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DETERMING THE EFFECTIVENESS OF ON-LINE VIDEOS IN MODIFYING STUDENTS' PERCEPTIONS AND KNOWLEDGE REGARDING STUDY ABROAD PROGRAMS

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Wilmara Corrêa Harder

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The thesis of Wilmara C. Harder was reviewed and approved* by the following:

Thomas Henry Bruening
Associate Professor of Agricultural and Extension Education
Thesis Adviser
Chair of Committee

Cynthia Pellock
Assistant Professor of Education

Kristina Ricketts
Assistant Professor of Agricultural and Extension Education

Tracy Hoover
Department Head and Professor of Agricultural and Extension Education

*Signatures are on file in the Graduate School.

ABSTRACT

The purpose of this study was to determine the effectiveness of video on-line in modifying students' perceptions and knowledge gain regarding study abroad programs. In addition, this study aims to investigate the causes and effects of on-line videos in changing perceptions of students enrolled in AG 150S “Be a master student”.

The population for the study was students enrolled in Ag150S “Be a master student” offered by CAS at Penn State University. A pilot study was conducted with students that had taken this course in previous years. In order to select the treatment group, a purposeful sampling method was used as professors and instructor of Ag150S “Be a master student” had to agree including the activity in their syllabus. A survey questionnaire was prepared and used to collect data from all the participants during pre and posttest. The survey included four parts. The first section was used to measure interest and perceived possession of knowledge in international issues, prior international experiences, and barriers to participation. The second section of the questionnaire included questions regarding learning and use of various sources of information. The third section included a 23-knowledge questions and the fourth section included the demographics. Between pre and posttest, respondents in the treatment group were asked to watch on-line videos and to complete a brief on-line survey after each of the videos. A total of three videos were available and students watched each of the videos every other week. Data were input and analyzed during Fall 2006 and Spring 2007.

The majority of students were female and intended to enroll at the Animal Sciences major. They anticipated a GPA between 3.0 and 3.49. Most come from a European/Caucasian family and they come from an urban background.

Overall, there was no significant change in terms of perceptions toward the importance of knowing international issues and students perceptions on possession of this knowledge between the control and treatment groups and between pre and posttests. Students tended to agree with all items related to the important of knowing international issues and they tended to agree with most of the items related with possession of international knowledge.

Students in both groups perceived participating in study abroad programs as a positive experience. They believe international experiences are beneficial, fun, and good to participate in these activities while at the university.

Students in both control and treatment groups were very similar in terms of prior and current Penn State University international involvement. The majority of the students mentioned going to an international restaurant and interacting with international students as prior activities. Participating in semester-based study abroad programs was the activity least performed by both groups of students.

Regarding students' level of interest in engaging in international activities, data collected demonstrated that students in both groups are interested in engaging in international activities at Penn State University. Students were interested in going to an international restaurant and slightly less interested in hosting an international visitor. Regarding the barriers to participate in study abroad programs, students that participated in the treatment seem to have learned from the videos. Students learned that financial costs, lack of opportunities to participate in CAS programs were not barriers to participate.

On-line videos seem an effective way to teach some students regarding various aspects of study abroad programs. In this study videos seem effective in terms of transferring

financial costs of programs and study abroad opportunities information to students and what it takes to participate in international programs offered by CAS.

Data demonstrated that respondents were more likely to participate in shorter study abroad trips and somewhat less likely to participate in "semester long" programs. At the same time, data collected from the students after each of the videos was very positive. This data suggests that students not only retained a great deal of information about specific aspects of the videos but it also suggests that students might be inclined to participate based on what students wrote after each video was viewed.

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". Where as students in the control group indicated that they increased their knowledge about study abroad opportunities from "Lectures".

For both control and treatment group during pre and posttest there were no significant differences in terms of how students use and rely on different sources of information.

A correlation analysis was run for trying to comprehend factors that contribute to students' perceptions to participate in study abroad programs. Three independent variables were found to be significantly correlated with the dependent variable participation. Participation is positively correlated with "Interest", "How important international issues are for the students", and "How much students have learned during Fall semester".

In order to increase the participation intent within CAS students, interventions that boost students' interest of participating, students learning on international issues, and the importance of international issues should the emphasized. Interventions should clarify and explain the costs involved in participating.

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Chapter 1

INTRODUCTION

Background/ Statement of the Problem

During the 1960's the U.S. government and American universities created a private communication network. Almost 40 years have passed since its privatization and its expansion to what we know today as the world wide web or the Internet. The Internet has become the international common ground for businesses throughout the globe and at a pace that was surprisingly fast (Genovese, 2000). Internet is a unique medium in the way that it provides tools for one-to-one and one-to-many communications. The network has the ability to display text, graphics, audio, and video incorporating features from other mass media such as radio, television, and print (Genovese, 2000).

Changes in technology and in the way people gather information have induced changes in values and attitudes in a society. Generations of people have been influenced by various factors such as wars, economic distresses, the creation of the telephone, and television. Some generations like the "G.I.", "Baby Boomers", and "X generations" can be characterized in terms of value and beliefs systems (DeBard, 2004; Weiler, 2004). The "Millennials" or "Generation Y", a generation of people born between 1982 and 2002, is the most technologically savvy generation in American history (DeBard, 2004; Gardner and Eng, 2005; Howe & Strauss, 2000; Weiler, 2004). Millennials experience the Internet as part of their existence and they have different leaning styles, and values as compared to previous generations (Weiler, 2004).

Milennials are "technology veterans". College students from this generation are so comfortable using technology that usually they have greater skills levels than their instructors and parents. On average, college students spend eleven hours per week on the Internet

(Gardner & Eng, 2005, p. 411) and 94 percent of those age twelve to seventeen use the Internet for school research (Oblinger, 2003a). Despite feeling special, sheltered, confident, achieving, pressured and conventional, young adults from this generation communicate in a different manner (Howe & Strauss, 2000). They prefer working in groups, prefer learning by doing and are more likely to trust peers than professors (Gardner &Eng, 2005). They are "visual learners", a style that requires more than lectures to learn (Weiler, 2004, p. 51). Generation Y students are multitaskers, they can be instant messaging (IMing), watching TV, and writing an essay while answering a phone call (Oblinger, 2003a). With all these changes in place, colleges need to adapt its educational system by incorporating technology into the classroom and applying different teaching methods to aid and reach these students (Oblinger, 2003b).

Among the implications of these changes for faculty are: 1) incorporation of new teaching methods, 2) engagement of students in the learning process and evaluation of learning outcomes, 3) creation of a merit system for faculty who use innovative technology-rich learning environments, and 4) a shift from faculty as an instructor to coach (Oblinger, 2003b). Regarding the implications for the development of courses for Millennials, students would benefit from: 1) courses that are on-line or hybrid, 2) collaborative learning, 3) fast feed back, 4) customization of courses to meet students' needs, and 5) introduction of a variety of learning materials such as tutorials, independent study, research, internships and apprenticeships (Oblinger, 2003b).

Oblinger (2003a) and Oblinger (2003b) pointed out that introducing just in time learning will require customizations of services for student support. Oblinger (2003a) suggested measures that would help educational enterprises to adapt to Generation Y

learners. The creation of course management systems would help students manage their educational path. In addition to, on-line advising systems, on-line application processes, on-line recruitment, on-line portfolios, and on-line access to grades and transcripts would provide just in time support for Millennials.

An example of how this generation uses the Internet is the MySpace. MySpace, a social network website, offers an interactive network of blogs, photos, on-line video collections, and email system. Using this website a person is able to publish on-line videos and share them with anyone that can gain access to the Internet. By March 2006, MySpace has become the world's fifth most popular English-language website. Primer users are rock bands, movie stars, and marketers that compete for teenagers' attention and market share (Wikipedia, 2006). Recently, streaming videos have gained the attention of millions of Internet users. YouTube, created in February 2005, has become another popular website. This website has over 100 million videos and it was recently purchased by Goggle for $ 1.65 billion dollars (BBC News, 2006).

Videos became an important hobby for young adults but they are potentially a powerful tool that can be used in wide array of educational settings. Its advantages compared to other communication mediums were supported by Canning-Wilson (2000), TechNews (2007), Weiler (2004), and Wetzel, Radtke, & Stern (1994) that suggested there is better retention of visual elements by students and that videos are extremely appealing to young people. Videos can explain complex information by using vivid descriptions through the use of images (Hartsell & Yuen, 2006). The use of sounds and visuals when delivering information can enhance students learning. Media does not facilitate learning in one-dimensional way; rather it facilitates learning by activating already existing mental skills, by

shortening difficult mental processes, and by demonstrating to learners how processes should take place (Howe, 1983).

As an instructional tool, on-line videos are becoming a widespread phenomenon in elementary, secondary and college education. A body of literature on current and potential uses of on-line videos exists, however among all the references, only two studies were conducted using experimental design research methodology (Boster et al, 2006; CoField, 2002).

Need for the Study

As the world becomes closer due to the globalization process and communication networks such as the Internet, there is a greater need to develop communication skills and know how to work with other cultures. Cultural awareness and cultural difference acceptance are competitive advantages for many students and professionals around the globe (Brooks, Frick, & Bruening, 2006; Mamantova, 2005; Navarro, 2006). In a world connected by technology, economic links and global challenges, it is vital that American students understand and learn to work alongside those from different backgrounds. Since the beginning of the 21st century, the interest of employees with a global outlook and the ability to perform in multiple contexts has been growing rapidly (Brooks, Frick, & Bruening, 2006; Navarro, 2006).

Trying to keep up with graduate employers' demand, higher education has experienced various transformations when adapting undergraduate curriculum to social, technological, economical, cultural, and globalization changes (Navarro, 2006). Throughout the United States, universities started to incorporate digital technologies and international activities into their curriculum as a way to keep up with the workforce expectations for future professionals. Unfortunately, Navarro (2006) and Hodson (2003) noted that undergraduate

agricultural and science curricula have not been completely updated in most universities in United States.

In 2001/2002, according to the Institute of International Education, PSU ranked 9th regarding the number of students participating in Study Abroad Programs. In 2003/2004, PSU ranked 19th. In 2003 at Penn State University, 64% of the students that participated in study abroad programs were enrolled in the Colleges of Business Administration, Liberal Arts, and Arts and Architecture. Penn State students enrolled in the Colleges of Science, Health and Human Development, and other 12 more Colleges were responsible for only 14% percent of the participation. The numbers are even more dramatic, within the College of Agricultural Sciences (CAS) only 1% of the enrolled students participated in abroad programs (Education Abroad, 2003-04).

There is a need to increase students' knowledge regarding international activities in the College of Agricultural Sciences at The Pennsylvania University. There is also a need to determine the effectiveness of on-line videos in changing students' perceptions toward participating in study abroad programs as a communication tool.

Purpose and Objectives of the Study

The purpose of this study was to determine the effectiveness of on-line videos in modifying students' perceptions and knowledge gain regarding study abroad programs. In addition, this study aims to investigate the causes and effects of on-line videos in changing perceptions of students enrolled in AG 150S "Be a master student".. The objectives of the study were:

Objective 1: Describe the demographic characteristics of students with regard to gender, major, year in college, GPA, family ancestry, languages spoken, background, Internet access, and ownership of music player devices

Objective 2: Describe students' awareness of international agricultural issues, students' prior international experiences, students' level of interest in engaging in international activities, perceived barriers in participating in study abroad programs, and students' likelihood of participating in study abroad programs.

Objective 3: Describe students' learning regarding study abroad opportunities within the College of Agricultural Sciences.

Objective 4: Describe students' perceived usefulness and reliability of various sources of information.

Objective 5: Determine the factors contribute to students' perceptions regarding participating in study abroad programs and knowledge gain.

Limitations of the Study

The limitations of the study are as follows:

1. The population studied was limited to students enrolled in Fall 2006 Ag 150S "Be a master student" in the College of Agricultural Sciences at Penn State University.

Assumptions of the Study

The assumptions made during this study:

1. It was assumed that improvement in students' knowledge was directly linked to their exposure to the treatment/activity; and

2. It was assumed that changes on students' perceptions were directly linked to their exposure to the treatment/activity.

Operational Definitions

1. **Browser:** A software system that provides access to the World Wide Web and other Internet utilities.
2. **Internet:** The global computer network that interconnects all other networks using a common telecommunications protocol (TCP/IP).
3. **iPod:** The iPod is a brand of portable media player designed and marketed by Apple Computer. Devices in the iPod range are primarily music players however the full-sized model stores media on an internal hard drive.
4. **Media:** A variety of ways to access information which includes pictures, radio, sound recordings, television, video recording, and Internet content.
5. **Podcast:** Sound files that are distributed over the Internet for playback on mobile devices like iPods and personal computers.
6. **On-line video**: For the purpose of this research, on-line video is a type of video that Internet users can start watching the video before its file is completely downloaded onto their computers. The viewer is previewing the video file during the download process and the viewer can only watch the movie from the hard drive.
7. **ANGEL:** Course management system (CMS) available for use by instructors, students, and staff at Penn State University. ANGEL makes course materials such as syllabi, schedules, announcements, lecture notes, quizzes, and multimedia

resources available on the Web. Instructors can manage the administrative aspects of courses and it offers communication features between faculty and students and students to other students.

8. **Letterboxing:** Letterboxing is the practice of transferring widescreen films to video formats while preserving the original aspect ratio. Since the video display is often in a squared aspect ratio, rectangular videos must include masked-off areas above and below the picture area.
9. **Ag150S "Be a master student":** This is a required course for first- or second-semester standing students in the College of Agricultural Sciences at Penn State University. It meets the requirement for freshmen seminar within the college. Students explore agricultural issues and research methodologies through literature review, library searches, field studies, and critical thinking.
10. **PRA:** Participatory Rural Appraisal is a type of needs assessment used mostly in developing countries. Stakeholders including community members are encourage to participate in the process.
11. **Wiki**: It is an open source web application that allows multiple authors to add, remove, and edit content.

Chapter 2

REVIEW OF LITERATURE

Communication is a complex process and multiple barriers need to be overcome for effective communication to take place. On a daily basis, miscommunication can be observed in families, among friends, and employees. Some of this disconnect can be explained by distortion of messages, noise in the communication channel, and inappropriate feedback. Within a university system, the generational gap between professors and colleges students often seems wider than previous generations; these differences contribute to poor communication and frustration. Devices such as cell phones, iPods, and the Internet are transforming the university atmosphere and students are more than ever connected to the Internet (Debard, 2004; Oblinger, 2003a).

Changes in communication processes ultimately impact how people learn and the way people expect to learn. Traditional teaching may not as effective for Generation Y as it was for previous generations of students. Higher education needs to comprehend recent changes in communication processes and most importantly how these changes impact the current and future educational system. This study aims to determine the effectiveness of on-line videos in changing students' perceptions and their knowledge gain toward participating in study abroad programs. In particular, literature in the following three areas were reviewed:

1. Videos in educational settings, video production, on-line videos and video limitations;

2. new generation of learners, the importance of adapting learning for this audience and recruitment strategies; and
3. internationalization of curriculum, and the importance of participating and motivating students to join international study abroad programs.

Video in Educational Settings

In the recent past, videos were primarily viewed through video cassette recorder (VCR), television, and cinema. In the last ten years the technology necessary to produce, edit, and publish videos have become increasingly cheap, portable, and self-explanatory (Johnson, 2007; Fielder, 1993). Society has access to technologies that are capable of recording moving images through devices such as cell phones, digital cameras, and web cameras. Videos can be transferred to compact discs (CDs), flash drives, Internet, and iPods (Johnson, 2007; Shepherd, 2003). The power and accessibility of cell phones, digital cameras, and digital video cameras is empowering people throughout the globe. Video production can be done on a notebook computer and videos can be ready to be displayed over the Internet within minutes from anywhere in the world. For instance, Saddam Hussein death's video was shot through a cell phone camera and it was made available over the Internet and on television within few hours (Johnson, 2007).

Learning with Videos

Throughout the years, learning through video and audio has induced a series of studies. Wetzel, Radtke, and Stern (1994) noted that evaluation cycles on videos exist mainly because educational institutions needed to prove the effectiveness of innovative techniques. Wetzel et al., (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.

Researchers 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 into an articulate, vivid description through the use of images (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 processes, and by demonstrating learners how processes should take place (Howe, 1983).

A pilot study conducted by Fielder (1993) analyzed the effectiveness of college recruitment videos with high school students. The study analyzed the content and structure of three collegiate recruitment videos to determine whether videos influenced students' knowledge gained and perceptions toward higher education institutions.

