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Investigating the International Awareness of Students Meeting Their International Dimension Requirement through Course Offerings in a College of Agriculture

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Many U.S. universities are preparing their students to attain international awareness through various approaches. The College of Agricultural Sciences and Natural Resources (CASNR) at Oklahoma State University offers three international dimension undergraduate courses intended to provide students a formal educational opportunity to learn about international issues in agricultural and natural resources contexts. The investigation was a non–experimental, pretest–posttest descriptive and comparative design study. The target population (N = 147) consisted of all undergraduate students enrolled in three international dimension courses during the Fall semester of 2010. The study's findings revealed that students' attitudes regarding CASNR's role in developing their international awareness as well as general awareness of the impact of international issues and globalization on the agriculture sector changed favorably from pre course to post course. These results showed statistically significant differences (p < .05) in students' attitudes. Comparing students' attitudes, from pre course to post course, revealed that the international dimension courses studied did impact students' views related to aspects of enhanced international awareness, including the agriculture sector and their college's role therein. The attitudes of students who participate in international dimension courses can change positively if U.S. universities internationalize their curricula adequately.

Keywords: attitudes; international awareness; undergraduate curriculum

Introduction

The future of the United States may hinge significantly on its ability to develop citizens who possess an understanding of global issues. "The United States needs many more people who understand how other peoples think, how other cultures work, and how other societies are likely to respond to American action" (Commission on International Education, 1998, p. 7). Therefore, internationalizing or globalizing higher education is viewed by many scholars as a major goal of colleges and universities (e.g., Brooks, Frick, & Bruening, 2006; Irani, Place, & Friedel, 2006). Regarding the agriculture sector alone, "[a]n implication exists that formal education can be used in limited ways to increase students' international knowledge by making stronger connections with 'real world' events and classroom discussions of international agricultural issues" (Wingenbach, Boyd, Lindner, Dick, Arispe, & Haba, 2003, p. 33).

However, Wingenbach et al. (2003) reported that most young adults lack understanding about global or international matters. Irrespective of several decades of global economic dominance by the United States, it is apparent that many of

its university graduates are ill–prepared to meet the challenges of the global labor market (Hunter, 2004). "Not surprisingly, U.S. employers have recognized this shortfall in the U.S. educational system and have spent millions of dollars on intercultural or language training for their employees to help make those employees . . . globally competitive" (Hunter, 2004, p. 6).

Many agricultural producers who had little or no international marketing experience previously are now selling their products to other countries as a result of the enactment of the North American Free Trade Agreement (NAFTA) in 1994 (Wingenbach et al., 2003). If the United States desires to maintain its leadership role in the global economy as well as remain competitive, prosperous, and secure, the country's institutions of higher education have the crucial obligation to produce graduates who understand international and cross–cultural issues (National Association of Foreign Student Advisers [NAFSA], 2000). Therefore, U.S. institutions of higher education must provide adequate global learning opportunities for students and prepare them to work effectively in the global economy (Grudzinski–Hall, 2007). Institutions may choose to internationalize their curriculum successfully through a multifaceted approach (Navarro & Edwards, 2008).

Many U.S. universities are striving to prepare their students and faculty to attain international awareness through various programs such as study abroad, internationalizing their courses, and fostering international research partnerships (Harder, Wingenbach, & Rosser, 2007; McGowan, 2007; Moriba, 2011). Oklahoma State University (OSU) requires that all undergraduate students complete at least one international dimension course to earn a baccalaureate degree (Oklahoma State University [OSU] Catalog, 2010–2011). The College of Agricultural Sciences and Natural Resources (CASNR) at OSU offers three international dimension undergraduate courses: ANSI 3903 (Agricultural Animals of the World); AGEC 4343 (International Agricultural Markets, Trade and Development); and AGED 4713 (International Programs in Agricultural Education and Extension) (OSU Catalog, 2010–2011).

