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The Exploration of Undergraduate Attitudes and Knowledge about International Agricultural Issues and US Agricultural Policy

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Abstract

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Keywords

agriculture, international agricultural issues, US agricultural policy, undergraduate attitudes, global agriculture

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In today's globalized world, educators and employers generally agree on the necessity for undergraduate agricultural students to develop a sound understanding of global ag issues and policy. Because of this, many U.S. universities have promoted internationalizing curriculum and increased international study abroad experiences. However, few studies have examined the impact of international experiences on students' knowledge and attitudes about international ag issues and policies. This study bridges this gap by identifying the relationship between student knowledge and attitude toward international ag issues and U.S. ag policy, and how international experience and demographic variables play a role in that relationship. Adapted from previous literature, an online survey was developed in 2019 among 196 undergraduate students in ag and non-ag fields to measure student knowledge (global aptitude assessment) and student attitude (attitude index score) towards the importance of global agricultural issues and policy. Results concluded that undergraduate students held a low level of knowledge about global agricultural issues and policy; in fact, agricultural students held lower average knowledge scores than non-agricultural students. This emphasizes the urgency for administrators to intentionally design and reevaluate our current curriculum to meet these knowledge gaps. Additionally, study abroad experiences did not contribute to students' knowledge nor attitudes. The authors discuss several possibilities for such results and highlight the call to similarly reevaluate our study abroad curriculum to be more intentional in impacting student knowledge in global agricultural food systems and acknowledge differences in policy, getting students excited and interested in the global market.

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Introduction

In today's globalized world, it becomes essential for undergraduate agricultural students to develop a sound understanding of global agricultural issues and policy. Such understanding is critical, as employers are looking to hire graduates with the skills and competencies to thrive in the global workplace, such as working effectively across differing cultures, acknowledging the issues affecting our global agricultural industry (Irani et al., 2006), thinking with global perspectives, awareness, and citizenship, and understanding our international markets (Bruening & Frick, 2004; Morgan & King, 2013). Therefore, many United States (US) agricultural institutions of higher education have established missions and/or curricular programming to increase students' global awareness and competencies (Moriba & Edwards, 2015).

The question has been raised about whether undergraduate students have sufficient understanding of global issues and agricultural policy to make a meaningful impact on the world's critical agricultural and food issues (Wingenbach et al., 2003). Researchers have called educators to bring a heightened awareness of our globally, interconnected society into the classroom (Morgan & King, 2013). Although undergraduate students acknowledge the importance of global awareness and understanding in their future careers (Page & Williams, 2001), research has shown that students in US Colleges of Agriculture lack knowledge in international agricultural policies, practices, products, people, and cultures (Morgan & King, 2013). While efforts to internationalize institutions of higher education vary significantly by university (Estes et al., 2016), US Colleges of Agriculture are continually looking for ways to best integrate global issues, policy, and cultures into their curriculum.

Significant challenges face today's courses on international agriculture and international agricultural policy in higher education. First, interdisciplinary courses that teach both agricultural science and policy, featuring both natural and social sciences, are very rare in higher education curriculum (Karsten & O'Connor, 2002). Additionally, international educational experiences offered to university students in agriculture vary widely, including curricular experiences, interactions with international students, co- and extracurricular activities, and international travel (i.e., study abroad) (Heinert & Roberts, 2016). Such widespread variations make it challenging to capture appropriate assessments of international learning. Although study abroad opportunities are encouraged by many institutions of higher education and remain a common avenue for students seeking to understand more about global agricultural issues, US Colleges of Agriculture overall have struggled to involve students in abroad opportunities (Bruening & Shao 2005; Irani et al., 2006).

Few studies have examined the impact of international experiences on students' knowledge and attitudes about international agricultural issues and policies. Does studying abroad enhance an undergraduate student's level of understanding and/or attitudes towards international agricultural issues? As tomorrow's leaders in agriculture, do our undergraduate agricultural students hold a foundational, appropriate level of knowledge of US agricultural policy, in order to make informed, globally focused decisions in their industry? If not, do international experiences help address this lack of knowledge? Furthermore, do we need to cater these experiences among specific types of students, to ensure most appropriate programming and curriculum? This study intends to bridge this gap.

