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## AN EVALUATION OF THE EFFECTIVENESS OF PROJECT IMPACT: MULTICULTURAL ACADEMIC PROGRAM SUCCESS AT KANSAS STATE UNIVERSITY

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### Abstract

Kansas State University created a suite of recruitment programs, which included Project Impact: Multicultural Academic Program Success (MAPS) to aid incoming college freshmen in their academic transition. This program is led by the Department of Multicultural Student Affairs in collaboration with the Colleges of Agriculture, Business, and Engineering. Each college hosts a group of ethnic minority students each year. The College of Agriculture's Diversity Program Office (DPO) serves as the host for 10 students in its college, each year. This study covers 40 participants from 2016, 2017, 2018, and 2019 in the College of Agriculture. Data were collected using a pre-post Likert scale assessment and analyzed by descriptive statistics. The results showed that MAPS had an impact on student knowledge and interest level in Agriculture. That is, participants' knowledge of agricultural sciences increased. The DPO will utilize results to further develop diverse recruitment and retention programs within the College of Agriculture.

**Keywords:** Multicultural Academic Program, Ethnic Minority, Diversity in Recruitment, Agriculture, Summer Program

### Introduction

African Americans and other minorities are encouraged to pursue college education as this is one of the keys to success for all students in America (Elmers and Pike, 1997). However, although a college education is important for success with all students, the first U.S. higher education institutions were created to educate Caucasian males (Rudolph, 1990); consequently, undergraduate education was not offered to those outside of that demographic group. One of the key priority areas in the *Strategic Plan for Agricultural Education* by McGovney-Ingram et al. (2011) claimed "attracting, serving, and retaining historically underrepresented populations will be an important growth strategy for all of agricultural education." In 2018, minority students represented 20% of those enrolled in 1862 Colleges of Agriculture in the United States (Food and Agricultural Education Information System [FAEIS], 2019). The ethnic groups in this study are underrepresented in many of the agricultural academic and career programs in the U.S. Most tend to associate agriculture with hard labor; specifically, African Americans associate the profession with farming and slavery (Wiley, 1996). FAEIS (2019) report showed that 1862 institutions have less than 25% ethnic minorities in Colleges of Agriculture. The landscape continues to show that the ethnic minority college student is not from a rural area, and is a graduate from a public school.

At Kansas State University (KSU), only 10% of students in the College of Agriculture (COA) are minorities despite minorities representing 18% of the overall undergraduate population at KSU (Kansas State University, Office of the Registrar, 2020). Ethnic minority college students majoring in the College of Agriculture are not succeeding in college at the rate of non-minority students in the college. This may be due to many factors such as students dropping out or changing majors, a lack of agricultural experience prior to undergraduate education, "attitudinal barriers" such as minority students' negative perceptions of agriculture and agricultural programs, misperceptions of career paths, a view that the profession is made up of, and for, white men, structural barriers that may include lack of financial aid, and a low number of minority

mentors on campus and/or support services. These previously mentioned areas are where agricultural education researchers have focused their recruitment and retention strategies (McGovney-Ingram, et al., 2011). Wiley (1996) suggested that Colleges of Agriculture should conduct pre-college programs to increase the awareness of agricultural majors for minorities.

In recent decades, the representation of Hispanics and Blacks in top American universities and colleges has decreased (Ashkenas et al., 2017). Minorities are more likely to attend a community college, Historically Black College and University (HBCU), or Hispanic Serving Institution (HIS) rather than a selective institution (Fletcher, 2013). Hispanics and Blacks who attend 1862 institutions tend to have less academic success and a lower retention rate than that of non-minority students (Elmers and Pike, 1997). Zajacova et al. (2005) found that minority students are more likely to have lower GPAs and fewer college credits than white students at the end of their freshmen year. Elmers and Pike (1997) found that a lack of a social connection and intellectual experience at a university may contribute to minority students withdrawing from college. Wiley (1996) stated that a summer bridge program can enhance a student's transition from high school to college. Project IMPACT: Multicultural Academic Program Success (MAPS), a Summer Bridge Program, started in the summer of 2009 at KSU with the goal to increase the recruitment and retention of ethnic minority students in the sciences. Through a collaborative effort to enhance ethnic minorities in the sciences, the colleges of Agriculture, Business, and Engineering, Office of Student Life, Department of Multicultural Student Affairs (DMSA), and corporate partnerships secured funding for the first program of its kind on the Kansas State campus.