CASNR, through the three international dimension courses it offers, provides students a formal educational opportunity to learn about international issues in agricultural and natural resources contexts. Embedded in these courses are opportunities to impact students' understanding of the concept of *globalization* and its importance in preparing them to make critical career and personal decisions as graduates. However, little or no data were available to ascertain whether students' enrollment in the international dimension courses increased their international awareness. This study was intended to provide information that would address this need as well as contribute to the body of literature about the international awareness of students who participated in international dimension undergraduate courses in colleges of agriculture.

Theoretical/Conceptual Framework

International awareness is understanding and appreciating major global issues such as democracy, governance, conflict, human rights, climate change, the environment, development, education, health, gender, transnational corporations, millennium development goals, poverty, and world hunger (Arias, 2005; Radhakrishna, Leite, & Hill, 2003). When individuals become aware of global issues, they form and maintain a positive attitude in regard to others and appreciate the value of different cultures (Hunter, 2004; Lambert 1996). Hossain, Eley, Gorman, and Coutts (2010) defined attitudes "as the beliefs, feelings and action tendencies of individuals or group of individuals toward objects, ideas, and people" (p. 20).

Providing undergraduate students with appropriate learning experiences may impact positively the attitudes that inform their international awareness. The theory of planned behavior and expectancy–value theory formed the theoretical basis of this study. The theory of planned behavior focuses on how to change the behavior of individuals, which is dependent on predicting deliberate or intended behavior (Ajzen, 1991). Moreover, Ajzen (2006) explained that,

> [a]ccording to the theory [of planned behavior], human behavior is guided by three kinds of considerations: beliefs about the likely outcomes of the behavior and the evaluations of these outcomes (behavioral beliefs), beliefs about the normative expectations of others and motivation to comply with these expectations (normative beliefs), and beliefs about the presence of factors that may facilitate or impede performance of the behavior and the perceived power of these factors (control beliefs). (p. 1)

Ajzen (2006) also noted that, "[a]ttitude toward behavior is defined as a person's overall evaluation of performing the behavior in question" (p. 5). Based on that assumption, this study was supported by the theory of planned behavior because students were expected to form favorable attitudes toward internationalization of the curriculum and globalization of the U.S. higher education system after participating in an international dimension course.

Expectancy–value theory explains and predicts the attitudes of individuals toward certain actions they take. The theory posits that the motivation of learners is influenced by how much value they place on, and their expectation to succeed at, achieving a predetermined goal (Feather, 1992). "According to expectancy–value theory, individuals choose behaviors based on the outcomes they expect and the values they ascribe to those expected outcomes" (Borders, Earleywine, & Huey, 2004, p. 539). Feather (1992) acknowledged that students who place high value and expectancy on their courses will have high motivation to succeed. This study was supported by the expectancy–value theory based on the posit that students will have high value and expectancy for the international dimension courses they take due to their anticipation of increased international awareness after completing said courses.

The need for developing agriculture graduates who possess international awareness has become more evident today because globalization has accelerated technological development in agriculture's production and marketing systems as well as its allied sectors (Malhan & Rao, 2007; United Nations [UN], 2008). As a consequence, graduating agriculture workers who possess more international awareness about agricultural activities around the world has become increasingly important. Moreover, agriculture graduates should have the capacity to function effectively in a world that is becoming more interconnected and interdependent.

Purpose

The purpose of this study was to investigate the international awareness of students enrolled in the international dimension undergraduate courses offered in CASNR at OSU during the Fall semester of 2010. The study described students' attitudes on international awareness. It also compared students' attitudes on international awareness, pre course and post course. Further, the study described selected personal characteristics of the students.

Research Questions

1. What were the selected personal characteristics of students enrolled in CASNR undergraduate courses offered for international dimension credit during the Fall semester of 2010?
2. What were students' pre course and post course attitudes regarding CASNR's role in impacting their international awareness?
3. What were students' pre course and post course attitudes regarding their general awareness of the impact of international issues and globalization on the agriculture sector?

Research Hypotheses

H_o 1 No statistically significant ($p < .05$) difference existed between students' pre course and post course attitudes regarding CASNR's role in impacting their international awareness after they completed one of CASNR's international dimension courses (H_o: $\mu_{1\text{pre course attitudes, CASNR impact}} = \mu_{2\text{post course attitudes, CASNR impact}}$).

