

**Effectiveness of Online Videos to Modify Students' Knowledge and Perceived Barriers  
Regarding Study Abroad Opportunities**

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**Abstract**

*The need to increase the number of students participating in study abroad is a goal that higher education must recognize. For ten years, the level of participation among students enrolled in colleges of agricultural sciences has remained at constant level. In a society that is globally interconnected, it is imperative that future graduates comprehend various dimensions of culture, agricultural production, and economy to succeed. The purpose of this study was to determine the effectiveness of online videos to modify students' knowledge and perceived barriers regarding study abroad opportunities. The objectives of this paper are: 1. Describe the amount of learning obtained through watching study abroad videos; 2. Determine changes to students' perceived barriers regarding their possible participation in study abroad programs. In order to assess students' perceptions, three online videos were developed. Videos were based on a semester-long study abroad program in Russia and two study tour programs in Puerto Rico and Brazil, respectively. A quasi-experimental research design was used in this study. One hundred fifty six students from nine sections of the first year seminar participated in the study. In this study, the use of online videos was effective in communicating information and diminishing the perceived barriers to study abroad. Other colleges and programs could use this strategy to promote their international programs. In addition, administrators could use the results of this study to develop online videos to teach content and dispel myths regarding study abroad programs.*

**Key words:** Study abroad, agriculture, online videos, learning, barriers, media, and teaching

## Background

Engaging students to learn complex concepts is a challenge that most instructors face across the world. It is difficult to engage students in subjects that are not immediately perceived as having value and usefulness in their lives. Transformative experience is one teaching strategy that encompasses emotional value and action-oriented learning for the student; this teaching strategy aims to promote students' ability to apply knowledge to real life situations (Pugh, Garcia, Koskey, Stewart, & Manzey, 2010).

When the perceived value of educational lessons is clear and students have the ability to engage emotionally with the subject, students are more likely to be adventurous, less self-conscious, less biased, and more trusting. This situation creates the opportunity for meaningful transformative experiential learning (Wong, 2007). Study abroad experiences are examples of these deeply emotional, valuable, and action oriented learning activities. Research suggests that unique and intriguing learning environments can shape students' interests and objectives in life (Kaplan & Maehr, 1999; Nolen & Haladyna, 1990; Roeser, Midgley, & Urdan, 1996). For that reason, international programs can complement conventional teaching approaches where learning has pre-determined goals, in an environment that is monitored and controlled by the instructor (Wong, 2007).

The increment of international trade coupled with the urgency to secure diplomacy in this decade has brought to light the need to broaden future graduates' skills (Relyea, Cocchiara, & Sludciat, 2008). In a society that is globally interconnected, future leaders should comprehend various dimensions of culture, agricultural production, and economy in order to succeed (Brooks, Frick, & Bruening, 2006; Mamantova, 2005; Navarro, 2006). Today's graduates are expected to work in a multicultural environment, to be creative, to possess good communication skills and to be effective problem solvers (Berotte & Carole, 2007; Farrel & Fenwick, 2007). Studies have indicated that these attributes are only some of the many benefits that students gain when participating in study abroad programs (Brooks et al. 2006; Stephen & Santos, 2009).

Professionals who have participated in study abroad programs during college are more likely to work internationally, have more international work assignments, and use their language skills more frequently when compared to professionals who did not take advantage of these programs (Jahr & Teichler, 2000). Jahr and Teichler (2000) extensively studied job placement of students in Norway with, and without, participation in international programs during their college years. In their study, approximately 40 percent of graduates with some type of international experience upon graduation had accepted an international job compared to less than eight percent of the professionals that did not study abroad. Jahr and Teichler (2000) reported a few predictors of working abroad. The decision to venture to another country is influenced by family status and performance. Having better scores on tests and being married increased one's likelihood of working abroad; whereas a student's college major has little to no impact on this decision.