In the College of Agriculture, this program was managed by the Diversity Programs Office (DPO) and its staff. By establishing the College of Agriculture's DPO, efforts were made to enhance recruitment, retention, and graduation of ethnic minority students. The Project Impact MAPS Program is designed to prepare its participants for the academic rigors of college and expose the students to resources for a successful transition. To complement this effort, the College of Agriculture DPO hosts ongoing programs to create an environment that embraces differences and promotes successful graduation. Project Impact MAPS' cohorts in the College of Agriculture are a product of such efforts. The purpose of this study, therefore, was to evaluate the effectiveness of the project impact on multicultural academic program success at Kansas State University. Specific objectives were to: (1) compare the agricultural knowledge of students before and after attending the program, and (2) compare the career interest level of agriculture students before and after attending the program.

## **Literature Review**

### **Background**

For a better life in this global society, education is an essential asset for individuals. Since the inception of higher education in America, ethnic minority students have been underserved as it relates to the preparedness for college. For instance, in England, 10.3% of black students drop out of university early compared with 6.9% of students in general. Perhaps, social, cultural, and structural factors should be given more considerations (Lawton, 2018). In recent decades, there has been a push by educational recruiters to promote higher education and provide tools for academic success for minorities to correct this deficiency. Higher education institutions seek to increase the awareness of potential degree programs, including agricultural sciences to ethnic

minority students. However, the ethnic minority college student population do not value agricultural careers as lucrative or successful.

Jeff Strohl, the Center Director of Research for Georgetown University, stated, “the American postsecondary system increasingly has become a dual system of racially separate pathways...” (Fletcher, 2013). As time progresses, the pathways continue to drift further apart. A study conducted in 2020 on student retention in Colleges of Agriculture indicated that students with more agricultural experience are more likely to complete a degree in agriculture than freshmen who have not had those experiences (Dyer et al., 1996). In addition, students with higher class rank, yet without agricultural experiences are more likely to drop out of Colleges of Agriculture (Dyer, 2001). Undergraduate institutions may need to provide agricultural experiences to retain students with higher class ranks, GPA, etc. Implementing programs such as Project Impact MAPS, in agricultural education can provide this agricultural knowledge to program participants. Wiley (1996) indicated that there are relationships regarding education, knowledge, and attitudes, influencing behavior among program participants (Figure 1). A summer bridge program can provide needed experiences and knowledge of agricultural sciences to gain increased recruitment and retention of ethnic minority students.

### **College Preparation Program for Agriculture**

Ethnic minority college preparation program studies have been conducted to measure the effectiveness of summer bridge programs on participants. Strayhorn (2011) found that economically disadvantaged students at predominantly white institutions (PWI) who participated in a summer bridge program gained a sense of belonging, self-efficacy, and social skills. However, Strayhorn’s study did not compare the academic knowledge of the students, before or after the program. Another study focused on the effect of a “New Start Summer Program” on participants’ freshmen year GPAs and retention. The authors found that participants had higher GPAs than non-participants. However, they were unable to correlate a relationship between participation and first-year retention (Cabrera et al., 2013). Precollege programs have been shown to enhance student knowledge through participation (Wiley et al., 1995). Murphy et al. (2010) found that underrepresented minority (URM) groups’ bridge program participants at the Georgia Institute of Technology had a higher graduation rate than URM students who did not participate. They did not factor academic knowledge into this analysis. The analysis of the MAPS program in this study corrects that by focusing on agricultural knowledge of students before and after attending the MAPS program and examining the interest level of students in agriculture before and after attending the program.

### **Ethnic Minority Pre-College Program Experience, MAPS**

Barnett et al. (2012) stated that summer bridge programs are used to bridge the gap between whites and minorities at the college level. Since its inception, the MAPS program has assisted over 300 incoming freshmen, more than 100 of which were majoring in agriculture. In order to participate in MAPS, applicants must meet three eligibility requirements: (1) applied and accepted to Kansas State University and plan to enroll in the following fall semester, (2) plan to major in agriculture, business, or engineering, and (3) identify as African American, Asian, Latino, Native American, or Multiracial. Along with these three requirements, an application, including recommendation letters from science/math teachers, counselors, and/or a community representative must be submitted and approved to be accepted into the program. While attending

the 6-week MAPS program, students are enrolled in up to six college credits. These courses include chemistry or college algebra, kinesiology, university experience, and participation in a college science lab. The university experience course is a first-year seminar designed to help students make the transition to university courses and college-level learning, emphasize college student success skills, such as time management, study skills, critical thinking strategies, as well as financial and budgeting training.