H_o 2 No statistically significant ($p < .05$) difference existed between students' pre

course and post course attitudes regarding their general awareness of the impact of international issues and globalization on the agriculture sector after they completed one of CASNR's international dimension courses (H_o: $\mu_{1\text{pre course attitudes, general awareness}} = \mu_{2\text{post course attitudes, general awareness}}$).

Methods and Procedures

The investigation was a non–experimental, pretest–posttest descriptive and comparative design study. This quantitative study involved the use of summated–rating scale instruments to gather pretest and posttest data for the purpose of measuring differences resulting from a treatment or intervention effect (Dimitrov & Rumrill, 2003). The measurements of attitude change provided data for analyzing the levels of international awareness of students who participated in the three international dimension courses taught in CASNR during the Fall semester of 2010. The study was designed to explore the assumption that students who participated in the three international dimension undergraduate courses would experience a positive change in attitudes regarding their *international awareness*.

This was a census study (Patton, 2002) and the target population consisted of all undergraduate students (N = 147) enrolled in three international dimension undergraduate courses offered by CASNR during the Fall semester of 2010. Each international dimension course was worth three credit hours. Although the participants were not selected randomly because the investigation was a census study, students who completed the research instruments were considered to be representative of undergraduates who would have enrolled for these courses in previous semesters or thereafter (Oliver & Hinkle, 1982).

Pretest and posttest survey instruments were used for this study, which consisted of items and scales that were selected after a review of the literature. The instruments' items were grounded in the conceptual base of the study (i.e., students' levels of international awareness). The instruments were developed using items from previous studies (i.e., Sammons & Martin, 1997; Wingenbach et al., 2003). Slight modifications were made so that the instruments would address this study's research questions and hypotheses. The research instruments included three sections: Section I, "Students' Attitudes regarding CASNR's Role in Developing Their International Awareness"; Section II, "Students' Attitudes regarding Their General Awareness of the Impact of International Issues and Globalization on the Agriculture Sector"; and Section III, "Selected Personal Characteristics."

A summated rating scale, ranging from 1 to 5, was used to measure students' attitudes regarding CASNR's role in developing their international awareness: 1 (*strongly disagree*), 2 (*disagree*), 3 (*neutral*), 4 (*agree*), and 5 (*strongly agree*) (Creswell, 2008). The "real limits" of the scale for this construct were 1.00 to 1.49 (*strongly disagree*), 1.50 to 2.49 (*disagree*), 2.50 to 3.49 (*neutral*), 3.50 to 4.49 (*agree*), and 4.50 to 5.00 (*strongly agree*). In the case of students' attitudes regarding their general awareness of the impact of international issues and globalization on the agriculture sector, a six–point, summated–rating scale was used: 1 (*strongly disagree*), 2 (*disagree*), 3 (*slightly disagree*), 4 (*slightly agree*), 5 (*agree*), and 6 (*strongly agree*) (Creswell, 2008). The "real limits" of the scale for this construct were 1.00 to 1.49 (*strongly disagree*), 1.50 to 2.49 (*disagree*), 2.50 to 3.49 (*slightly disagree*), 3.50 to 4.49 (*slightly agree*), 4.50 to 5.49 (*agree*), and 5.50 to 6.00 (*strongly agree*).

A panel of experts (i.e., faculty of the Department of Agricultural Education, Communications, and Leadership and the Department of Agricultural Economics at Oklahoma State University) was employed to ensure the face and content validity of the instrument. Sammons and Martin (1997) reported a Cronbach's alpha coefficient of .90 for the 11 attitude–focused items used to measure students' views on CASNR's role. Wingenbach et al. (2003) reported a Cronbach's alpha coefficient of .95 for the 26 attitude–focused items measuring students' views on the agriculture sector. *Post hoc* reliability estimates were also established by the researchers: A Cronbach's alpha coefficient of .82 was found for the 11 attitude–focused items per the College's role. The 26 attitude–focused items were grouped into three categories conceptually

by the researchers to ascertain construct–based, internal consistency. Per the *post hoc* procedure, Cronbach's alpha coefficients were determined: understanding global agriculture (15 items), .86; cultural differences (4 items), .71; and U.S. agriculture in the global context (7 items), .78. The overall reliability estimate for this portion of the instrument was .92.