The need to increase the number of students participating in study abroad is a goal that most higher education entities have recognized. According to The Institute of International Education (IIE, 2009) there was an increase of eight and one-half percent of all American students studying abroad in 2007/2008. However, for the same school year (2007/2008), there was a ten percent decrease in study abroad programs in agricultural areas. For the past ten years, the level of participation among students enrolled in colleges of agricultural sciences has remained at less than one and one-half percent (IIE, 2009). Students in agriculture are less likely to venture to other countries and consequently they are becoming less competitive in the workforce (Berrote & Carole, 2007; IIE, 2009). Jahr and Teichler (2000) data suggested the importance for agricultural education and extension students to study abroad. Without studying abroad, students are less likely to work internationally and the likelihood of expanding the

impact of international agricultural development globally is slim.

Students' low level of participation in international activities is related to a variety of factors. The most common barriers found in the literature indicated that lack of language skills, knowledge of study abroad opportunities, fear of the unknown, delayed graduation, and the cost of participation all contributed to low student participation (Mamantova, 2005; Place, Irani, Friedel, & Lundy, 2004; Harder & Bruening, 2008). However, there is very little research regarding what strategies should be used to reduce the perceived barriers for students to study abroad and potentially increase student participation in programs.

Changes in technology and in the way people gather information have induced changes in values and attitudes in society. Generations of people have been influenced by various factors such as wars, economic distress, and the invention of the telephone and television. In the past, the introduction and incorporation of a new technology could take several years. It took decades until the vast majority of the American population owned a television. Compare this time span with the relatively rapid adoption of cell phones and it is easy to see how the adoption curve has accelerated for new technologies (Boone, Tucker, & Meisenbach, 2000). It has also become much cheaper to acquire technology. Today, most consumers in developed countries are able to buy digital cameras, cell phones and video cameras. It is easy to share digital information as cell phones can upload videos directly to websites such as YouTube.com, LiveLeak.com and Ustream.com for free.

YouTube, the most popular website for viewing video, hosts about two-thirds of all videos viewed in the United States and has its online presence in many other countries around the world. In March 2009, the site had more than 90 million visitors. Virtually anybody with Internet access can create an account and publish videos. YouTube's success is attributed to its easy-to-use interface and creative videos (New York Times, 2009). Video websites enable millions of daily uploads ranging from videos of pets, children, hobbies, jokes and even videos shot by soldiers engaged in combat in Iraq and Afghanistan (Cohen, 2010).

Today's college students are "connected" in a way that former generations could not begin to imagine. This generation has been named "Millennials" and they are the most technologically savvy generation in American history (Gardner & Eng, 2005; Howe & Strauss, 2000; Weiler, 2004). Thomas Bruening (personal communication, September 15, 2009) noted: it is as if they are integrated into the circuits of the Internet as part of their existence. As a result, they have different learning styles and values (Weiler, 2004). On average, college students spend eleven hours per week on the Internet (Gardner & Eng, 2005). Ninety-four percent of those ages twelve to seventeen use the Internet for school research (Oblinger, 2003).

Millennials prefer working in groups, learning by doing and are more likely to trust peers than professors (Gardner & Eng, 2005). In general, they are "visual learners" this style requires more stimulus than lectures in order to encourage learning (Weiler, 2004, p. 51). With all these changes taking place, colleges need to adapt its educational system by incorporating technologies into the classroom and applying a variety of new teaching methods in order to reach these students (Oblinger, 2003). Videos and animations can become a valuable instructional media for this generation of students (McGregor, Griffeth, Wheat, & Byrd, 2005).

### **Theoretical Framework**

In order to understand how online videos could potentially contribute to modifying students' perceptions, Paivio's (1991) dual coding theory regarding verbal information and visual image capture was incorporated into the study (as illustrated in Figure 1). Although verbal and visual retention function independently, most mental processing involves connections and reinforcement between the two systems (Paivio & Csapo, 1979). According to the dual coding theory, verbal and visual channels in the brain assimilate information. The assimilation

of the information occurs differently in each channel; however, these streams of information are interconnected. The verbal channel draws on the rich knowledge base of the image channel and the image channel cannot process language by itself. Learning occurs from the interaction between these channels and to the degree they are developed in each person. When verbal and nonverbal channels function together, there could be an additive impact on recall of information and cognition. Thus, educational videos produced to disseminate knowledge should take into account how memory and cognition take place (Paivio, 1991).

