

# Improving Undergraduates' Exposure to International Agriculture through Experiential Learning<sup>1</sup>

**A. C. Morgan<sup>2</sup>**  
**University of Georgia**  
**Athens, GA**



**D. L. King<sup>3</sup>**  
**University of Georgia**  
**Tifton, GA**

## Abstract

Research shows that students in colleges of agriculture lack knowledge in global agricultural policies, practices, products, peoples and culture. Yet, as future agriculturists, students need to learn how global issues may impact their lives, the stability of our nation and have economic impact world-wide. To address this issue, an undergraduate course focused on world hunger and developing nations was revised to reflect current global agricultural issues as defined by both international agriculture professionals and the students, themselves. In order to provide the best alternative to an experience abroad, experiential learning methods were incorporated into the course. Students responded positively to the course activities but were less enthusiastic about reflection practices. Overall, students believed they improved their global competence from experiences in the course.

## Introduction

For the past two generations North American media sources have provided ample information and images about world events and conflicts. The advent of the Internet has served to increase the speed at which we receive news from across the planet, giving us access to text and images of people around the world and exhibiting the current reality that we live in a globally interconnected society in which people and ideas from the world are connected via digital text and images (Friedman, 2005). As educators, it is important that we have an awareness of these events and understand how they impact our lives and the lives of our students. To do this it is beneficial to understand different cultures

in other parts of the world and to respect these cultures. As we move forward in the 21st century, agriculturists, businesses organizations will continue to be impacted by international events, making the world seem smaller than it is in reality (Cushner, 1990).

Global impact is especially evident in agriculture where understanding agriculture and international issues is increasingly important for students throughout the world because international markets and trade of agricultural products play an important role to agricultural producers in the U. S. (Watts, 1998; Drabenstott, 1985). Therefore, having "*a better understanding of international agricultural policies, products, people and cultures may help students be better prepared to enter their careers with a global perspective*" (Wingenbach et al., 2003. p. 34). Researchers have stated that students should have a strong familiarity with international trends, especially as they apply to agriculture and to "be aware of global issues and challenges" (Lukefahr, 1999, p. 3106), yet past studies have shown that students in U. S. universities show minimal understanding of people and cultures outside of the United States (Page and Williams, 2001). Despite student beliefs that it is important to have a background in and an understanding of, international issues and other cultures so they may be successful in their careers (Page and Williams, 2001), research indicated undergraduates are less than knowledgeable about international agricultural issues, policies and cultures (Moore et al., 1996; Wingenbach et al., 2003). To help achieve an acceptable knowledge of international issues and how they affect future agriculturalists, "future cur-

<sup>1</sup>Oklahoma State Institutional Review Board deemed this research exempt.

<sup>2</sup>Assistant Professor, Department of Agricultural Leadership, Education, and Communication, 706.542.7102, acm@uga.edu

<sup>3</sup>Assistant Professor, Department of Agricultural Leadership, Education, and Communication, 229.386.6533, dlking@uga.edu

riculum internationalizing thrusts should give greater attention to world agriculture and related issues” (Moore et al., 1996, p. 22).

In 2002, the American Council on Education issued a challenge nationwide to develop global competence in the workforce and citizenry of the United States. This challenge has resulted in movements at universities across the United States increasing requirements and opportunities for students to gain knowledge about international issues. Colleges of agriculture within land-grant universities have been encouraged to incorporate an international dimension into undergraduate programs (Moore et al., 1996) and college of agriculture administrators have shown strong support for internationalizing curricula (Forsberg et al., 2003). Wingenbach et al. (2003) supported internationalizing curricula in general by stating “...*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*” (p. 33) thereby teaching students how global events impact agricultural practices in other parts of the world.

According to Lukefahr (1999), the results of an international agriculture course should include a broadening of student attitudes towards international issues. Specifically, students should gain a “higher level of sensitivity to cultural or social values, general roles, basic human rights, biodiversity, environmental conservation,” and “livestock production systems” (p. 3108). Putting this recommendation into practice, Oklahoma State University has made a commitment to incorporating an international dimension into the curriculum of all undergraduate students by requiring that all students enroll in a course which includes an international dimension (Oklahoma State University, n.d.). Courses with international dimensions typically fit into one of two groups: 1) Study abroad courses in which the student travels outside of the United States or 2) on-campus courses that have a primary focus on international perspectives as they relate to specific subject matter.

