of their capabilities to organize and execute courses of action required to attain designated types of performance. It is not concerned with the skills that one has, but with the judgments of what one can do with whatever skills one possess. (p. 391)

Self-efficacy enhances accomplishment by allowing those with higher self-efficacy to approach and master a more challenging task, while fostering both interest and a deeper level of engagement (Bandura, 1994). Pintrich and Zusho (200) define self-efficacy as the way in which a student views their own ability to complete a skill or achievement. This in turn directly impacts student knowledge and the achievement goals they establish while maintaining their vow to fulfill such challenges (Zimmerman, Bandura, & Martinez-pons, 1992).

Bandura (1997) stated one's self-efficacy can be enhanced by vicarious experiences and as such these experiences are first introduced to individuals through social modeling and continued self-comparison. It is important, however, to note that when someone is being viewed as holding a similar learning capacity, in comparison to

them, that others then tend to believe they too hold an equal potential and thus can succeed at the given task (Bandura, 1997).

As noted by Zimmerman, Bandura, and Martinez-pons' (1992), there continues to be an increased interest in self-regulated learners. Zimmerman et al. described the effect self-efficacy plays supporting the idea that, "self-regulated learners make greater use of learning strategies and achieve better than do learners who make little use of self-directed learning strategies" (p. 664). Pintrich et al. (2007) makes a similar argument stating that students with higher self-efficacy regulate their learning through adapting and remaining metacognitive. Likewise, Schunk (2012) identified that students who feel efficacious, in regards to their own learning, tend to expel greater effort and stamina to achieve their goals even though they may encounter unexpected difficulties.

From Bandura's (1994) perspective, although these learners "direct their learning processes and attainments by setting challenging goals for themselves" (p. 644), appropriate strategies and sufficient modeling must be existent for this to occur. Thus, one of the most effective ways in creating "a strong sense of efficacy is through mastery experiences" (Bandura, 1994, p. 2). Likewise, when someone consistently faces thought-provoking tasks and perseveres, they develop the ability to recover quicker from their own shortcomings (Bandura, 1994), or in other words over time these students improve their adaptability (Pintrich & Zusho, 2007).

According to Schunk (2012), "learning is an enduring change in behavior, or in the capacity to behave in a given fashion, which results from practice or other forms of experience" (p. 3). Self-efficacy not only creates an positive educational impact

(Putwain, Sander and Larkin, 2013) by allowing instructors insight as to the way their students learn, but also by providing the motivation for the development of specific learning supports allowing instructors to increase overall student comprehension by acknowledging in what way students learn and why they exhibit the behaviors they do (Schunk, 2012). Artino (2012), in concurrence with Bandua (1977), argues that self-efficacy to be an underlying influence in student academic choice functioning with a student's competency, knowledge, and ability to perform such a skill, rather than these variables standing alone.

Skepticism about the Relevance of School for Future Success

A prevalent and tireless problem confronting educators is instructing students who are perceived as unmotivated and reluctant to learn (Lucero, n.d.). Eccles and Wigfield (1995) affirmed that being future oriented directly enhances student motivation and academic performance, similarly to that of perceiving a present task as important to achieving their future goals. The lack of such connection increases the tendency to create negatives outcomes in achievement and can ultimately halt the process entirely (Daniels & Arapostathis, 2005). Murrel and Mingone (1994) discussed individuals with a future time perspective tend to place greater emphasis on success, similarly to Eccles and Wigfield; however, they provide extension to include manners in which success is impacted "via goal-directed behavior, giving greater attention to environmental cues, and engaging in a greater number of activities to achieve these goals" (p. 4).

