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The Relationship between Students' Leadership Style and Self-Directed Learning Level

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Leadership is a versatile process that requires working with others in personal and professional relationships to accomplish a goal. Cultivating leadership skills is important for students who are developing professional competencies. Leadership characteristics and abilities should be evaluated to assist in learning student traits to better prepare students for their professions. This study examined the relationship between students' leadership style and self-directed learning levels. This was a descriptive and correlational study with undergraduate students enrolled in agricultural leadership courses (N = 138). The theoretical framework for this study was based on transactional and transformational leadership theory, self-directed learning theory, and andragogy. Students were more oriented toward relationship leadership style versus task orientation. Task oriented leadership style was found to be correlated with students' self-directedness levels. Professional development specialists and human resources trainers should develop comprehension on the effects of how employee leadership style may influence other job performance variables. Agricultural leadership researchers and practitioners should gain a better understanding of variables that may affect students' leadership styles in order to best prepare students for future leadership oriented careers. Agricultural education faculty could gain a better understanding of the academic and professional leadership experiences that most interest students.

Keywords: self-directed learning, transformational leadership, transactional leadership

Shifting demographics as well as the changing nature of the problems individuals are asked to address presents a growing need for leadership (Bruce, Webster, & Sinaksy, 2006). Leadership is a versatile process that requires working with others in personal and professional relationships to accomplish a goal or to promote positive change. Leadership is what gives an organization its vision and its ability to translate that vision into reality (Bass & Avolio, 1993).

Affective leadership education programs must focus on developing people's relational skills. Following the idea and notion that leadership skills can be taught and learned in an academic environment has led to the proliferation of varied leadership education programs in America's colleges and universities (Brungardt, Greenleaf, Brungardt & Arensdorf, 2006). Educational outcomes in leadership for college graduates have the potential to positively impact this nation's organizations.

Researchers have not been able to identify one best leadership style for all contexts (Northouse, 2009). Leadership style informs leadership educators of the effect on others across both continuums of task and relationship orientations (Bass, 1985). Task oriented leadership identifies individuals geared toward goal achievement (Bass, 1985). Relationship oriented leadership identifies individuals that work to make others feel comfortable with their surroundings and the context of those surroundings (Bass, 1985).

Leadership styles and characteristics are lines of inquiry for agricultural education researchers studying factors associated with participating in leadership experiences. Boyd and Murphrey (2001) recommended examining students' leadership styles in order to discern student interest in participating in online leadership courses. Students' leadership characteristics and abilities should be evaluated to assist in learning student traits necessary to

serve as peer facilitators in agricultural leadership courses (Velez, Simonsen, Cano, & Connors, 2010). Nistler, Lamm, and Stedman (2011) studied extension professionals' engagement in leadership responsibilities and found that the extension professionals take leadership due to a need for achievement and affiliation.

Kelsey and Wall (2003) reported employers are seeking leaders who can direct new innovations and set goals to successfully adapt to the challenges of a global society. Agricultural businesses, organizations, nonprofit groups, and governmental agencies need competent leaders who will provide direction and vision for the agricultural industry. Cultivating leadership skills is especially important for those students who are developing professional competencies and majoring in the field of agricultural and life sciences. The *National Research Agenda* of the American Association for Agricultural Education (Doerfert, 2011) notes that agricultural education departments should produce "a sufficient supply of well-prepared agricultural scientists and professionals drive sustainable growth, scientific discovery, and innovation in public, private, and academic settings" (p. 18).

Self-directed learning has been previously examined by agricultural education researchers. In Texas, Stafford, Boyd, and Lindner (2003) studied the self-directed learning levels of 4-H members in a service learning program. Kotrlik, Redmann, Harrison, and Handley (2000) examined the role of self-directed learning in Louisiana agriscience teachers' need for professional development on information technology. Lee, Kohls, Hynes, and Lindner (2004) examined the self-directedness of Mexican farmers participating in rural development workshops. This study was conducted to investigate the association between leadership style and self-directed learning and to address recommendations from the *National Research Agenda*.