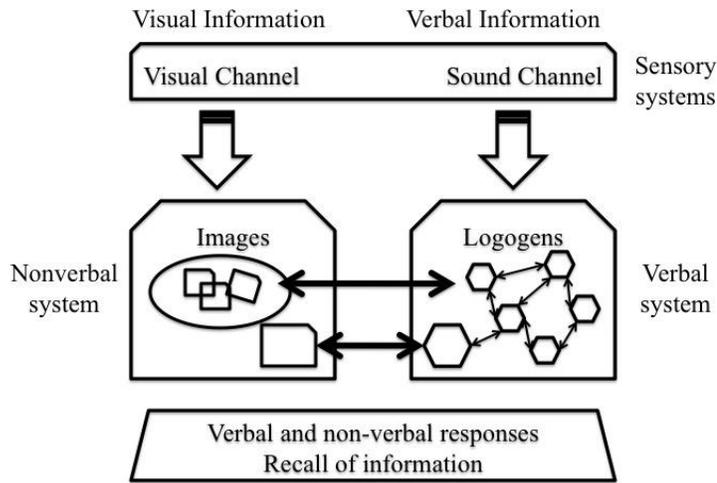


Figure 1: Dual Coding Theory. Adapted from *Images in mind: the evolution of a theory*, by A. Paivio, 1991, Great Britain: Harvester Wheatsheaf.

Throughout the years, learning through video and audio has spawned a series of studies. Wetzel, Radtke and Stern (1994) reviewed studies on various types of video as a supplement to instruction and concluded that students who were exposed to videos had higher achievement grades compared with students who were exposed to traditional teaching methods that did not include the use of videos.

Researchers further suggested that the addition of multimedia into the classroom could help improve learning as students see concepts in action (Michelich, 2002). Video could take tacit information or knowledge that might be too difficult to describe in text and develop a strong, articulate, and vivid description through the use of images and sound (Hartsell & Yuen, 2006). By using auditory and visual methods when presenting information, students can process information faster and enhance their learning. Media does not facilitate learning in one-dimensional way; hence it facilitates learning by activating already existing mental skills, by shortening difficult mental recall processes, and by demonstrating to learners how processes should take place (Howe, 1983).

A pilot study conducted by Fielder, Goff, and Wilson (1993) analyzed the effectiveness of thirty-minute college recruitment videos among high school students. Videos were shown to sixty-seven college-bound high school seniors. After watching the videos, the content analysis revealed what students learned from each of the videos. From the eight content categories, students remembered content about student-teacher interactions and campus aesthetics. Fielder et al. (1993) concluded that videos are a key source of influence for college-bound individuals.

In order to modify attitudes and perception of teaching science, Hazen, Kelly, and Sramek (2002) developed a video that could be used in workshops, seminars, outreach, and

counseling career sections. Their study examined whether using video as a recruitment tool for students between grades 10 to 12 and professionals would positively change their perceptions towards teaching science and mathematics. Among the respondents that participated in workshops, students noted that math and science played an important role in our technology-rich society. Participants realized that math and science can be fun if appropriate techniques are applied and a few participants had their perceptions changed regarding careers in math and science. Some professionals stated that the use of video helped reconnect the idea of enjoyment of discovery learning, and that good teaching is key to learning math and science (Hazen et al., 2002).

Video production techniques should be used to take advantage of verbal messages and visual images to potentially boost learning in educational videos. Studies concluded that background music may increase students' learning by engaging them in the content of presentations (Harder & Bruening, 2008; Wakshlag, Reitz, & Zillmann, 1982).

Regarding visuals, videos produced for 15 to 25 year-olds that take into consideration the "MTV syndrome" might be more effective. Part narrative, part atmosphere, sound intensive, and image-rich, MTV generation videos have a remarkable appeal to younger generations (Dancyger, 2002). Another characteristic that might influence the effectiveness of videos is the amount of time needed to watch. The length of the videos can impact the type and amount of the information that is internalized by students. Fielder et al. (1993) noted that students' attention spans last for a few minutes and college-bound students tended to dismiss much of the information received after the first three to four minutes.

### **Purpose**

The purpose of this study was to determine the effectiveness of online videos to modify students' knowledge and perceived barriers regarding study abroad opportunities. The objectives of this paper are: (a) Describe the amount of learning obtained through watching study abroad videos; (b) Determine changes to students' perceived barriers regarding their possible participation in study abroad programs.