It is here, with relevance to one's degree, where in lies the issue. Humphreys and Davenport (2005) found that students perceived specific requirements of the college

curriculum derailed their self-development and created a distraction from major coursework. Pintrich and Zusho (2007) additionally identified that a students' perception ultimately determines both the value (importance of the task) and, "relevance of the coursework in some immediate way or how it will help them in life, in general or in their career" (p. 426), the tasks importance to the individual. Murrel and Mingone (1994) continued the discussion noting that individuals with a future time perspective tend to place greater emphasis on success. Plainly, students are more apt to engage in their learning, when they value the experience of it (Deci, Vallerand, Pelletier, & Ryan, 1991).

Environment: College of Agricultural Sciences and Natural Resources at the University of Tennessee

"The College of Agricultural Sciences and Natural Resources (CASNR) prepares students in natural and social sciences-based professional academic programs for careers in agriculture, natural resources and other arenas" (The University of Tennessee Institute of Agriculture, n.d.). According to CASNR's (2013) strategic plan the college is seeking to enhance the educational work being conducted in order to sustain economic strength, food security, and health; in addition to safeguarding and improving our natural environment. CANSR strives to provide students with necessary communication skills to foster both critical thinking and professional behaviors. Furthermore, "students with agricultural backgrounds comprise an increasingly smaller proportion of CASNR's students" (CASNR, 2013, p. 3), thus it is necessary to review current teaching practices and behaviors that will close the gaps in preparing a proficient and adaptable workforce.

To that end, Roberts, Conner, Estepp, Giorgi, and Stripling (2012) examined essential behaviors of efficacious teachers in a College of Agricultural and Life Sciences. Their study provided an analysis of what effective teaching looks like within the agriculture environment in combination with answering the call posed with the National Research Council (Roberts et al., 2012) – "During the next ten years, colleges of agriculture will be challenged to transform their role in higher education and their relationship to the evolving global food and agricultural enterprise" (National Research Council, 2009, p. 1). Roberts, et al. (2012) mentioned that although "effective teaching involves a complex set of behaviors (p. 27)," being sensitive to student needs, while fostering an inclusive learning environment and encouraging critical thinking skills were key variables in effective teaching; moreover, teacher-student interaction and engagement also greatly influenced teaching effectiveness (Roberts et al., 2012). Similarly, Giorgi Giorgi, Roberts, Estepp, Conner and Stripling (2013) noted the correlation between the influence of beliefs with sensitivity and inclusion along with teacher immediacy (nonverbal and verbal) activities within effective teaching programs.

Blickenstaff, Wolf, Falk and Foltz (2015) supported the above literature mentioning that a plea for educational reform continues to echo across much of the nation, specifically in regards to undergraduate agricultural programs with renewed agriculture industries and the further development of diverse career paths. The National Research Council (2009), in agreement with Blickenstaff et al. identified that in order for undergraduates to meet the expectations of desired skills and competencies an urgent change is obligatory. Blickenstaff et al. recognized this improvement will extend from

collaboration among staff and student within the programs creating a more robust learning environment, implementing active learning opportunities connected to real-world problem solving, reasoning and analysis, while utilizing discovery-based methods to enhance teaching. This will in part lend itself to the improved development of higher education assisting undergraduate programs in meeting the “momentous responsibility when it comes to preparing the nation’s future workforce” (Blickenstaff, Wolf, Falk & Foltz, 2015, p. 223).

Chapter 3

Materials and Methods

Chapter 1 described the need for postsecondary graduates in agricultural science and natural resources and discussed the call to improve undergraduate education in colleges of agriculture. The purpose of this study was outlined with specific objectives. Key terms were defined and assumptions and limitations were stated. Chapter 2 described the theoretical framework used to guide this study. Furthermore, Chapter 2 presented prominent literature related to the variables of interest. Chapter 3 describes the methodology used to address the research objectives. Additionally, Chapter 3 addresses the research design, population, sample, instrumentation, data collection, and data analysis.