The following research questions guided the study: 1) What re-occurring themes or messages compose the video's content within a specific category or image video? 2) Which video, in a specific category, was most effective in message retention? The pilot study ultimately measured the video effectiveness based on short term memory message retention.

The results from the content analysis demonstrated that the three recruitment videos evaluated in the study devoted similar amounts of time to the following categories: 1) testimonials, 2) student-teacher interaction, 3) campus /building/town aesthetics, 4) text, 5) varsity athletics, 6) student activities, 7) academic symbols, and 8) other. The content

analysis also identified the categories: 1) testimonials, 2) student-teacher interaction, and 3) campus /building/town aesthetics, to be heavily portrayed within the first three to four minutes of the videos (Fielder, 1993).

In the Fielder study, videos were shown to sixty-seven college-bound high school seniors. After watching the videos, the content analysis revealed that students remembered most from each of the videos. From the eight content categories, students remembered most about student-teacher interactions and campus aesthetics. The study demonstrated that there is a close relationship between what is shown in the first three to four minutes with the information retained by students (Fielder, 1993). This study implied that students' attention spans lasts for a few minutes while watching these three videos. Students tended to dismiss much of the information received after the first three to four minutes. Fielder (1993) concluded that videos are a key source of influence for college-bound individuals.

In order to change attitudes and perception of teaching science, Hazen, Kelly, and Sramek (2002) developed a video that could be used in workshops, seminars, outreach, and counseling careers sections. Their study examined whether using video as a recruitment tool for students and professionals would positively change their perceptions towards teaching science and mathematics.

The primary audience for the project included students in grades 10 to 12, high school and college counselors, student services, career counselors and advisors. The five essential points that were communicated to the audience were: 1) teaching science and mathematics is rewarding as a career option, 2) a career in math and science is doable and affordable, 3) improving the quality of teaching of these subject matter is critical to the U.S., 4) there is a

need to increase teachers' diversity, and 5) math and science are interesting, fun, and fascinating (Hazen, et al., 2002).

Pre and post open-ended surveys were created in order to determine changes in attitudes and perceptions of high school students regarding math and science teaching (Hazen, et al., 2002). Among the respondents that participated in workshops, students noted that math and science played an important role in our society dealing with technology. Participants realized that math and science can be fun if appropriate techniques are applied and others had their perceptions changed regarding careers in math and science. Some professionals stated the video was able to reconnect the idea of passing along the enjoyment of discovery, and that good teaching is key to learning math and science (Hazen et al., 2002).

Video Production in Education

Although videos can induce different virtual experiences as visualizing concepts and provoke a variety of emotions within viewers, it is important to keep in mind that videos sometimes are not able to bridge the gap between the student and the content. Hartsell & Yuen (2006) suggested that videos developed in a studio instead of developed in a classroom would better address students individually.

The use of production methods and techniques in instruction and learning aims to produce materials that meet the general standards of technical quality and enhance learning. In order to enhance learning, professional video production rules should be applied in any instructional video production (Cofield, 2002; Hartsell & Yuen, 2006; Wetzel et al., 1994). Editing techniques such as realism and rapid cutting (transitions between shots) should be used in videos in order to boost students' attention (Wetzel et al., 1994). Mazur (2000)

studied the benefits of applying film theory on instructional videos by incorporating the simplest cinematic conventions in a distance education course. During a methods and supervision course using two-way-video classes, students were exposed to close-ups, various camera angles, and static and moving cameras. Ninety percent of the students responded that they would take a second course using the same format because they found the course to be interesting, informative, and satisfying.

One of the main purposes of using production techniques is to cue viewers' attention to important parts of the video presentation. Instructional video presentations often use more than one format such as documentaries, dramatizations, panel discussions, news broadcasts, and game shows, as a way to introduce variety and sustain the students' interest (Wetzel et al., 1994).

Another important facet of video production in today's society is the Music Television (MTV) syndrome. Targeting young audiences, the MTV channel has been showing music video clips and related pop music content for at least 25 years. MTV video clips are developed in a format that contain less focus on the subject matter. Pace and subjectivity are the main focus of these video clips. In fact, pace and subjectivity, in MTV video clips are used to intensify particular shots and induce emotions within the audience, while trying to disconnect the audience with reality. MTV video clips also influenced other mass communication mediums such as movies and advertising (Dancyger, 2002).

Pacing

Production techniques go beyond scene angles and cuts. Video features that could be beneficial for today's students are pace and length of the videos. Hoban and Van Ormer (1950) found that when pacing films and videos, the medium should be slow enough to

permit learners to grasp the material as it is shown but fast enough to keep their attention. Both educational and commercial televisions have incorporated short film sequences in order to demonstrate specific actions (Erikson & Curl, 1972). The practice of pacing information also applies to verbal communication. In a narrative, the number of words per minute correlates negatively with information recall. However, the proper pace at which information should be presented to learners is also determined by a particular content and students' needs.

Studies tend to favor shorter length educational videos raging from 25 to 30 minutes (Wetzel et al., 1994). Fielder (1993) found that high school students had an attention span that last for only a few minutes and loss of viewer's interest occurred after three to four minutes of viewing. Fielder (1993) further suggested that videos should partially rely on fast paced scene changes and should have a total length between six to eight minutes. This recommendation supported Shepherd's (2003) opinion where the author emphasized the importance of showing short segments of videos in order to maximize learners' concentration.

Interactivity

Another important characteristic of videos is the amount of interaction they offer to viewers. Interactivity, speed, intensity, movement, sound, and colors influenced the learning process when information is delivered (Boster et al., 2006; Cofield, 2002). This fact is particularly important when videos are delivered through computers and instructors have little control over how the information is presented to students. The more interactive the video, the higher is the possibility of information recall (Kris, 2005; Shepherd, 2003).

Other elements that were discussed by Mazur (2000) to create a sense of participation in videos were: 1) close-ups as a way to create intimacy with other students; 2) medium shots

in order to draw viewers attention and focus; 3) long shots with pans to establish context with the shot providing continuity; and 4) changing frames using zoom in or zoom out to create visual interest and drawing in from a general to a specific focus.

Use of music

Regarding the use of music in video production, Paivio's dual coding theory assumed that memory and cognition are served by two separate symbolic systems, verbal information and visual image. Although they function independently, most mental processing involves connections and reinforcement between the two systems (Paivio, 1991; Paivio & Csapo, 1979). An earlier study concluded that background music may decrease students' learning by distracting them from the content of presentations (Wakshlag, Reizt, & Zillmann, 1982). However, this study noted that given a choice, students were more likely to select and watch short educational programs when they were accompanied by music with a fast tempo and an appealing melody.

Cofield (2002) and Lai (2000) emphasized that audio elements can: 1) gain and maintain attention, 2) direct viewers attention to details of the visual, and 3) influence the pace of visual presentations. The use of music in videos that target teenagers and prospective college students may be seen as a motivational strategy when colleges produce recruitment videos (Cofield, 2002). Even though research suggested the importance of adding audio to visual presentations, there was a lack of guidance on how to use auditory and visual presentations with computer based instruction. Videos produced for 15 to 25 year-olds should take into consideration the "MTV syndrome". Because of the number of music videos produced and their presence and attractiveness to youth, MTV music film style has

influenced the film industry. Part narrative, part atmosphere, sound intensive, and image-rich, these videos have a remarkable appeal to younger generations (Dancyger, 2002).

On-line Videos

On-line videos have become a powerful tool in today's society. Companies are marketing products and services through them and even colleges and universities have started to use videos in their recruitment web pages (The Pennsylvania Sate University [PSU], 2007; Budweiser, 2007). Probably one of the most striking examples on how powerful on-line videos have become is their influence on the war in Iraq. Iraq and United State's public are being influenced by this new media. According to Johnson (2007) videos of U.S soldiers displayed over the Internet and broadcast over television are used to recruit Iraq insurgents and intimidate Iraqis.

> "Most large-scale attacks on U.S. forces are now filmed, often from multiple angles, and with high-resolution cameras. The footage is slickly edited into dramatic narratives: quick-cut images of Humvees exploding or U.S. Soldiers felled by snipers are set into religious soundtracks or chanting, which lends them a triumphal feel (Johnson, 2007, p. 31)".

Not only teenagers are more than ever influenced by videos on-line but also the corporative world. The corporate world has joined teenagers in a rush to use on-line videos. CNN, NBC, MSNBC, Budweiser, Coke, and presidential candidates, Hilary Clinton and Barack Obama, are using YouTube as a promotional channel (YouTube, 2007). The fast pace of change in society requires the workforce to be up-to-date and to use modern

technology to convey messages and meanings (Bailey & Stefaniak, 2002). In addition, distance education courses delivered over the Internet and through video conferencing are changing the way education is disseminated (Shepherd, 2003).

As learning on-line become more a common practice in education, on-line videos and audio will play a larger role in delivering course materials to students. The understanding of on-line videos and its characteristics, effectiveness and limitations in higher education are extremely important for universities that are willing to better serve future and current college students (Shepherd, 2003).

On-line video is a specific term that usually refers to moving images that are accompanied by audio that are delivered over the Internet (Cofield, 2002; Lai, 2000; Reed, 2003). "Video streaming utilizes advanced video compression algorithms as well as new network protocols…," "…to allow video to begin playing on the end user's desktop shortly after the request to view the video is received by the server hosting the content. With streaming video, a few seconds of packetized video is buffered at the end-user's desktop and the video begins to play out of the buffer as the rest of the file streams in" (Genovese, 2000, p. 33).

A study conducted by Thompson (2002) concluded that 92 percent of teens are connected with the Internet; 44 percent think the Internet has changed the way they get information on products and services; and significant numbers were watching less TV and reading fewer magazines. On-line-related advertisement by the industry hit approximately US$1 billion dollars in 2005 and it is expected to reach approximately US$2.3 billion dollars in 2008 (Kerschbaumer, 2005).

Videos are an important hobby for young adults but they are potentially a powerful tool that can be used in a wide array of educational settings. Researchers have also suggested there is better retention of visual elements by students and that videos are extremely appealing to young people (Canning-Wilson, 2000; TechNews, 2007; Weiler, 2004; Wetzel et al., 1994).

There has been great interest in education about 'on-line media' but there was little evidence to justify its use and inconsistencies in the educational literature lead us to careful evaluation (Boster et al., 2006; Shepherd, 2003). As an instructional tool, streaming videos are becoming widespread phenomena in elementary, secondary and college education. A body of literature on current and potential uses of streaming videos exists; however among all the references used, only two studies were conducted using experimental design research methodology. Still, little was known about the impact of this communication technology on students' learning (Boster et al., 2006; CoField, 2002) and change on students' perceptions toward study abroad programs.

Some of the advantages of using video on-line for educational purposes were discussed by Weiser (2006) and Boster et al., (2006). Video streaming does not require a large amount of computer memory since images are not stored on a hard drive. Because there are no hard copies of the videos, the costs of on-line video collections were lower and teachers and students could have instruction whenever and wherever they wanted if they have equipment and access. There was no need to reserve video players or to purchase TVs. Classes could access content-specific segments of a video or certain videos rather than sitting through an entire video. In order to master content, students could watch the same video as many times as needed.

Streamed videos differ from conventional VCR-based videos because they can be viewed in many of the circumstances facilitated by VCR and television but they are potentially more adaptable and more interactive to students' needs (Shepherd, 2003). Like other ways of delivering videos, on-line media could also help learners understand complex concepts and procedures that are difficult to explain with simply text and graphics (Hartsell & Yuen, 2006).

When producing videos to be published over the Internet, production should take into consideration the limitations of the bandwidth. Some of the recommendations in the literature suggested the use of talking heads shots so the videos will less likely to be jumpy because the computer does not have to refresh a lot of information over the Internet. The use of bright solid colors is the best choice of colors because dark colors can confuse the compression software. And, videos will likely to be jumpy if they have too much movement (AboutvideoEditing, 2003). During the editing phase, adding interactive elements to on-line videos more than just the standard play, pause, and stop buttons seemed to increase the length of time users watch advertisements. The more clickable features the video has the more time is spent watching them (Kris, 2005).

Howe (1983) suggested that there are different types of learners when information is delivered through the Internet. There are students who want straight instruction, students who appreciate open-ended programs but want guidance to learn, and students who are very happy with open-ended programs. In terms of viewers' attention and comprehension, research suggested that simpler and more straightforward video formats are preferable to complex and elaborate videos. Educational programs and videos that develop a single topic are better attended and result in better immediate learning (Wetzel et al., 1994).

Cofield (2002) experimented with analyzing the effectiveness of on-line videos in augmenting web-based instruction. The objectives of the study were to: 1) determine whether demographic characteristics would lead to significant different beliefs about the use and the effectiveness of on-line videos, and 2) determine whether there were characteristics of on-line videos that would lead to beliefs about the effectiveness of the videos.

Some of the conclusions of the study were: 1) younger students tended to agree that videos helped them understand the content and older students tended to disagree. 2) graduate students tended to disagree that on-line videos held their attention and undergraduates tended to agree. 3) students with more web experience tended to agree that on-line videos held their attention. 4) gender did not lead to significant different beliefs regarding the use and perceived effectiveness of videos. Cofield (2002) concluded that video clips in web-based instruction may be an effective tool to hold students' attention and stimulate interest.

Regarding the attributes of on-line video, Cofield (2002) used movies that were one quarter of the normal computer screen. Cofield (2002) found that the size of the image had no negative impact on students' feelings about the videos. Strachan (1996) and Cofield (2002) argumented that the human eye is capable to discern details and make use of on-line video clips. Regarding the sound quality of on-line videos, previous studies discussed that sound quality is one of the most critical media components when trying to get a message across over the Internet (Cofield, 2002; Hartsell & Yuen, 2006; Reeves & Nass, as cited in King, Harner, & Mayall, 1999; Wetzel et al., 1994).

Potentially, many other video production techniques may influence students' learning and achievement while learning through videos. However, students learning abilities could impact the learning processes. Kappes and Schmidt (2002) evaluated the effectiveness of

using QuickTime movies in an introductory food science and human nutrition course. The study tried to determine whether learning through videos depended upon the student's learning style. The study, conducted at University of Illinois during Spring 2000, was based on the Gregorc Style Delineator. After completing the survey, students were classified into one of the four learning styles: 1) concrete sequential, 2) concrete random, 3) abstract sequential, and 4) abstract random. Three videos were used to reinforce concepts taught in class and they were available at the course website throughout the semester. The first movie provided by Northern Illinois University illustrated the action of an enzyme, the total length was 22 seconds. The second movie explained the nutritional differences between fresh and frozen vegetables using a news story format and it was a minute and 45 seconds long. The third movie provided by Sun-Maid Growers explained the process of drying grapes and was one minute and 40 seconds in length. Students evaluated movies using a scale from one to ten, one being not effective and ten being extremely effective in understanding the content. Statistical comparisons were conducted between: class demographics and QuickTime ratings, learning styles and QuickTime ratings; and rating between the three QuickTime movies (Kappes & Schmidt, 2002).

Kappes and Schmidt (2002) found no significant differences between students' demographic characteristics and QuickTime movie ratings. However non-science major students rated QuickTime movies better than science majors. These were able to recall concepts more easily on an exam because they watched the QuickTime movie. On the other hand, science major students indicated that they had already learned the concept in another class, so movies were of little value to them.

Regarding the relationship between learning styles and QuickTime ratings, there were no statistically significant differences. Students from all learning styles rated the movies similarly. The independent variables such as gender, college major and university enrollment year did not significantly impact students' rating (Kappes & Schmidt, 2002).

Boster et al., (2006) studied the effectiveness of video on-line of educational achievement on 913 third and eighth-grade students at thirteen schools located mostly in rural areas. Participants received exposure to the unitedstreaming^{TM} application which is a digital video-on-demand service developed by Discovery Education (2007).

Instructors were asked to show 30 pre-selected video clips that were related to content being taught in the classroom within a 30-day period. Teachers participating in the experiment were allowed to show extra videos during that month while the control group had no exposure to the unitedstreaming^{TM} videos. Third graders who were exposed to either the social science or science videos had a significant higher achievement than the students in the control group. Eighth graders who were exposed to science videos had similar achievement in terms of grade when compared with the control group. However, eighth grade students who were exposed to social science videos scored significant higher than the control group (10.65 and 16.77, $p<.001$) (Boster et al., 2006).

The researchers concluded that seven factors may have influenced the results of the study, such as, the quality of the videos, different level of development between the two groups of students, and teachers' technological skills (Boster et al., 2006). Boster et al. (2006) stressed the importance of longitudinal studies in order to track the impact of on-line video interventions.