### **Methodology**

In order to access students' perceptions after watching three online videos were developed. The content of the three videos was based on existing study abroad programs offered by the College of Agricultural Sciences (CAS) at The Pennsylvania State University. Videos were based on a semester-long study abroad program in Russia and two short-term study tours programs in Puerto Rico and Brazil. In all three videos, the messages and the narration were conveyed from a student perspective. Students from previous study abroad programs helped identify the scenes that needed to be included.

In order to identify the appropriate scenes, students were asked to provide feedback on six study abroad content categories. These categories were: 1) educational activities, 2) social activities, 3) culture, 4) students' perspective, 5) information, and 6) environment. Students' comments were collected through emails and were then used to guide the content development of the videos.

After the videos were developed, previous participant students also provided suggestions on the final content of the videos. Videos were then compressed for the Internet using compression type H.264 and screen size 500 by 281 pixels. Videos were then posted on Angel (The Pennsylvania State University online course computer management system) so that students could have access during the study.

Each video had a unique theme. The video based on the Puerto Rican trip emphasized fun, in-country learning activities and culture. The video featuring Brazil emphasized

agricultural production, the environment, and culture. Finally the video based on the Russian study abroad program emphasized four barriers to studying abroad. The four main barriers were: lack of language skills, cost of the programs, fear of not graduating on time, and fear of the unknown (Mamantova, 2005; Place et al., 2004).

### **Description of the Treatment**

Students within the treatment group were exposed to the computer-based instructional unit, which included the instructions for that activity, and the online videos. The instructional unit was posted on Angel on The Pennsylvania State University's course management system web-site (ANGEL, <http://cms.psu.edu>). Any computer connected to the Internet could be used to access the web-site. Students in the treatment group completed the pretest survey, watched three online videos, one video every two weeks, and then filled out the posttest survey by the end of the period.

The instrument used to access students' perceptions and knowledge had two sections. The first section of the instrument contained questions regarding students' perceptions based on the instrument developed by Mamantova (2005) and Place et al. (2004). The second section of the instrument contained a twenty-three-item knowledge test. To verify the reliability of the instrument and the process used in the study, a pilot study was conducted. Fourteen students participated in the pilot study and no significant changes in the process and in the instrument were necessary. The Spearman-Brown reliability coefficient was calculated for both the pre- and posttest and the coefficients were .72 and .79, respectively.

A quasi-experimental research design was used in this study. The assignment of the treatment took place purposefully; professors who agreed to include the activity as part of their syllabus became part of the treatment. Five sections were exposed to the online videos and these sections comprised the treatment group. In total, 156 students from nine sections of the first year seminar participated in the study. One hundred and forty-five questionnaires were finalized as usable data and no incomplete surveys were removed. For paired t-tests, only cases where data from both pretest and posttest matched were used in the data analysis.

Data procedures were identical for both treatment and control groups. Maturation was not a concern in the experiment since respondents were 18 years of age or older and the time between pre- and posttest, six weeks, is considered short (Campbell & Stanley, 1963). Regarding history, a couple international recruitment events were carried out at The Pennsylvania State University campus during the experiment time; these could have modified students' perceptions on international opportunities. However, these events occurred for students in the treatment and control groups simultaneously. During the experiment, students were not aware that two different groups existed. Regarding external validity, instructors of all sections agreed to postpone discussions on international opportunities with their students upon the completion of this study. This was a census study, which eliminated the threat of having a sample that does not represent the population. Multiple treatment interaction was not a concern since completing the three activities was considered one treatment.

## **Results**

### **Objective 1: Describe the Amount of Learning Obtained through Watching Study Abroad Videos**

**Students' knowledge gained about study abroad through various sources of information.** In order to determine respondents' learning regarding study abroad within the College of Agricultural Sciences, a six-item questionnaire was developed. Table 1 presents the means and standard deviations for all six items collected during pretest and posttest for treatment and control groups. During the pretest, the control group's mean values for learning ranged from

1.04 to 2.22. Data showed that respondents in the control group tended to learn “a little bit” from five of the items. Students tended to learn “Almost nothing” from “Videos through ANGEL” with mean value ( $M = 1.04$ ). Students tended to learn “a little bit” from “The Collegian newspaper” ( $M = 1.50$ ), “Lectures” ( $M = 1.76$ ), “Outside classroom activities” ( $M = 2.00$ ), “By yourself through the Internet” ( $M = 2.12$ ), and “Talking to friends” ( $M = 2.22$ ).