Literature Review

International Agriculture and Agricultural Policy Curriculum

Several strategies have been suggested to internationalize agricultural curriculum to ensure adequate global knowledge. For example, Bruening and Shao (2005) identified important topics to deliver introductory international agricultural courses for US undergraduates. Globalization and the implications/effect on agriculture, culture in agricultural international development, and why a worldview is important to today's agricultural producers and leaders are among the highest rated topics. Researchers suggested that agricultural educators consider using these topics when developing international agricultural curriculum.

Additionally, Strong and Baker (2020) found that a large portion of undergraduate agricultural students do not feel efficacious in leading when contentious issues intersect. Consequently, faculty are failing to appropriately educate undergraduate students in these global issues, leaving them unprepared and not confident to discuss nor address today's global agricultural challenges.

Student Knowledge and Attitudes of International Agriculture and Policy

Research has shown that US undergraduate students have a low-level knowledge of international agriculture and natural resources (Harder et al., 2015), and are decreasing in terms of general global knowledge (Roberts & Edwards, 2018). Moore et al. (1996) found that undergraduate students majoring in agriculture were not very knowledgeable about international geographical characteristics. Although their knowledge about international agriculture (as it relates to the US) was fair, they held limited knowledge about critical issues facing global agriculture.

While providing a globally focused course is an adequate start, international agricultural curriculum should move beyond knowledge alone. Bruening and Shao (2005) suggest that an internationalized agricultural curriculum must also include attitude change: "students should demonstrate a positive attitude toward other cultures, understand and articulate the interrelationship between countries, and possess the ability to work effectively in a global setting" (p. 49). Lukefahr (1999) suggested that such courses should expand undergraduate attitudes towards international agricultural issues, developing heightened levels of sensitivity and awareness of culture and differing social values.

Wingenbach et al. (2003) explored the knowledge and attitudes towards international agricultural issues among undergraduate students in agricultural education. They concluded that, overall, students lacked an understanding of global events and are not proactive in learning about international policies, products, and cultures. The researchers encouraged agricultural educators in higher education to bridge a stronger connection between global events and agricultural practices worldwide, as well as increase experiential learning opportunities abroad.

Gender on Student Knowledge and Attitudes

Research has shown that clear relationships exist between a student's gender and achievement (knowledge gain), as well as attitudes towards academic disciplines, especially

among STEM fields. Armo et al. (2015) found that both age and gender were predictors of university student achievement in mathematics courses in Texas. Similarly, Pirmohamed et al. (2017) found that study time, active learning strategies, performance goals, and attitude (self-efficacy) towards a subject were significant predictors of academic achievements for senior year university male students in the UK. However, only attitude (self-efficacy) towards the subject was a predictor of academic achievement for female students.

Rezazadeh et al. (2009) suggested that gender influence could lie in testing anxiety. In their study among Iranian university students enrolled in English courses, the findings revealed that female students held a higher level of test anxiety in contrast to their male counterparts. The researchers suggested that such results could stem from the increased cultural pressure on women to succeed in school. Lang et al. (2007) suggested this could also stem from a lack of representation in the classroom. In their audit of undergraduate student achievement in information systems and computer science by gender, the researchers concluded that several factors impacted overall performance of female students. Among those most significant were a lack of female peers in their courses and lack of female staff and instructors in introductory courses. According to the authors, in such “masculinised or ‘clubhouse’ environments” (p. 224), female students clearly performed worse than males.