The Constructivist Theory asserts that learning is the development of knowledge through experience (Fosnot, 1996). According to the Cone of Experience, (Dale, 1946, Figure 1) direct, purposeful experiences are the teaching methods which provide the most concrete experiences for student learning, followed by contrived experiences and dramatized experiences. Action focused methods offer students opportunities to take action within subject matter which can, in turn, promote retention and application of concepts taught through the experience (Kendrick, 1996).

Study abroad experiences would be categorized as direct, purposeful experiences for increasing knowledge of global issues. While cultural immersion is the most desirable way for students to gain international experience and universities have worked to make international experience programs more available and affordable for students, out-of-country experiences are still not always feasible. In these instances, students look to on-campus courses to provide the information and experiences they need.

In order to successfully foster knowledge of and true appreciation for, international issues in instances where cultural immersion is not an option, contrived and dramatized experiences would provide the encounters most like an actual international exposure (Dale, 1946.) To achieve the goal of providing on-campus courses suitable for developing global competence, curriculum change is necessary to incorporate true experiential learning opportunities. Experiential learning combines the experience, perception, cognition and behavior (Kolb, 1984) and while experiential learning theories have changed over time the general major pieces have remained the same (Roberts, 2007). A model commonly used in education today is a modified Kolb model adopted by 4-H (4-H, 2009, p. 8). The experiential learning model, displayed in Figure 2, requires participants to do, reflect and apply, by taking them through five different stages. In order to develop suitable learning activities to substitute for the real experience of cultural immersion, proper time and attention must be dedicated to each of the five stages: do, share, process, generalize and apply (4-H, 2009). Using the experiential learning model, along with the suggestions for experiences closest to the direct experience of international travel, it could be possible to develop student global competence through an on-campus course.

The purpose of this study was to determine how to best provide a suitable on-campus alternative to agricultural study-abroad experiences. The specific objectives were to:

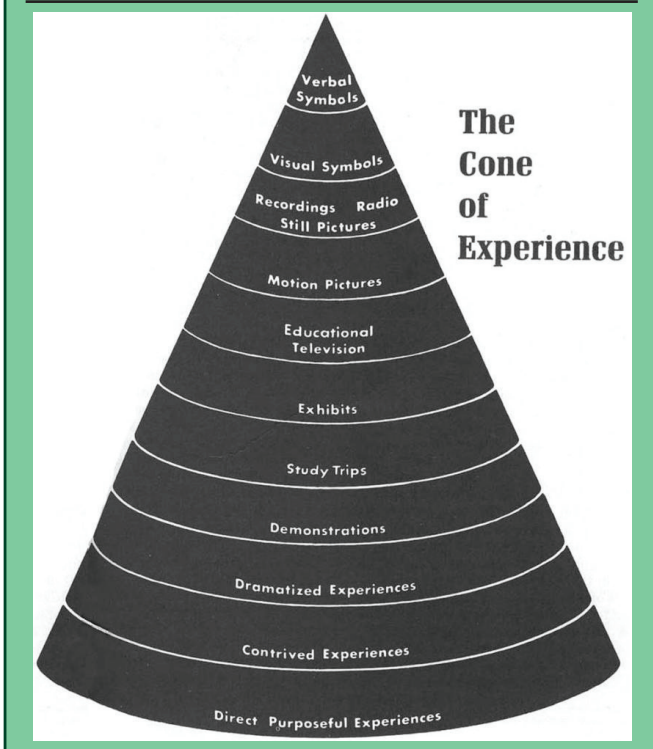
1. Determine necessary components of a general international agriculture course
2. Implement experiential learning activities into coursework
3. Solicit student feedback on individual course components

## Methods

To accomplish the study objectives, naturalistic inquiry qualitative methods, as identified by Lincoln and Guba (1985) were employed. Naturalistic inquiry involves three phases; 1) orientation and overview, 2) focused exploration and 3) confirmation and closure.

## Improving Undergraduates'

Figure 1. Dale's Cone of Experience (Dale, 1969, p. 107)  
Edgar Dale's classification of audio-visual teaching methods starting with concrete methods on the bottom and moving toward more abstract methods.