Theoretical Framework

The theoretical framework for this study was based on Bass' (1985) transactional leadership theory and Burns' (1978) transformational leadership theory. The study is further bounded by the additional works of Grow's (1991) self-directed learning theory, and Knowles' (1980) andragogy theory. Tannenbaum, Weschler, and Massarik (1961) defined leadership as the "interpersonal influence, exercised in a situation, and directed, through the communication process, toward the attainment of a specified goal or goals" (p. 24). Leadership has typically been classified into three distinct types: autocratic, democratic, and laissez-faire (Northouse, 2009). Traditionally leadership has been analyzed by using a transactional model. Leaders operate within the organizational culture, basing their decisions upon the value framework intrinsic to that culture (Bass & Avolio, 1993). Transformational leadership was conceptualized and introduced by Burns (1978) and refined by Bass (1985). The transformational leader is characterized by utilizing qualitative assumptions about the individual to stimulate positive growth and changes within the organization (Bass & Avolio, 1993). An evaluation strategy is essential for both frameworks given the dichotomous relationship between the concepts of transformational and transactional leadership (Bryant, 2003).

Transactional leadership uses existing cultural norms to facilitate decision making and transform the group by delegation (Yun, Cox, Sims, & Salam, 2007). The transactional leader generally exhibits three distinct characteristics. Transactional leaders work with followers to establish a clear set of goals. Transactional leaders develop a clear reward schematic for the achievement of goals. Transactional leaders are receptive to the immediate needs of followers as long as these needs to not interfere with the accomplishment of goals (Bryant, 2003). A transactional leader is effective when working with followers who are individually driven to succeed. As most leaders exhibit characteristics of both leadership styles (Bass, 1985), each individual's leadership style is determined based on their own personality (Bryant, 2003).

Transformational leadership is a process where a leader remains proactive in generating and disseminating knowledge while enhancing capacity development and raising followers' levels of personal commitment to the goals of

the organization (Hay, 2006). Transformational leaders are normally characterized by: having the ability to stimulate the interest and intelligence of employees; the capacity to provide vision and guidance; and the ability to empathize with employees and the ability to recognize employee individuality (Birasnav, Rangnekar, & Dalpati, 2011).

Transformational leaders are able to motivate and be motivated by their followers such that both are continually elevated to higher levels. These characteristics are often characterized by the "4-I" framework proposed by Bass (1985). Traits of the framework are classified as: idealized influence, inspirational motivation, intellectual stimulation, and individual consideration (Bass, 1985). Idealized influence is often characterized as charisma while inspirational motivation can be equated to team building. Intellectual stimulation and individual consideration are generally equated to the positive manner in which the leader develops followers' problem solving skills and the development of employee potential respectively (Birasnav et al., 2011; Sahgal & Pathak, 2007). The transformational leader is effective at guiding followers to generate significant levels of achievement at elevated levels of moral and ethical standards needed to achieve a high of productivity in an organizational setting (Bass, 1985).

Grow (1991) developed the Staged Self-Directed Learning (SSDL) Model and suggested that learners advance through stages of increasing self-direction. He noted that a teacher can help or hinder a student's development with respect to increased self-direction. The fundamental concept of Grow's (1991) model is centered on students varying abilities to respond to teaching that requires them to be self-directed. The SSDL outlined approaches for instructors to proactively prepare students to develop into a more self-directed learner (Grow, 1991). Instructors must fulfill many roles due to having students with variations in levels of self-direction (Grow, 1991).

SSDL uses four stages to explain a student's level of self-direction. Stage one includes learners with low levels of self-direction (Grow, 1991). Stage one learners (S1) need an authority-figure (teacher) to give them explicit direction on what to do, how to do it, and when (Grow, 1991). Students either view teachers as experts on education or slide through their educational career in the shadows. The way to approach teaching these students is by the use of authority coaching. Examples of this include: coaching with immediate feedback, drill, informational lecture, overcoming deficiencies and resistance (Grow, 1991). Stage two learners (S2) are interested, and like inspiring lectures. Stage three students (S3) are involved, and need a facilitator type teacher (Grow, 1991) Stage four learners (S4) are self-directed, and learn best by internship, dissertation, individual work or self-directed study-group. Grow (1991) postulated that teachers can teach multiple levels in one setting, but it is necessary to understand each level to be able to incorporate every student in the learning process of each lesson.