According to Boster et al. (2006) and Cofield (2002) on-line videos can be an effective tool for various reasons: 1) video on-line may enhance student attention; 2) video on-line may help prepare teachers to be more effective into the classroom; and 3) on-line videos may change the nature of classroom interactions in ways that facilitates learning. Even though on-line videos could be an effective educational tool for instructors, little is known about the impact of on-line videos on students' knowledge gained and changes in perceptions when videos are the main source of information.

Video Limitations

Video as described by Shephard (2003) does not support active learning. The lack of user control and passivity of students were some of the basic limitations of video. However these factors were probably decreased when videos were delivered through computers. Comprehending the process of learning through on-line media was a challenge, mainly because the low number of evaluations for the efficacy of individual learning resources in higher educational settings (Shephard, 2003).

Technology limitations

Video streams can be bandwidth intensive. Users who have 56k modems or even cable/DSL connections may have difficulty in terms of retrieving and playing the streamed videos (Genovese, 2000; Hartsell & Yuen, 2006). For that reason researchers should plan to overcome this barrier when conducting research or teaching through videos. One common recommendation was to offer videos in two different formats. Compressing videos for Dial-up and DSL Internet connection are some of the ways to overcome bandwidth restrictions (Hartsell & Yuen, 2006). Also, lack of training and technical support can prevent effective

video on-line use and research (Hartsell & Yuen, 2006). In academic institutions, it is sometimes difficult to sustain on-line video research and use, mainly because of limited access to technology and availability of knowledgeable experts who can assist in maintaining and developing on-line videos (Hartsell & Yuen, 2006; Shephard, 2003). Due to digital rights, there were few videos that had shared digital rights, which might decrease teachers' motivation and ability to incorporate video on-line in their lessons (Boster et al., 2006).

New Generation of Students

Characteristics

Generation Y, Net Generation, Digital Generation, Echo Boom Generation, or Millennials are the common names used for those born between 1982 to 2002 (Howe & Strauss, 2000; Gardner & Eng, 2005; Skiba & Barton, 2006). Cell phones with video cameras, on-line pizza orders, and text messaging are some of the things that Generation Y are very used to completing on a daily basis. Other generations like the "Baby Boomers", those born between 1943 and 1960, and the "Generation X", those born between 1961 and 1981, are not as uniquely prepared to use technology as those from Generation Y (Gardner & Eng, 2005). A new terminology seems to be emerging to describe those born before 1982. Digital natives and digital immigrants is being used to differentiate old college students (those born before 1982) and current college students (those born between 1982 and 2002) (Skiba & Barton, 2006).

Howe and Strauss (2000) presented seven traits that distinguish Millennials from previous generations. 1) *Millennials are Special*. In general, Millennials have Baby Boomer

parents. Their parents and older generations have transferred feelings that they are important to their parents and to the society. Parent-child relationships are strong and Millennials usually refer to their parents as their best friends. These ties are so important that the college application processes are taking into account both parents and the student when producing application materials (Lowery, 2004).

2) *They are Sheltered*. They grew up in an environment full of kid safety rules. Lowery (2004) pointed out examples where students accepted an university policy of notifying parents when students abuse alcohol and use drugs.

3) *Millennials are Confident.* They express trust and optimism and a deep connection with parents. Their technological skills are influencing their confidence. In most cases, Millennials are beyond their parents and instructors' technological proficiency (Skiba & Barton, 2006).

4) *They are also Team-oriented*. Millennials have developed a strong sense of team work from participating in sports teams and group learning activities. This team orientation may explain the extensive involvement of Milennials with community service (Lowery, 2004).

5) *They are Achieving*. By taking standardized tests with high accountability, this generation is becoming the "best-educated and best behaved adults in the nation's history" (Howe and Strauss, 2000). It is cool to be smart (Lowery, 2004).

6) *Millennials are conventional*. Howe and Strauss (2000) suggested that whom are comfortable with their parents' values and they represent the most conservative youth culture in recent history. Students will push college administrators to provide a classic college experience (Lowery, 2001).

Finally, 7) *Millennials are Pressured*. This generation of students is submitted to large amounts of pressure and exhibit high levels of anxiety and stress (Lowery, 2004). They also take advantage of opportunities and are pressured to succeed (Howe & Strauss (2000); Oblinger, 2003a; Lowery, 2004)

Skiba and Barton (2006) discussed Millennials traits and how these traits could impact teaching. The Generation Y grew up in the digital era (Giordani, 2005). Because they have had years of digital on-line computer and gaming experience, they have acquired digital visual and spatial skills. Oblinger (2005) stated that this generation is more comfortable with images than text. Thus, lectures and Power Point presentations are not as effective for these learners. "Since they don't respond to lecture format", it could be beneficial to take advantage of their ability to multitask by including web link resources in course notes (Skiba & Barton, 2006).

This generation of learners wants to construct their knowledge and prefer actions as way of learning (Oblinger & Oblinger, 2005). Learning does not happen in isolation and students prefer to learn by doing. Social interactions promote the use of text messaging, blogging, and IM which makes learning more engaging according to their perspective (Skiba & Barton, 2006). Learners also have little tolerance for delays and emails are described as "so yesterday" when compared to Iming and text messaging. They expect instant access and instant responses (Skiba and Barton, 2006).

Generation Y has already arrived in universities throughout the country and adapting teaching and introducing technology into the classroom seems to increase their learning and their motivation to learn (Oblinger & Oblinger, 2005; Skiba & Barton, 2006). However, this generation is inducing other types of changes. Employers are changing their recruiting and

employment strategies to attract new employees (Giordani, 2005) and colleges are using more and more technologies in student recruitment (Tower, 2006).

College Recruitment

In college recruitment it is important to build, strengthen, and maintain relationship with-college bound individuals (Tower, 2006). Kealy and Rockel (1987) listed the major sources of information for college-bound individuals. College alumni, college students, high-school students, course listings, and description of campus life were the major sources of information used by future college students (Chapman, 1981; Kealy & Rockel, 1987). Much has changed since the days where college recruitment was solely based on written materials. Today most of college recruitment has increasingly become a digital process (Rozelle & Landis, 2002). According to the National Research Center for College and University Admissions (NRCCUA), 74% of prospective college students reported using the Internet as their major information source when searching for college (Noel-Levitz, 2005). Prospective students also reported that the information displayed on universities webpages "greatly increased" or "somewhat increased" their interest in applying to institutions (GDA Integrated Services, 2000-2001). Universities have the opportunity to engage and change student's perceptions toward their institutions by modifying their websites and displaying meaningful information for Generation Y. Martin (2006) recommended universities consider including student quotes and student photographs to increase the likeability and attractiveness of college Web sites. Martin (2006) suggested that recruiters should consider presenting information in a way that is pertinent to those searching for information rather than displaying text. Practitioners should also consider using first- and second-person in messages to increase engagement.

Kang & Norton (in press) investigated how colleges and universities interactively connect with their public. Ninety-two percent of the educational institutions use their web-sites for recruitment by providing admission and scholarship information, 91 percent provide financial information, and 96 percent provide news about the school. All pages included e-mail addresses, over 80 percent provided feedback forms and connection tools to communicate with alumni. There was also a relationship between the presence of feedback form and student retention rate in the institution. Universities that display more interactive communication tools have higher retention rates (Kang & Norton, in press).

Rozelle and Landis (2002) noted that the more time spent on a university web page the better students' perceptions were regarding getting a realistic overview of the university. A possible explanation for this phenomenon is the fact that students value the on-line information as much as they value informal interactions with peers, and on-line information is used along with other information sources. Videos and brochures appeared to be the most common secondary sources of information when students surf university web sites.

Despite the importance of recruiting students into the higher education and the large amount of money invested to recruit prospective students, various institutions have little knowledge on which marketing and recruitment activities are most effective (DesJardins, Dundar, & Hendel, 1999). Understanding the effectiveness of on-line tools such as videos, brochures and testimonials in persuading students to join determined programs could enhance the current recruitment practices.

Colleges of Agricultural Sciences and internationalization of the curriculum

As the world becomes closer due to the globalization process there is a need to develop communication skills and the ability to work with other cultures. Cultural awareness and cultural difference acceptance are competitive advantages for many students and professionals around the globe. In a world connected by technology, economic links and global challenges, it is vital that American students understand and learn to work alongside those from different backgrounds. Since the beginning of the 21st century, the interest of employees with global outlook and the ability to perform in multiple contexts has been growing rapidly. Various reports on how globalizing agricultural sciences programs in America stressed the importance of building professionals with agricultural international perspectives. Among the critical issues were: 1) enhance global competitiveness of U.S. agriculture, 2) develop and disseminate information about market and business opportunities, 3) promote trade through global development and establish mutually collaborative global partnerships (National Association of State Universities and Land Grant College [NASULGC], 1997; NASULGC, 2005; NASULGC, 2002).

Trying to keep up with graduate employers' demand, higher education experienced various transformations when adapting undergraduate curriculum to social, economical, cultural, and globalization processes (Navarro, 2006). Van den Bor, Bryden, and Fuller (1995) highlighted three areas of knowledge that gained relevance in higher education: information technology, international orientation and social dynamics. Unfortunately, Navarro (2006) and Hodson (2003) also noted that undergraduate agricultural and science curricula have not been completely updated in most universities in United States. Information technologies and globalized social dynamics impact instructors' understanding

on how students acquire and develop complex scientific understandings (Hodson, 2003). Thus changes in curricula and instructional methods need to take place (Navarro, 2006).

In the last decade, introducing international changes in agricultural sciences curricula has proven to be a national challenge. Hodson (2003) suggested that science professors are more likely to resist to changes. Since science professors deal with secure and established knowledge, it is hard for them to incorporate innovative teaching approaches to traditional content curricula (Hodson, 2003). Changes in curricula may be perceived as loss of control, thus faculty members tended to resistant to change (Hodson, 2003).

Several studies discussed ways to internationalize undergraduate education in colleges of agricultural sciences in the U.S. Some of the recommendations were: 1) inclusion of international faculty members in American universities, 2) globalization of curricula, 3) interaction with international students, 4) introduction of students to international experiences, 5) teaching using international perspectives, and 6) raise language requirements (Arker & Scanes, 2000; Arker, 1999; Arker & Scanes, 1998; Bruening & Frick, 2004; Etling, 1996; Miller & Madou-Bangurah, 1993; Picha, 2002).

Brooks, Frick & Bruening (2006) assessed the perceptions of faculty employed in Colleges of Agricultural Sciences at 1862 Land Grant Colleges and universities toward the internationalization of curriculum. In 2006, 29 out of 49 Land Grant institutions offered students international agriculture programs. In a society that is becoming extremely interconnected, it is striking to observe that only 60% of all Land Grand Universities that offer agricultural programs have international programs. Among these institutions, Brooks, et al. (2006) identified, study abroad (100%) and international graduate research (100%) the most common international programs, followed by graduate programs (90%), international

visitors (90%), international students on campus (90%), international minor (81%), foreign contracts (84%), course content (81%), certificate (48%), and international extension programs (29%).

Benefits of Study Abroad

Maha and Asay (2003) evaluated the impact of three international study experiences within college students. Researchers found that regardless of method of teaching, academic orientation, students' leadership style, tour format, and destination, international experiences had a powerful impact on students. Students' skills improved in terms of cultural knowledge, awareness, group dynamics, personal growth, and self-discovery. Zhai and Scheer (2002) investigated the impact of participation in a study abroad program(s) within featured College of agriculture students. This qualitative study, focused on the attitudinal change, acquisition of knowledge and/or skills, and motivational factors influencing participation in international programs. Eighteen undergraduate students who studied abroad in the Czech Republic, Mexico, and Swaziland participated in three structured focus groups. Study abroad experiences had a positive impact on students' attitudes toward cultural diversity. Seventy-eight percent of the students reported increasing self-confidence, self-efficacy, cultural diversity, and global perspective. In terms of attitudes, 100 percent of the students had positive attitude towards the host country. Forty-four percent of the students learned about host country history and culture. Thirty-three percent indicated they increased coping skills, travel skills, and communication skills. Among the motivational reasons, eight out of the 18 students indicated the ability to experience something new, time, and costs as major

motivational factors. Interest and peer influence were the other major criteria (Zhai and Scheer, 2002).

Bruening and Frick (2004) evaluated the impact of a ten-day field study trip to Puerto Rico on eleven students. A qualitative inquiry method was used to collect information from students. As a result of the tour, student knowledge acquisition occurred in three major content areas: agricultural production, cultural differences and similarities, and use of modified Participatory Community Appraisal (Chambers, 1994). Other perceived learning outcomes were awareness on the importance of speaking a second language, identification of professional goals and objectives, and communication skills.

Picha (2004) evaluated the impact of a course titled "International Horticulture" developed to provide a multi-disciplinary and global perspective approach to students at Louisiana State University. No significant changes in perceptions were observed in terms of motivation to learn a second language and perceived importance of learning Spanish as a second language.

Even though research demonstrated the importance of study abroad experiences, motivating agricultural students to participate into these programs is a challenge that many universities face. A study conducted by Place, Irani, Friedel, and Lundy (2004) described students at the collegiate level in terms of beliefs, attitudes, and perceptions toward international involvement. Differences between perceived importance and perceived possession of knowledge regarding international activities were calculated to determine areas of greatest need. The subjects of greatest needs were:

- Knowledge on other countries' culture,
- Knowledge of global agricultural markets,

- Knowledge on economical issues between United States and other countries,
- Knowledge on humanitarian issues between U.S. and other countries,
- Knowledge on political issues between the U.S. and other countries (Place et al., 2004, p. 290).

Place et al. (2004) revealed a direct correlation between student's year in college and overall importance of the attributes and between possession of knowledge regarding international activities. The more advanced students are within their academic programs, the higher their perceived perceptions regarding the importance of international involvement activities.

In 2001/2002, according to the Institute of International Education [IIE], The Pennsylvania State University ranked 9th among the top research institutions in the United States regarding the number of students participating in Study Abroad Programs, in 2003/2004, Penn State University's ranking fell to 19th.

Table 1: 2003/2004 Student participation in short-term study abroad programs that lasts eight weeks or fewer. (IIE, 2004)

Rank	Top Doctoral/Research Institutions in U.S.	Number of students	Percentage (%)
1	University of Delaware	1,174	90.9
2	Florida State University	812	83.0
3	Texas A&M University	887	80.7
4	Michigan State University	1,803	79.5
5	University of Georgia	1,293	78.0
6	Ohio State University-Main Campus	891	76.0
7	Purdue University, Main Campus	677	75.5
8	Arizona State University - Tempe Campus	982	72.4
9	Miami University - Oxford	870	66.5
10	University of Florida	954	62.1
11	University of California - Los Angeles	1,042	62.0
12	Brigham Young University	796	59.6
13	University of North Carolina at Chapel Hill	1,070	58.8
14	University of Texas at Austin	1,177	58.5
15	University of Southern California	729	58.2
16	University of Illinois at Urbana-Champaign	832	56.1
17	University of Pennsylvania	836	55.5
18	University of Minnesota - Twin Cities	778	47.4
19	**Pennsylvania State University - University Park**	**886**	**47.2**
20	New York University	1,068	43.2

Overall, enrollment in educational abroad programs at Penn State University by college illustrates that two thirds of the students that participate in study abroad programs are enrolled at the Business Administration, Liberal Arts, and Arts and Architecture Colleges. Only 14% of that students that participate come from the Colleges of Science, Health and Human Development, and other 12 colleges. The numbers are even more dramatic in the College of Agricultural Sciences (CAS), only 1% of enrolled students participated in abroad programs during 2003/2004 (Education Abroad, 2003-04).

A survey conducted by Mamantova and Bruening (2005) analyzed the awareness of international programs of undergraduate students in the CAS. The authors identified the

major constraints of CAS students in participating in international activities as being: 1) financial costs of the programs, 2) overall time it would take to participate, 3) language barriers, and 4) the difficulty of adding more credit hours to an existing academic program of study.

Summary

As human beings, we strive to develop technologies to make our life better. The creation of the Internet has transformed the way people interact, communicate, and ultimately learn. The impact of its incorporation in our society is so profound that a generation of people has emerged. Generation Y, formed by those born after 1982, is driving the development of services that could not exist before. Since they were born in the digital era and grew up using Internet, blogs, and IMing, technology is not something new it is -- something that makes their life enriched. The characteristics that used to describe generation Y learners are: visual, multi-takers, hands-on, and group oriented. Educational systems around throughout the United States strive to fulfill the workforce demand for graduates. However, recruiting and engaging this new generation of learners it is a challenge for most college administrators and professors. Some of the traits that are valued by employers are technological and global skills. On way of developing a global perspective for students is to have them participate in study abroad programs. In College of Agricultural Sciences, students are less likely to participate in those programs. This study aims to determine the effectiveness of using video on-line in changing CAS students' perceptions and knowledge gain regarding participating in study abroad programs. The results of this study may be used to guide new teaching methods and the development of on-line recruitment strategies for study abroad programs.