Pre–course and post–course data were collected on or about the first and last weeks of the Fall 2010 semester. Descriptive statistics were performed to obtain measures of central tendency, *mean difference*, variability, and effect size (*eta* squared). Per *time and place* rationale (Oliver & Hinkle, 1982) regarding the study's subjects, the researcher also used inferential statistics, i.e., a paired–samples *t*–test was conducted to determine change in students' attitudes.

Findings

Selected Personal Characteristics of Students

Of the students who indicated their gender, less than one–half were male and more than one–third were female. Regarding students' classifications, 42.6% of the students were seniors and 31.9% were juniors. Further, 26.6% of the students indicated agricultural education as their major field of study, and less than one–fifth each majored in animal science, agribusiness, or agricultural leadership, amongst other fields of study. More students who participated in the study were enrolled in AGED 4713 than AGEC 4343 or ANSI 3903. The overall mean Grade Point Average (GPA) of the students was 3.17 with a standard deviation of .43.

Two–thirds of the students who participated in the study were White; 5.3% were Hispanic or Latino, and almost two–thirds spoke only English. Further, 8.5% of the students had participated in a study abroad program before taking one of the three international dimension courses. Two–thirds of the students were enrolled in an international dimension course as required for the completion of their degrees. Further, only 28.7% of the students had read the *National Geographic* magazine or a similar periodical regularly, and 24.5% had known and interacted extensively with international foreign exchange students before taking their respective course. Further, only 12.2% of the students had any form of an international experience during the Fall semester of 2010.

Students' Attitudes Regarding CASNR's Role in Impacting Their International Awareness

The statement, *Today's college graduate in agricultural sciences and natural resources needs an understanding of agricultural systems around the world* had the highest mean score (M = 4.10; SD = .79) among the pre course, attitude–focused statements (see Table 1). The pre course, attitude–focused statement that had the lowest mean score (M = 2.26; SD = .93) was, *There is no need for CASNR to pursue internationalizing its curriculum because students will gain a global perspective elsewhere.* Students' overall pre course attitude regarding CASNR's role in developing their international awareness was in the range of *neutral* (M = 3.46; SD = .39) (see Table 1).

The statements students rated more favorably post course, and in the range of *agree*, were, *Today's college graduate in agricultural sciences and natural resources needs an understanding of agricultural systems around the world* (M = 4.45; SD = .63) and *CASNR students should develop a greater awareness of international issues in agricultural sciences and natural resources* (M = 4.32; SD = .67) (see Table 1). The lowest rated attitude–focused statement, post course, and in the range of *disagree* (M = 2.33; SD = 1.11) was, *There is no need for CASNR to pursue internationalizing its curriculum because students will gain a global perspective elsewhere.* Students' overall post course attitude score regarding CASNR's role in developing their international awareness was in the range of *agree* (M = 3.80; SD = .50) (see Table 1).

Table 1
Descriptive Statistics for Students' Attitude Scores regarding CASNR's Role in Impacting Their International Awareness during the Fall Semester of 2010

	Pre Course (n = 94)		Post Course (n = 98)		
Attitude–focused Statements	*M*	*SD*	*M*	*SD*	*MD*
CASNR students should develop a greater awareness of international issues in agricultural sciences and natural resources.	3.83	.70	4.32	.67	+.49
Professors in CASNR should give examples from other countries' agricultural and natural resources systems when teaching about U.S. systems.	3.65	.84	4.27	.78	+.62
The curriculum of CASNR should reflect knowledge of the global community.	3.82	.72	4.13	.74	+.31
Professors in CASNR should infuse global awareness into the courses they teach.	3.69	.78	4.12	.75	+.43
CASNR should offer more international experiences for students.	3.62	.82	3.97	.78	+.35
CASNR should encourage students to participate in international internship programs.	3.67	.75	4.09	.76	+.42
Understanding international issues helps a graduate of CASNR get a job.	3.69	.79	4.04	.82	+.35
CASNR should have additional global awareness learning requirements.	3.31	.87	3.35	1.00	+.04
CASNR should have a foreign language requirement.	2.45	1.01	2.70	1.13	+.25
There is no need for CASNR to pursue internationalizing its curriculum because students will gain a global perspective elsewhere.	2.26	.93	2.33	1.11	+.07
Composite	3.46	.39	3.80	.50	+.34

