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# Forecasting the Academic Performance of Freshmen College of Agriculture Students: Using Goal Orientations and Academic Efficacy as Predictors

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**Abstract**

*In 2015, the United States Department of Agriculture reported that agriculture baccalaureate graduates were only expected to fill two-thirds of the available job openings. To address this need, it has become critical for colleges of agriculture to retain high-quality students. In response, universities have attempted to determine the practices to foster student success. Therefore, in this study we aimed to investigate how goal orientation factors (i.e., mastery goal orientation and academic efficacy) may influence the academic success (i.e., first semester GPA, second semester GPA) of College of Agriculture (COA) freshmen. The current investigation was grounded in goal orientation and social self-efficacy theory, which allowed us to understand self-efficacy's influence on students' academic performance. The findings from this study suggested that social and academic efficacy influenced the student academic achievement of COA freshmen. Therefore, it is recommended that university leaders foster self-efficacy for university agricultural students and that future research be conducted to determine the variables that describe the variance in first semester GPA and retention best.*

**Keywords:** academic efficacy; academic performance; College of Agriculture; retention

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## Introduction

According to the United States Department of Agriculture (USDA), baccalaureate graduates in agriculture have been expected to fill only 61% of the anticipated annual job openings in the field (Goecker et al., 2015). Further, "[c]ollege graduates with expertise in food, agriculture, renewable natural resources, and environmental sciences are essential to our ability to address the U.S. priorities of food security, sustainable energy, and environmental quality" (Goecker et al., 2015, p. 1). Therefore, it has become critical for colleges of agriculture to recruit and retain high-quality students to address the looming demand for employees in the agricultural sector (Alston et al., 2020)

Universities dedicate substantial time and resources to ensure students can be retained from one year to the next (Alston et al., 2019). For many universities, increasing student retention has become a more efficient use of their resources than focusing entirely on student recruitment (Smith-Hollins et al., 2015). Focusing on student retention rather than recruitment also allows higher education institutions to develop student-centered programming and other initiatives that can contribute to the success of a university (Williams-Warren, 2021). Further, targeting retention rates requires an institution to consider various factors influencing students' academic performance and persistence (Cletzer et al., 2020; Huff et al., 2016). However, students' ability and willingness to learn have been shown to influence such outcomes (Schunk, 2016). To this point, Schunk (2012) defined learning as "an enduring change in behavior [for an individual], or in the capacity to behave in a given fashion, which results from practice or other forms of experience" (Schunk, 2012, p. 3). Consequently, learning should be considered a complex phenomenon that differs for each individual (Schunk, 2012). Further, the learning process has been reported to be influenced by a variety of factors, including a learner's (a) academic self-efficacy; (b) learning style; (c) goal orientation; and (d) other environmental factors (Huff et al., 2016). As such, determining students' academic success and persistence has become difficult, but gaining insight into such factors can significantly improve the success of a university's retention efforts (Alston et al., 2019).

A standard measure of academic success (i.e., academic performance) has been college remedial status and grade point average (GPA) (Stewart et al., 2015; Walsh & Robinson Kurpius, 2016). Nevertheless, it is critical to note that student academic performance has been shown to be influenced by factors that occur before and after entering college (Walsh & Robinson Kurpius, 2016). On this point, Walsh and Robinson Kurpius (2016) discussed several of the factors that can affect students' persistence, which included an individual's background, such as their academic accomplishments before entering college, level of parental education, and family expectations. Further, personal characteristics, such as gender, have been shown to impact students' persistence once they enter college (Stewart et al., 2015). Other studies have demonstrated that college students who had higher GPAs in secondary education performed better academically than those with a lower GPA in high school (Burgette & Magun-Jackson, 2008; Friedman & Mandel, 2009; Gartot et al., 2002; Robinson & Garton, 2008). Although postsecondary institutions have no control over student characteristics before enrollment, they can provide resources and experiences that can impact a student's college experience to help to ensure a higher chance of success (Williams-Warren, 2021).