Chapter 3

PROCEDURES OF THE STUDY

Purpose and Objectives of the Study

The purpose of this study was to determine the effectiveness of video on-line in modifying students' perceptions and knowledge gained regarding study abroad programs. In addition, this study aims to investigate the causes and effects of on-line videos in changing perceptions of students enrolled in Ag150S “Be a master student”. The objectives of the study were:

Objective 1: Describe the demographic characteristics of students with regard to gender, major, year in college, GPA, family ancestry, languages spoken, background, Internet access, and ownership of music player devices

Objective 2: Describe students’ awareness of international agricultural issues, students’ prior international experiences, students’ level of interest in engaging in international activities, perceived barriers in participating in study abroad programs, and students’ likelihood of participating in study abroad programs.

Objective 3: Describe students’ learning regarding study abroad opportunities within the College of Agricultural Sciences.

Objective 4: Describe students’ perceived usefulness and reliability of various sources of information.

Objective 5: Determine the factors contribute to students’ perceptions regarding participating in study abroad programs and knowledge gain.

The following null hypotheses were generated to guide this investigation:

1. There is no relationship between student's perceptions regarding participating in study abroad programs and knowledge gain and demographic variables: (a) gender, (b) major, (c) college year, (d) GPA, (e) family's ancestry, (f) background, (g) Internet access, (h) type of Internet access.
2. There is no difference between the quality of the three on-line videos in terms of overall quality of the videos.
3. There is no modification in students' perceptions regarding participating in study abroad programs, awareness on International agricultural issues, international experiences prior to coming to Penn State University, level of interest in engaging in international activities, and usefulness and reliability of different sources of information after being exposed to the treatment.

For the purpose of this study, study abroad recruitment videos were developed and used in an on-line activity. The on-line video activity consisted of three videos followed by an on-line survey (Appendix A).

This section of the study involved several phases: 1) development of multimedia instructional materials with on-line videos, 2) pilot testing of the instructional material, 3) the quasi-experiment.

Development of Multimedia Instructional Material

On-line Videos

Three on-line videos were developed between May 2006 and August 2006. The content of the three videos were based on existing study abroad programs offered by the College of Agricultural Sciences (CAS). Penn State University has multiple study abroad

opportunities within the CAS, however the focus of the videos was based on programs that existed within three countries: Puerto Rico, Brazil, and Russia. These countries were selected based on the ability to conveniently collect video footage of these three study abroad destinations. These international programs have slightly different characteristics and content of the videos was developed in such a way that emphasized those differences.

The Puerto Rican video was based on a modified Participatory Rural Appraisal [PRA] in Puerto Rico. Participatory Rural Appraisals are used by developmental organizations such as the World Bank in order to assess the needs of rural communities throughout the world (Chambers, 1994). For this project the final step of the PRA which consists of writing a plan of actions, did not take place. During the ten days in Puerto Rico, the principal investigator collected images of students in Puerto Rico when conducting the PRA, interacting with locals, and experiencing culture. Students' testimonials were also collected during the international tour and upon the students' return to campus. The second video was based on study abroad educational trip to Brazil. The first trip to Brazil occurred in 2003 when five graduate students from Penn State University conducted a modified PRA, which also did not included writing a plan of actions report. Footage shot at that time was incorporated into the final project. During a second trip to Brazil the remaining footage was collected during May 2006. The principal investigator collected images in multiple agricultural sites and tourist attractions. The third video focused on semester long study abroad program in Russia which began in 1997. The program Russian host institution is Moscow State Agroengineering University. As part of a semester long program American students travel to Moscow and enroll in 18 credits during the spring semester. Images from eight years of footage were selected to compose the final video.

Before the videos were created, students who had previously participated in study abroad programs were to secure their perceptions regarding appropriate content. Upon their return from Russia, Puerto Rico, and Brazil, students were asked to give their inputs in terms of which information should be included in a study abroad recruitment video. Students were given six categories in order to provide their feedback. These categories were: 1) educational activities, 2) social activities, 3) culture, 4) students' perspective, 5) information, and 6) environment. These sections were selected based on Fielder's (2003) study and the most common activities facilitated by study abroad tours. Students' suggestions were collected via e-mail. Six out of 14 students who traveled to Puerto Rico provided their input, three out of five students who traveled to Brazil provided feedback, and four out of seven students provided feedback for the Russian program. Students' suggestions were used when selecting and producing footage for the recruitment videos.

Each video had slightly different themes based on the purpose of each study abroad program.

Table 2: Countries and themes used to produce each of videos

Countries	Selected themes
Puerto Rico	PRA, culture, and fun
Brazil	Culture and agriculture
Russia	Barriers of participating in study abroad programs and learning

A common characteristic in all videos was the way the message was conveyed, a student perspective was selected when presenting the content. In all videos, students were used to convey messages and no actors and professors participated in the videos. Students

also helped in other aspects of the production of the videos such as adapting the written scripts and narrating some of the shots. Videos descriptions are found below:

Puerto Rican video: During 2006 spring break (eleven days), 14 Penn State University students participated in a study abroad PRA at Puerto Rico. This video is a collection of images and students testimonials about this experience. Educational activities like interviewing farmers, working with Puerto Rican students, and final presentations to local farmers were included. Regarding social and cultural activities the video exposed students to beach and waterfall shots, shots of Old San Juan, and a trip to the El Yunque rain forest. Student's testimonials introduced students to reasons to study abroad and students explained some of the educational activities that took place during the tour. (Duration of the video: seven minutes)

Brazilian video: The video presented Brazil as one of the many destinations for CAS students to study abroad. It started with a student wondering about places to study and ends with the student trying to fit a study abroad program into his schedule. The video presented students many of the country's natural attractions like the Iguacu falls, the Pantanal wetland area, and the rich variety of plants and animals that can be found in rural Brazil. There were cattle production shots where the Nelore breed was introduced as the main breed used by local farmers. Brazilians were portrayed as having a multicultural background and outgoing personality. Regarding education, the video had two Brazilian students' testimonials that explored what international students could see and do when studying in Brazil. (Duration of the video: seven minutes)

Russian Video: This video contained an overview of the program that involved Moscow State-Agroengineering University and Penn State University. This program is

coordinated by Penn State University. Two students who participated in the program presented the advantages of participating in a semester long study abroad program by emphasizing what employers look for in future employees. The students discussed some of the common barriers that lead student not to participate. The barriers were: costs, overall time to participate, lack of language skills and difficulty in relating or fitting the program in a four-year bachelor's degree program. The video also exposed students to Russian culture and music. (Duration of the video: nine minutes)

Technology used

Videos were produced using a Sony HDV Camcorder HDR-HC1, and footage was collected in high definition (1080i) using wide screen format (16 x 9). Videos were digitally edited using an editing application called IMovie HD 6. This application is found on most Macintosh computers. In order to guarantee high quality sound in the final product, professional wireless microphones were used to capture sound in most of the testimonials.

Another similarity among the videos is the use of background music. Music was added during the editing phase to increase interest and help the flow of the videos. The volume of the music was reduced when narration and testimonials were taking place.

When producing the videos, the researcher applied a variety of angles shots to increase interest. Various perspectives were used when collecting footage and action shots and photos were highlighted. Videos were edited with the intension of keeping the pace of the video dynamic. Pictures and other diverse footage were included to create context, however this information was edited in such a way that each scene would last up from five to six seconds. When footage of a particular action was excessively slow, images were edited

and the pace was increased. The use of humor took place through repetition of scenes and use of editing techniques such as N-Square, mirror, and aged film effects commonly found on IMovie HD editing options.

Each of these videos were captured using digital video (DV) and high definition digital video (HDV), and footage was captured using two different formats, the squared format (4x3) and the rectangle format (16x9). Thus, letterboxing, the practice of transferring widescreen films to video formats while preserving the original aspect ratio, had to be used since videos were captured in both square (ratio 4 x 3) and widescreen (ratio 9 x 16) formats. The Russian and the Brazilian videos contain letterboxing. This footage was previously shot using this format was incorporated into the widescreen project. Approximately, the first thirty seconds of each video were used to grab the attention of the viewers and no substantive informative content was shown.

Videos were then compressed using compression type H.264 and screen size 500 by 281 pixels. After the compression, no significant visible difference could be noticed between the footage that was captured in high definition and final digital video quality for Internet viewing. When watching the compressed videos, students had the ability to play, to stop, to move forward, to move backward, and to adjust the volume of the videos. Videos were available to Ag150S “Be a master student” students through ANGEL. In Figure 1, a snapshot of the computer screen of the compressed video viewed from a student perspective can be seen.

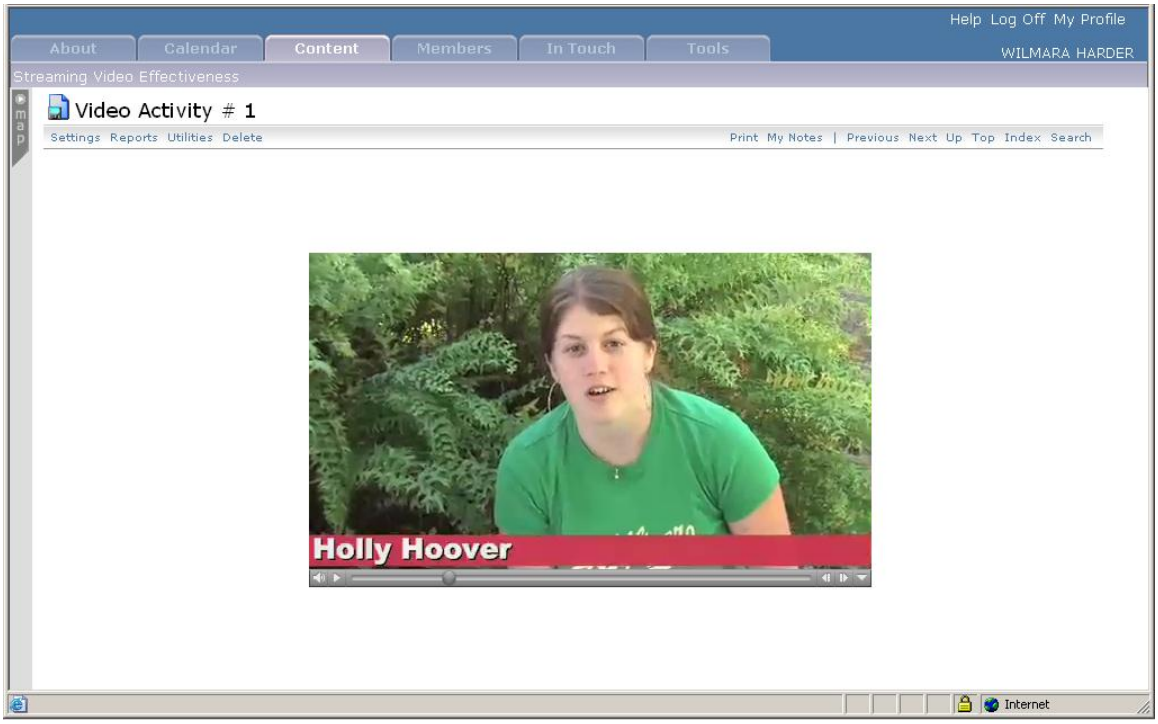

Figure 1: Snapshot of the compressed video that shows a student providing her perspective regarding the PRA process.

After the development of the videos, a ten question on-line survey activity was developed. This survey contained quantitative and qualitative questions. Students were asked to complete this activity after watching each of the three videos on ANGEL. Directions on how to view the videos and complete the survey activity were written and posted on ANGEL. Students had to complete three open ended questions related to the content of the videos. In addition to the knowledge questions, students were asked to answer a series of multiple choice questions: 1) students' perceptions regarding the effectiveness of the video, 2) barriers to participating in study abroad programs, 3) how many times students watched the videos, 4) whether students would indicate that video to friends, 5) rate overall quality of the video, 5) students' likelihood of participating in study abroad programs offered by the CAS (Appendix A.). Students' perceptions and perceived barriers were measured by a

five point Likert-type scale as 1 = strongly agree, 2 = agree, 3 = strongly disagree, and 0 = don't know.

Pilot testing of the instrument and the research process

After the development of the instructional material (videos, on-line survey, instruments), a pilot test of the study was conducted. Students enrolled in the College of Agricultural Sciences that had already taken Ag150S in the past were invited through e-mail to participate in the pilot study. Eight undergraduate students and six graduate students participated in the pilot study. The one shot case study pre-experimental design was used to collect the data for the pilot test and is as follow:

$$X \qquad O_1$$

X= the treatment (to read the instructions and to watch on-line videos)

O_1= treatment testing

The instructional activity was posted on Penn State University's course management system web-site (ANGEL, https://cms.psu.edu). The students used one of the CAS computer labs to complete the activity. The lab was reserved for this activity so no other students interfered in the pilot study. In order to access the activity, students were included in a research group named "On-line Video Effectiveness" on ANGEL. After watching the videos, students completed the posttest survey.

When interacting with students, it was decided to include two extra lines on the instructions for the activities: 1) students should use both earphones when watching the videos and 2) students should make sure that the sound volume in the computer was not muted. Also one of the students noted a misspelled title in the Puerto Rican movie; this title

was changed before the experiment took place. No significant changes were made on the posttest instrument.

Population and sample

The population of the experiment consisted of all students enrolled in any of the nine sections of Ag150S "Be a master student!" during Fall 2006. This is a required course for all students enrolled in the College of Agricultural Sciences. Students in the CAS must take Ag150S "Be a master student!" course in order to graduate and all students in the College have the same change of enrolling in any of the Ag150S sections. Mamantova (2005) described students enrolled at Ag150S "Be a master student!" as a group composed by 60 percent of the students being male, 95 percent were freshman, and 84 percent of the students considered themselves having European/Caucasian ancestry. For this study, students' information was obtained through ANGEL and from interaction with Ag150S instructors. Students enrolled in Ag150S during fall 2006 formed the frame of this study. Students' selection was considered random due to the nature of the course, the groups were already formed before the experiment took place (Campbell & Stanley, 1963). For fall 2006, the number of students enrolled in each section of Ag150S can be found at Table 3.

Table 3: Students enrolled in Ag150S: Be a master student!" during fall 2006.

Ag150S "Be a master student!" section	Number of students enrolled
1	24
3	9
4	10
5	28
6	21
7	20
8	10
9	20
10	14
Total	156

Design of the Study

Description of the Treatment

Students within the treatment group were exposed to the computer-based instructional unit, which included the instructions for that activity, the on-line video, and the on-line survey activity. The instructional activity was posted on Angel on Penn State University's course management system web-site (ANGEL, http://cms.psu.edu). Each student had to use their Penn State University access identification and password to log in to the website. Any computer connected to the Internet could be used to access the web-site. In order to watch the videos, computer should have QuickTime version 7.0 installed and all computers labs within the Penn State University system had the application installed.

Students were purposefully assigned to treatment groups according to their professor's ability to include the study activities in their syllabus (Coyne, 1997; Sandelowski, 2000). All the eighteen professors of the nine sections agreed to participate in the study

however, only professors who agreed to include the video activity in their syllabus had their sections included in the treatment group

A quasi experimental research design controlled for before and after the treatment was used in this study (Grimshaw, Campbell, Eccles, and Steen, 2000). The design is illustrated in Figure 2.

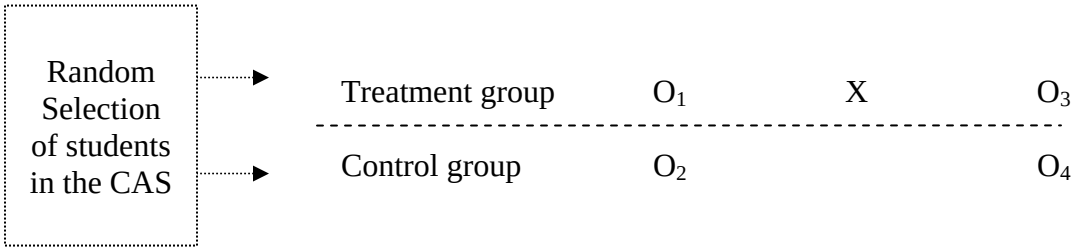

Figure 2: Experimental design used in the study

X = the treatment (the treatment group received the instructional activity formed by three on-line videos and three on-line surveys)

O_1 and O_2 = pretest for treatment and control group, respectively

O_3 and O_4 = posttest for treatment and control group, respectively

Treatment group = formed by Ag150S sections 1, 5, 7, 9, and 10

Control group = formed by Ag150S sections 3, 4, 6, and 8.