During the pretest, the treatment group’s mean values for learning ranged from 1.15 to 2.03. Data showed that respondents tended to learn “a little bit” from four learning opportunities. The Items “Talking to friends” received the highest mean value ( $M = 2.03$ ), followed by “Lectures” with mean value ( $M = 1.88$ ), “Outside classroom activities” with mean value ( $M = 1.79$ ), and “By yourself through the Internet” with mean value ( $M = 1.62$ ). During the pretest students in the treatment group tended to learn “almost nothing” from “Videos through ANGEL” ( $M = 1.15$ ) and “The Collegian newspaper” ( $M = 1.45$ ).

During the posttest, the control group’s mean values for learning ranged from 1.19 to 2.25. Data showed that students in the control group learned a little bit from five items and learned almost nothing from one item. The item “Talking to friends” with mean value ( $M = 2.25$ ) and “By yourself through the Internet” with mean value ( $M = 2.12$ ) received the highest means. Students in the control group tended to learn almost nothing from “Videos through ANGEL” with mean value ( $M = 1.19$ ).

During the posttest, the treatment group’s mean values for learning ranged from 1.46 to 3.35. Students in the posttest tended to learn something from “Videos through ANGEL” with a mean value ( $M = 3.36$ ). Students tended to learn a little bit from “Lectures” with a mean value ( $M = 2.43$ ). This was followed by learning through “Outside classroom activities” with a mean value ( $M = 2.36$ ), “Talking to friends” with a mean value ( $M = 1.96$ ), and learned “By yourself through the Internet” with a mean value ( $M = 1.93$ ). Students tended to learn almost nothing from “The Collegian newspaper” with a mean value ( $M = 1.46$ ).

Table 1  
*Students’ Source of Information about Study Abroad Programs*

	Control			Treatment		
	Pretest	Posttest	N	Pretest	Posttest	N
	Mean SD	Mean SD		Mean SD	Mean SD	
Videos through ANGEL	1.04 .196	1.19 .491	26	1.15 .438	3.35 .832	62
Lectures	1.76 .699	2.09 .793	34	1.88 .794	2.43 .768	77
Outside classroom activities	2.00 .866	1.88 .893	33	1.79 .853	2.36 .976	76
By yourself through Internet	2.12 .960	2.12 .927	33	1.62 .876	1.93 .977	73
Talking to Friends	2.22 .832	2.25 .880	32	2.03 .903	1.96 .880	77
Collegian newspaper	1.50 .745	1.82 .723	28	1.45 .628	1.46 .629	71

Scale: 1 =Almost nothing, 2 = A little bit, 3 = Something, and 4 = A lot.

Paired-samples t-tests were conducted to compare the source of information used by students to learn about study abroad opportunities during the time of the experiment. For the control group, there was a significant difference in how much learning occurred by source of information used during the experiment. Students significantly increased their learning through use of the “Collegian newspaper” pretest ( $M = 1.50$ ) ( $SD = .745$ ) and posttest ( $M = 1.82$ ) ( $SD = .723$ );  $t(27) = -2.35, p = .026$ . For the other sources of information (“Video through Angel,” “Lectures,” “Outside Classroom Activities,” “Alone thought the Internet,” and “Talking to friends”), no significant increase in learning was observed.

For the treatment group, there was a significant difference in how much learning occurred by source of information used during the experiment. Students significantly increased their learning by “Video through Angel” pretest ( $M = 1.15$ ) ( $SD = .438$ ) and posttest ( $M = 3.35$ ) ( $SD = .832$ );  $t(61) = -18.80, p = .000$ ; “Lectures” pretest ( $M = 1.88$ ) ( $SD = .794$ ) and posttest ( $M = 2.43$ ) ( $SD = .768$ );  $t(76) = -4.88, p = .000$ ; “Outside classroom activities” pretest ( $M = 1.79$ ) ( $SD = .853$ ) and posttest ( $M = 2.36$ ) ( $SD = .976$ );  $t(75) = -3.96, p = .000$ ; and “By yourself through the Internet” pretest ( $M = 1.62$ ) ( $SD = .876$ ) and posttest ( $M = 1.93$ ) ( $SD = .977$ );  $t(72) = -2.82, p = .006$ . There were no significant increases for “Collegian newspaper” and “Talking to friends” as sources of information to learn about study abroad opportunities.