International Ag Experiences on Student Knowledge and Attitudes

As aforementioned, US study abroad programs have been a very common international experience, implemented to enhance university students’ global competencies (Zhai & Scheer, 2002). Previous research has shown that study abroad and international experiences can enhance student global competency (Rampold et al., 2020), cross-cultural understandings, views on agriculture (Roberts & Edwards, 2016; Strange & Gibson, 2017), awareness of the interdependence between nations, value of diversity, and importance of international understanding (Kitsantas & Meyers, 2001). In their survey of south-eastern US university students’ study abroad experiences, Strange and Gibson (2017) concluded that students achieved some level of transformative learning, provided that the in-country program lasted longer than 18 days. Among the limited literature that exists on agricultural international experience is Zhai and Scheer’s (2002) exploration of the influence of study abroad programing on American agricultural university students’ global knowledge and attitudes. They concluded that such programs generally enhanced global knowledge and attitudes. Abroad experiences also enhanced their global perspective and developed global sensitivity. Students were also more aware of and open to cultural diversity and learned more about other cultures and histories. Students also developed favorable attitudes towards their host country, as they, in turn, became more critically reflective towards the US.

However, research has presented conflicting evidence on the impact of study abroad experience on students. Researchers have claimed that study abroad learning objectives are often vague and ill-defined (Hachtmann, 2012), with a lack of empirical, meaningful measurement of their outcomes (Tarrant et al., 2014). International educational experiences have ranged from lengths of one week to one academic year, and may include exchange programs, located through a provider, or be led by institutional faculty (Strange & Gibson, 2017).

The impact of agricultural student attitudes, due to international experiences, has also proven mixed. Results from an examination of the impact of three short-term international capstone experiences on student knowledge and attitudes concluded that, while students showed

an increase in global agricultural knowledge, attitudes towards international agriculture and travel were ambivalent (Coers et al., 2012). Although students held more positive attitudes about traveling internationally overall, they expressed conflicting views about the importance of other students gaining international agricultural experiences. The researchers suggested that the changing of attitudes might be more complicated than increasing global agricultural knowledge.

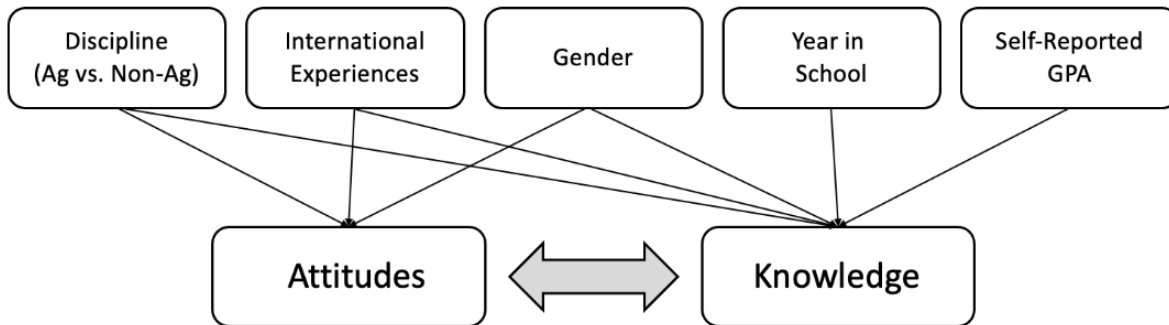
Relationship between Attitude and Knowledge

Do university students’ attitudes towards a subject influence their knowledge level of that subject? Or, conversely, does a student’s knowledge level influence their attitudes towards that subject? Research outside of the field of agricultural education has shown correlations between university student attitude and achievement through a discipline-specific lens across the globe, especially highlighted in math and sciences. For example, favorable attitudes towards a topic or subject has been proven to impact student achievement (knowledge) at the university level. Nasr and Soltani (2011) concluded that when students sensed that biology education and course materials created a fun class environment, their positive attitudes towards biology increased, resulting in higher achievement in the subject. Similarly, Hood et al. (2012) found that students who expressed positive feelings about statistics were more likely to value statistics more and express more positive expectancies for success in the field, which ultimately led to more successful outcomes (achievement). Ilgan (2013) concluded that university students’ attitudes towards the course were a predictor of academic achievement. His research found that student attitudes toward the lesson, as well as student perceptions of the necessity and importance of the course, significantly influenced their achievement.