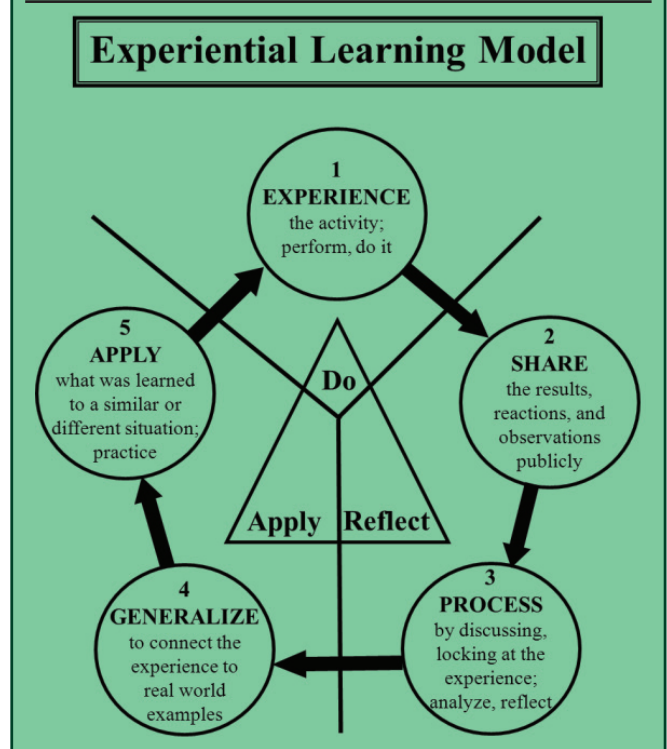


Each phase coincides with an objective of this study for the overall accomplishment of the development of an international agriculture course designed to improve global competence in undergraduate students.

To address the first objective, a document analysis was conducted with current literature, course materials and cross-curricular syllabi to detect curriculum deficiencies and determine what research existed to guide the necessary revisions. In addition, student input was garnered through the use of the buzz sessions technique (Newcomb et al., 1993; Brahm and Kleiner, 1996). Qualitative methodology was implemented by using the constant comparative technique (Lincoln and Guba, 1985) to evaluate data found in the literature as well as student data from the buzz sessions. Objective two was achieved through incorporation of experiential learning activities into the course, including case studies, simulations and current events research followed by reflection activities, to guide students through the experiential learning model repeatedly throughout the semester.

Finally, to accomplish the third objective, students were surveyed at the end of the course to determine their perceptions of the success and importance of course activities. Data were tabulated to determine frequency of student responses regarding specific course components. In addition, student feedback from formal

Figure 2. The Experiential Learning Model from 4-H Essential Elements p. 8. The experiential learning model indicates the steps that must occur for learners to retain concepts taught through experience and apply it to future situations.



course evaluations and unsolicited student comments were also recorded.

The first objective of this study involved a thorough document analysis. Current course syllabi from university courses claiming an international component were included along with course descriptions, objectives and syllabi from international agriculture courses at other universities and previous research on incorporation of international agriculture into education offerings. Extensive lists of course objectives and potential topics were developed from all source materials. Once developed, the lists were condensed to eliminate redundancy. The lists were further reduced by eliminating those objectives and topics covered in and better suited to, other courses offered at the university; the intent being to provide an introduction to international agriculture that could encourage more in-depth future study by interested students.

With initial course objectives developed through document support, the next step was to implement the first experiential learning activity of the course. During the initial class meeting the problem solving method of instruction was employed through the introduction of buzz sessions (Newcomb et al., 1993; Brahm and Kleiner, 1996). Successful implementation of the problem solving method must start with 1) accounting for student wants, needs, interests and aspiration, 2) determination of students' prior knowledge and 3)



developing relevance of the problem to students' lives (Newcomb et al., 1993). To accomplish this, students were divided into small groups where they elected a recorder and took 10 minutes to discuss the question of what knowledge is needed to be considered well versed in international agriculture. Students compiled lists of topics that met their wants, needs and interests, as well as built upon their prior knowledge. At the end of the group discussion time, the class as a whole discussed the groups' findings and developed a comprehensive list of topics necessary for true knowledge of international agriculture.