Experimental Validity

Internal Validity

In order to ensure internal validity and accuracy of the data, several procedures were implemented. To avoid bias, selection of the students participating in the study was random. 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. Even though the

experiment took place within a two-month window, sensibilization through the use of pretest might have occurred since the instrument used for pre- and posttest was identical. Data procedures were identical for the treatment and control groups. History and maturation were not a concern in this study, mainly because respondents were 18-years of age or older and the time between pre-and post is considered short.

All the students in the population were used to ensure that an adequate number of respondents to guarantee statistical powers of the data. Students were rewarded with participation points when completing the on-line activities; which addressed mortality in the experiment. It was never mentioned to participants that there were two different groups, students did not know if some of them were part of the treatment or the control group. Such design controlled for the expectancy effect threat "halo effect" where participants in the treatment could try to perform better. All students had access to their course Angel website.

External Validity

In order to limit the interaction of testing, a two month period occurred between the pre and posttest. In-class presentations regarding international activities did not take place during this period. There is no threat regarding the selection of the students to participate in the study, because groups were already formed before the experiment took place. However, there could be a bias when assigning the sections for the treatment groups. It could be assumed that professors that perceived study abroad activities to be important were more likely to include the treatment/activity in their syllabus. This was a census study, which eliminates the threat of having a sample that does not represent the population. The multiple treatment interaction was not a threat since only one treatment was used during the experiment.

Instrumentation

The instrument designed for this study contained four sections: 1) items related to students' perceptions toward international activities, 2) items related to usefulness and reliability of various sources of information, 3) knowledge test on the information convey by the videos, 4) demographics. Questions regarding students' perceptions were developed based on the instrument developed by Mamantova (2005) and Place, Irani, Friedel, and Lundy (2004). Section one of the instrument contains questions on students' perceptions, section two contains questions regarding the usefulness and reliability of information sources and section three is formed by the knowledge test. (Appendix B.)

Section 1: Students' perceptions toward participating regarding international activities. This section of the instrument was developed to collect data to provide an overview on students' awareness of international issues, students' international experiences prior to coming to Penn State University, students' level of interest in participating in international activities, and students' perceived barriers to participating in international programs. These questions were developed based on the survey conducted by Place et al. (2004) and Mamantova (2005). This section contained 40 items. Questions were measured using two different Likert-type scales. The scales were: 1) 1 = strongly agree, 2= agree, 3 = disagree, 4 = strongly disagree, 0 = don't know; and 2) 1 = very interested, 2 = interested, 3 = slightly interested, 4 = not interested, and 0 = don't know.

Section 2: Usefulness and reliability of various sources of information was included in section two. This section was developed to collect information regarding students' usability and reliability of various sources of information for study abroad opportunities within a college. Twelve information sources were ranked by students. This section also contained a

question how much information students have learned about study abroad opportunities in the College of Agricultural Sciences since the beginning of the Fall 2006 semester. Students responded to questions using three different Likert-type scales. The scales used were: 1) 1 = a lot, 2= something, 3 = a little bit, 4 = almost nothing, 5 = don't know; 2) 1 = very useful, 2 = useful, 3 = some what useful, 4 = not useful, and 0 = don't know; 3) 1 = very reliable, 2 = reliable, 3 = some what reliable, 4 = not reliable, and 0 = don't know.

Section 3: International knowledge test. This section was developed to access students' ability to gain information from the on-line videos. Twenty three questions were developed based on the content of the three videos that were presented to the students during a three-week period. Eight questions were based on the Brazilian video, seven questions were based on Puerto Rican video, and eight were based on the Russian video. This section included several questions regarding students' likelihood in participating in study abroad programs offered by the CAS. The question accessing the likelihood of the students was measured using a Likert-type scale where 1 = very likely, 2 = likely 3 = somewhat likely, 4 = not likely, 0 = don't know.

Section 4: Demographics. This section was developed to collect data on students' demographic information. Students' gender, major, college year, estimated GPA, family ancestry, foreign languages spoken, farm background, access to Internet, type of Internet connection, and ownership of iPod were the questions asked.

Review of Instrument

A review of the instrument was conducted by a professor in the College of Agricultural Sciences at the Department of Agricultural and Extension Education who is very

familiar with each of the international agricultural programs. The corrections and recommendations were incorporated into the instrument.

The instrument was approved by the Pennsylvania State University's Office for Research Protections when it was submitted together with other documents for study review. The study was approved (IRB#24021) on September 20, 2006 (Appendix C.). No revisions were necessary to be made to the instrument and other procedures.

Instrument Reliability

To verify the reliability of the instrument used for the study, a pilot study was conducted. The evaluation of internal consistency was conducted. Therefore, a split-half reliability procedure was used. The procedure enabled the determination of whether the three parts of the test measured the same quality or characteristic. Obtained correlation coefficient was entered into Spearmen-Brown formula to calculate the whole test reliability.

The same procedure of reliability coefficient calculation was done for both the pre- and posttest. The reliability coefficient of .72 and, .79 for the Pre-test and Posttest, respectively were obtained (see Table 4). All calculations were completed using SPSS version 14 for Windows software.

Table 4. Reliability Coefficients for the Pilot test and Pre-test.

		Pilot Test	Pre- Test	Posttest
	Number of Items	Spearmen-Brown Reliability Coefficient		
Section I	30	.80	.72	.76
Section II	30	.84	.78	.77
Section III*	23	.68	.48	.67
Total	83	.86	.72	.79

Data Collection

The data was collected from September 18th to November the 5th, 2006. Pre- and Posttest data were collected during class for all Ag150S sections. The web-based Penn State University course management system (ANGEL http://cms.psu.edu) was used for the purpose of the experiment. This system allowed students to view the on-line video independently during a designated ten-day period for each video. Each student could complete the activity from any computer connected to the Internet and at anytime when the activity was available on the course website.

During the on-line activities the researcher interacted with respondents through emails. Emails were sent each time an activity was posted on Angel, reminders were sent three days prior to the final due date, and at the same day the activity was due. Students enrolled in Ag150S were rewarded participation points for completing the on-line activities. All the students had to complete the activity for class purposes. However, their participation

in the study was voluntary. A consent letter was presented to the students after the posttest was distributed. All students signed the consent letter during the posttest. Students that did not sign the consent letter, however completed the pre-test were not included in the analysis.

Students completed the pre test instrument before they were exposed to the treatment. The information about time, on-line survey submission, and duration of students' access to the experiment was recorded by "ANGEL". Later, the data were retrieved from "ANGEL" in a format compatible with SPSS 14 statistical software.

Data Analysis

After collecting the data, all quantitative data were analyzed using Statistical Package for Social Science (SPSS v. 14). The following statistics were used to analyze the data:

1. Frequencies and distributions were used to describe respondents' demographics, languages spoken, and family background.
2. Descriptive statistics were used to assess level of knowledge and importance on international activities, interest in participating in international activities, perceptions on participation barriers, learning during Fall 2006 semester, usefulness and reliability of various sources of information, and participation likelihood.
3. An independent t-test was employed to examine the differences between the means obtained for the control and treatment groups. Sixty two items were compared using t-test statistics. They were respondents' level of knowledge (seven items) and importance (seven items)on international activities, interest in participating in international activities (eight items) , perceptions on

participation barriers (eight items), learning during Fall 2006 semester (six items), usefulness and reliability of various sources of information (twenty four items), and participation likelihood (two items). Students' performance on a 23-question knowledge test was also compared using an independent t-test.

4. Multivariate analysis of variance (MANOVA) was used to identify differences between the on-line videos. A post hoc follow up test was performed when significant differences resulted from the MANOVA.
5. In order to comprehend how different variables relate to each other a Pearson correlation analysis was run. This correlation was run with the independent variables: 1. Quiz score, 2. Importance of international issues, 3. Possession of knowledge on international issues, 4. Interest in participating, 5. Perceived barriers, and 6. Learning during Fall semester, and the dependent variable (DV) 1. Participation.
6. A regression analysis was run in order to determine the best predictors for study abroad participation. The variable included in the analysis were: 1. Quiz score, 2. Importance of international issues, 3. Possession of knowledge on international issues, 4. Interest in participating, 5. Perceived barriers, and 6. Learning during Fall semester, and the dependent variable (DV) 1. Participation.

Qualitative data obtained from open-ended questions was subjected to content analysis. A cross-case analysis for each of the three qualitative questions was used. Answers from different respondents were grouped by question and type of the video. The content

analysis began by identifying patterns, followed by using descriptive codes, and finally by categorizing the patterns. After categorizing the patterns, they were ranked according to the number of times their codes were cited (Patton, 1990, p. 376-377; Creswell, 1998, p.147).

Chapter 4

RESULTS

The purpose of this study was to determine the effectiveness of video on-line in modifying students' perceptions and knowledge gained regarding study abroad programs. In addition this study was intended to describe students' perceptions toward international activities within CAS. The study sought to determine factors that contribute to increasing participation on international activities within CAS at Penn State University. In addition, this study aims to investigate the causes and effects of on-line videos in changing Ag 150S students' perceptions. Both descriptive and inferential statistics were used to describe students' demographics, their perceptions toward participating in international activities, perceived barriers toward participating in international activities. A knowledge test was developed to access student's knowledge. The findings are described in the following sections by each objective in the study.

Demographic Information on Respondents

Objective 1: Describe the demographic characteristics of students with regard to gender, major, year in college, GPA, family ancestry, languages spoken, background, Internet access, and ownership of music player devices.

The total number of student respondents was 156. One hundred and forty five questionnaires were finalized as usable data and no incomplete surveys were removed. Student participation per section can be observed in Table 5.

Table 5: Student participation in the study by Ag 150S "Be a master student" section

Section	Number of Students	Percent (%)
1	25	18
3*	7	5
4*	10	7
5	28	20
6*	17	12
7	19	13
8*	10	7
9	17	12
10	10	7
Missing	2	
Total	143	100

* Control group

The majority of the respondents were female (58%) while the male respondents were accounted for 42% of the population. Thirty percent of the respondents intended to enroll at the Animal Sciences major, followed by Undecided students (11%), Environmental Resource Management (8%), and Wildlife & Fisheries Sciences major students (8%). Figure 3 describes respondents in terms of intended Penn State University major enrollment. (Note: Penn State University does not officially enroll students until the second semester of the sophomore year)

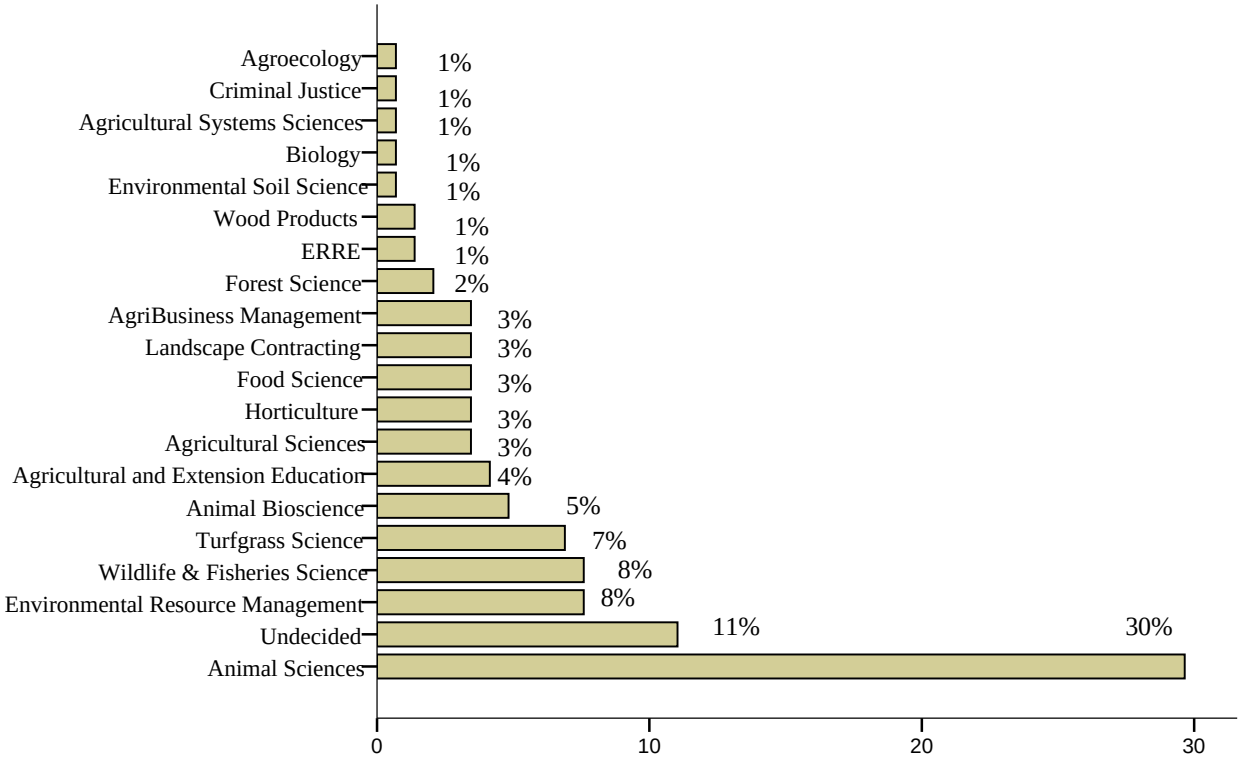

Figure 3: Percent of students per major

Roughly 94% of the respondents were freshmen students, 4% were juniors, and 1% were seniors and graduate students. (see Figure 4)

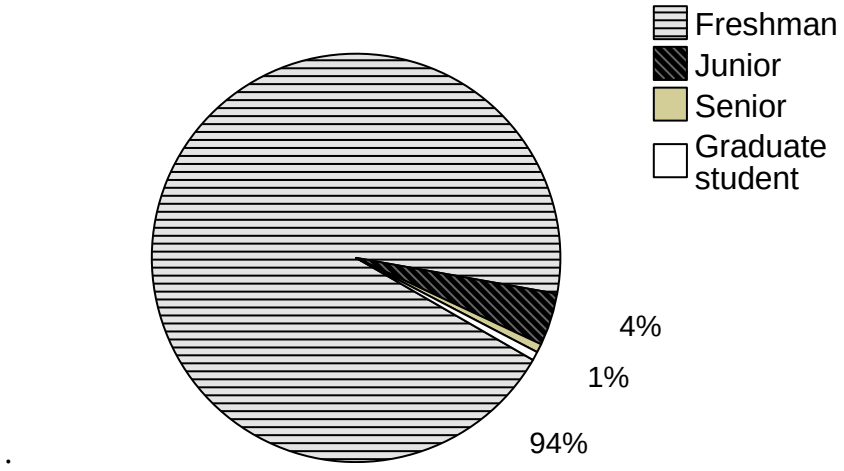

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Figure 4: Respondents' year in college

Figure 5 shows the anticipated GPA for the respondents. Sixty two percent of the students anticipated a GPA between 3.0 and 3.49, followed by 18% that anticipated a GPA of 3.5 to 4.00, 15% anticipated a GPA between 2.5 and 2.99, 4% anticipated a GPA between 2.00 and 2.49, and 1% of the students anticipated a GPA less than 2.00 (see Figure 5).

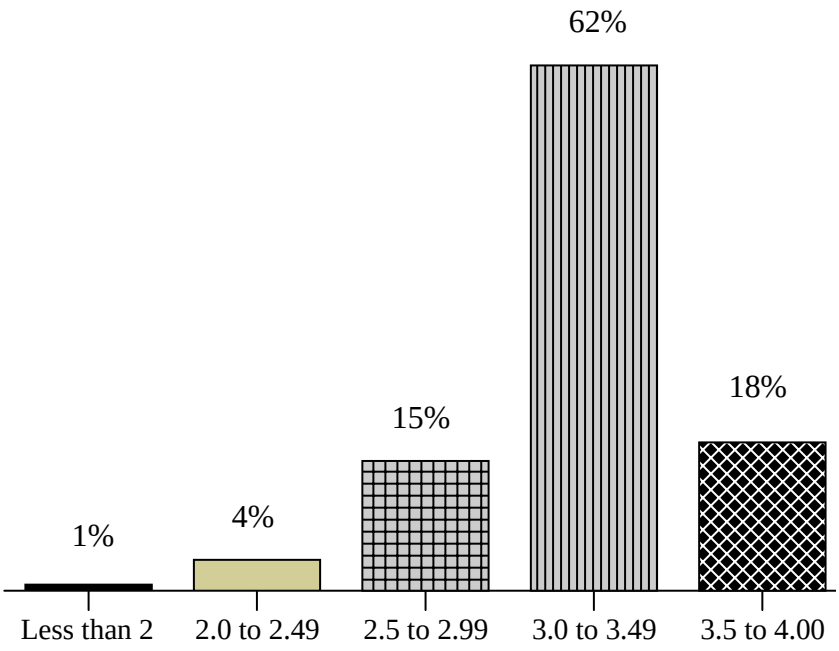

Figure 5: Anticipated grade point average of the respondents

Ninety percent of the student reported coming from a European/Caucasian family ancestry, 4% reported being from Hispanic/Latinos, 4% were black/African American, 2% were Asian, and 1% were Native Hawaiian or other Pacific islander (see Table 6).