Research Design, Population and Sample

The research design was descriptive survey research. The target population of this study was all undergraduate students in the College of Agriculture Sciences and Natural Resources (N = 1,286) at the University of Tennessee. The sample was a convenience sample of 303 students or 24% of the target population. The sample consisted of 88 males and 215 females. The average age of the sample was 21.6 years old (M =21.6, SD = 4.73) with a minimum and maximum of 18 and 49 years old, respectively. The class level of the sample was 20% freshman, 18% sophomores, 28% juniors and 34% seniors. The mean grade point average of these students was 3.3 (SD = .68) on a four-point scale.

Participants described their ethnicity as the following: 1% American Indian or Alaskan Native, 1% as Asian, 7% as Black or African American, 1% as Native Hawaiian

or Other Pacific Islander, 87% as White, and 3% as Spanish/Hispanic/Latino. The sample was compared to the known demographic variables of ethnicity, class level, and gender and was found to be representative based on ethnicity and class level. However, the sample was skewed towards females, and was weighted based on the population parameter to create a representative sample.

Instrumentation

The researcher-developed questionnaire consisted of the following: (a) six demographic questions, the five item *Academic Efficacy Scale* (Midgley et al., 2000), the six item *Academic Self-Handicapping Strategies Scale* (Midgley et al., 2000), and the six item *Skepticism About the Relevance of School for Future Success Scale* (Midgley et al., 2000). Minor wording changes were made to the *Academic Efficacy Scale* and the *Academic Self-Handicapping Strategies Scale* to fit the context of the study. For example, *I'm certain I can master the skills taught in class this year* was changed to *I'm certain I can master the skills taught in my classes this year*, and *Even if I do well in school, it will not help me have the kind of life I want when I grow up* was changed to *Even if I do well in school, it will not help me have the kind of career I want when I graduate*. We modified the wording to include all classes taken by the students and focus on the desired career after graduation instead of life. Midgley et al. (2000) reported Cronbach's alpha coefficients for academic efficacy as .78, .84 for the academic self-handicapping strategies, and .83 for skepticism about the relevance of school for future success. The scales used a rating scale of 1 = *not at all true* to 5 = *very true*. Six cognitive interviews were conducted with individuals of the target population, and they were not included in

the study. Dillman, Smyth, and Christian (2009) recommended conducting cognitive interviews "in order to identify wording, question order, visual design, and navigation problems" (p. 221). Based on the cognitive interviews changes were made to some questions to improve clarity and flow of the questionnaire.

Data Collection

Data for this study was collected during the Fall 2013 semester at the University of Tennessee using the online Qualtrics Survey software. The questionnaire was sent to the undergraduate students using their university email accounts. Dillman et al.'s (2009) procedures for implementing web surveys guided the multiple contacts made. Dillman et al. stated little research exists on the optimal combination of contacts and suggested additional contacts are not needed when responses per contact stalls. Thus, four emails were sent through the Qualtrics Survey software approximately one week apart to all College of Agriculture Sciences and Natural Resource students. The first email was sent to inform the entire population of the study. The second email contained the link to the survey and the online informed consent. If the students chose to participate in the study, they digitally signed the consent by clicking, "I voluntarily agree to participate in the study, and I have read the informed consent." The third and fourth emails were sent as a reminder to the students of the opportunity to participate in the study and both contained the link to the survey. The survey took approximately 10-15 minutes to complete.

Data Analysis

Descriptive statistics were used to summarize demographic information. Summated means were calculated for the *Academic Efficacy Scale* (Midgley et al., 2000),

the *Academic Self-Handicapping Strategies Scale* (Midgley et al., 2000), and the *Skepticism About the Relevance of School for Future Success Scale* (Midgley et al., 2000). Frequencies and percentages were also calculated for each item of the aforementioned scales, and Pearson correlations were used to determine the associations between academic efficacy, academic self-handicapping, and skepticism about the relevance of school for future success. Davis' (1971) terminology was used to indicate the magnitude of the correlations. Correlations from .01 to .09 are negligible, .10 to .29 are low, .30 to .49 are moderate, .50 to .69 are substantial, .70 to .99 are very strong, and a correlation of 1.00 is perfect.