While many educators and researchers have suggested that positive attitudes contribute to student learning, there remains little empirical evidence to support this assumption in the broad discipline of agricultural education. In the present study, we sought to identify the relationship between student knowledge and attitude toward international agricultural issues and US agricultural policy, and how international experience and demographic variables play a role in the relationship. Therefore, based upon the aforementioned literature, the following direct paths are outlined in Figure 1 to visually represent the authors’ hypotheses for the present student, drawing from the presented theoretical relationship between student knowledge and attitude:

Figure 1

Hypothesized Model of the Relationships Among Student Knowledge and Attitudes



Purpose and Objectives

The intent of this research study was to examine undergraduate students' knowledge and attitude about international agricultural (ag) issues and agricultural (ag) policy. The following objectives were outlined in this study:

1. Compare student knowledge of international ag issues and policy between agriculture majors (ag majors) and non-agriculture majors (non-ag majors);
2. Compare student attitudes towards the importance of international ag issues and ag policy between ag and non-ag majors;
3. Determine the relationships among knowledge, attitudes, and student demographics (gender, self-reported GPA, and year in school); and
4. Determine the relationships among knowledge, attitudes, and student international experience (study abroad participation and agricultural experience outside of the US).

Methods

Sample

A voluntary nonprobability sampling method was used to recruit online survey respondents in this study. Respondents were 970 students who were taking one or more of the ten selected agricultural courses that span across all ag majors (crop and soil science, animal science, food security, agronomy, and agricultural mechanics), including two upper-division courses that specifically had a global focus, as well as one non-agricultural (communications) general education course in the spring of 2019 in the [College of Agriculture] at a large, Land Grant institution in the US. Although the classes are housed in the [College of Agriculture], a portion of the students majored in non-agricultural related fields. This survey opportunity was announced by an undergraduate student research assistant at the beginning of the spring 2019 semester. Students were introduced with the purpose of the study and then self-selected as volunteers to complete an online survey. To allow for further student accessibility to all students enrolled in the course (even if not present in class), the survey link and announcements was also distributed by the course Instructor via the online learning platform with the IRB information as well as a QR code for students to take the survey on their own time if needed. Although appropriate, considering the nature of the preassigned classes, the authors note the limitations and higher risk of sampling bias through voluntary response samples, considering the bias to those students more likely to self-select to volunteer to complete the survey. After removing incomplete answers, a total of 170 respondents (17.53% response rate) were used for analysis. Table 1 describes the detailed demographic makeup of the participants. Among these variables, gender, international experience, and discipline were nominal variables, while year in school was considered interval (freshman is defined as students in [university] who have taken 30 semester hours or less; sophomore is 30-59.5 hours; junior is 60-89.5 hours, and senior is above 90 hours) ([University], n.d.). Self-reported GPA is a continuous variable between 0.0 to 4.0.

Table 1
Participant Demographics

Demographics		<i>n</i>
Gender	Male	62
	Female	108
Year in School	Freshman (below 30cr)	78
	Sophomore (30-59.5cr)	43
	Junior (60-89.5cr)	27
	Senior (90cr and above)	22
International Experience		
Study abroad	Yes	98
	No	72
Had ag experience outside of the US (other than study abroad)	Yes	14
	No	156
Discipline	Agricultural discipline	55
	Non-Agricultural discipline	115
Self-reported GPA	Range from 1.29 to 4.00	avg. 3.37

Instrument

In previous literature, a variety of instruments have been presented, but none that met the specific objectives of this study. First, eleven multiple choice questions were developed to measure student *knowledge* level about global ag policy. These knowledge-based questions were developed using resources including: the World Bank Group (2014), Office of United States Trade Representation (2018), World Economic Forum (2018), The United States Foreign Agriculture Service (2018), the Food and Agriculture Organization of the United Nations (2018), the World Food Program (2017), the Global Policy Report (2018), European Commission (2018), the US Department of Agriculture (2018), and the US Committee of Agriculture (2018). Researchers decided to use a global aptitude assessment of knowledge, which provided a more accurate measure of student growth than student perception of knowledge. To calculate the knowledge score, respondents earned one point with each correctly answered question.