Table 6: Respondent's family ancestry

Family's Ancestry	Respondents	Percent (%)
European/Caucasian	128	90
Hispanic or Latino	6	4
Black or African American	5	4
Asian	3	2
Native Hawaiian or other Pacific islander	1	1
American Indian or Alaska Native	0	
Total	143	100

Twenty eight percent of the students speak a foreign language other than English and 3% of the students speak two foreign languages other than English. Among the languages spoken by the respondents Spanish, German, and French were the most frequent (Table 7).

Table 7: Additional languages spoken by respondents

Languages spoken	Respondents	Percent (%)
Spanish	29	60
German	9	19
French	5	11
Mandarin/Chinese	2	4
Indonesian	1	2
Korean	1	2
Italian	1	2
Total	48	100

Seventy nine percent of the students came from an urban background and 21% came from a rural background (see Figure 6).

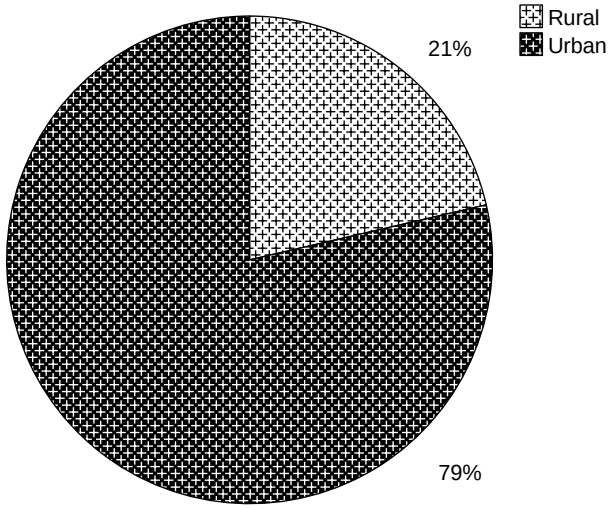

Figure 6: Respondents' background

Regarding the use and access to the Internet, 98% of the students reported having access at home and 2% reported that they did not have access to the Internet at home. Those students who reported having access 30% have access through dial up and 70% have access through cable (see Figure 7).

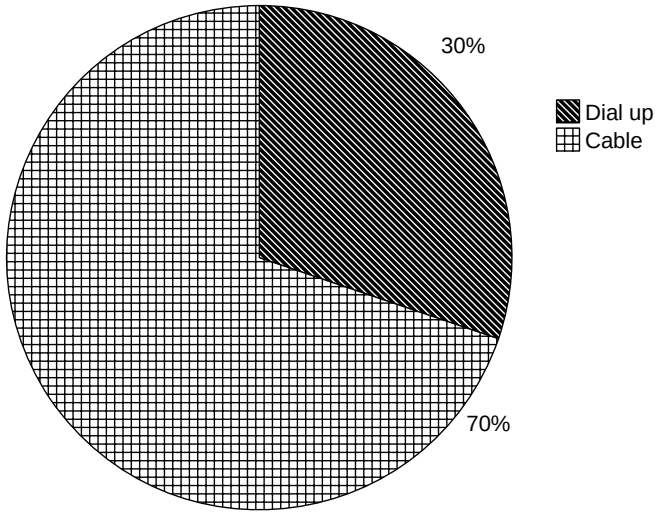

Figure 7: Type of respondent's Internet access from home

Forty seven percent of the students reported having an iPod and 53% of the students reported that they did not have an iPod (see Figure 8).

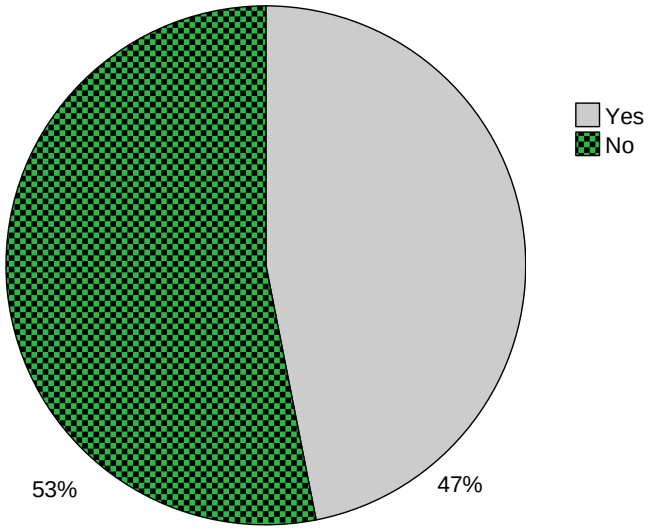

Figure 8: Respondents' iPod ownership

Those who reported having an iPod, 14% have a model that is able to play video podcasts and 51% have iPods that could play music or sound podcasts (see Table 8).

Table 8: Type of iPod owned by the respondents

What type of iPod	Respondents	Percent (%)
Video / 5th generation	10	14
3rd Generation	7	10
Mini /nano	29	41
No response	25	35
Total	71	100

Objective 2: Describe students' awareness of international agricultural issues, students' prior international experiences, students' level of interest in engaging in international activities, perceived barriers in participating in study abroad programs, and students' likelihood of participating in study abroad programs.

Student's awareness of international agricultural issues

The examination of the perceptions regarding how important students perceive international issues and their perceptions to what extent they feel they possess these attributes included seven items. Table 9 presents means and standard deviations for all seven items collected during the pretest for the treatment and control groups.

The means values for perceptions regarding how important students consider international issues ranged from 2.88 to 3.66. Data showed that for both treatment and control, respondents tended to agree with all the seven items.

The item "Ability to interact with people from other parts of the world" received the highest mean values (M=3.62) and (M=3.67) for both treatment and control respectively, followed by "Ability to function as a citizen in a global society" with the mean values of (M=3.57) and (M=3.66) for treatment and control groups, respectively. For four items mean values were between 3.02 and 3.44. The item "Knowledge of production systems in other countries means were (M=2.94) and (M=2.88) for treatment and control groups, respectively.

The means values for the extent students perceive they possess these attributes ranged from 1.91 to 2.91. Data showed that for both treatment and control, respondents tended to agree with four of the items. Treatment and control group tended to disagree with two items.

The item "Ability to function as a citizen in a global society" received that highest means with mean values of (M=2.93) and (M=2.85) for treatment and control groups,

respectively. Three items received mean values falling between 2.79 and 2.91. Both treatment and control groups tended to disagree with the item “Knowledge of production systems in other countries” receiving means values of (*M*=2.19) and (*M*=2.00), respectively. Both treatment and control groups tended to disagree with the item “knowledge of global agricultural export markets and marketing systems” receiving means values of (*M*=2.11) and (*M*=1.91), respectively. The control group tended to disagree (*M*=2.46) with the item “Knowledge and what other countries’ culture has added to U.S. society” while the treatment group tended to agree (*M*=2.68).

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Table 9: Students perceptions toward international issues

Pretest	**Importance**						**Possession**					
	Control			Treatment			Control			Treatment		
	Mean	S.D.	n	Mean	S.D.	n	Mean	S.D.	n	Mean	S.D.	n
Understanding the differences between developed and developing nations	3.16	.53	44	3.14	.46	97	2.80	.78	41	2.88	.66	86
Awareness of cultures of other countries	3.36	.69	44	3.44	.64	100	2.83	.58	42	2.91	.58	98
Knowledge of production systems in other countries	2.88	.78	41	2.94	.62	86	2.00	.73	39	2.19	.61	78
Knowledge of global agricultural export markets and marketing systems	3.10	.63	41	3.02	.68	92	1.91	.85	35	2.11	.73	74
Knowledge and what other countries' culture has added to U.S. society	3.38	.49	42	3.23	.74	99	2.46	.67	41	2.68	.70	91
Ability to interact with people from other parts of the world	3.67	.61	43	3.62	.58	100	2.79	.98	39	2.89	.77	94
Ability to function as a citizen in a global society	3.66	.61	44	3.57	.59	99	2.85	.75	39	2.93	.78	90

Scale: 1 = Strongly disagree (S.D.), 2 = Disagree (D), 3 = Agree (A), 4 = Strongly agree (SA).

Table 10 presents means and standard deviations for all seven items collected during the posttest for the treatment and control groups. This table presents perceptions regarding how important students perceive international issues and to what extent they feel that they possess these attributes. Table 10 included seven items.

The means values for perceptions regarding how important students consider international issues ranged from 2.98 to 3.64. Data showed that for both treatment and control, respondents tended to agree with all the seven items.

The item "Ability to function as a citizen in a global society" had the highest mean value (M=3.43) and (M=3.64) for both treatment and control respectively, followed by "Ability to interact with people from other parts of the world" with mean values (M=3.49) and (M=3.57) for treatment and control groups, respectively. Four items mean values fell between 3.07 and 3.39. The item "Knowledge of production systems in other countries means were (M=3.05) and (M=2.98) for treatment and control groups, respectively.

The means values for the extent students perceived they possess these attributes ranged from 2.11 to 2.98. Data showed that for both treatment and control, respondents tended to agree with four of the items. Treatment and control group tended to disagree with two items.

The item "Ability to function as a citizen in a global society" and "Ability to interact with people from other parts of the world" were the highest means values (M=2.86) and (M=2.98) for treatment and control groups, respectively. Three items mean values fell between 2.73 and 2.89. Both treatment and control groups tended to disagree with the item "Knowledge of production systems in other countries" with mean

values of (M=2.20) and (M=2.18), respectively. Both treatment and control groups tended to disagree with the item "Knowledge of export markets and marketing systems" with mean values (M=2.11) and (M=2.16), respectively.

Table 10: Students perceptions toward international issues

Posttest	**Importance**						**Possession**					
	Control			Treatment			Control			Treatment		
	Mean	S.D.	n	Mean	S.D.	n	Mean	S.D.	n	Mean	S.D.	n
Understanding the differences between developed and developing nations	3.16	.53	44	3.19	.53	96	2.83	.54	42	2.87	.61	93
Awareness of cultures of other countries	3.39	.69	44	3.35	.54	99	2.88	.66	43	2.89	.60	96
Knowledge of production systems in other countries	2.98	.84	42	3.05	.58	92	2.18	.69	38	2.20	.70	87
Knowledge of global agricultural export markets and marketing systems	3.07	.74	43	3.16	.58	92	2.16	.75	38	2.11	.65	89
Knowledge and what other countries' culture has added to U.S. society	3.36	.61	44	3.14	.68	97	2.78	.83	40	2.73	.56	92
Ability to interact with people from other parts of the world	3.57	.59	44	3.49	.56	96	2.98	.92	42	2.86	.64	91
Ability to function as a citizen in a global society	3.64	.53	44	3.43	.65	96	2.98	.83	42	2.86	.63	91

Scale: 1 = Strongly disagree (S.D.), 2 = Disagree (D), 3 = Agree (A), 4 = Strongly agree (SA).

Respondents were asked how they would describe their feelings about study abroad activities (see Table 11 and 12). Seven pairs of dichotomous scale were offered with one as a maximum positive and five as minimum negative. The scores were reversed during the data analysis. Responses in the middle of the scale "3" were considered as neutral responses.

During the pretest, control and treatment groups' respondents agreed that studying abroad is good, beneficial, positive, wise, favorable, fun, and safe (see Table 11).

Table 11: Dichotomous scale regarding perceptions toward participating in international study abroad

Pretest	Control			Treatment		
	Mean	S.D.	n	M	S.D.	n
Good/bad	4.68	.56	44	4.52	.68	98
Beneficial/harmful	4.64	.61	44	4.73	.51	98
Positive/negative	4.70	.51	44	4.60	.62	98
Wise/foolish	4.44	.73	43	4.36	.83	97
Favorable/unfavorable	4.42	.79	43	4.24	.91	98
Fun/Boring	4.64	.65	44	4.49	.84	98
Safe/risky	3.58	.85	43	3.53	.94	97

Scale: 1= Negative minimum, 5=Positive maximum

For the posttest, control and treatment groups' respondents agreed that studying abroad is good, beneficial, positive, wise, favorable, fun, and safe (see Table 12).

Table 12: Dichotomous scale regarding perceptions toward participating in international study abroad

Posttest	Control			Treatment		
	Mean	S.D.	n	Mean	S.D.	n
Good/bad	4.60	.66	43	4.55	.63	98
Beneficial/harmful	4.70	.55	44	4.58	.61	99
Positive/negative	4.64	.57	44	4.54	.63	99
Wise/foolish	4.45	.63	44	4.21	.79	99
Favorable/unfavorable	4.36	.81	44	4.14	.89	99
Fun/Boring	4.66	.65	44	4.51	.68	99
Safe/risky	3.91	.94	44	3.89	.86	99

Scale: 1= Negative minimum, 5=Positive maximum

Students' prior international experiences

Regarding respondents' international involvement prior to coming to Penn State University, Table 13 presents the percentages of "affirmative" responses for all ten items collected during the pretest for the treatment and control groups.

For the control group, three items had positive responses lower than 10%. Two items received positive responses between 30% and 47%, and five items received positive responses between 53% and 91%.

The item "Going to an international restaurant" received the highest percentage of "affirmative" responses (91%), followed by "Interaction with international exchange students (86%), and "International guest speaker in a class" with (70%). The item "Participating in a study abroad program" received the least percentage of positive responses (2%), followed by "Church mission in another country" (8%), and "International study tour (9%) (see Table 13).

For the treatment group, four items had positive responses lower than 10%. Two items received positive responses between 22% and 43%, and four items received positive responses between 55% and 83%.

The item "Interaction with international students" received the highest percentage of "affirmative" responses (83%), followed by "Going to an international restaurant" (82%). The item "Participating in a study abroad program" received the least percentage of positive responses (4%), followed by "Church mission in another country" (5%), "Hosting an international visitor" (9%), and "International study tour (10%).

For the item "Other (if "Yes", indicate please), for both control and treatment groups students indicated that traveling with family or school was the main international activity performed (See Appendix F).

Table 13: Respondents' international involvement

Pretest	Control		Treatment	
	Yes (%)	N	Yes (%)	N
Going to an international restaurant	91	43	82	98
Interaction with international exchange students	86	43	83	100
International guest speaker in a class	70	43	64	100
Attending an international festival	60	43	55	96
Other (if "Yes", please indicate)	53	17	22	32
Taking a class focused on international issues	47	43	43	100
Hosting an international visitor	30	33	9	98
International study tour	9	43	10	89
Church mission in another country	8	40	5	93
Participating in a study abroad program	2	42	4	98

Table 14 presents the percentages of "affirmative" answers for all ten items collected during the posttest for the treatment and control groups, regarding respondents' international involvement while at and prior to coming to Penn State University.

For the control group, three items had positive responses lower than 7%. Four items received positive responses between 10% and 52%, and three items received positive responses between 70% and 86%.

The item "Interaction with international students" received the highest percentage of "affirmative" responses (86%), followed by "Going to an international restaurant" (84%), and "Attending an international festival" with (70%). The item "Participating in a study abroad program" received the lowest percentage of positive responses (5%), followed by "Church mission in another country" (7%), and "International guest speaker in a class (7%) (see Table 14).

For the treatment group, three items had positive responses lower than 10%. Four items received positive responses between 13% and 46%, and three items received positive responses between 78% and 86%.

The item "Going to an international restaurant" received the highest percentage of "affirmative" responses (86%), followed by "Interaction with international students" (85%) and "International guest speaker in a class" (78%). The item "Church mission in another country" received the least percentage of positive responses (3%), followed by "Participating in a study abroad program (7%), and "International study tour (8%).