Students also participate in an integrated biofuels project. The project allows students to gain knowledge on the importance that agriculture, engineering, and business all have in the production of biofuels. MAPS participants take industry tours to major agricultural companies, including, Cargill, ConocoPhillips, Hormel, Phillips 66, and Union Pacific. Students also partake in weekend campus activities and events around the city of Manhattan, Kansas. These activities allow students to become familiar with the city and build peer connections. Along with the impactful experience, students receive free room and board on Kansas State University's main campus, providing students a preview of campus life and what to expect in their freshmen year. Additionally, participants are provided a stipend to cover personal expenses.

## Methodology

### Theoretical Framework and Data Collection

The theoretical framework for this study is based on Wiley (1996). As stated before, the author posited that there are relationships regarding education, knowledge, attitudes, influencing behavior (Figure 1). MAPS is an educational tool to allow participants to gain knowledge and form an attitude about agriculture. The target population for the program is predominately ethnic minority students and women. For this study, the researchers analyzed data from 2016, 2017, 2018, and 2019. Data from 2016 to 2019 were used as they were the most complete (contains all information desired for study) and diverse data over the 10-year tenure of the program. The sample includes 40 student participants. Participants were asked to complete a twelve question Likert scale survey (Table 3) to evaluate the development of their agricultural knowledge and interest because of program participation.

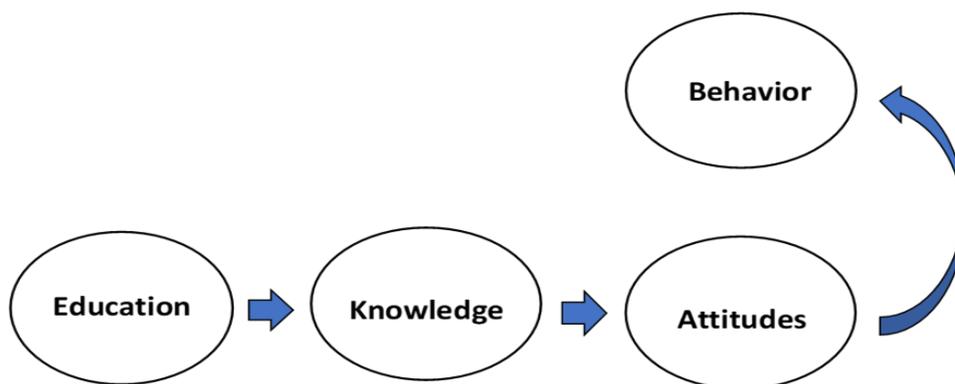


Figure 1. Assumed Relations among Education, Knowledge, Attitude, and Resultant Behavior (Wiley, 1996)

The Likert scale survey used a numbering system of 1 to 5, with 1 indicating “Strongly Disagree”, 2 indicating “Disagree”, 3 indicating “Neutral”, 4 indicating “Agree”, and 5 indicating “Strongly Agree.” The College of Agriculture Diversity Program Office (DPO) staff administered the pre-test at the start of the program following the program’s opening ceremony and at the conclusion of the final MAPS event prior to the closing ceremony.

The responses to the Likert scale survey were pooled and evaluated using descriptive statistics. Once the surveys were collected by the DPO staff, each participant was assigned a participant number to ensure the corresponding participant’s pre- and post-test results were analyzed together. Next, all pre- and post-test survey responses were recorded into Microsoft Excel and grouped by question, cohort, and survey type (e.g., all responses for question 1 of the 2019 pre-test are placed together). The data were then transferred to STATA and descriptive statistics were analyzed.