Chapter 4

Results and Discussion

Chapter 1 provided a knowledge base and the historical context of the increasing need for graduates in agriculture sciences and natural resources, supporting the heightened demands of new educational shifts in agricultural education at the undergraduate level. The purpose of this study was outlined along with several supporting objectives. In addition, key terms were defined, and assumptions and limitations were provided. Chapter 2 briefly described the theoretical framework, and provided a literature review related to the variables of interest. Chapter 3 explained the methods used to address the objectives and reported the research design, population and sample, data collection, and data analyses.

Objective 1

Describe the academic efficacy of undergraduate students in the College of Agricultural Science and Natural Resources at the University of Tennessee.

A majority agreement was reached on all academic efficacy items (Table 1). The summated mean for academic efficacy was 4.02 (SD = 0.04), which indicates the undergraduate students are academically efficacious.

Table 1. Summary of Student Responses on the Academic Efficacy Items

Items	1 %	2 %	3 %	4 %	5 %
Even if the classwork is hard, I can learn it.	1.3	3.4	12.7	36.7	46.0
I can do almost all of the work in my classes if I don't give up.	0.7	1.8	12.1	35.3	50.1
I'm certain I can figure out how to do the most difficult classwork.	1.1	5.5	21.8	37.6	34.1
I can do even the hardest work in my classes if I try.	0.7	4.0	18.1	38.0	39.1
I'm certain I can master the skills taught in my classes this year.	1.3	2.6	19.5	35.4	41.2

Note. 1 = *not at all true*, 3 = *somewhat true*, 5 = *very true*.

Objective 2

Describe the academic self-handicapping of undergraduate students in the College of Agricultural Science and Natural Resources at the University of Tennessee.

A majority of undergraduate students strongly disagreed with five of the six self-handicapping items and disagreed with the remaining self-handicapping item (Table 2). The summated mean for academic self-handicapping was 1.66 (*SD* = 0.04), which indicates the undergraduate students do not or rarely self-handicap.

Table 2. Summary of Student Responses on Self-Handicapping Items

Items	1 %	2 %	3 %	4 %	5 %
Some students purposely get involved in lots of activities. Then if they don't do well on their classwork, they can say it is because they were involved with other things. How true is this of you?	58.3	22.6	15.3	3.5	0.3
Some students purposely don't try hard in class. Then if they don't do well, they can say it is because they don't try. How true is this of you?	72.5	11.8	11.1	2.8	1.7
Some students fool around the night before a test. Then if they don't do well they can say that is the reason. How true is this of you?	61.0	21.0	12.0	3.8	2.3
Some students put off doing their classwork until the last minute. Then if they don't do well on their classwork, they can say that this is the reason. How true is this of you?	40.0	30.0	20.5	8.1	1.4
Some students let their friends keep them from paying attention in class or from doing their homework. Then if they don't do well they can say their friends kept them from working. How true is this of you?	65.4	21.6	9.4	2.9	0.7
Some students look for reasons to keep them from studying (not feeling well, having to help their parents, taking care of a brother or sister, etc.). Then if they don't do well on their classwork, they can say this is the reason. How true is this of you?	57.4	25.0	13.6	3.3	0.7

Note. 1 = *not at all true*, 3 = *somewhat true*, 5 = *very true*.

Objective 3

Describe undergraduate students in the College of Agricultural Science and Natural Resources at the University of Tennessee skepticism about the relevance of school for future success.

A majority of undergraduate students strongly disagreed with four of the six skepticism about the relevance of school for future success items and disagreed with one item. The remaining item, *getting good grades in school won't guarantee that I will get a*

good job when I graduate, had mixed responses (Table 3). The summated mean for skepticism about the relevance of school for future success was 2.00 (*SD* = 0.04), which indicates the undergraduate students were not skeptical about the relevance of their degree from the College of Agricultural Sciences and Natural Resources at the University of Tennessee.