Various researchers have used the Staged Self-Directed Learning Model (SSDL) to assess students' level of self-directed learning. Literature indicates that adult students are all always transitioning between all stages based on factors such as subject knowledge, psychological maturity, and professional ambition (Shokar, Shokar, Romero, & Bulik, 2002). Knowles (1975) noted that mature adults tend to transition between learning stages naturally as their maturity increases. Candy (1991) postulated that as students' ability to learn varies situation, educators should not assume that because the student is considered to be of one learning style in a specific situation that the same student would maintain the same style given a new problem or environment. As an individual's psychological maturity increases, most people progress to higher levels of learning (Knowles, 1975).

Knowles (1980) identified andragogy as the maturation of an individual towards an independent and self-directed learner. Many empirical and qualitative studies have been conducted to distinguish and evaluate andragogy and pedagogy. Andragogical learning should be centered on individuals' life experiences in order to ensure the content can be practically applied and relevant to the students' circumstances (Merriam, 2001). A firm grounding in principles from the dependent learning

perspective is intuitively necessary for any student to develop the skills and motivation to move on to the latter stages in the SSDL framework. Student proficiency in the subject is also an important criterion. Grow (1991) indicated that critical needs exist for the instructor to be aware of students' strengths and limitations, and the technical needs of each respective student.

Knowles (1980) theory of andragogy was the other theory used to frame this study. Principles that provide a foundation for this theory include: learner's need to know, self-concept of the learner, prior experience of the learner, readiness to learn, orientation to learning, and motivation to learn. Adults' self-concept shifts from one of dependence to once of self-directedness as they mature from a youth to an adult (Knowles, Holton, & Swanson, 2005). Self-directed learning can be defined as "individuals [taking] the initiative, with or without the help of others, in diagnosing their learning needs, formulating learning goals, identifying human and material resources for learning, choosing and implementing appropriate learning strategies, and evaluating learning outcomes" (Knowles, 1975, p. 12).

Purpose and Objectives

The purpose of this study was to gain an understanding of factors that may influence the connection of leadership styles and self-directed learning levels of agricultural education students. More specifically, the study sought to:

1. Describe students' leadership style;
2. Describe students' self-directed learning levels;
3. Examine the relationship between students' leadership style and self-directed learning levels; and
4. Examine the effect of students' personal characteristics on leader-ship style and self-directed learning levels.

Methodology

This study used a quantitative research paradigm with survey research as the design for the study. The population (N = 138) consisted of undergraduate students in agricultural leadership courses from a land-grant institution located in the southern region of the United States. The study was conducted during the fall of 2011. All students were scheduled to graduate the semester the study was conducted or the following semester.

The researchers implemented methods recommended by Dillman, Smyth, and Christian (2009) to develop the survey and to collect the data. This was a population study including students enrolled in one of three agricultural leadership courses, *leading change*, *leading training adults*, and *professional communications in agriculture and life sciences* during the fall semester of 2011. One hundred twenty-six (n = 126) students responded to the questionnaire yielding a response rate of 91.03%. Five responses were deleted due to incomplete information resulting in a sample of 121 participants for this study. According to Lindner, Murphy, and Briers (2001), controlling for nonresponse error is not necessary when an 85% response rate is achieved. The findings from this study can be generalized to the target population, students enrolled in agricultural leadership courses at Texas A&M University; a limitation of the study is that the findings, however, cannot be generalized beyond the target population.

Leadership style focuses on what leaders do versus what leaders may be. Northouse's (2001) leadership style questionnaire, used in this study, was composed of 20 items that assessed two orientations to leadership: task and relationship. Anchors in the instrument were: 1 = *Never*, 2 = *Seldom*, 3 = *Occasionally*, 4 = *Often*, and 5 = *Always*. Odd numbered items in the instrument related to task oriented leadership. Even numbered items were associated with relationship oriented leadership. Odd and even numbered scores were summed separately. The scoring interpretation for each set of scores were: 45 – 50 *Very High Range*, 40 – 44 *High Range*, 35 – 39 *Moderately High Range*, 30 – 34 *Moderately Low Range*, 25 – 29 *Low Range*, and 10 – 24 *Very Low Range*. Researchers and practitioners of agricultural leadership at Texas A&M University found the leadership style instrument to have criterion validity and content validity for the objectives in this study.