"Real limits" of scale: 1.00 to 1.49 (*strongly disagree*), 1.50 to 2.49 (*disagree*), 2.50 to 3.49 (*neutral*), 3.50 to 4.49 (*agree*), and 4.50 to 5.00 (*strongly agree*)

Research hypothesis 1. H_o 1 No statistically significant ($p < .05$) difference existed between students' pre course and post course attitudes regarding CASNR's role in impacting their international awareness after they completed one of CASNR's international dimension courses (H_o: $\mu_{1pre\ course\ attitudes,\ CASNR\ impact} = \mu_{2post\ course\ attitudes,\ CASNR\ impact}$).

A paired–samples *t*–test was conducted to determine if a statistically significant ($p < .05$) difference existed between students' pre course and post course attitudes regarding CASNR's role in impacting their international awareness after they completed one of CASNR's international dimension courses. Overall, *t*–test results revealed a statistically significant difference in students' attitudes from precourse (M = 3.46; SD = .394) to postcourse (M = 3.79; SD = .49) (see Table 2), $t(93) = 5.58$, $p < .000$ (two–tailed) (see Table 3). The *mean difference* in attitude scores was .33 with a 95% confidence interval ranging from .214 to .450. The *eta* squared statistic (.251) indicated a large effect size (Cohen, 1988) (see Table 3). The researchers rejected the null hypothesis.

Table 2
Descriptive Statistics for Students' Pre Course and Post Course Attitude Scores regarding CASNR's Role in Impacting Their International Awareness during the Fall Semester of 2010

	Attitude	*n*	*M*	*SD*
Pair 1	Pre course	94	3.46	.39
	Post course	94	3.79	.49

"Real limits" of scale: 1.00 to 1.49 (*strongly disagree*), 1.50 to 2.49 (*disagree*), 2.50 to 3.49 (*neutral*), 3.50 to 4.49 (*agree*), and 4.50 to 5.00 (*strongly agree*)
Note. Small differences in overall post course mean scores and standard deviations were a result of the types of analyses performed and small differences in data points. Descriptive statistics were performed to obtain the scores in Table 1 with $n = 98$ and a paired–samples *t*–test was conducted to obtain the scores in Table 2 with $n = 94$.

Table 3
Paired Samples t–Test of Students' Pre Course and Post Course Attitude Scores regarding CASNR's Role in Impacting Their International Awareness during the Fall Semester of 2010 (n = 94)

				95% Confidence Interval of the Difference					
	Attitude	*MD*	*SD*	Lower	Upper	*t*	*df*	*Sig.**	eta^2
Pair 1	Pre Course and Post course	.33	.57	.21	.45	5.58	93	.000	.25

*$p < .05$

Students' Attitudes Regarding Their General Awareness of the Impact of International Issues and Globalization on the Agriculture Sector

The statements, *I should know more about agriculture and its importance to the world economy* and *International agriculture involves more than farming* had the highest mean score ($M = 5.19$; $SD = .72$ and .85, respectively) amongst the pre course, attitude–focused statements (see Table 4). The pre course, attitude–focused statement that had the lowest mean score ($M = 4.43$; $SD = 1.12$) was, *Competition between producers worldwide keeps food prices low in my grocery store*. Students' overall pre course attitude score was in the range of *agree* ($M = 4.90$; $SD = .59$) regarding international agricultural issues (see Table 4).