### **Data Analysis**

Descriptive statistics including frequencies, means, and percentages were used to summarize the data. Average responses were interpreted as follows: 1.00-1.49=strongly disagree; 1.50-2.49=disagree; 2.50-3.49=neutral; 3.50-4.49=agree; 4.50-5.0= strongly agree. Also, to interpret the results, the researcher focused on three variables of each question: desired response, average change in mean from pre to post-test, and the percentage change from pre to post-test. These variables were used as indicators of knowledge gained from participating in MAPS. The average change variable was calculated by subtracting the pre-test mean from the post-test mean. The researchers considered the participant to have gained knowledge when the average change variable is not equal to zero. The percentage change variable was used to determine the magnitude of the change and was calculated by dividing the average change variable by the pre-test mean. The desired response variable is the answer which the researchers want the participants to select. They hold either “1” (Strongly Disagree) or “5” (Strongly Agree) values and serve as the base/control variable for the study as they do not change. Furthermore, the researchers analyzed the sign of the percentage change variable to indicate if the direction of the change from pre- to post-test is towards the desired response. If so, this signals that the program had a positive impact on the agricultural knowledge of participants. Since the desired responses are the extreme values on the Likert scale, any positive percentage change indicates a change in the direction towards response “5”; and any negative percentage change indicates a directional change towards response “1” (Table 3).

## **Results and Discussion**

### **Demographics**

Of the 40 student participants, 63% were females and 37% were males (Figure 2). Most of the participants were African Americans/Blacks or Hispanics, making up 70% of the program participants (Figure 2). The remaining 30% identified as being Multicultural, Native American, or belonging to other groups (Figure 3). In addition, most of the participants (70%) were from urban and suburban areas and graduated from public schools (93%) (Table 1).