The instrument to assess students' level of self-directed learning, in this study, was developed by Richards (2005). A team of adult learning researchers at Texas A&M University found Richard's (2005) instrument to have content validity suitable for this study. The instrument Richard's (2005) developed produced a reliability coefficient of α = .89 for his study. Richards' (2005) instrument was developed to address Grow's (1991) Staged Self-Directed Learning Model to ascertain students' perceived level of self-directedness. The instrument included 24 items to assess students' level of self-directed learning and included anchors: 1 = *Strongly Disagree*, 2 = *Disagree*, 3 = *Agree*, and 4 = *Strongly Agree*. The internal consistency was α = .88 for the leadership style instrument, and the internal consistency of the self-directed learning scale was α = .86. The internal consistency of each construct was reliable according to (Cronbach, 1951), and therefore, deemed acceptable to administer in order to answer the research questions in this study.

The first and second objectives were analyzed through the implementation of descriptive statistics. Students' leadership style and self-directed learning levels were analyzed with descriptive statistics. Both task oriented leadership style was measured and relationship oriented leadership style were examined separately with descriptive statistics in order to address the first objective. Agresti and Finlay (2009) reported descriptive statistics illustrate group characteristics and demonstrate differences in attitudes towards variables.

The third objective of the study sought to examine the relationship of students' leadership style and self-directed learning levels. Correlation coefficients are calculated to represent the correlation of two variables (Agresti & Finlay, 2009). Davis (1971) said correlations signify whether the association between variables is positive or negative. Pearson *r* is used to demonstrate the strength and direction of the association between the two variables (Agresti & Finlay, 2009).

The fourth objective of the study assessed the effect of students' personal characteristics on leadership style and self-directed learning levels. Analysis of variance (ANOVA) was utilized to examine the fourth objective. Agresti and Finlay (2009) indicated ANOVA's provide researchers the comparisons between two or more groups on the dependent variable.

Most of the participants were female (*n* = 71, 58.70%), white (*n* = 104, 86.0%), between 19 and 22 years old (*n* = 98, 80.99%), worked part-time (*n* = 66, 54.50%), seniors (*n* = 121, 100%), and had a grade point average between 2.50 and 3.49 (*n* = 76, 62.80%). Because the study was conducted as an examination of students' leadership style and self-directed learning levels in agricultural leadership courses within a single department at one institution, findings were limited in scope and therefore not generalizable to the broader audience of agricultural and life sciences undergraduate students nationwide. The results, however, did offer insight on students' preferred leadership style and self-directed learning levels.

Findings

The first objective of the study was to describe students' leadership style. As a part of the first objective, the researchers examined students' preference toward task behavior leadership (see Table 1). The researchers analyzed frequencies for each individual item with histograms and kurtosis and skewness was not an issue as the data was normally distributed, and therefore, item data was presented as means. Items that earned the highest scores were "Encourages group members to do high quality work" (*M* = 4.09, *SD* = .84), "Makes your perspective clear to others" (*M* = 3.92, *SD* = .79), and "Clarifies your own role within the group" (*M* = 3.87, *SD* = .78). The item that earned the lowest score was "Defines role responsibilities for each group member" (*M* = 3.31, *SD* = .85). The overall score for students' orientation to task behavior leadership was (*M* = 3.66, *SD* = .79).

Table 1

Descriptive Statistics of Students' Orientation to Task Behavior Leadership

Items	*N*	*M*	*SD*
Encourages group members to do high quality work	121	4.09	.84
Makes your perspective clear to others	121	3.92	.79
Clarifies your own role within the group	121	3.87	.78
Make suggestions about how to solve problems	121	3.86	.71
Develops a plan of action for the group	121	3.64	.83
Provides a plan for how the work is to be done	121	3.61	.78
Sets standards of performance for group members	121	3.57	.77
Provides criteria for what is expected of the group	121	3.36	.84
Tells group members what they are supposed to do	121	3.33	.68
Defines role responsibilities for each group member	121	3.31	.85

Note. Overall *M* = 3.66, *SD* = 79. *Scale:* 1 = *never*, 2 = *seldom*, 3 = *occasionally*, 4 = *often*, 5 = *always*

The researchers examined students' preference toward relationship behavior leadership as part of the second phase of the first objective, to describe students' leadership style (see Table 2). Items that earned the highest scores were "Treats others fairly" (*M* = 4.63, *SD* = .50), "Acts friendly with members of the group" (*M* = 4.51, *SD* = .55), "Shows concern for the well-being for others" (*M* = 4.22, *SD* = .75), "Communicates actively with group members" (*M* = 4.15, *SD* = .73), "Helps others feel comfortable in the group" (*M* = 4.12, *SD* = .75), and "Shows flexibility in making decision" (*M* = 4.09, *SD* = .62). The item that earned the lowest score was "Discloses thoughts and feelings to group members" (*M* = 3.52, *SD* = .94). The overall score for students' orientation to relationship behavior leadership was (*M* = 4.10, *SD* = .70).