Students in the treatment group significantly increased their learning about study abroad opportunities using four sources of content. The mean difference between posttest and pretest was higher for “Videos through ANGEL” (2.20), followed by “Outside classroom activities” (0.57), “Lectures” (0.55), and “By yourself through Internet” with a mean difference of (0.31). For the control group, the difference between posttest and pretest means was significant for one category. Students in the control group significantly increased their learning regarding study abroad opportunities in the College of Agricultural Sciences through “Collegian newspaper” (Table 2).

**Students’ knowledge gained.** In order to evaluate students’ knowledge gained by watching the videos, a 23-item knowledge test was included in the pre and posttest survey. Correct answers in the knowledge test were worth one point. Students’ score was a result of the sum of all their correct answers. The total score could range from one to twenty-three points. Students’ performance in the test was calculated through the mean score value for control and treatment groups during the pretest and the posttest. During the pretest and posttest, students in the treatment scored higher ( $M = 9.06$ ) ( $M = 12.76$ ) than the students in the control group ( $M = 8.48$ ) ( $M = 9.39$ ). Students in the treatment increased their knowledge by 16%, whereas students in the control group increased their knowledge by about 4% (see Table 3).

Table 2  
*Students Learned about Study Abroad Opportunities*

	Control Means		Treatment Means		X (X <sub>2</sub> - X <sub>1</sub> )  Mean Difference	Paired <i>t</i> -test					
	Pretest	Posttest	Pretest (X <sub>1</sub> )	Posttest (X <sub>2</sub> )		Within Control Groups			Within Treatment groups		
						<i>df</i>	<i>t</i>	<i>p</i>	<i>df</i>	<i>t</i>	<i>p</i>
Videos through ANGEL	1.0 4	1.19	1.15	3.35 *	2.20	2 5	1.44	.16 1	6 1	(18.80 )	<.000
Lectures	1.7 6	2.09	1.88	2.43 *	0.55	3 3	(1.93)	.06 2	7 6	(4.88)	<.000
Non classroom activities	2.0 0	1.88	1.79	2.36 *	0.57	3 2	0.63	.53 5	7 5	(3.96)	<.000
Alone through Internet	2.1 2	2.12	1.62	1.93 *	0.31	3 2	0.00	1.0 0	7 2	(2.82)	.006
Collegian newspaper	1.5 0	1.82 *	1.45	1.46	0.01	2 7	(2.35)	.02 6	7 0	(0.16)	.874
Talking to friends	2.2 2	2.25	2.03	1.96	(0.07)	3 1	(0.20)	.84 5	7 6	0.68	.496

Note: The significance level of mean differences is < .05. Scale: 1 =Almost nothing, 2 = A little bit, 3 = Something, and 4 = A lot.

Table 3  
*Knowledge Test Scores on a 23-item Knowledge Quiz*

	Pretest			Posttest			Knowledge increase
	Mean	SD	N	Mean	SD	N	(%)
Control group	8.48	2.82	44	9.39	3.10	44	3.95
Treatment group	9.06	2.70	100	12.76	2.48	99	16.08

**Objective 2: Determine Changes in Students’ Perceived Barriers Regarding Participation in Study Abroad Programs**

In order to determine respondents’ perceived barriers to participate in a study abroad program, an eight-item section of the questionnaire was developed. Table 4 presents the means and standard deviations for all eight items collected during the pretest and posttest for treatment the group. During the pretest, students within the treatment group tended to disagree with four items and tended to agree with four items. Students tended to disagree with “Don’t see the value” with a mean value of (*M* = 1.55), “Fear of traveling outside the U.S.” mean value of (*M* = 1.86), “Lack of knowledge about availability opportunities” (*M* = 2.30), and “Not wanting to

spend time away from family/friends” with a mean value ( $M = 2.49$ ). Students tended to agree with “Concern about financial costs of programs” with a mean value ( $M = 3.03$ ), “Difficulty of adding more credit hours to existing academic program of study” mean value ( $M = 2.96$ ), “Overall time it would take to participate” mean value ( $M = 2.94$ ), and the item “I can’t speak the language or need better language skills” mean value ( $M = 2.92$ ).