Initially, a 5-point 10-statement Likert scale was developed to measure student *attitude* toward the importance of global agricultural issues and policy (adapted from Coers et al., 2012; Elliot & Yanik, 2004; Wingenbach et al., 2003). After analyzing internal reliability, three statements were removed. The internal reliability was then deemed to be acceptable (Cronbach's alpha = .744). All seven statements were summed and averaged to create an overall attitude index score for analysis. In this instrument, the researchers operationalized "attitude" in terms of affective and cognitive attitude (Borg & Gall, 1989), capturing students' feelings and cognitive beliefs of international agricultural issues and agricultural policy. Students' international experiences were measured by study abroad participation and agricultural experiences outside of the US. Specifically, participants were asked "Have you ever studied abroad?" and "Have you ever had an agricultural experience outside of the United States?"

Researchers analyzed the data using SPSS. T-test was initially used to achieve the first and second objectives; however, the variables violated the assumption of normality and homogeneity of variance. Hahs-Vaughn and Lomax (2013) recommended that when neither normality or homogeneity of variances can be assumed, Welch t' test with ranked scores should be performed. Therefore, we transformed the raw score to ranked score, followed by a Welch's t test for the first two objectives. To fulfill objective three, Pearson correlation tests were used to determine the relationship among continuous and interval variables including knowledge, attitude, self-reported GPA, and year in school. Due to violation of normality but satisfaction of homogeneity, t-test using ranked mean was used to determine the relationship between gender and knowledge, as well as between gender and attitude (Hahs-Vaughn & Lomax, 2013). Similarly, t-tests using ranked scores were used to fulfill objective four.

Results

Objective One

Table 2 summarizes the knowledge-based questions, correct answers, and the rate of accuracy for each question. Each correctly answered question received one point. The average knowledge score of all participants was 3.61 out of a full score of 11 ranging from 0 to 9 ($n = 170$, $SD = 1.61$), indicating that, on average, students did not hold a high knowledge of international ag issues and policy.

Table 2
Knowledge Statements about Global Agricultural Issues and Policy

Question	Answer	% of Accuracy
The economic strength of a country can be measured by:	GDP	50.0
The United States trades with other countries agricultural products because:	they do not have the resources themselves	22.4
The percentage of land that is available for food production in the US is	44%	32.4
What percentage of US household income is spent on food?	6.40%	5.3
How many countries spend less than 10% of their household income on food?	8	14.7
How many countries spend more than 40% of their household income on food?	10	18.2
Who is the leading producer of agricultural products in the world?	China	41.2
How much food does the world waste every year?	1.3 billion tons	10.0
What is the type of food that is wasted the most?	Fruits, veggies, and tubers	67.6
What country wasted the most food?	United States	81.8
How many people are food insecure in the world?	108 million	17.6

Welch's t-test using ranked scores was used to compare the knowledge scores between ag and non-ag students. Results did not show a significant difference between students in ag students ($m = 3.51$, ranked $m = 83.56$) than non-ag majors ($m = 3.67$, ranked $m = 86.43$) ($t = -.345$, $p = .09$, $df = 94.9$).

Objective Two

When determining student attitudes towards the importance of global ag issues and policy, respondents were asked to indicate their level of agreement or disagreement of seven statements. The percentage of agreement of each statement is summarized below (Table 3). On average, the attitude of all participants was 3.89. Ag students ($n = 55$, $m = 4.06$, ranked $m = 104.49$) held a more favorable attitude overall towards the importance of international agriculture and policy education than non-ag students ($n = 115$, $m = 3.80$, ranked $m = 76.42$, $t = 3.56$, $p = 0.001$). The effect size (*Cohen's d* = 0.59) shows a medium effect size.