Table 2

Descriptive Statistics of Students' Orientation to Relationship Behavior Leadership

Items	*N*	*M*	*SD*
Treats others fairly	121	4.63	.50
Acts friendly with members of the group	121	4.51	.55
Shows concern for the well-being for others	121	4.22	.75
Communicates actively with group members	121	4.15	.73
Helps others feel comfortable in the group	121	4.12	.75
Shows flexibility in making decisions	121	4.09	.62
Behaves in a predictable manner toward group members	121	3.93	.70
Helps group members get along	121	3.92	.81
Responds favorable to suggestions made by others	121	3.86	.62
Discloses thoughts and feelings to group members	121	3.52	.94

Note. Overall *M* = 4.10, *SD* = 70. *Scale:* 1 = *never*, 2 = *seldom*, 3 = *occasionally*, 4 = *often*, 5 = *always*

The second objective of the study was to describe students' level of self-directed learning (see Table 3). The statement that earned the highest mean was "I set my own goals for learning without the help of the instructor" (*M* = 2.96, *SD* = .72). The statement that earned the lowest mean was "I have prior knowledge and skills in the subject area" (*M* = 1.99, *SD* = 1.06). The overall score for students' level of self-directed learning was (*M* = 2.33, *SD* = .88).

Table 3

Descriptive Statistics of Students' Level of Self-directed Learning

Statements	*N*	*M*	*SD*
I set my own goals for learning without the help of the instructor.	121	2.96	.72
I am capable of assessing the quality of assignments that I submit.	121	2.44	.89
I prefer that the instructor provide direction only when requested.	121	2.32	.86
I am willing to take responsibility for my own learning.	121	2.31	.81
I use resources outside of class to meet my goals.	121	2.24	.95
I learn best when I set my own goals.	121	2.20	.87
I prefer individual work or a self-directed study group as the teaching delivery method.	121	2.16	.87
I have prior knowledge and skills in the subject area.	121	1.99	1.06

Note. Overall *M* = 2.33, *SD* = 88. Scale: 1 = *Strongly Disagree*, 2 = *Disagree*, 3 = *Agree*, 4 = *Strongly Agree*

Examining the relationship of students' leadership style and level of self-directed learning was the third objective of the study. The researchers conducted an item analysis of Northouse's (2001) leadership style questionnaire and Richards' (2005) self-directed learning instrument. Task oriented leadership style had a significant correlation with self-directed learning but relationship oriented leadership style did not have a significant correlation with self-directed learning. The task oriented leadership style items with the highest level of correlations to self-directed learning score were "encourages group members to do high quality work" (r = .61), "make your perspective clear to others" (r = .55) and "clarifies your own role within the group" (r = .52). Each of the three highest correlations has a magnitude of Substantial ($50 \geq r \geq .69$). The task oriented leadership style items with moderate correlation scores with self-directed learning score were "make suggestions about how to solve problems" (r = .44), "develops a plan of action for the group" (r = .36), and "provides a plan for how the work is to be done" (r = .35). Each significant correlation had a substantial to moderate relationship (see Table 4). No significant effect was found among students' personal characteristics towards leadership style and self-directed learning levels. Effect sizes were not described due to the lack of a significant effect from students' characteristics on individual leadership style and self-directed learning levels

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Table 4

Correlations between Task Leadership Style and Level of Self-directed Learning

	Self-directed Learning		
Task Leadership Style Items	*N*	*r*	*p*
Encourages group members to do high quality work	121	.61	.00*
Makes your perspective clear to others	121	.55	.00*
Clarifies your own role within the group	121	.52	.00*
Make suggestions about how to solve problems	121	.44	.03*
Develops a plan of action for the group	121	.36	.04*
Provides a plan for how the work is to be done	121	.35	.04*
Sets standards of performance for group members	121	.29	.23
Provides criteria for what is expected of the group	121	.12	.40
Tells group members what they are supposed to do	121	.04	.68
Defines role responsibilities for each group member	121	-.12	.74

Note. Magnitude: $.01 \geq r \geq .09$ = Negligible, $.10 \geq r \geq .29$ = Low, $.30 \geq r \geq .49$ = Moderate, $.50 \geq r \geq .69$ = Substantial, $r \geq .70$ = Very Strong (Davis, 1971).
*$p < .05$.