For the item "Other (if "Yes", indicate please), for both control and treatment groups students indicated that traveling with family or school was the main international activity performed (See Appendix F).

Table 14: Respondents' international involvement

Posttest	Control		Treatment	
	Yes (%)	N	Yes (%)	N
Interaction with international exchange students	86	44	85	98
Going to an international restaurant	84	44	86	97
Attending an international festival	70	44	46	98
Taking a class focused on international issues	52	44	38	98
Other (if "Yes", please indicate)	43	14	13	39
Hosting an international visitor	23	44	13	87
International study tour	10	44	8	98
International guest speaker in a class	70	44	78	98
Church mission in another country	7	44	3	98
Participating in a study abroad programs	5	44	7	92

Students' level of interest in engaging in international activities

Regarding respondents' level of interest in engaging in international activities, Table 15 presents means and standard deviations for all eight items collected during the pretest for treatment and control groups. During the pretest for the control group, the means values for students' level of interest in engaging in international activities ranged from 1.85 to 3.24. Data showed that respondents tended to be interested in five items and slightly interested in two items.

For the control group, the item "Going to an international restaurant" received the highest mean value (M=3.24), followed by "International study tour (10 to 15 days long) with the mean value of (M=3.10), "Participating in a semester long study abroad" (M=3.02), and "Attending an international festival" (M=3.02). The item "Hosting an

international visitor" and "How interested would you be to take a job doing international work in another country" received the lowest mean values of (*M*=2.85) and (*M*=2.48), respectively.

During the pretest for the treatment group, the means values for students' level of interest in engaging in international activities ranged from 1.86 to 3.20. Data showed that respondents tended to be interested in five items and slightly interested in three items.

The item "Going to an international restaurant" received the highest mean value (*M*=3.20), followed by "Interaction with international exchange students" with the mean value of (*M*=2.90), "Attending an international festival" (*M*=2.88). The item "Hosting an international visitor" and "How interested would you be to take a job doing international work in another country?" received the lowest mean values of (*M*=1.86) and (*M*=2.25), respectively (see Table 15).

Table 15: Students' level of interest in engaging in international activities at Penn State University

Pre-test	Control			Treatment		
	Mean	S.D.	n	Mean	S.D.	n
Going to an international restaurant	3.24	.82	42	3.20	.80	98
International study tour (10 to 15 days long)	3.10	1.02	41	2.78	1.12	100
Attending an international festival	3.02	.94	41	2.88	.88	97
Participating in a semester long study abroad	3.02	1.06	41	2.59	1.13	93
Interaction with international exchange students	2.88	.77	42	2.90	.81	98
Taking a class focused on international issues	2.51	1.09	41	2.27	.91	96
How interested would you be to take a job doing international work in another country?	2.48	1.11	40	2.25	1.12	87
Hosting an international visitor	1.85	.95	40	1.86	.88	95

Scale: 1 = Not interested (NI), 2 = Slightly interested (SI), 3 = Interested (I), 4 = Very interested (VI).

Table 16 presents means and standard deviations for all eight items collected during the posttest for treatment and control groups for respondent's level of interest in engaging in international activities at Penn State University

During the posttest for the control group, the means values for students' level of interest in engaging in international activities ranged from 2.12 to 3.28. Data showed that respondents tended to be interested in six items and slightly interested in two items. The item "Going to an international restaurant" received the highest mean value (*M*=3.28), followed by "International study tour (10 to 15 days long)" with the mean value of (*M*=3.12), and "Attending an international festival" (*M*=3.09). The item "How interested would you be to take a job doing international work in another country?" and "Hosting an international visitor" received the lowest mean values of (*M*=2.37) and (*M*=2.12), respectively.

During the posttest for the treatment group, the means values for students' level of interest in engaging in international activities ranged from 1.91 to 3.17. Data showed that respondents tended to be interested in five items and slightly interested in three items.

The item "Going to an international restaurant" received the highest mean value (*M*=3.17), followed by "Attending an international festival' with the mean (*M*=2.99), "Interaction with international exchange students" with the mean value of (*M*=2.89), "International study tour (10 to 15 days long)" (*M*=2.85). The item "Hosting an international visitor" and "How interested would you be to take a job doing international work in another country?" received the lowest mean values (*M*=1.91) and (*M*=2.21), respectively (see Table 16).

Table 16: Students' level of interest in engaging in international activities at Penn State University

Posttest	Control			Treatment		
	Mean	S.D.	n	Mean	S.D.	n
Going to an international restaurant	3.28	.73	43	3.17	.81	98
International study tour (10 to 15 days long)	3.12	.88	43	2.85	.96	97
Attending an international festival	3.09	.88	44	2.99	.79	98
Interaction with international exchange students	2.95	.83	44	2.89	.82	97
Participating in a semester long study abroad	2.73	1.13	44	2.53	1.16	91
Taking a class focused on international issues	2.69	.90	42	2.26	.87	93
How interested would you be to take a job doing international work in another country?	2.37	1.11	43	2.21	1.09	90
Hosting an international visitor	2.12	1.01	43	1.91	.89	89

Scale: 1 = Not interested (NI), 2 = Slightly interested (SI), 3 = Interested (I), 4 = Very interested (VI).

Perceived barriers in participating in study abroad programs.

In order to determine respondents' perceived barriers in participating in study abroad programs an eight item section of the questionnaire was developed. Table 17 presents means and standard deviations for all eight items collected during the pretest for treatment and control groups.

During the pretest for the control group, the means values for perceived barriers ranged from 1.55 to 3.16. Data showed that respondents tended to agree with six items and to disagree with two items.

The control group students tended to disagree with the items "Fear of traveling outside the U.S" and "Don't see the value". These items received the lowest means

values (*M*=1.74) and (*M*=1.55), respectively. Students tended to agree with the items "Concern about financial costs of programs" mean value (*M*=3.16), "Difficulty of adding more credit hours to existing academic programs of study" mean value (*M*=2.95), "I can't speak the language or need better language skills" mean value (*M*=2.95), "Overall time it would take to participate" (*M*=2.85), "Lack of knowledge about availability opportunities" (*M*=2.62), and "Not wanting to spend time away from family/friends" with mean value (*M*=2.51).

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).

Table 17: Perceived barriers towards participating in international programs

Pretest	Control			Treatment		
	Mean	S.D.	n	Mean	S.D.	n
Concern about financial costs of programs	3.16	1.01	44	3.03	.81	97
Difficulty of adding more credit hours to existing academic program of study	2.95	.75	40	2.96	.70	85
I can't speak the language or need better language skills	2.95	1.00	41	2.92	.93	97
Overall time it would take to participate	2.85	.85	41	2.94	.75	93
Lack of knowledge about availability opportunities	2.62	.88	42	2.30	.77	90
Not wanting to spend time away from family/friends	2.51	1.06	43	2.49	.99	98
Fear of traveling outside the U.S.	1.74	1.04	42	1.86	.85	98
Don't see the value	1.55	.74	42	1.55	.76	94

Scale: 1 = Strongly disagree (S.D.), 2 = Disagree (D), 3 = Agree (A), 4 = Strongly agree (SA).

Table 18 presents means and standard deviations for all eight items collected during the posttest for treatment and control groups regarding perceived barriers to participate in study abroad programs. During the posttest for the control group, the means values for perceived barriers ranged from 1.49 to 3.19. Data showed that respondents tended to agree with six items and to disagree with two items.

At the control group, students tended to disagree with the items "Fear of traveling outside the U.S" and "Don't see the value". These items received means values of (M=1.67) and (M=1.49), respectively. Students tended to agree with the items "Concern about financial costs of programs" mean value of (M=3.19), "Overall time it would take to participate" (M=2.90), "I can't speak the language or need better language skills" mean value of (M=2.81), "Difficulty of adding more credit hours to existing

academic program of study" a mean value of (*M*=2.80), "Lack of knowledge about availability opportunities" (*M*=2.56), and "Not wanting to spend time away from family/friends" with a mean value of (*M*=2.50).

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) (see Table 18).

Table 18: Perceived barriers towards participating in international programs

Posttest	Control			Treatment		
	Mean	S.D.	n	Mean	S.D.	n
Concern about financial costs of programs	3.19	.85	43	2.80	.88	95
Overall time it would take to participate	2.90	.73	42	2.79	.75	96
I can't speak the language or need better language skills	2.81	.98	43	2.77	.93	96
Difficulty of adding more credit hours to existing academic program of study	2.80	.72	41	2.83	.67	92
Lack of knowledge about availability opportunities	2.56	.73	43	2.16	.69	96
Not wanting to spend time away from family/friends	2.50	.99	42	2.51	.97	95
Fear of traveling outside the U.S.	1.67	.81	43	1.87	.85	98
Don't see the value	1.49	.51	37	1.52	.69	98

***Scale**: 1 = Strongly disagree (S.D.), 2 = Disagree (D), 3 = Agree (A), 4 = Strongly agree (SA).*

Students that participated in the treatment were asked to react after watching each of the videos. Table 19 presents immediate perceived barriers towards participating in international programs immediately (one week) after students watched the three videos. Students tended to agree with four Items and tended to disagree four Items. Students tended to agree with "Language skill" with mean values (*M*=2.98), (*M*=2.77) and (*M*=2.82) for Puerto, Brazil, and Russia, respectively. Followed by "Ability to fit the program in a 4-year program" with mean values (*M*=2.91), (*M*=2.83) and (*M*=2.77) and "Costs" with mean values (*M*=2.89), (*M*=2.92), and (*M*=2.60) for Puerto, Brazil, and Russia, respectively. The Items "Lack of interest" with mean values (*M*=1.72), (*M*=1.73), and (*M*=1.74), and the Item "Fear of the unknown" with mean values (M=1.72), (*M*=1.92), and (*M*=2.06) received the lowest scores, for Puerto, Brazil, and Russia, respectively.

One way analysis of variance was conducted in order to determine whether there were differences between the effects of the videos in terms students' perceptions towards participation barriers. Scheffé test at .05 level was used to conduct multiple comparisons during post hoc. Means for two items were significantly different at .05 level. "Participation costs" mean for Russia ($M=2.60^{a}$) was significantly lower than the means for Brazil ($M=2.92^{b}$), and Puerto Rico ($M=2.89^{b}$). "Fear of unknown" mean for Puerto Rico ($M=1.72^{a}$) was significantly lower than the mean obtained for the video on Russia ($M=2.06^{b}$). The "Fear of unknown" mean for Brazil ($M=1.92^{ab}$) is not statistically different from the means obtained for Puerto Rico ($M=1.72^{a}$) and Russia ($M=2.06^{b}$).

Table 19: Immediate perceived barriers towards participating in international programs

	Puerto Rico		Brazil		Russia		F	F
	Mean S.D.	n	Mean S.D.	n	Mean S.D.	n	Ratio	Prob.
Language skills	2.98 .76	97	2.77 .72	95	2.82 .86	100	1.899	.152
Ability to fit the study abroad program in a 4-year program	2.91 .78	96	2.83 .71	95	2.77 .86	97	.693	.501
Participation costs	2.89[b] .74	94	2.92[b] .78	91	2.60[a] .87	101	4.742	.009
Time to participate	2.82 .75	93	2.88 .67	90	2.73 .81	99	.979	.377
Miss out PSU on campus activities	2.31 .92	98	2.42 .91	99	2.33 .90	100	.466	.628
Fear of being by yourself/lonely	1.94 .79	97	2.14 .85	99	2.09 .79	97	1.680	.188
Fear of unknown	1.72[a] .73	98	1.92[ab] .81	95	2.06[b] .86	97	4.342	.014
Lack of interest	1.72 .86	95	1.73 .81	93	1.74 .84	94	.028	.972

Note: Entries with the same alphabetical subscripts within each row are significantly different from one another at $p < .05$ using the Scheffé post hoc test. Scale: 1 = Strongly disagree (S.D.), 2 = Disagree (D), 3 = Agree (A), 4 = Strongly agree (SA).

Students' likelihood of participating in study abroad programs

In order to determine respondents' likelihood of participating in participating in study abroad programs two items were developed. Table 20 presents means and standard deviations for the two items developed with data from collected during the pretest and posttest for treatment and control groups.

During the pretest for the control group and treatment group, the means values for likelihood of participation ranged from 1.13 to 2.79. Data revealed that respondents

tended to be likely to participate in shorter study abroad trip and somewhat likely to participate in "semester long" programs.

For treatment and control group the item "10 days during spring break" received mean values of (*M*=2.79) and (*M*=2.42), respectively. The item "Semester long" received means of (*M*=2.13) and (*M*=2.17) for treatment and control groups respectively.

During the posttest for the control group and treatment group, the means values for participation likelihood ranged from 2.05 to 2.81.

For treatment and control group the Item "10 days during spring break" received mean values of (*M*=2.59) and (*M*=2.81), respectively. The item "Semester long" received means of (*M*=2.15) and (*M*=2.05) for treatment and control groups respectively (see Table 20).

The control group means were higher after the treatment (M=2.42) (M=2.81) and the treatment group means were lower (M=2.79) (M=2.59) after the treatment for the "10 days during the spring break" travel experience.

Table 20: Respondents' likelihood of participating in study abroad programs offered by the College of Agricultural Sciences

	Pretest						Posttest					
	Control			**Treatment**			**Control**			**Treatment**		
	Mean	**S.D**	**n**	**Mean**	**S.D**	**n**	**Mean**	**S.D**	**n**	**Mean**	**S.D**	**n**
10 days during spring break	2.42	1.08	38	2.79	1.05	94	2.81	1.07	42	2.59	1.07	96
Semester long	2.17	1.00	41	2.13	1.16	91	2.05	.93	43	2.15	1.14	93

Scale: 1 = Not likely (N.L.), 2 = Somewhat likely (S.L.), 3 = Likely (L), 4 = Very Likely (V.L.).

Students that participated in the treatment were asked to react after watching each of videos. Table 21 presents immediate likelihood of participating in study abroad programs within the College of Agricultural Sciences. Students tended to "Likely" participate after watching all the three videos. The video on Puerto Rico with mean value (*M*=2.75) received the highest likelihood participation mean, followed by the video on Russia (M=2.70) and Brazil (*M*=2.64).

One way analysis of variance was conducted in order to determine whether there were differences between the effects of the videos in terms students' perceptions towards participation. No significant differences were found.

Table 21: Immediate likelihood of participation in study abroad programs after watching each of the on-line videos

	Puerto Rico			Brazil			Russia		
	Mean	S.D.	n	Mean	S.D.	n	Mean	S.D.	n
Likelihood of participation	2.75	1.06	96	2.64	1.04	97	2.70	1.05	94

Scale: 1 = Not likely (N.L.), 2 = Somewhat likely (S.L.), 3 = Likely (L), 4 = Very Likely (V.L.).

Students that intended to enroll in Animal Science Major represented 30% of the respondents. These students formed a large block of students within the College of Agricultural Sciences. In order to understand their specific needs and opportunities to improve international programs in the CAS their likelihood of participating in study abroad programs was analyzed separately (see Table 22).

Students indicated their likelihood of participation in study abroad programs based on the length of the programs. Only 9.5% of animal Science students are not likely to participate in short term study abroad experiences. Where as, 26% of animal science students are not likely to participate in semester long international experiences.

Table 22: Animal Science students' likelihood of participating in study abroad programs offered by the College of Agricultural Sciences

Posttest	Not likely (%)	n	Somewhat likely (%)	n	Likely (%)	n	Very Likely (%)	n	N
10 days during spring break	9.5	21	32.7	49	46.4	28	26.2	42	140
Semester long	26.0	50	40.5	42	16.0	25	33.3	21	138

Scale: 1 = Not likely (N.L.), 2 = Somewhat likely (S.L.), 3 = Likely (L), 4 = Very Likely (V.L.).

Objective 3: Describe students' learning regarding study abroad opportunities within the College of Agricultural Sciences.

Students' Learning about study abroad opportunities

In order to determine respondents' learning regarding study abroad within the College of Agricultural Sciences a six item questionnaire was developed. Table 23 presents means and standard deviations for all six items collected during pretest and posttest for treatment and control groups.

During pretest, control group mean values for learning ranged from 1.06 to 2.26. 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*=1.06). Students tended to learn a little bit from "The Collegian newspaper" (*M*=1.50), "Lectures" (*M*=1.70), "Outside classroom activities" (*M*=1.85), "By yourself through the Internet" (*M*=2.10), and "Talking to friends" (*M*=2.26).

During pretest, treatment group mean values for learning ranged from 1.15 to 2.08. 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=2.08),

followed by “Lectures” with mean value (*M*=1.91), “Outside classroom activities” with mean value (*M*=1.90), and “By yourself through the Internet” with mean value (*M*=1.70). 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*=1.48).