During the posttest, students within the treatment group tended to disagree with three items and tended to agree with five items. Students tended to disagree with the items “Don’t see the value” mean value ( $M = 1.52$ ), “Fear of traveling outside the U.S.” mean value ( $M = 1.87$ ), and “Lack of knowledge about availability opportunities” mean value ( $M = 2.16$ ). Students tended to agree with “Difficulty of adding more credit hours to existing academic program of study” mean value of ( $M = 2.83$ ), “Concern about financial costs of programs” with a mean value of ( $M = 2.80$ ), “Overall time it would take to participate” mean value of ( $M = 2.79$ ), “I can’t speak the language or need better language skills” mean value of ( $M = 2.77$ ), and “Not wanting to spend time away from family/friends” with a mean value of ( $M = 2.51$ ) (Table 4).

For the treatment group, paired t-tests were conducted to compare means of perceived barriers to participation in study abroad program for pretest and posttest. There was a significant difference in means of perceived barriers to participation in study abroad programs. Students significantly decreased their perceived barriers towards “Concern about financial costs of programs” pretest ( $M = 3.06$ ) ( $SD = .80$ ) and posttest ( $M = 2.82$ ) ( $SD = .90$ );  $t(76) = 2.25$ ,  $p = 0.027$  and “Language concerns or need for better language skills” ( $M = 3.03$ ) ( $SD = .92$ ) and posttest ( $M = 2.81$ ) ( $SD = .96$ );  $t(79) = 2.19$ ,  $p = .031$ . There were no significant decreases for “Overall time it would take to participate” and “Lack of knowledge about available opportunities”, “Not wanting to spend time away from family/friends”, “Don’t see the value” and “Fear of traveling outside the U.S.” mean barriers to participation in international programs.

## Conclusions

### Students’ Learning about Study Abroad Opportunities

Students were asked to identify the ways they have increased their learning about study abroad opportunities. Students in the treatment group indicated that they significantly increased their learning from “Videos through ANGEL,” “Lectures,” “Outside classroom activities,” and “By themselves through the Internet.” Whereas students in the control group indicated that they increased their knowledge about study abroad opportunities from “the Collegian Newspaper.” These results indicate that “Videos through ANGEL” increased students’ knowledge regarding study abroad opportunities within the CAS. These results also suggest that students that participated in the treatment group became more aware of international issues or programs. Since students indicated that they learned more about the international issues not only through online videos but also through lectures, outside activities, and through the Internet, online videos could contribute to overall awareness and a way to spark students’ interest in study abroad program.

Table 4  
*Perceived Barriers towards Participation in International Programs and Paired t test within the Treatment Group*

Pairs	Pretest $X_2$		Posttest $X_1$		Mean differenc e $X_2-X_1$	Paired t-test			
	Mea n	<i>SD</i>	Mea n	<i>SD</i>		<i>n</i>	<i>df</i>	<i>t</i>	<i>p</i>
Concern about financial costs of programs	3.06	.80	2.82	.90	(0.24)	77	76	2.25	.027
I can't speak the language or need better language skills	3.03	.92	2.81	.96	(0.22)	79	78	2.19	.031
Overall time it would take to participate	3.03	.71	2.87	.75	(0.16)	77	76	1.76	.083
Difficulty of adding credit hours to existing academic program	3.00	.72	2.85	.70	(0.15)	67	66	1.40	.167
Lack of knowledge about available opportunities	2.37	.74	2.24	.69	(0.13)	71	70	1.16	.252
Not wanting to spend time away from family/friends	2.53	.95	2.62	.92	(0.09)	78	77	(0.35)	.724
Don't see the value	1.64	.79	1.57	.72	(0.07)	77	76	0.68	.496
Fear of traveling outside the U.S.	1.92	.86	1.92	.84	0.00	80	79	0.00	1.00