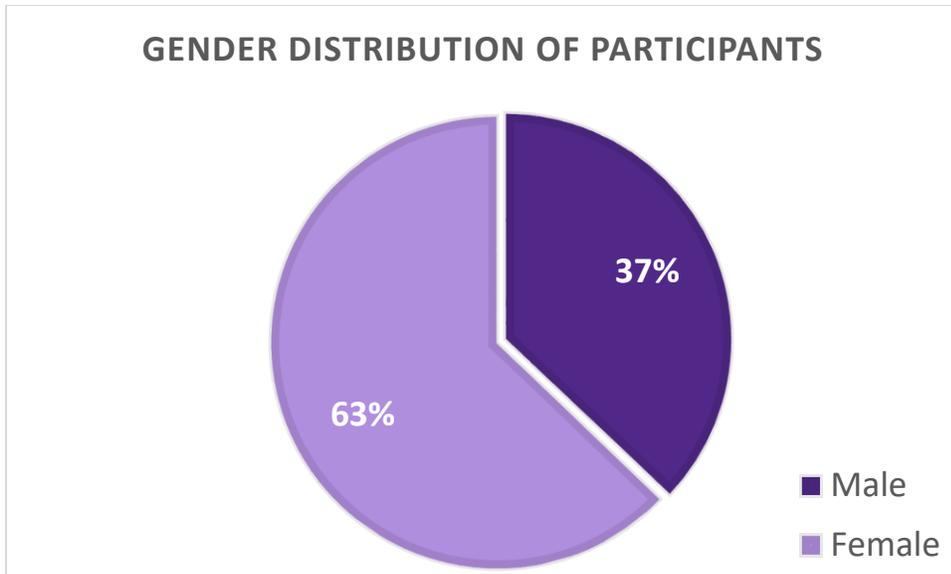


Figure 2. Distribution of Participants by Gender

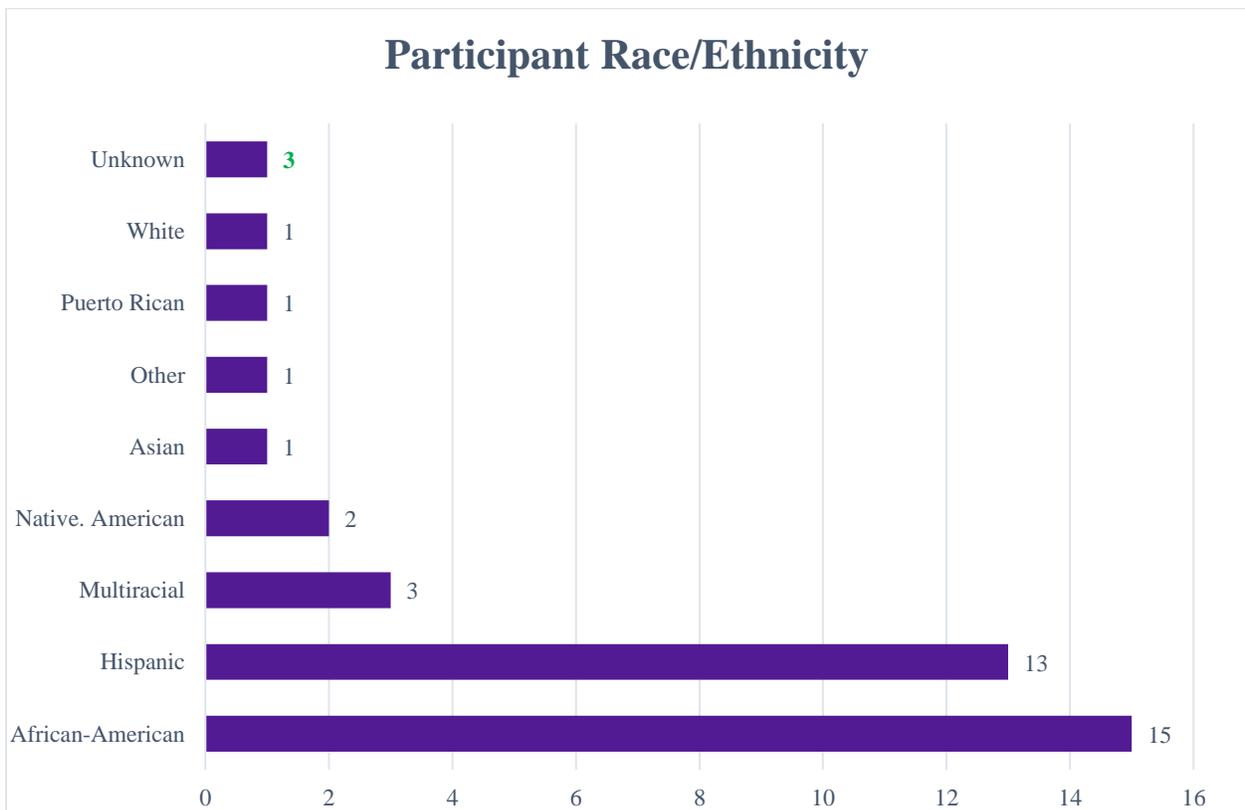


Figure 3. Distribution of Participants by Race and Ethnicity

Table 1. Location and School Type of Participants (n=40)

Variable	Frequency	Percent
<b>Geographical Location</b>		
Rural	12	30.0
Urban	17	42.5
Suburban	11	27.5
<b>School Type</b>		
Public	37	92.5
Private	2	5.0
College Preparatory	0	0.0
Other	0	0.0
Parochial	0	0.0
Home School	1	2.5

### MAPS Specific Questions

Table 3 shows results MAPS specific questions. The researchers have indicated that a desired outcome is for participants to gain knowledge in agricultural sciences. Responses to Questions 1, 2, 4, 6, 7, and 8 responses show that the participants gained knowledge in the direction for success. The negative sign indicates the participants' average response decreased towards the desired response "1." As a result, the authors considered these questions to be successful in increasing the knowledge of the student as it pertains to careers in agriculture. In contrast, Question 3 "Courses in biology and chemistry are not needed for most careers in the agricultural sciences" showed a 0.3 average change and 20% percentage change. The average response to this question increased, although the desired response for this question is "1"; indicating that a negative average change variable would be preferred. Also, responses to Questions 5, 9, 10, 11, and 12 show that participants gained knowledge as the average change variables are positive. This denotes the average response to these questions increased in the direction of desired response "5." Although this differs from the previous question, Question 3, outcome, it complements the overall desired outcomes for the study as participants gained knowledge of agricultural careers.

Furthermore, the researchers believe that participants had a better understanding of questions 9-12, as opposed to Question 5. The average change for each of these questions (9-12) ranged between 5-7%, percentage change. In contrast to Question 5, which showed an 18% percentage change. It is possible that the students were not aware of the variety of careers that fall within agriculture. Most specifically, Question 12 supports that the participants understand that cultural differences are needed for a successful career in food and agricultural sciences. This question showed a 0.25 average change and 6% percentage change. Since the average change variable is positive, the average response to this question increased in the direction of the desired response "5." This signals that participants gained knowledge about the importance of cultural differences, as well as the skills needed to have a career in food and agricultural sciences. With the current interest of ethnic minorities in the food and agricultural sciences, this instrument allows the

Table 3. Participant responses to Likert scale questions from the Multicultural Academic Program Success Program. The pre- and post-test means, average change between means, desired responses, and percentage change are indicated in the table columns for each question.