The National Center for Education (2018) reported only about 60% of individuals who enrolled in a four-year institution in 2010 earned their degree within six years. Research has shown students were less likely to be committed to completing their college degree if they were not able to successfully integrate socially and academically in college (Tinto, 1993, 1998; Walsh & Robinson Kurpius, 2016). The integration process has been particularly important for college freshmen (Tinto, 1993, 1998). Proper social and academic integration in the first year of college may allow students to develop self-efficacy and a sense of belonging which, in turn, can influence academic performance and retention (Chemers et al., 2001).

Tinto (1999) identified four institutional conditions universities can improve to influence retention: (a) information/advice; (b) support; (c) learning; and (d) involvement. Students have been reported to more likely to persist if the institution provides consistent and clear information on academic and institutional requirements. Such support allows students to properly prepare and set realistic personal and academic goals. Universities can also increase success by ensuring various types of support programs are available (Tinto, 1999). This includes (a) social, (b) personal, and (c) academic support in the form of tutoring, counseling programs, and academic advising (Stewart et al., 2015; Tinto, 1999). Further, institutions must improve the learning conditions for students. Often, this involves making learning activities more active and engaging along with providing tutoring opportunities (Tinto, 1999). Therefore, the more constructive interactions that students have with their peers and faculty it can lead to increased levels of persistence academic performance (Tinto, 1998, 1999). Further, students who regularly participate in varied activities have been shown to be more likely to develop connections with similar peers, which can lead to improved (a) student retention, (b) personal development, and (c) academic success (Zhao and Kuh, 2004). As a result, a better understanding of the factors that impact student success in colleges of agriculture was needed to ensure an adequate supply of agricultural graduates in the future.

## Theoretical Framework

Goal theory was used as the theoretical framework to guide this study (Schunk, 2016). Goal theory synthesizes the work of existing research focused on student motivation (Anderman & Wolters, 2006; Blumenfeld, 1992; Elliot, 2005; Maehr & Zusho, 2009; Pintrich, 2000a, 2000b; Pintrich & Zusho, 2002; Schunk, 2016; Weiner, 1990). Specifically, goal theory "postulates that important relationships exist among goals, expectations, attributions, conceptions of ability, motivational orientations, social and self-comparisons, and achievement behaviors" (Schunk, 2016, p. 372). Goal orientations have been categorized as students' motivation for engaging in academic tasks (Anderman et al., 2002; D'Lima et al., 2014) and the process of setting goals regarding learning and performance can be a central factor in student academic performance (Dweck, 1991, 1999, 2002; Dweck & Leggett, 1988; Elliot & Dweck, 1988; Schunk & Meece, 2006; Schunk & Swartz, 1993a, 1993b). Specifically, learning goals explain what knowledge, behavior, or skills a student should acquire, while performance goals focus more on the successful completion of a particular task, such as a difficult assignment or project (Schunk, 2016).

Midgley et al. (1998, 2001) developed additional concepts of goal orientations. For example, a form of goal orientation similar to learning goal orientations, known as mastery goal orientations, which entails learning new skills, improving skills, understanding material, and

developing abilities (D'Lima et al., 2014; Huff et al., 2016). As Senko et al. (2011) explain, mastery goal orientations, often used synonymously with learning goal orientations, are characterized by "meeting either task-based criteria (e.g., answering 80% of test problems correctly) or, more typically, self-defined criteria (e.g., feeling that you have learned or improved" (p. 27). Students who are mastery goal-oriented typically have (a) stronger academic performance, (b) possess greater study skills, (c) explore related to course topics, and (c) exceed teacher expectations (D'Lima et al., 2014; Huff et al., 2016; Senko & Miles, 2008). Schunk (2016) created a useful model to interpret the dimensions of goal theory (see Figure 1). The model began with the process of establishing learning goals (i.e., mastery goals) and ultimately moves towards intended gains in achievement.