Table 3*Attitude toward the Importance of Global Agricultural Issues and Policy Education*

	Strongly Disagree (%)	Disagree (%)	Neither Agree or Disagree (%)	Agree (%)	Strongly Agree (%)
I am worried about international agriculture food security	2.3	4.0	31.3	48.3	14.2
I believe that policies supporting goods and investments contribute to global food security and nutrition	.6	1.7	29.0	56.3	12.5
I believe that tighter borders and migration restrictions could impact food security	2.9	7.5	28.2	46.6	14.9
World agriculture has some effect on food prices in my local grocery store	.6	1.1	14.2	61.4	22.7
World events have some impact on agriculture in my community	0	2.9	16.1	65.5	15.5
Understanding global politics helps US producers market their products abroad.	0	.6	20	59.4	20.0
Politics have a major effect on world agriculture	0	.6	14.9	56.6	28.0

Objective Three

A positive correlation was found between attitude and student's year in school ($r = .154$, $p = .045$) and between student knowledge and self-reported GPA ($r = .170$, $p = .029$). T- test using ranked mean showed that there was a statistically significant difference in knowledge score between female ($m = 3.83$, ranked $m = 108$) and male ($m = 3.23$, ranked $m = 62$), ($t(2) = -2.07$,

$p = 0.04$),. No significance was found between gender and students' attitudes. All participants identified as either male or female; no participants identified as "Other." No significance was found between year in school and knowledge, nor between self-reported GPA and attitude.

Objective Four

No correlation was found between the total knowledge scores and attitude. No significance of knowledge or attitudes was found among students who did or did not have an international experience. Students with an experience abroad did not have a significantly more favorable attitude than those that had no experience abroad. Study abroad experience was not found to have a significant association with students' attitude or knowledge level regarding agricultural issues and policy.

Discussions & Recommendations

Results concluded that undergraduate students held a low level of knowledge about global ag issues and policy. This information presents administrators with the opportunity to intentionally design and reevaluate the current curriculum to meet these knowledge gaps. Another concerning component of these results is the fact that ag students held lower average knowledge scores than non-ag students. These concerning results further highlight the urgency of being intentional with curriculum design in agriculturally related programs. These results also provide a starting point for future research to examine additional factors that may impact these differences (i.e., incoming GPA).

Although these results are concerning, it's important to note that ag students think more highly about the importance of international agriculture issues and policy. These results suggest that, while ag students think international agriculture and ag policy are highly important, their curriculum might not provide the appropriate knowledge and level of understanding to discuss them or possibly address them in their future careers. By addressing this knowledge gap with more purpose, perhaps ag students will be better equipped to engage in these conversations in a more constructive, meaningful way. The results also provide a call to action for US agricultural educators to consider improving the internationalization and discussion of policy in their undergraduate agricultural courses.

A relationship existed when examining student GPA and gender as demographic variables with study knowledge. While a relationship between student GPA and knowledge was expected, the outcomes of gender provided additional insights for researchers. Results concluded that a positive correlation existed between knowledge and gender; on average, female students held a higher knowledge score than their male counterparts in the area of international ag issues policy. While these results align with presented literature (Armo et al., 2015), in terms of a correlation between gender and knowledge, they oppose previous research (Bakar et al., 2010; Pirmohamed et al., 2017), which has suggested a relationship also exists between gender and attitudes.

The authors note that results are somewhat promising, with the hope that perhaps university curriculum is meeting the call among educators to address the lack of female students in STEM fields. Such gaps may be caused by stereotype threats that exist among female students in many male-dominated fields (such as agriculture), causing women to perform poorly or drop out of the field altogether (Good et al., 2012). Ultimately, the authors suggest that further

research is needed to address discipline-focused research among female students, in regard to achievement and attitude.