The results of the buzz sessions were analyzed using the constant comparative technique and compared with the topics and objectives listed developed from the literature (Lincoln and Guba, 1985). Student interest overlapped with literature recommendations for most topics with the addition of agricultural education systems. The list resulting from the combination of ideas was finalized into the following course objectives:

- Explain the importance of agriculture throughout history
- Explain the roles of institutions, foundations and agencies serving agriculture and agricultural research in developing countries
- Identify the characteristics, issues and problems concerning agriculture programs in developing countries
- Analyze and compare selected farm types, sizes and production practices in other nations
- Explain selected aspects of international trade and its impact on American agriculture and the U.S. economy
- Describe the impact of culture in agricultural development
- Describe the U.S. agricultural education system and its impact in international development through agricultural research and Extension

The rest of the semester-long course was dedicated to the selected objectives. Activities were planned to allow students to interact with the topics in ways that followed the experiential learning model. Several teaching methods were employed including inquiry learning, guest speakers, case studies, current events research and interactive simulations. For each class event, students were required to "Do" the activity prior to class in the case of reading case studies, researching current events and completing simulations or during the first class of the week in the event of guest speakers. The remaining weekly class meetings were then dedicated to the "Reflect" stage of experiential learning. Both group and

personal reflection are important activities and necessary for true internalization of new knowledge. Students participated in large and small group discussions, journaled and wrote reflection papers regarding topics covered. Guided reflection questions required students to address the impact of each topic on their own life and/or future. While the "Apply" step was experienced throughout the semester as the course topics build on each other, the grand "Apply" activity occurred with the development, completion and presentation of a final group project revolving around a specific agricultural issue presently occurring in a country of the students' choice.

End of course feedback was solicited from student participants about the course components. Students indicated their thoughts on whether components; 1) should continue to be a part of the course, 2) should be discontinued, or 3) new components should be implemented. Frequencies were tabulated for each component mentioned in student responses (Table 1).

**Results and Discussion**

Findings of this study indicate that when developing an introductory international agriculture course, current student opinions about topics that will meet their wants, needs and interests closely mirror what past literature claims are necessary topics for developing global com-

*Table 1 Frequencies of Student Statements about Class Activities*

Statement	Frequency of student statements <sup>a</sup>		
	Continue	Discontinue	Implement
Guest speakers	17	6	
Final group project	17	2	
Reflection papers	4	9	
Homework that prepares students for exams			11
More teaching (i.e. lectures) from the instructor			8
Study guides			6
In-class group activities			5

<sup>a</sup>Because questions were open-ended, student answers varied for each question and not all students responded to all questions, therefore the frequency sums for each statement will be different.

petence in undergraduate students (Bruening and Shao, 1995). Students' interests tended to reflect their particular college majors. Students interested in careers in Extension wanted to learn about similar programs in other countries. Students majoring in agricultural education desired to learn about education systems abroad. Effort was made to accommodate the specific interests of the students in the overall objectives of the course.

During the experiences of the course, students responded positively to the activities associated with the "Do" portion of experiential learning. The "Reflect" portion received mixed reactions. Students enjoyed group reflection activities, but were critical about the individual reflections involving journaling and

## Improving Undergraduates'

completing reflection papers. The final "Apply" activity was well received and students' perceptions of their own global competence indicated growth over the course of the semester.

### Summary

As the need for global competence continues to increase, it is important to offer college students opportunities to develop their knowledge and understanding of global issues. As many of the issues of developing nations involve agriculture, colleges of agriculture should capitalize on the opportunity to draw in students from other disciplines for unique and quality experiences. Classes should be continually updated to reflect current events in agriculture world-wide and instructors should incorporate experiential learning activities in each class meeting.

Student feedback indicates that activities which fit in the more concrete sections of The Cone of Experience (Dale, 1969) and represent the "Do" portion of the Experiential Learning Model, are popular. While this course incorporated several "Do" activities that students completed on their own, students indicated they would like to experience activities as part of a group. Cooperative learning activities have proven increase student achievement which could lead to improved global competence (Slavin, 1991). In future semesters, cooperative learning activities should be incorporated as part of the experience portion of the course. Examples might include a whole-class service learning project or a simulated developing-country visit experience such as is offered by a visit to Heifer International's Global Village.

Experiential learning encompasses a variety of teaching methods. Future research should focus on determining which teaching methods result in the greatest increase in student knowledge of global agriculture. In addition, incorporation of the global competence aptitude assessment (Hunter, 2004; Hunter et al., 2012) would provide a more accurate measure of student growth over the course of the semester rather than student perceptions. It is recommended that students participate in the assessment prior to and at the end of the course to gauge change in their global competence.

Developing an international awareness in our students is important to their success in the global marketplace and as global citizens. By introducing students to international concepts and creating experiences that expand their thinking, we help to prepare students for successful careers in an ever-changing world.