**Figure 1**

*Effects of Learning Goals on Achievement*


*Note*. Adapted from "Learning Theories: An Educational Perspective," by D. Schunk, 2012.

Students actively pursuing a learning goal are likely to possess higher levels of self-efficacy which refers to an individual's perceived capabilities to learn or perform actions at designated levels (Bandura, 1977, 1986, 1993, 1997). Specifically, Bandura (1982) described educational self-efficacy, (i.e., academic self-efficacy) as an individual's confidence in his or her ability to perform an academic task. Students with higher academic efficacy are more likely to persist because they can (a) better adjust to college, (b) set more realistic academic goals, and (c) experience academic success (Walsh & Robinson Kurpius, 2016).

A higher self-efficacy can result in students being more motivated to engage in self-regulating academic activities, which include tasks such as expending higher levels of effort and the increased use of highly effective learning strategies (Bandura, 1986; Schunk, 1995). Wentzel (1992) explained students' self-efficacy can then be "reinforced as they observe their progress towards the goal" (p. 334). Further, Honicke and Broadbent (2016) reported that when a student's academic efficacy led to mastery goals adoption, the student was more likely to have a positive academic performance. Perceived progress in skill acquisition and self-efficacy for continued learning help to sustain a student's self-motivation and enhance skillful performance (Schunk, 1996). The current investigation sought to explain how goal orientation factors can be used to forecast trends regarding student success in the Louisiana State University (LSU) College of Agriculture (COA).

## Purpose and Objectives

The purpose of this study was to investigate goal orientation factors (i.e., mastery goal orientation and academic efficacy) that may influence the academic success (i.e., first semester

GPA, second semester GPA) of COA freshmen at LSU. To achieve this purpose, five objectives guided this study:

1. Describe the personal and educational characteristics (i.e., gender, age, ethnicity, home community size, first-generation college student, residential status, retention status) of LSU COA freshmen who completed the First-Year *Introduction to Agriculture course*.
2. Describe the academic performance (i.e., first semester GPA and second semester GPA) by retention status of LSU COA freshmen students who completed the First-Year *Introduction to Agriculture* course.
3. Describe the goal orientations of LSU COA freshmen students who completed the First-Year *Introduction to Agriculture* course.
4. Describe the academic efficacy of LSU COA freshmen students who completed the First-Year *Introduction to Agriculture* course.
5. Determine how selected demographic factors (i.e., gender, age, home community size, first-generation college student, residential status), goal orientations, and academic efficacy predict academic performance (i.e., first semester GPA and second semester GPA) of LSU COA freshmen students who completed the First-Year *Introduction to Agriculture* course.

## Methods and Procedures

The target population of this study consisted of all students enrolled in first-year *Introduction to Agriculture* course ($N$ = 237) at LSU. The course was required of all freshmen COA students during their first fall semester. Data were collected at the end of the semester via Qualtrics online survey system created by the researchers. Throughout the course, students were introduced to faculty across all academic departments in the COA. Further, students engaged in goal setting and tutoring as well as sessions on employability skills, time management, and resilience.

A total of 211 students completed the survey, which yielded an 89% response rate. The instrument employed in this study was utilized by Midgley et al. (2000) to investigate patterns of adaptive learning. The complete instrument was comprised of sections that assessed (a) Personal Achievement Goal Orientations, (b) Perception of Teacher's Goals, (c) Perception of Classroom Goal Structures, (d) Academic-Related Perceptions, Beliefs, and Strategies, and (e) Perceptions of Parents, Home Life, and Neighborhood. The items were measured on a 5-Point Likert-type scale where 1 = *Not at all true of me*; 2 = *Slightly true of me;* 3 = *Somewhat true of me*; 4 = *Very true of me;* and 5 = *Extremely true of me.* For this study, only data associated with two of the Patterns of Adaptive Learning Scales (PALS) scales were reported (a) Mastery Goal Orientation (Revised), and (b) Academic Efficacy. Midgley et al. (2000) reported reliability coefficients for the Mastery Goal Orientation ($\alpha$ = .85) and Academic Efficacy ($\alpha$ = .78) scales within the PALS instrument. Therefore, a pilot study was not conducted. For the current study, we calculated Cronbach's alpha, post hoc, and found acceptable reliability for the Mastery Goal Orientation ($\alpha$ = .92) and Academic Efficacy ($\alpha$ = .92) scales. Face and content validity were determined by a panel of five experts at LSU. Further, Midgley et al. (1998) discussed the development and validation of the PALS instrument.