The statements, *I should know more about how world agriculture affects food prices in the local grocery store* ($M = 5.42$; $SD = .61$) and *International agriculture involves more than farming* ($M = 5.42$; $SD = .61$) had the highest mean scores, post course (see Table 4). The statement with the lowest mean score, post course ($M = 4.65$; $SD = .96$) was, *U.S. agricultural products are superior in quality to products from other countries.* Nearly all of the attitude–focused statements, post course, were rated in the range of *agree*; the overall mean score for the items was 5.23 ($SD = .40$) (see Table 4).

Table 4
Descriptive Statistics for Students' Attitude Scores regarding Their General Awareness of the Impact of International Issues and Globalization on the Agriculture Sector during the Fall Semester of 2010

	Pre Course (n = 94)		Post Course (n = 98)		
Attitude–focused Statements	*M*	*SD*	*M*	*SD*	*MD*
I should know more about the differences between developed and developing countries.	4.73	.93	5.20	.79	+.47
I should know more about other countries' markets for U.S. agricultural products.	5.02	.86	5.30	.68	+.28
I should know more about the cultures of other countries.	4.56	1.05	5.18	.68	+.62
I should know more about my state's (country's) agricultural industry and its connections to world trade.	5.03	.90	5.36	.61	+.33
I should know more about agricultural products that my home state (country) sells to other countries.	5.09	.79	5.34	.57	+.25
I should know more about how world agriculture affects food prices in the local grocery store.	4.99	.90	5.42	.61	+.43
I should know more about how world events affect local agriculture in my community.	5.01	.85	5.30	.63	+.29
I should know more about the agricultural products from other countries that are consumed in my state (country).	4.83	.90	5.29	.65	+.46
Learning more about agriculture in other countries will help me understand future changes in world agricultural production.	4.95	.93	5.17	.69	+.22
Marketing agricultural products to other countries will help my state's (country's) economy.	5.03	.82	5.17	.69	+.14
Marketing U.S. agricultural products to other countries will help the U.S. economy.	5.03	.84	5.15	.65	+.12
Politics has a major effect on world agriculture.	5.02	.72	5.26	.66	+.24
The U.S. culture has a major effect on agriculture in other countries.	4.68	1.03	5.19	.74	+.51
World events impact the agricultural industry in my community.	4.83	.88	5.29	.72	+.46
Global food production affects food prices in my local grocery store.	4.85	.88	5.22	.70	+.37
International agriculture involves more than farming.	5.19	.85	5.42	.61	+.23
Global agriculture is different from one country to another.	5.02	.90	5.29	.66	+.27
Global food production allows me to eat a variety of products all year.	5.15	.76	5.41	.66	+.26
Natural disasters affect the price of food in my local grocery store.	5.01	.86	5.37	.66	+.36
In times of famine, the U.S. should help other countries with food aid.	4.76	1.01	5.22	.70	+.46
The U.S. should actively help other countries develop their agricultural industries.	4.72	.93	5.17	.75	+.45
Competition between producers worldwide keeps food prices low in my grocery store.	4.43	1.12	5.11	.80	+.68
Understanding other cultures helps U.S. producers market their products abroad.	4.84	.88	5.16	.70	+.32
Understanding global politics helps U.S. producers market their products abroad.	4.83	.76	5.05	.71	+.22
U.S. agricultural products are superior in quality to products from other countries.	4.61	1.08	4.65	.96	+.04
Composite	4.90	.59	5.23	.40	+.33

"Real limits" of scale: 1.00 to 1.49 (*strongly disagree*), 1.50 to 2.49 (*disagree*), 2.50 to 3.49 (*slightly disagree*), 3.50 to 4.49 (*slightly agree*), 4.50 to 5.49 (*agree*), and 5.50 to 6.00 (*strongly agree*)

Research hypothesis 2. H_o 2 No statistically significant ($p < .05$) difference existed between students' pre course and post course attitudes regarding their general awareness of the impact of international issues and globalization on the agriculture sector after they completed one of CASNR's international dimension courses (H_o: $\mu_{1pre\ course\ attitudes,\ general\ awareness} = \mu_{2post\ course\ attitudes,\ general\ awareness}$).