Table 3. Summary of Student Responses on the Skepticism About the Relevance of School for Future Success Items

Items	1 %	2 %	3 %	4 %	5 %
Even if I am successful in school, it won't help me fulfill my dreams.	57.4	21.0	14.1	5.1	2.5
My chances of succeeding in a career don't depend on doing well in school.	55.3	20.5	17.0	4.2	3.0
Doing well in school doesn't improve my chances of having a good career when I graduate.	59.5	22.3	10.3	6.9	1.0
Doing well in school won't help me have a satisfying career when I grow up.	63.6	21.9	9.3	2.4	1.3
Getting good grades in school won't guarantee that I will get a good job when I graduate.	8.8	12.5	34.7	21.8	22.2
Even if I do well in school, it will not help me have the kind of career I want when I graduate.	49.6	26.6	18.0	4.5	1.4

Note. 1 = *not at all true*, 3 = *somewhat true*, 5 = *very true*.

Objective 4

Describe the relationship between academic efficacy, academic self-handicapping, and skepticism about the relevance of school for future success.

As shown in Table 4, academic efficacy was negatively ($p \leq 0.05$) related with self-handicapping and positively related to skepticism about the relevance of school for future success ($p \leq 0.05$). Skepticism about the relevance of school for future success

and self-handicapping were also positively related ($p \leq 0.05$). In addition, a low negative association was found between academic efficacy and self-handicapping ($r = -.25$). A negligible relationship was found between academic efficacy and skepticism about the relevance of school for future success ($r = .03$), and a moderate relationship was found between self-handicapping and skepticism about the relevance of school for future success ($r = .33$).

Table 4. Correlation Coefficients for Academic Efficacy, Self-Handicapping, and Skepticism using the Patterns of Adaptive Learning Scales for students in the College of Agricultural Sciences and Natural Resources at the University of Tennessee

Variables	Academic Efficacy	Self-Handicapping	Skepticism
Academic Efficacy	-	-	-
Self-Handicapping	-0.25***	-	-
Skepticism	0.03***	0.33***	-

Note. *** significant at the 0.01 level.

Chapter 5

Conclusions and Recommendations

The purpose of this study was to investigate undergraduate agricultural students' academic-related perceptions, beliefs, and strategies. The following research objectives guided this study.

1. Describe the academic efficacy of undergraduate students in the College of Agricultural Sciences and Natural Resources at the University of Tennessee.
2. Describe the academic self-handicapping of undergraduate students in the College of Agricultural Sciences and Natural Resources at the University of Tennessee.
3. Describe the skepticism about the relevance of school for future success of undergraduate students in the College of Agricultural Sciences and Natural Resources at the University of Tennessee.
4. Describe the relationship between academic efficacy, academic self-handicapping, and skepticism about the relevance of school for future success.

Conclusions

The results of this study should not be generalized beyond the College of Agricultural Sciences and Natural Resources at the University of Tennessee unless demographic data confirms the students in this study are representative of other populations of undergraduate agricultural students. Keeping this constraint in mind along with the results of this study, the following conclusions were drawn:

1. The undergraduate students in the College of Agricultural Sciences and Natural Resources at the University of Tennessee are academically efficacious.
2. Academic self-handicapping rarely occurs in undergraduate students in the College of Agricultural Sciences and Natural Resources at the University of Tennessee.
3. Undergraduate students, in the College of Agricultural Sciences and Natural Resources at the University of Tennessee, were viewed as non-skeptical about the relevance of their schooling at the University of Tennessee for future success.
4. The associations between academic efficacy and self-handicapping suggest students who self-handicap have a lower sense of academic efficacy, and students handicap at a higher rate when they are skeptical about the relevance of their degree.

Discussion and Implications

Conclusion 1

The undergraduate students in the College of Agricultural Sciences and Natural Resources at the University of Tennessee are academically efficacious.