Question:	Pre-Test Mean	Post-Test Mean	Avg. Change	Desired Response	% Change
1. I know very little about careers in agricultural sciences	2.65	1.88	-0.77	1	-29%
2. Most careers in the agricultural sciences involve outdoor work in fields	2.75	2.18	-0.57	1	-21%
3. Courses in biology and chemistry are not needed for most careers in the agricultural sciences	1.53	1.83	0.3	1	20%
4. Growing up on a farm is necessary for a career in agricultural sciences	1.40	1.33	-0.07	1	-5%
5. I know someone who has a career in the agricultural sciences	3.50	4.13	0.63	5	18%
6. There are few businesses in Kansas where I can have a professional career in the agricultural sciences	2.48	2.28	-0.2	1	-8%
7. When I hear the words “agricultural sciences”, I usually think of a farm with crops and animals	3.28	2.58	-0.7	1	-21%
8. When I hear the words, “agricultural sciences”, I seldom think of laboratories with testing equipment	2.65	2.48	-0.17	1	-6%
9. Careers in the agricultural sciences touch the lives of people each day	4.53	4.83	0.3	5	7%
10. Our world is very dependent on people who work in the agricultural sciences.	4.50	4.83	0.33	5	7%
11. Cross-cultural communication is needed for careers in the agricultural sciences	4.15	4.35	0.2	5	5%
12. Understanding racial and cultural differences is needed to be successful in the agricultural sciences	4.20	4.45	0.25	5	6%

researcher to understand the cohorts and value their contributions to careers in agriculture. Overall, the instrument provided valuable insight allowing the researchers to assess the effectiveness of MAPS on participants. Apart from Question 3, all post-test means changed in the direction of the desired outcome, showing that the participants gained knowledge in agriculture. As a result, the researchers consider the program to be a success and that it should be continued in the future.

### Conclusion

To increase the interest in agriculture as a major of choice, summer bridge programs, such as MAPS, are needed. Project Impact MAPS had a positive impact on the agricultural knowledge levels of the College of Agriculture's student participants. Students gained knowledge of and the need for the many aspects of agriculture. They developed a better understanding of the sciences required for agricultural careers, that agricultural careers touch the lives of people daily, and that many career possibilities exist in the agricultural industry. As the Kansas State University College of Agriculture Diversity Program Office (DPO) continues to recruit and retain ethnic minority students, these types of summer bridge programs will be invaluable. Student participants provided the office with insight into students' perceptions and attitudes toward agriculture before and after attending MAPS. Participants also expressed to the DPO staff that they were satisfied with the program and they feel the program benefited them.

Overall, the information collected from the program will be used by the College of Agriculture to continue to promote an inclusive campus climate and to develop educational programs to meet this need. This study was conducted to gain baseline information to be used for future programs. To continue this effort, the DPO plans to work with agricultural student leadership organizations, MANRRS, corporations, and other programs to aid ethnic minority students in successful matriculation of their undergraduate experience at Kansas State University. Future research should be to analyze the attitudinal and behavioral changes towards agriculture from the knowledge gained through this program.