Data were analyzed utilizing SPSS version 26 for Macintosh. Descriptive statistics, including mean, frequency, and percentage were utilized to meet the needs for the first four research objectives. Stepwise multiple linear regression was employed for research objective five. This method of entry allows for a large number of individual predictors to be entered and variables are then removed based on model fit (Field, 2009). Stepwise entry can be appropriate for exploratory analyses when a sound theoretical basis for predictor entry is not available.

## Results and Discussion

The first research objective sought to describe the personal and educational characteristics of COA freshmen students enrolled in the *Introduction to Agriculture* course (see Table 1). Nearly three-fourths of our accessible population was female ($n$ = 157; 74.4%), most ($n$ = 141; 66.8%) were 18 years old and the majority indicated their ethnicity as being white ($n$ = 165). Regarding residential status, 94 (44.5%) lived on campus and were a part of the Agriculture Residential College (ARC), 57 (27%) lived on campus but were not in ARC, 55 (26.1%) lived off campus, and 5 (2.4%) did not respond. The majority of students indicated they were not first-generation college students ($n$ = 153; 72.5%). Regarding community size, 100 (47.4%) were from a small city, 53 (25.1%) were from an urban area, 29 (13.7%) were from a small town, 17 (8.1%) were from a rural town, and 7 (3.3%) were from a farm/ranch. Finally, regarding retention, 191 (90.5%) of students were retained to the second year at LSU, and 142 (67.3%) were retained within the COA.

**Table 1**

*Personal and Educational Characteristics of Freshmen COA students enrolled in the First-Year Introduction to Agriculture Course (n = 211)*

| Variable | *f* | % |
|---|---|---|
| Gender | | |
| Male | 53 | 25.1 |
| Female | 157 | 74.4 |
| Did Not Respond | 1 | 0.5 |
| Age | | |
| 18 Years | 141 | 66.8 |
| 19 Years | 68 | 32.2 |
| 20 Years | 1 | 0.5 |
| Did Not Respond | 1 | 0.5 |
| Ethnicity | | |
| African American | 26 | 12.3 |
| Asian/Pacific Islander | 2 | 0.9 |
| Hispanic | 6 | 2.8 |
| Multiracial | 10 | 4.7 |
| White (Not Hispanic) | 165 | 78.2 |
| Did Not Respond | 2 | 0.9 |
| Residential Status | | |

| Variable | *f* | % |
|---|---|---|
| On Campus, Agriculture Residential College (ARC) | 94 | 44.5 |
| On Campus, Not in ARC | 57 | 27.0 |
| Off-Campus | 55 | 26.1 |
| Did Not Respond | 5 | 2.4 |
| First Generation College Student | | |
| Yes | 35 | 16.6 |
| No | 153 | 72.5 |
| Not Sure | 18 | 8.5 |
| Did Not Respond | 5 | 2.4 |
| Home Community Size | | |
| Small Farm/Ranch | 7 | 3.3 |
| Rural, but not from a Farm/Ranch | 17 | 8.1 |
| Small Town (<5,000 residents) | 29 | 13.7 |
| Small City (5,000–50,000 residents) | 100 | 47.4 |
| Urban Area (>50,000 residents) | 53 | 25.1 |
| Did Not Respond | 5 | 2.4 |
| Retention | | |
| Retained in LSU | 191 | 90.5 |
| Retained in COA | 142 | 67.3 |