A paired–samples *t*–test was conducted to determine if a statistically significant ($p < .05$) difference existed between students' pre course and post course attitudes regarding their general awareness of the impact of international issues and globalization on the agriculture sector after they completed one of CASNR's international dimension courses. Overall, *t*–test results revealed a statistically significant difference in students' attitudes from precourse ($M = 4.90$; $SD = .59$) to postcourse ($M = 5.25$; $SD = .39$) (Table 5), $t(93) = 4.64$, $p < .000$ (two–tailed) (Table 6). The *mean difference* in attitude scores was .35 with a 95% confidence interval ranging from .199 to .496. The *eta* squared statistic (.188) indicated a large effect size (Cohen, 1988) (Table 6). The researcher rejected the null hypothesis.

Table 5
Descriptive Statistics for Students' Pre Course and Post Course Attitude Scores regarding Their General Awareness of the Impact of International Issues and Globalization on the Agriculture Sector during the Fall Semester of 2010

	Attitude	*n*	*M**	*SD*
Pair 1	Pre course	94	4.90	.59
	Post course	94	5.25	.39

"Real limits" of scale: 1.00 to 1.49 (*strongly disagree*), 1.50 to 2.49 (*disagree*), 2.50 to 3.49 (*slightly disagree*), 3.50 to 4.49 (*slightly agree*), 4.50 to 5.49 (*agree*), and 5.50 to 6.00 (*strongly agree*)
Note. Small differences in overall post course mean scores and standard deviations were a result of the types of analyses performed and small differences in data points. Descriptive statistics was performed to obtain the scores in Table 4 with $n = 98$ and a paired–samples *t*–test was conducted to obtain the scores in Table 5 with $n = 94$.

Table 6
Paired Samples t–Test of Students' Pre Course and Post Course Attitude Scores regarding Their General Awareness of the Impact of International Issues and Globalization on the Agriculture Sector during the Fall Semester of 2010 (n = 94)

				95% Confidence Interval of the Difference					
	Attitude	*MD*	*SD*	Lower	Upper	*t*	*df*	*Sig.**	eta^2
Pair 1	Precourse and Postcourse	.35	.72	.199	.496	4.64	93	.000	.18

*$p < .05$

Conclusions and Implications

More male students than females participated in the study, and they were mostly seniors and juniors by classification who majored in agricultural education, animal science, agribusiness, or agricultural leadership. More of the students who participated in the study were enrolled in AGED 4713. The students' overall mean Grade Point Average (GPA) was 3.17 with a standard deviation of .43. Most of the students were White, non–Hispanic or Latino, and spoke only English.

A majority of the students had not participated in a study abroad program before taking the international dimension course. Moreover, most of the students were enrolled in an international dimension course because it was

a requirement for completion of their degrees. A few of the students had read the *National Geographic* magazine or a similar periodical regularly, or had known and interacted extensively with foreign exchange students before taking an international dimension course (i.e., self–reported). Only a handful of students had an international travel experience during the Fall semester of 2010.

Students' attitudes regarding CASNR's role in developing their international awareness changed from somewhat favorable pre course (i.e., in the range of *neutral*) to favorable post course or in the range of *agree*. Moreover, a statistically significant difference ($p < .05$) existed in students' attitudes, from pre course to post course, regarding CASNR's role in impacting their international awareness. This difference held practical importance (see Table 3).

The theory of planned behavior focuses on how to change the behavior of individuals, which is dependent on predicting deliberate or intended behavior (Ajzen, 1991). Ajzen (2006) noted that, "[a]ttitude toward behavior is defined as a person's overall evaluation of performing the behavior in question" (p. 5). This study's findings support the theory of planned behavior because students formed more favorable attitudes toward CASNR's role in internationalizing their curriculum after participating in one of the international dimension courses.