### References

- Ashkenas, J., H. Park, and A. Pearce. (2017). "Even with Affirmative Action, Blacks and Hispanics Are More Underrepresented at Top Colleges Than 35 Years Ago." *The New York Times*. <https://www.nytimes.com/interactive/2017/08/24/us/affirmative-action.html>, <https://www.nytimes.com/interactive/2017/08/24/us/affirmative-action.html> [Retrieved September 10, 2019].
- Barnett, E. A., R.H. Bork, A. K. Mayer, J. Pretlow, H. D. Washington, and J. M. Weiss. (2012). "Bridging the Gap: An Impact Study of Eight Developmental Summer Bridge Programs in Texas." <https://eric.ed.gov/?id=ED533824> [Retrieved October 10, 2019].
- Cabrera, N. L., D. D. Miner, and J. F. Milem. (2013). "Can a Summer Bridge Program Impact First-Year Persistence and Performance? A Case Study of the New Start Summer Program." *Research in Higher Education*, 54 (5): 481–498. <https://doi.org/10.1007/s11162-013-9286>
- Dyer, J. (2001). "Predictors of Student Retention in Colleges of Agriculture." <https://eric.ed.gov/?id=ED462290> [Retrieved March 30, 2019].
- Dyer, J., Lacey, R., and Osborne E. (1996). "Attitudes of University of Illinois College of Agriculture Freshmen Toward Agriculture." *Journal of Agricultural Education*. 37 (3): 33-42.
- Elmers, M. T., and G. R. Pike. (1997). Minority and Nonminority Adjustment to College: Differences or Similarities? *Research in Higher Education* 38: 77–97.
- FAEIS. (2019). "Food and Agricultural Education Information System." *FAEIS*. <https://faeis.cals.vt.edu/index.php/data-center/> [Retrieved June 23, 2019]
- Fletcher, M. A. (2013). "Minorities and Whites follow Unequal College Paths, Report Says."

- Washington Post*. [https://www.washingtonpost.com/business/economy/minorities-and-whites-follow-unequal-college-paths-report-says/2013/07/31/61c18f08-f9f3-11e2-8752-b41d7ed1f685\\_story.html](https://www.washingtonpost.com/business/economy/minorities-and-whites-follow-unequal-college-paths-report-says/2013/07/31/61c18f08-f9f3-11e2-8752-b41d7ed1f685_story.html) [Retrieved January 21, 2020].
- Gerena, C. (2004). *Historically black colleges and universities have helped African Americans tap into the potential of higher learning*. Knowledge = Power. *Region Focus* 8 (3): 40.
- Kansas State University Office of the Registrar. (2019). "Enrollment Summary by Ethnicity." *Kansas State University*. <https://www.k-state.edu/registrar/statistics/ethnic.html> [Retrieved October 12, 2020].
- Lawton, G. (2018). "Why do Black Students Quit University more often than their White Peers?" *The Guardian*. <http://www.theguardian.com/inequality/2018/jan/17/why-do-black-students-quit-university-more-often-than-white-peers> [December 29, 2019].
- Mcgovney-Ingram, R., T. Rutherford, and A. Larke. (2011). "The Voices of Minority Students in an Agricultural Communications and Journalism Program: A Case Study." *Journal of Applied Communications* 95 (2). doi:10.4148/1051-0834.1174
- Murphy, T. E., M. Gaughan, R. Hume, and S. G. Moore. (2010). "College Graduation Rates for Minority Students in a Selective Technical University: Will Participation in a Summer Bridge Program Contribute to Success?" *Educational Evaluation and Policy Analysis*, 32(1), 70–83. <https://doi.org/10.3102/0162373709360064> [Retrieved August 28, 2019].
- Rudolph, F. (1990). *The American College and University: A History*. Athens, Georgia: University of Georgia Press.
- Strayhorn, T. L. (2011). "Chapter 10 Sense of Belonging and African American Students Success in STEAM: Comparative Insights Between Men and Women" (pp. 213-226). In H. T. Frierson, and W. F. Tate. (eds.), *Beyond Stock Stories and Folktales: African Americans' Paths to STEM Fields (Diversity in Higher Education, Vol. 11)*. Bingley, UK: Emerald Group Publishing Limited.
- Wilson, A. V. (2010). "Education for African Americans." <https://tshaonline.org/handbook/online/articles/kde02> [Retrieved February 8, 2019].
- Zajacova, A., S. M. Lynch, and T. J. Espenshade. (2005). "Self-Efficacy, Stress, and Academic Success in College." *Research in Higher Education* 46 (6): 677–706. <https://doi.org/10.1007/s11162-004-4139-z>
- Wiley, Z.Z., C. F. Bowen, and B. E. Bowen. (1995). "Influence of a summer workshop on minority student knowledge of and attitude toward the food and agricultural sciences." *Proceedings of the 49th Eastern Agricultural Education Research Conference* 49: 46-53.
- Wiley, Z. Z. (1996). *Influence of a Food and Agricultural Sciences Summer Workshop on Participants and Nonparticipants*. The Pennsylvania State University, University Park, PA.