Objective two sought to describe the first and second-semester grade point averages (GPA) of freshmen students at LSU enrolled in the *Introduction to Agriculture* course by second-year retention status. The overall mean of first semester GPA was 2.92 (*SD* = 0.79). Students who left LSU had a mean first semester GPA of 1.94 (*SD* = 0.91). Those students who remained at LSU but left the COA had a mean first semester GPA of 2.90 (*SD* = 0.72), and those who remained in the COA had a mean first semester GPA of 3.06 (*SD* = 0.70). The overall average second semester GPA was 2.90 (*SD* = 0.82). Regarding those who left LSU, the mean second semester GPA was 1.59 (*SD* = 0.99). Those who were retained at LSU, but left the COA had a mean second semester GPA mean of 2.80 (*SD* = 0.83), and those who remained in the COA had an average GPA of 3.10 (*SD* = 0.76).

**Table 2**

*First and Second Semester Grade Point Averages of Freshmen LSU students enrolled in the First-Year Introduction to Agriculture Course (n = 211)*

| GPA | *Minimum* | *Maximum* | *M* | *SD* |
|---|---|---|---|---|
| First Semester Overall | 0.16 | 4.25 | 2.92 | 0.79 |
| Left LSU | 0.16 | 3.21 | 1.94 | 0.91 |
| Left COA; Retained at LSU | 0.66 | 4.25 | 2.90 | 0.72 |
| Retained in COA | 0.41 | 4.24 | 3.06 | 0.70 |
| Second Semester | 0.00 | 4.28 | 2.90 | 0.82 |
| Left LSU | 0.00 | 3.15 | 1.59 | 0.99 |

| | | | | |
|---|---|---|---|---|
| Left COA; Retained at LSU | 0.77 | 4.06 | 2.80 | 0.83 |
| Retained in COA | 0.00 | 4.28 | 3.01 | 0.76 |

*Note.* LSU's grading scale includes A+ (4.30 GPA points)

Objective three aimed to describe the mastery goal orientations of freshmen students enrolled in the *Introduction to Agriculture* course (see Table 3). The overall mean for the mastery goal construct was 4.40 (*SD* = 0.65) and fell within the real limits of *Very True of Me*. The highest-rated individual item (*M* = 4.50; *SD* = 0.64) was *It's important to me that I improve my skills this* year. This item's mean fell within the real limits of *Extremely True of Me*. The remaining items all had means within the real limits of *Very True of Me*.

**Table 3**

*Mastery Goal Orientations of Freshmen LSU students enrolled in the First-Year Introduction to Agriculture (n = 211)*

| Item | *Minimum* | *Maximum* | *M* | SD |
|---|---|---|---|---|
| It's important to me that I improve my skills this year. | 1 | 5 | 4.50 | 0.64 |
| It's important to me that I thoroughly understand my schoolwork. | 1 | 5 | 4.48 | 0.69 |
| One of my goals in school is to learn as much as I can. | 1 | 5 | 4.43 | 0.76 |
| One of my goals is to master a lot of new skills this year. | 1 | 5 | 4.33 | 0.86 |
| It's important to me that I learn a lot of new concepts this year. | 1 | 5 | 4.27 | 0.82 |
| Master Goal Total | | | 4.40 | 0.65 |

*Note.* Real Limits: 1.00–1.49 = *Not at all true of me*; 1.50–2.49 = *Slightly true of me;* 2.50–3.49 = *Somewhat true of me*; 3.50–4.49 = *Very true of me;* 4.50–5.00 = *Extremely true of me*

Research objective four sought to describe the academic efficacy of students enrolled in the *Introduction to Agriculture* course (see Table 4). The academic efficacy scale had a grand mean of 3.90 (*SD* = 0.77) and was in the real limits of *Very True of Me*. Similarly, all individual items in the academic efficacy scale had means within the real limits of *Very True of Me*.