Being academically efficacious should exert a positive influence on the undergraduate students' academic behaviors, the environment of the College of Agricultural Sciences and Natural Resources, and other personal factors (Bandura, 1986, 1997). This is encouraging, since academic efficacy mediates achievement gains (Putwain et al., 2013; Schunk, 2012). Therefore, the fact the undergraduate students were academically efficacious should positively influence academic performance (Bandura,

1986, 1997) and is supported by the students' possessing an average GPA of 3.30 on a four-point scale. Also, being academically efficacious, the students should put forth more effort, persist when challenged academically, and possess an intrinsic motivation for learning (Bandura, 1986; Schunk, 2012). Instructors in the College of Agricultural Sciences and Natural Resources at the University of Tennessee ought to be made aware of their students' academic efficaciousness. This information may encourage instructors to design learning experiences that are more challenging and promote higher-order thinking. Additionally, with proper feedback and support, these educational experiences should reinforce and continue to develop academic efficacy, aid students in recovering from shortcomings, and foster interest and a deeper level of engagement (Bandura, 1994). This should also support Osterman's (2000) findings of developing a community eliciting to a students' desires to experience belongingness.

Conclusion 2

Academic self-handicapping rarely occurred in undergraduate students in the College of Agricultural Sciences and Natural Resources at the University of Tennessee.

This too aligns with the academic efficacy found among the undergraduate students in the College of Agricultural Sciences and Natural Resources at the University of Tennessee. As a result, the undergraduates should achieve academically, which based on their average GPA they are doing, and this ought to lesson frustration instructors may have incurred if the students were underachieving and/or self-handicapping (Urban, 2004). Gadbois and Sturgeon (2011) professed poor prior academic performance would

result in more self-handicapping. This may explain why the undergraduate students in the College of Agricultural Sciences and Natural Resources at the University of Tennessee rarely or do not exhibit self-handicapping behaviors; they have experienced academic success at the secondary and postsecondary levels. Supporting Berglas and Jones (1978), who stated "people who know they have the talent and resources to master life's challenges are not likely to hide behind that attributional shield of self-handicapping" (p. 406). Therefore, instructors in the College of Agricultural Sciences and Natural Resources at the University of Tennessee should not be concerned with students utilizing self-handicapping strategies that may inhibit deep and successful learning (Schwinger et al., 2014) and should expect the lack of self-handicapping to positively influence students' academic behaviors, personal factors, and the college.

Conclusion 3

Undergraduate students, in the College of Agricultural Science and Natural Resources at the University of Tennessee, viewed themselves as non-skeptical about the relevance of their schooling at the University of Tennessee for future success.

Not being skeptical about the relevance of their degree program should exert a positive influence on the undergraduate students' academic behaviors, the environment of the College of Agricultural Sciences and Natural Resources, and other personal factors (Bandura, 1986, 1997). Eccles and Wigfield (1995) stated being future oriented directly enhances student motivation and academic performance. The fact the students in the College of Agricultural Sciences and Natural Resources at the University of Tennessee

are not skeptical about the relevance of their schooling may be the result of the surplus between job opportunities and graduates in agriculture, food, and natural resources nationwide (National Research Council, 2009). Additionally, a majority of the undergraduates are majoring in preprofessional degree concentrations and have a specific future job or career in mind. This along with having academically efficacious students that do not self-handicap should encourage instructors to challenge students to develop deep conceptual knowledge in their chosen field of study.

Conclusion 4

The associations between academic efficacy and self-handicapping suggest students who self-handicap have a lower sense of academic efficacy, and students handicap at a higher rate when they are skeptical about the relevance of their degree.

Instructors should be knowledgeable that handicapping may be an indicator of lower academic efficacy and/or skepticism about the relevance of a student's degree. Lower academic efficacy may discourage student's from engaging in challenging academic task (Bandura, 1986; Schunk, 2012), and self-handicapping is often the result of one wanting to externalize failure (Berglas, Jones, & Greenwald, 1978). Therefore, if instructors recognize low academic efficacy and/or self-handicapping behaviors in their students, they may consider providing extra instructional support and ensure students are receiving high quality feedback as the aforementioned behaviors may be a result of uncertainty in the students' perception of their ability (Zuckerman & Tsai, 2005). In colleges where students are found to possess low efficacy and/or engage in self-

handicapping, administrators ought to provide professional development for instructors on how to improve students' academic efficacy and reduce self- handicapping.