### Literature Cited

- 4-H. 2009. Essential elements. ([http://www.4-h.org/images/professional-development-learning/national-learning-priorities/essential-elements/EE\\_Curriculum09.pdf](http://www.4-h.org/images/professional-development-learning/national-learning-priorities/essential-elements/EE_Curriculum09.pdf)). National 4-H Council. (August 31, 2012).
- American Council on Education (ACE) Center for Institutional and International Initiatives 2002. Beyond September 11: A comprehensive national policy on international education. ([www.acenet.edu/bookstore/pdf/2002\\_beyond\\_911.pdf](http://www.acenet.edu/bookstore/pdf/2002_beyond_911.pdf)). ACE Fulfillment Service. (June 3, 2012).
- Brahm, C. and B. Kleiner. 1996. Advantages and disadvantages of group decision-making approaches. *Team Performance Management*, 2(1): 30-35.
- Bruening, T. and X. Shao. 2005. What should be included in an international agriculture undergraduate course? *Jour. of International Agr. and Extension Education*, 12(1): 47-54.
- Cushner, K. 1990. Adding an international dimension to the curriculum. *Social Studies*, 81(4): 166-201.
- Dale, E. 1969 *Audio-visual methods in teaching*, 3rd ed. New York: Holt: International Thomson Publishing.
- Forsberg, N.E., J.S. Taur, Y. Xiao and H. Chesbrough. 2003. Internationalization of the animal science undergraduate curriculum: A survey of its current status, barriers to its implementation and its value. *Jour. of Animal Science*, 81(4): 1088-1094.
- Friedman, T.L. 2005. *The world is flat: A brief history of the twenty-first century*. New York: Farrar, Straus and Giroux.
- Fosnot, C.T. (Ed.) 1996. *Constructivism: Theory, perspectives and practice*. New York, NY: Teachers College Press.
- Hunter, C., P. Singh and M. Latib. 2012. Global competence aptitude assessment. ([www.globalcompetence.org](http://www.globalcompetence.org)). Global Competence. (August 29, 2012).
- Hunter, W. 2004. Knowledge, skills, attitudes and experiences necessary to become globally competent. PhD Diss. Dept. of International Studies, Lehigh University Bethlehem, PA.
- Kendrick, J.R. 1996. Outcomes of service learning in an introduction to sociology course. *Michigan Jour. of Community Service Learning* 3, 72-81.
- Kolb, D.A. 1984. *Experiential learning: Experience as the source of learning and development*. Upper Saddle River, NJ: Prentice Hall.
- Lincoln, Y.S. and E.G. Guba. 1985. *Naturalistic inquiry*. Newbury Park, CA: Sage.
- Lukefahr, S.D. 1999. Teaching international animal agriculture. *Jour. of Animal Science* 77(11): 3106-3113.

- Moore, E.A., P.D. Ingram and P. Dhital. 1996. College of agriculture and non-college of agriculture students' knowledge about international agriculture and related factors. *Jour. of Agri. Education* 37(4): 14-22.
- Newcomb, L.H., J.D. McCracken and J.R. Warmbrod. 1993. *Methods of teaching agriculture* (2nd ed.). Danville, IL: The Interstate Printers and Publishers, Inc.
- Oklahoma State Univ. n.d. General education requirements. (<http://academicaffairs.okstate.edu/advisor-resources/36-general-education-requirements>) (October 29, 2012).
- Page, R.C. and S.K. Williams. 2001. Perceptions of university seniors toward internationalizing curriculum in family and consumer sciences: Have we made progress? *Jour. of Family and Consumer Sciences* 93(4): 79-83.
- Roberts, T.G. 2007. A philosophical examination of experiential learning theory for agricultural educators. *Jour. of Agri. Education*, 47(1): 17-29. doi:10.5032/jae.2006.01017
- Slavin, R.E. 1991. Synthesis of research on cooperative learning. *Educational Leadership*, 48: 71-82.
- Watts, S. 1998, May 11. Reaping the business benefits: Food and agribusiness MBA: Agriculture requires an increasingly international approach. *Financial Times*, p. 15.
- Wingenbach, G.J., B.L. Boyd, J.R. Lindner, S. Dick, S. Arispr and S. Haba. 2003. Students' knowledge and attitudes about international agricultural issues. *Jour. of International Agri. and Extension Education* 10(3): 25-35.