**Table 4**

*Academic Efficacy of Freshmen LSU students enrolled in the First-Year Introduction to Agriculture Course (n = 211)*

| Item | *Minimum* | *Maximum* | *M* | SD |
|---|---|---|---|---|
| I can do almost all of my schoolwork if I don't give up. | 1 | 5 | 4.22 | 0.81 |

| Item | *Minimum* | *Maximum* | *M* | SD |
|---|---|---|---|---|
| Even if the work is hard, I can learn it. | 1 | 5 | 3.97 | 0.86 |
| I can do even the hardest schoolwork if I try | 1 | 5 | 3.90 | 0.93 |
| I'm certain I can figure out how to do the most difficult schoolwork. | 1 | 5 | 3.72 | 0.95 |
| I'm certain I can master the skills taught in my classes this year. | 1 | 5 | 3.72 | 0.87 |
| Academic Efficacy Total | | | 3.90 | 0.77 |

*Note.* Real Limits: 1.00–1.49 = *Not at all true of me*; 1.50–2.49 = *Slightly true of me;* 2.50–3.49 = *Somewhat true of me*; 3.50–4.49 = *Very true of me;* 4.50–5.00 = *Extremely true of me*

Objective five sought to determine how selected demographic factors (i.e., gender, age, home community size, first-generation college student, residential status), goal orientations, and academic efficacy predicted academic success (i.e., first semester GPA and second semester GPA) of LSU COA freshmen students who completed the *Introduction to Agriculture* course. Regarding first semester GPA, the only predictor to enter the model was Academic Efficacy (β = 0.26; $p$ = 0.00).

**Table 5**

*Stepwise Model of Selected Demographic Factors, Mastery Goal Orientations, and Academic Efficacy on First Semester GPA*

| Predictor | $R^2$ | *B* | *SE B* | β | *p* |
|---|---|---|---|---|---|
| Constant | - | 1.93 | 0.30 | - | - |
| Academic Efficacy | 0.07 | 0.26 | 0.07 | 0.26 | 0.00 |

Similarly, academic efficacy (β = 0.19; $p$ = 0.01) was the only statistically significant predictor to enter the model for second semester GPA.

**Table 6**

*Stepwise Model of Selected Demographic Factors, Mastery Goal Orientations, and Academic Efficacy on Second Semester GPA*

| Predictor | $R^2$ | *B* | *SE B* | β | *p* |
|---|---|---|---|---|---|
| Constant | - | 2.08 | 0.34 | - | - |
| Academic Efficacy | 0.04 | 0.19 | 0.09 | 0.19 | 0.01 |

## Conclusions

The purpose of this study was to investigate goal orientation factors (i.e., mastery goal orientation and academic efficacy) that may influence the academic success (i.e., first semester

GPA, second semester GPA) of COA freshmen at LSU. Regarding research objectives one and two, the majority of the students who participated in this research study were white females who were 18 years old. The students also primarily grew up in a small city, lived on campus, and were not first-generation college students. Although the majority of students were retained in the university, approximately one-third changed their major out of the COA before their second year. Overall, students who were retained in the COA into their second year had the highest first and second-semester GPAs, while those who left LSU had the lowest GPAs.

Objective three aimed to describe the mastery goal orientations of LSU COA freshmen enrolled in the *Introduction to Agriculture* course. Overall, the students had high mastery achievement goal orientations, which indicated they desired to push themselves, academically, to seek and achieve (a) mastery, (b) understanding, and (c) competence (Midgley et al., 2000). Chemers et al. (2001) noted proper social and academic integration into the first year of college allows students to become more self-efficacious and develop a sense of belonging, which influences academic performance. Overall, these findings were consistent with social self-efficacy theory stating that students who were actively pursuing a learning goal were more likely to possess higher levels of self-efficacy, which can foster higher performance (Bandura, 1977, 1997; Schunk, 2016).