Conclusions

The findings offer insight on seniors', in the Department of Agricultural Leadership, Education, and Communications at Texas A&M University, preferred leadership style and self-directed learning levels. The majority of students were female, white, between 19 and 22 years old, worked part-time, graduating seniors, and had a grade point average between 2.50 and 3.49. Students' leadership style and self-directed learning levels were not results of students' personal characteristics.

Students were primarily relationship oriented leaders. Respondents were located between the S2 and S3 domain in regards to their self-directed learning level of 2.33. Students may have been in the S2 to category due to their current academic and lifestyle responsibilities as undergraduate seniors. The task oriented relationship had substantial to low significant correlations with items within the self-directed learning construct. Relationship oriented students did not produce significant correlations with any items within the self-directed learning construct. The data suggested task oriented seniors' are more apt to be more self-directed toward their learning. Students were either in their last semester or their next to last semester of an undergraduate degree. Grade classification may have provided some variance as to the reason task oriented leaders tended to be more self-directed learners.

Implications

This study offers insight into the relationship between leadership and learning. Results from this study built upon transformational leadership and transactional leadership theories. Task oriented leadership style students took more ownership of their learning indicating a position toward transactional leadership (Bass, 1985). Task oriented leaders are the most effective working with individuals who aspire to reach the highest levels of success (Bass, 1985). Findings from this study suggest that task oriented students' would work best with students who shared parallel levels of self-directed learning. Students task oriented leadership style indicates those students are more likely to establish goals and set a plan to achieve those goals (Bass & Avolio, 1993).

Findings from this study expanded the application of self-directed learning theory and andragogy for students' academic experiences in leadership courses. Task oriented leadership students were more accepting of motivational techniques towards their learning and set goals for their learning as compared to students in the lower S2 classification (Grow, 1991). As task oriented leadership style increased, students

became more in the S3 classification and needed more of a facilitator as a teacher (Grow, 1991). Task oriented leadership style students may have been more self-directed in their learning due to their readiness to learn, motivation to learn, and orientation to learning (Knowles et al., 2005). Relationship oriented students may have been less self-directed in their learning due to a lack of a need to know the information, having a self-concept in relation to their learning, and shortages of personal learning experiences to draw from (Knowles et al., 2005). A correlation may have existed between self-directed learning level and task oriented leadership due to the fact that diverse variables affect self-directed learning (Grow, 1991).

Recommendations

Developing a comprehension of variables that effect leadership style, may further advance the knowledge of leadership educators and researchers by explaining the variance in respective leadership styles. Agricultural leadership researchers and practitioners should gain a better understanding of variables that may affect students' leadership styles in order to best educate students and prepare them for professional experiences (Bass, 1985). The findings from this study may assist agricultural education faculty develop students for employers seeking innovative employees who can meet global needs (Kelsey & Wall, 2003). Professional development specialists and human resources trainers should develop an understanding on the effects of employees' leadership styles impact on job performance (Bass & Avolio, 1993).

Agricultural leadership researchers should continue to study variables that influence students and professionals' leadership style. A larger study of students may offer variables that help explain the variance in students' leadership style. Agricultural leadership researchers interested in this line of inquiry should examine the potential of conducting these studies across separate institutions. The findings would be more robust and provide a deeper understanding of students' leadership styles in agricultural education departments. Faculty would gain a better understanding of their students and may better understand the leadership experiences and roles the respective students are most interested. A better understanding of factors that influence students' leadership style may assist agricultural education faculty offer and recommend leadership opportunities for students (Velez et al., 2010).

Agricultural education researchers should continue to study factors that influence students' self-directed learning levels. Developing a better comprehension of factors that enhance self-directed learning, may assist agricultural education departments produce well-prepared future practitioners and agricultural scientists (Doerfert, 2011). Agricultural education faculty could gain a better understanding of students' learning capability as students move from an undergraduate program to a graduate program or a profession (Shokar et al., 2002). The results may provide agricultural education faculty information to assist students with identifying career opportunities and in recruiting potential graduate students (Bruce et al., 2006).

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