Lastly, contrasting previously reported literature (Rezazadeh et al., 2009), while a relationship existed between a student's year in school and their attitude towards international ag issues and policy, this factor did not impact their average knowledge score. Despite their knowledge, the higher the student's year in school, the more favorable their attitude towards these topics. However, the authors lack the insights into why this favorability increased (i.e., more urgency towards international issues, more time to see diverse perspectives among their peers, more time to form their own attitudes). Similar to previous literature on student attitudes, the authors conclude that future research should focus on the specific factors that increased students' favorability towards the topics. Such insights would shed some light onto *when* to introduce international ag issues and policy-oriented topics within university agricultural curriculum.

The final objective of this study explored the associations between study abroad and international experiences among students majoring in ag or non-ag subjects, and knowledge level and attitudes towards ag issues and policy. Results concluded that study abroad experience did not contribute to the students' overall knowledge score or attitudes of global ag issues and policy. Considering the previously mentioned push for university ag students to engage in international experiences (Foster et al., 2014), these results are especially significant.

The authors note several possibilities. First, these knowledge-based results suggest that perhaps study abroad programs did not provide enough information about international ag issues and policy specifically. Secondly, considering no relationship existed among knowledge and attitudes, the authors also highlight the *context* of study abroad experiences. Considering the wide range of international experiences (Heinert & Roberts, 2016), are our university ag students engaging in quality abroad programs that take both their knowledge *and* attitudes into account? Future research should focus on identifying the specific teaching methodologies that are responsible for the greatest increase of student knowledge in global agriculture (Morgan & King, 2013), as well as the contextual factors that most profoundly influence students' perspective shifts or attitudes *and why* (Roberts & Edwards, 2018). The authors therefore highlight the call to reevaluate our study abroad curriculum to be more intentional in impacting student knowledge in global ag food systems and differences in ag policy, getting students excited and interested in the global market.

Limitations

The authors acknowledge that the results of this study cannot be generalized outside of the study's target population. Additionally, the authors acknowledge that this study's generalizability was limited, due to the wide variability among participants (gender, year in school, etc.) and unique university agricultural program. The study's agricultural program is a College-wide, interdisciplinary program that offers a Bachelor of Science degree with five distinct majors. While each major focuses on a different aspect of the global food system, all five majors emphasize a solid foundation in the agricultural sciences, with a broad interdisciplinary background of core courses. The study's small sample size also holds limited generalizability. Additionally, not all participants responded to all survey questions in the study, possibly contributing to nonresponse error (Visser et al., 2000).

As discussed in the sampling procedures for this study, although the limitations are acknowledged, the authors also highlight the importance of the results of this pilot study as a catalyst for similar research among other institutions of higher education. As university educators are shifting towards internationalizing curriculum and content, students need to confidently step into the conversation on the importance and dependence of international export markets (Herbstreit & Welton, 1992). As agricultural education moves to a more global stage, there is an increasing need to conduct nationwide assessment of teacher educational activities in international agriculture. The researchers therefore suggest that similar studies be conducted across other US institutions of higher education to have a clearer understanding of student knowledge and attitudes towards international ag issues and policy. Additional studies could provide a more holistic picture to the national narrative on global agricultural knowledge and attitudes.

Conclusion

The findings of this study answered the call from previous researchers to advance a more research-based, internationalized undergraduate curriculum (Moore et al., 1996). The results of this study also affirmed the need for more research to inform curriculum development and design, in order to strengthen our agricultural curriculum and co-curriculum programming, such as study abroad. Although Colleges of Agriculture within institutions of higher education desire and vocalize a global curriculum and highly encourage students to study abroad, there still remains a significant lack of empirical evidence to support their decision-making.

Stemming from the results of this study, if students do not have foundational agricultural knowledge, with insights into global food systems or policy, how are they able to create sustainable, informed change in their industries? Although the results of the study confirmed the passion and interests (positive attitudes) of undergraduate agricultural students, the lack of foundational knowledge is quite concerning. While the results of this study should not be generalized for all US undergraduate agricultural students, the strong positive student attitudes may contribute to the narrative that there should be enhanced international agricultural curriculum for university students. Institutions of higher education must consider both the knowledge and attitudes that students hold and are learning within an international context in order to most appropriately prepare students for agricultural careers upon graduation.

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