Scale: 1 = Strongly disagree (SD), 2 = Disagree (D), 3 = Agree (A), 4 = Strongly agree (SA).  
 $p < .05$

**Students' knowledge gained.** Students that watched the videos scored nearly 16 percent higher on the knowledge test than the students that did not watch the videos. The learning that occurred could help students make informed decisions regarding potential study abroad programs. Video technology could be an additional tool that study abroad coordinators could use to inform students regarding possible study abroad opportunities. Online videos were moderately effective in transferring information on culture, agricultural production, students' activities, landscape and natural resources for Russia, Brazil, and Puerto Rico. Since this online activity was not graded, students were not motivated by grades to internalize the information that was being displayed. Moreover, since the number of students currently studying abroad is very low (less than two percent) the inherent motivation to learn the content within the videos could also be a factor in the relatively low knowledge scores. More research could be conducted in order to determine if knowledge scores could increase if grades and interest were factors.

**Perceived barriers to participate in study abroad programs.** Regarding the barriers to participate in study abroad programs, students that participated in the treatment learned from the videos. Students learned that financial costs, lack of opportunities, and overall time to participate in CAS programs were not barriers to participation. Online videos seem to be an effective way to teach some students regarding various aspects of study abroad programs. In this study, videos appear to be an effective tool to transfer information about costs of programs and study abroad opportunities to students and what it takes to participate in international activities.

Online videos could be a viable and inexpensive way to teach students about current study abroad opportunities within CAS. Place et al. (2004) and Mamantova (2005) noted that students believed that going to an international restaurant to be an international experience. While most proponents of culturally enriched study abroad programs are shocked at this finding, perhaps these findings should send a strong message that change is needed. Study abroad online videos could also be used to portray an accurate perspective on what it means to engage in international activities since students seem to have an inaccurate opinion about the issues.

### **Educational Implications and Recommendations**

The need to increase students' participation in international programs is an issue that should be a great concern to the international agriculture development community. If the international agricultural education and extension field of study wants to continue to grow and change the lives of people, the field needs professionals that are willing to work abroad or work with an international emphasis.

During the last two decades, the number of Americans that participate in international programs has increased fourfold. From 2007 to 2008, there was a ten percent decrease in the number of agricultural major students that studied abroad in the United States (IIE, 2009). According to Jahr and Teichler (2000), students that study abroad are 40 percent more likely to work internationally. This decrease in participation is a great threat to the future of our profession as the international agricultural field depends on professionals that are willing to work internationally. Motivating American students to study abroad is vital for the survival of international agricultural extension and education. In this study, the use of online videos was effective in communicating information and diminishing the perceived barriers to study abroad for freshman students in the CAS. This example might compel agricultural colleges and colleagues to use this strategy to promote their international programs.

Increasingly, American college students are at a competitive disadvantage compared to their international peers that have multiple language skills and agricultural experiences in international settings. The profession needs to recognize the important opportunity that we have to prepare the next generation of international agricultural educators. USAID (2010) currently indicates that they have an urgent need for individuals that have backgrounds in agriculture with college degrees and in country experiences. Study abroad programs are valuable experiences that students in colleges of agriculture throughout the United States need to take advantage off.

Today's classrooms and learning environments require faculty to adapt to new learning styles and ways to communicate information that is valuable for students. Using technology to teach is something debated among faculty and educators; however, when used properly, technology can motivate and scaffold learning (McGregor et al., 2005; Reigluth, 1999). For that reason, multimedia such as videos could be used with other media to enhance learning among students. Study abroad program administrators could use the results of this study to develop online videos to teach content and dispel myths regarding study abroad programs.

Study abroad programs could use student-captured international videos in order to produce promotional videos. These videos could portray a more accurate description of programs from a student perspective and this could decrease production costs.

Videos could be used in multiple online promotional strategies within CAS. Videos could be broadly used to disseminate study abroad programs in presentations and meetings and they could be used to promote programs by making these available for downloads on podcasts, mp3 players, Facebook pages, Penn State website, and other digital mediums. These strategies could greatly increase the impact of promoting international agricultural experiences for students in the College of Agricultural Sciences at the Pennsylvania State University.

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