Students' pre course and post course attitudes regarding their general awareness of the impact of international issues and globalization on the agriculture sector were favorable, i.e., in the range of *agree*. Further, a statistically significant difference ($p < .05$) existed in students' attitudes regarding their general awareness of the impact of international issues and globalization on the agriculture sector from pre course to post course; their level of agreement increased significantly ($p < .05$). This difference in students' attitudes from pre course to post course held practical importance (see Table 6).

This finding implies students already had favorable attitudes toward international issues and globalization even before taking the international dimension courses, which was an indication of the value they placed in such courses and what they expected to gain (Feather, 1992). The finding further implies that students' pre course attitudes predicted their post course attitudes because they started the international dimension courses with fairly high motivation and expectation. Results of the study support the expectancy–value theory (Feather, 1992), which explains and predicts the attitudes of individuals toward certain actions they take. The theory posits that the motivation of learners is influenced by how much value they place on, and their expectation to succeed at, achieving a pre–determined goal. Students who give their courses high value will have high motivation to succeed in those learning experiences (Feather, 1992).

Recommendations for Further Research

Even though this was a census study, a limitation was that only undergraduate students who were enrolled in the international dimension courses offered by CASNR at Oklahoma State University were surveyed. Students enrolled in international dimension courses at other U.S. universities were not included in the study. This limits the generalizability of the study's findings. Therefore, similar studies should be conducted at other U.S. universities with Colleges of Agriculture, taking into account their differences and needs. Moreover, future researchers are encouraged to use probability sampling, which "is the most rigorous form of sampling in quantitative research because the investigator can claim that the sample is representative of the population and, as such, can make generalizations to the population" (Creswell, 2008, p. 153).

Additional studies also should be conducted using a *mixed methods* research design (Creswell, 2008) to facilitate the investigators and other consumers of the research understanding better the impact of international dimension courses on students' attitudes in regard to international awareness. Combining qualitative and quantitative data is an effective strategy to overcoming confounded outcomes that may be due to the combined effects of several factors. Greene, Caracelli, and Graham

(1989) outlined five points by which mixed methods research designs may enhance a study's value: triangulation, complementarity, development, initiation, and expansion.

Recommendations for Practice

College administrators and faculty should encourage a diverse population of students to enroll in CASNR's international dimension courses. This approach would enhance broader participation in the internationalization process by students who are diverse racially and/or ethnically. Other citizens and stakeholders from the wider university community also should be engaged (Navarro, 2004) in OSU's internationalization activities.

Students' attitudes were more or less *neutral* (see Table 1) regarding a foreign language requirement for degree completion. However, based on students' slight shift in agreement, CASNR officials should consider adding a foreign language component to students' degree requirements. Students who learn other languages are successful when involved in diverse environments (Cook, 2009; Hayward, 2000). Further, requiring students to learn other languages would increase their participation in study abroad programs because they would be prepared better to overcome problems associated with language barriers (Bok, 2006).

Discussion

The role of CASNR in developing students' international awareness may have been a concern of some stakeholders. Some skeptics may have even questioned the effectiveness of these courses with regards to the attitudes students form after having completed one of the international dimension courses. The study's findings revealed that students' attitudes regarding CASNR's role in developing their international awareness changed favorably from the time they started to the time they completed their respective international dimension course. This finding reinforces the important role higher education institutions play in assisting students to become global thinkers (Navarro, 2004; Navarro & Edwards, 2008). The views of university educators have been influenced by the forces of globalization and this has changed the dynamics of formal education significantly (Hayward, 2000; Smith, 2002). "The impact and pervasiveness of these forces of globalization also means that they [, i.e., university faculties,] should be a fundamental focus for education and learning" in regard to globalization (Smith, 2002, ¶ 2).

Comparing students' attitudes revealed that the international dimension courses investigated met the need for which they are intended. The results of this study are useful in informing course instructors and CASNR administrators on how to improve the existing courses or provide insight about different curricular offerings entirely. If U.S. universities internationalize their curricula adequately, graduates, who participate in international dimension courses, should experience a positive change in attitudes, resulting in their having higher levels of international awareness. Therefore, as Ajzen (1991) posited, increased *behavioral beliefs* in concert with enhanced *control beliefs* should augment a person's future actions.

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