Recommendations for Future Research

Based on the results of this study, these recommendations are made to guide further research:

1. This study should be replicated to determine if other populations of undergraduate agricultural students possess similar academic-related perceptions, beliefs, and strategies.
2. Research should determine the most effective means of challenging academically efficacious students and improving academic efficacy for students with low academic efficacy. This information may allow colleges of agriculture to provide explicit instruction in higher-order thinking without negatively affecting academic efficacy.
3. Research should be conducted to determine additional approaches or interventions to reduce academic self-handicapping as self-handicapping prevents students from engaging in deeper knowledge base and the application of their learning.
4. A research study should be developed to address the need of student belongingness and the impacts on a growing population of undergraduate agricultural students and the direct impact to the relevance to their degree completion.

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Appendix

CASNR Undergraduate Motivation Questionnaire

For each of the following items please indicate your level of agreement.

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
My aim is to completely master the material presented in my coursework.	1	2	3	4	5
I am striving to do well compared to other students.	1	2	3	4	5
My goal is to learn as much as possible.	1	2	3	4	5
My aim is to perform well relative to other students.	1	2	3	4	5
My aim is to avoid learning less than I possibly could.	1	2	3	4	5
My goal is to avoid performing poorly compared to others.	1	2	3	4	5
I am striving to understand the content in my coursework as thoroughly as possible.	1	2	3	4	5
My goal is to perform better than the other students.	1	2	3	4	5
My goal is to avoid learning less than it is possible to learn.	1	2	3	4	5
I am striving to avoid performing worse than others.	1	2	3	4	5
I am striving to avoid an incomplete understanding of the course material.	1	2	3	4	5
My aim is to avoid doing worse than other students.	1	2	3	4	5

For each of the following items please indicate how true the item is of you.

	Not at all true		Somewh at true		Very true
Even if I am successful in school, it won't help me fulfill my dreams.	1	2	3	4	5
Some students purposely get involved in lots of activities. Then if they don't do well on their classwork, they can say it is because they were involved with other things. How true is this of you?	1	2	3	4	5
My chances of succeeding in a career don't depend on doing well in school.	1	2	3	4	5
Doing well in school doesn't improve my changes of having a good career when I graduate.	1	2	3	4	5
Some students purposely don't try hard in class. Then if they don't do well, they can say it is because they don't try. How true is this of you?	1	2	3	4	5

For each of the following items please indicate how true the item is of you.

Vita

Samantha Lynn Jordan developed her drive and determination at a young age. She was often found creating a classroom environment, on her parents outside porch, to teach her siblings during many imaginative afternoons. Samantha sought out many opportunities throughout grade school to help both her teachers and peers. She was part of the Big Buddy program that helped teaching special needs students to read and often became an aide in middle school. Ultimately, she knew what she was being called to do, teach with un-relented passion. In high school, she joined the agricultural program and enjoyed her academics being catered towards her love of animals and the land. Samantha eventually moved to a small piece of land with her family, joined FFA, and attended a small community school full of agriculture pride. Pursuing two bachelors, Samantha graduated from Lee University in 2010 holding degrees in special education and elementary education. Her love for agriculture never subsided. Samantha's desire to eventually establish an agriculturally based program for students with disabilities pushed her towards attending the University of Tennessee, for agriculture education. Despite the storms and valleys, which naturally occur in one's journey through life, she completed her thesis with heaps of grace and a lot of prayer. She realized the importance of having a strong support system of those who could encourage her when she lost sight of the end. She is grateful and has learned to accept the accomplishment of completion rather than dwelling on perfection. In the end, what matters the most is her purpose in life and her family.