Objective four aimed to describe the academic efficacy of freshmen LSU COA students enrolled in the *Introduction to Agriculture* course. It was concluded that this group of students was efficacious regarding their ability to complete coursework (Midgley et al., 2000). Therefore, students with high levels of academic efficacy should be expected to persist when faced with academic challenges (Bandura, 1977, 1993, 1997). Further, students that are less likely to be committed to completing their college degree also will likely have lower levels of efficacy if they are not able to successfully integrate, socially and academically, into college life (Tinto, 1993; Walsh & Robinson Kurpius, 2016). The findings of this investigation were consistent with previous research by Honicke and Broadbent (2016) who reported when a student's academic efficacy led to mastery goals adoption, the student was more likely to have a positive academic performance.

Objective five sought to determine how selected demographic factors, goal orientations, and academic efficacy predicted academic success (i.e., first and second-semester GPAs). Academic efficacy was the only statistically significant factor that entered the regression models for first and second-semester GPA. However, academic efficacy explained only a small percentage of the variance in both first and second-semester GPAs. The results of this study indicated no predictive ability of whether or not a student is a first-generation college student, where prior research has suggested first-generation students make less progress academically (Billson & Terry 1982; Pascarella et al., 2004; Pike & Kuh 2005). This study is, however, was consistent with Inman and Mayes (1999) and Strage (1999), who found no difference in academic achievement between first and non-first-generation students. Further, these findings were consistent with Schunk (2016) and Bandura (1977) whose research indicated the more self-efficacious students are, the more likely they will have higher mastery goal orientations and perform better academically, regardless of other characteristics.

## Implications and Recommendations

Moving forward, further research is needed to determine factors that influence students' academic performance and retention at the university and college levels. Additional factors, such as high school GPA and standardized test scores, should be obtained and analyzed to determine if or how they influence the predictive power of academic efficacy. Further statistical analysis should be employed to determine the roles of demographic factors, mastery goal orientations, and academic success on second-year retention. Descriptive data showed a large difference in first semester GPA between those who stayed in the COA and those who left the university. More robust statistical analysis may shed light into why students leave the university or change majors out of the COA. A qualitative inquiry may also be useful to develop a deeper understanding of factors that lead to academic success and retention. Perhaps the students in this study have been immersed in all facets of university life, which has helped foster a heightened sense of academic efficacy.

Based on this research, it is recommended that university leaders make efforts to help students succeed academically and improve their confidence during their first semester in college. Further, academic departments should consider sequencing coursework in a manner that will boost students' academic efficacy (Roberts et al., 2020). Specifically, first-year students should be advised to enroll in courses that offer a higher chance of success. University initiatives may involve improving interventions and resources, such as academic tutoring and counseling. It should also be communicated to students that their confidence in their academic work influences their GPA. Even though academic efficacy only explains a small portion of GPA variance, a powerful message to students is that their mental state and confidence in their abilities can make a difference in their academic performance.

Further research should also be conducted to determine which programs may help to increase COA student self-efficacy. Identifying the practices that most impact student success could assist universities in providing those opportunities within their programs. Because of the significant need to fill the demand for agriculture graduates, it is imperative that successful retention programming be included in COA programs (Alston et al., 2019, 2020). Developing activities that spark agriculture student interest and keep them engaged with the COA may help to keep these students retained. The development of student self-efficacy programming should be a priority of colleges of agriculture as it is shown to contribute to student academic success.

Because of the critical need to help engage students within their first year, intentionally developing activities that foster academic self-efficacy should be incorporated into introductory courses when possible. At LSU, the vast majority of freshmen agriculture students take a one-credit seminar course during their first semester. Classes such as this provide excellent opportunities to provide resources, introduce university programming, and build student self-efficacy. Because there is such an extensive literature base on the importance of providing resources and support to retain students, colleges of agriculture that do not currently have an introductory level course may wish to explore this as an option or focus on developing these areas through introductory departmental coursework.

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