During posttest, control group mean values for learning ranged from 1.14 to 2.20. 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*=2.20) and “Lectures” 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*=1.14).

During posttest, treatment group mean values for learning ranged from 1.49 to 3.39. Students in the treatment group tended to learn a little bit from four items. Students learned something from one item and learned almost nothing from one item.

Students in the posttest tended to learn something from “Videos through ANGEL” with mean value (*M*=3.39). Students tended to learn a little bit from “Lectures” with mean value (*M*=2.45). Followed by learning through “Outside classroom activities” with mean value (*M*=2.36), “Talking to friends” with mean value (*M*=2.01), and learned “By yourself through the Internet” with mean value (*M*=1.99). Students tended to learn almost nothing from “The Collegian newspaper” with mean value (M=1.49).

An independent t-test was run in order to establish whether there were significant differences ($\alpha=.05$) between the control group means (pre and posttest) and treatment group means (pre and posttest).

Independent t-test showed that there were statistical differences between the pretest and posttest scores for the respondents in the treatment group. Students in the treatment significantly increased their learning in four categories. The mean difference between posttest and pretest was higher for "Videos through ANGEL" (2.23), followed by "Lectures" (.54), "Outside classroom activities" (.46), and "By yourself through Internet" with a mean difference of (.29).

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 "Lectures". (see Table 23)

Table 23: Students' learning regarding study abroad opportunities during the Fall 2006 semester

	Pretest				Posttest				X	Independent t-test		Independent t-test	
	Control		Treatment (X_1)		Control		Treatment (X_2)		Treatment Difference	Between Control Groups		Between Treatment groups	
	Mean n	S.D.	Mean n	S.D.	Mean n	S.D.	Mean n	S.D.	X_2-X_1	t	p	t	p
Videos through ANGEL	1.06 36	1.06	1.15 72	.47	1.14 35	.43	3.39* 99	.81	2.23	1.060	.294	22.927	<.001
Lectures	1.70 40	.69	1.91 97	.81	2.12* 42	.83	2.45* 97	.80	.54	2.480	.015	4.731	<.001
Outside classroom activities	1.85 40	.86	1.90 94	.88	1.77 43	.92	2.36* 96	.98	.46	(.421)	.675	3.417	.001
By yourself through Internet	2.10 40	.98	1.70 91	.96	2.07 43	.91	1.99* 96	.96	.29	(.146)	.885	2.041	.043
The Collegian newspaper	1.50 36	.74	1.48 87	.70	1.71 38	.69	1.49 91	.66	.01	1.266	.210	.116	.908
Talking to friends	2.26 38	.89	2.08 98	.93	2.20 44	.85	2.01 96	.90	(.07)	(.303)	.763	(.543)	.588

Note: The significance level of mean differences is ≤ 0.05. Scale: 1 =Almost nothing, 2 = A little bit, 3 = Something, and 4 = A lot.

Students' intermediate term knowledge gain

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 that could range from 1 to 23 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). An independent t-test was run in order to establish whether there is significant differences ($\alpha=.05$) between the means. Independent t-test showed that there were statistical differences between the pretest and posttest scores for the respondents in the treatment group. Students in the treatment group scored higher during the posttest. (see Table 24)

Table 24: Respondents' performance on a 23-item knowledge test

	Control			Treatment			Independent	
	Mean	S.D.	n	Mean	S.D.	n	t	p
Pretest	8.48	2.82	44	9.06	2.70	100	-1.178	<.001
Posttest	9.39	3.10	44	12.76*	2.48	99	-6.929	.241

Note: The significance level of mean differences is ≤ 0.05

Students' immediate knowledge gain after watching each web video

After completing the pretest students in the treatment group were asked to watch three web videos on ANGEL. Just after watching each of the videos students completed a brief on-line survey (n = 17 items) on ANGEL (see Appendix E). Students' information recall was collected through three open ended questions as following: 1. What do you remember from the video?; 2. Why do you remember those scenes or information?; and 3. What did you like most about the video?

In order to analyze the content of the responses, responses of all three questions were clustered into groups and the topics were ranked according to their frequency. The following tables (Table 25, 26, and 27) contain the qualitative data collected from the students that participated in the treatment and thus completed the survey immediate after watching the videos.

For the question 'What do you remember from the video?' the top three ranked topics by video/country are reported in Table 25. The topics "Cattle/beef production" and "Iguacu Falls" were the most frequently mentioned topics being cited 62 and 54 times, respectively. Followed by "Cost" cited 44 times, "Language" cited 44 times, and "Ethanol production/use" cited 40 times. The topic "Fun" was one of least cited topics. The topic "Fun" was cited 25 times for the Russian video and 21 times for the Puerto Rican video. Numerous other items were mentioned by students

Table 25: Video information recall from Brazil, Puerto, and Russia videotapes

Representative statements	Country	Topic	Number of respondents*
"I enjoyed learning about the trade we have with Brazil. I did not know we get so much cattle from the country…"	Brazil	Cattle/beef production	62
"… And how could I forget the beautiful sites of the Amazon and those amazing waterfalls."	Brazil	Iguacu Falls	54
"…I also didn't know they were the first country to become energy independent."	Brazil	Ethanol production/use	40
"The students interviewed farmers, extension agents, businesses, and collected data from farms…" "I remember seeing Puerto Rican agriculture, which is much different than ours due to the hills…"	Puerto Rico	Agriculture/ farmers	50
"…Also, the students stated how different the life and culture is in Puerto Rico from the food, to the people to the ways of farming."	Puerto Rico	Culture	28
"I remember everyone saying how much fun and how great of an experience it was. They said it was much more different than a vacation, and that while they were there they really enjoyed interacting with the locals. The overall message was that you learn a lot and have a lot of fun while doing it."	Puerto Rico	Fun	21
"I liked the Russian music and the background. I liked that the students addressed the two major concerns I would have: language and cost." "The room prices are cheaper in Moscow than in State College and the food is cheaper, too."	Russia	Cost	44
"…Also, that employers are looking to hire people who are bilingual for their companies. Russian and Asian languages are growing in popularity with companies."	Russia	Language	44
"That the Russian students are very helpful with schoolwork and showing the PSU students around Moscow."	Russia	Make friends	26
"The students talking about all the fun that they had in Moscow and proving that there is not really an excuse for those who want to participate in the study abroad program."	Russia	Fun	25

* Top three ranked items selected from each videotape

For the question ‘Why do you remember those scenes or information?’ the top three ranked topics by video/country are reported in Table 26. Responses were clustered into groups and the topics were ranked according to their frequency. The topic “Interest created” was ranked in the top three categories for all of the three videos. The topics “Scenes” and “Students” were ranked in the top three categories twice.

The topic “Scenes” in the video on Brazil was the most frequently mentioned topic being cited 58 times. Followed by “Interest created” cited 44 times, and “Information/facts” cited 38 times both in the video on Brazil. The topic “Scenes” in the video on Russia was cited 31 times. The topic “Fun” was one of least cited topics. The topic “Fun” was cited 25 times for the Russian video, and it was cited 21 times for the Puerto Rican video (see Table 26).

Table 26: Explanations given for information recall from Brazil, Puerto and Russia videotapes

Representative statements	Country	Topic	Number of respondents*
"These scenes we very different from those that we see in America. The waterfalls were natural and gigantic, and the interviews with the students felt very honest." "I thought the waterfalls, wetlands, and cattle were all very intriguing and I wanted to see more…"	Brazil	Scenes	58
"…Because those are the things that I have never heard about Brazil and they interest me to want to visit the country. Lots of great tourist attractions and sceneries."	Brazil	Interest created	44
"This information was the most interesting to me...as well as being facts that I didn't know and was really fascinated about." "I tried to find the overall information of Brazil."	Brazil	Information /facts	38
"I think I remembered the scenes because they were students somewhat my age, telling their stories. Also, because they really seemed to be enjoyed/had enjoyed their trip to PR."	Puerto Rico	Students	29
"…I recall the students all saying they had a good time because it was a unique opportunity to observe another culture. The PR culture was very welcoming and exciting…"	Puerto Rico	Fun/ exciting	28
"The trip sounds very interesting to me, so I wanted to learn as much about it as I could. I paid attention to the academic purpose of the student as well as the personal experiences they enjoyed." "This trip seemed interesting to me…I think that visiting Puerto Rico would be a fun and educational time."	Puerto Rico	Interest created	24
"…I never thought that I would want to go to Russia… However, this video changed my opinion because it broke some of my stereotypes about the country. Also, these scenes stayed in my head because making snow angels and singing in the car is something that you can do in a foreign country to make you feel at home…."	Russia	Scenes	31
"…I also remember them because Moscow is a really awesome place to study and I would love to see Red Square, the Kremlin, and St. Basil's Cathedral…I think that going to a country in which the people speak another language will help one to mature in many ways."	Russia	Interest created	26
"The students were very excited about their trip and they were easy to listen to because being students they are the in the same shoes I am."	Russia	Students	23

* Top three ranked items selected from each videotape

Immediately after watching the videos, students provided the aspects of the videos that they liked most through an open ended question. For the question 'What did you like most about the video' the top three ranked topics by video/country are reported in Table 27. Responses were clustered into groups and the topics were ranked according to their frequency. The topic "Scenes", "Fun", and "Students" were ranked in the top three categories twice.

The topic "Students" in the video on Puerto Rico was the most frequently mentioned topic being cited 37 times. Followed by, "Scenes" in the video on Brazil, cited 26 times and "Music", in the video on Puerto Rico, cited 23 times. The topics "Culture" and "Learning" were the topics least cited. Their frequencies were 8 and 9, respectively. The top three ranked topics by video/country are reported in Table 27.

Table 27: Most liked aspects of the videos from Brazil, Puerto Rico, and Russia.

Representative statements	Country	Topic	Number of respondents*
"I liked the scenery that was being shown. They really depicted the beauty of brazil very nicely and it caught my eye and kept me interested."	Brazil	Scenes	26
"What I liked the most about the video was all of the fun and exciting activities that they showed. All of the places with water looked very enjoyable. The video showed that Brazil has lots of fun activities to stay occupied with while you are visiting."	Brazil	Fun	13
"I liked learning about the animals, and the rainforest. Animals are really interesting to me, and I like to learn about them."	Brazil	Learning	9
"I really liked the comments made by the students. With a video like this I feel that it is very important to get opinions from the people experiencing the trip. No one had anything bad to say and they met a lot of wonderful people and made many friends…"	Puerto Rico	Students	37
"…I also liked the music and I think I paid more attention to that because I heard the songs before."	Puerto Rico	Music	23
"I liked when it showed the activities that the students got to do and all the fun stuff they also took part in."	Puerto Rico	Fun	21
"I enjoyed the scene with the changing of the guards at the Kremlin. I also just liked the different video shots of the beautiful city, and some of the buildings that are there."	Russia	Scenes	13
"I liked the footage of Penn State students interacting with the Russian students and showing some of the things they did. Also, the music and the interviews of several students who studied abroad in Russia were helpful in understanding their own personal experience."	Russia	Students	10
"I liked the fact that it showed people actually having fun and studying in Russia, giving a real impression of the experience. Also, I enjoyed the cultural scenes, showing the Russians doing their thing. It makes me really want to go."	Russia	Culture	8

* Top three ranked items selected from each videotape

Students provided their immediate perceptions on the effectiveness of the videos in terms of learning, and interest on international programs. Table 28 presents immediate perceived learning and interest towards participating in international programs. Students perceived all items to be effective or very effective. The item "Having a positive opinion about participating in study abroad programs" received the highest mean values (*M*=3.52a), (*M*=3.22b) and (*M*=3.20b) for Puerto, Brazil, and Russia, respectively. Followed by "Increasing your interest in participating in study abroad programs" with mean values (*M*=2.90), (*M*=2.67) and (*M*=2.77), and the item "Becoming motivated to participate in study abroad programs" (*M*=2.80), (*M*=2.55) and (*M*=2.69), for Puerto, Brazil, and Russia, respectively. The Item "Learning about the counties' culture" with mean values (*M*=2.65), (*M*=2.72), and (*M*=2.69) received the lowest scores, for Puerto, Brazil, and Russia, respectively.

One way analysis of variance was conducted in order to determine whether there were differences between the effects of the videos in terms students' perceptions towards learning and interest on international programs. Scheffé test at .05 level was used to conduct multiple comparisons during post hoc. Means for two items were significantly different at .05 level. "Having a positive opinion about participating in study abroad programs" mean for Puerto Rico ($M=3.52^{a}$) was significantly higher than the means for Brazil ($M=3.22^{b}$), and Russia ($M=3.20^{b}$). "Learning about study abroad opportunities in the CAS" mean for Russia Rico ($M=3.04^{a}$) was significant higher than the means obtained for the videos on Puerto Rico ($M=2.76^{b}$) and Brazil ($M=2.56^{b}$).

Table 28: Immediate perceptions regarding effectiveness on learning and interest in study abroad programs

	Puerto Rico		Brazil		Russia		F	F
	Mean S.D.	n	Mean S.D.	n	Mean S.D.	n	Ratio	Prob.
Having a positive opinion about participating in study abroad programs	3.52[a] .69	101	3.22[b] .75	100	3.20[b] .83	102	5.905	.003
Increasing your interest in participating in study abroad programs	2.90 .91	101	2.67 .93	100	2.77 1.01	102	1.496	.226
Becoming motivated to participate in study abroad programs	2.80 .91	98	2.55 .98	97	2.69 .92	100	1.748	.176
Learning about study abroad opportunities in the CAS	2.76[b] .79	101	2.56[b] .76	100	3.04[a] .69	102	10.524	<.001
Learning about the counties' culture	2.65 .75	101	2.72 .73	100	2.69 .81	102	1.91	.826

Note: Entries with the same alphabetical subscripts within each row are significantly different from one another at $p < .05$ using the Scheffé post hoc test. Scale: 1 = Not effective (N.E.), 2 = Somewhat effective (S.E), 3 = Effective (E), 4 = Very Effective (V.E.).

Objective 4: Describe students' perceived usefulness and reliability of various sources of information.

Students' perceived usefulness and reliability of sources of information

In order to determine respondents' perceived usefulness and reliability of various sources of information when seeking study abroad opportunities within a college a twelve source of information questionnaire was developed. Table 29 presents means and standard deviations for all twelve sources regarding their usefulness and reliability collected during pretest for treatment and control groups.

Usefulness

During pretest, control group mean values for usefulness ranged from 3.91 to 1.46. Data showed that respondents tended to find three sources of information very useful, six sources of information to be "Useful", two sources to be "Some what useful" and one source to be "Not reliable".

The "Internet (www)" was the source of information most useful by the students with mean value of (*M*=3.91), followed by "E-mail" with a mean value of (M=3.64), "Cell phone" with a mean value of (*M*=3.45), and "Newspaper" with a mean value of (*M*=3.00). The "Internet radio" and "Podcasts" sources of information were the least useful by the students with mean values of (*M*=1.63) and (*M*=1.46).

For the treatment group, mean values for usefulness ranged from 3.82 and 3.09. Data showed that respondents tended to find three sources of information "Very Useful", six sources of information to be "Useful", one source to be "Some what useful" and two sources to be "Not reliable".

The "Internet (www)" was the source of information most useful by the students with mean value of (*M*=3.82), followed by "E-mail" with a mean value of (*M*=3.68), "Cell phone" with a mean value of (*M*=3.53), and "Newspaper" with a mean value of (*M*=3.09). The "Internet radio" and "Podcasts" sources of information were the least useful by the students with mean values of (*M*=1.63) and (*M*=1.46).

For both treatment and control group, the source of information "On-line video through the Internet (www)" with mean values of (*M*=2.37) and (*M*=2.23), respectively, tended to be classified as "Some what useful" (See Table 29).

Reliability

During pretest, control group mean values for reliability ranged from 3.00 to 2.59. Data showed that respondents tended to find five sources of information to be "Useful" and seven sources to be "Some what useful".

The "Internet (www)" and "E-mail" were the sources of information most reliable with mean values of (*M*=3.00) and (*M*=3.00), followed by "Newspaper" with a mean value of (*M*=2.98), and "Cell phone" with a mean value of (*M*=2.59). The "Internet radio" and "Podcasts" sources were the least reliable by the students with mean values of (*M*=1.88) and (*M*=1.80), respectively.

For the treatment group, mean values for reliability ranged from 3.18 and 1.75. Data showed that respondents tended to find seven sources of information to be "Reliable" and five sources to be "Some what reliable".

The "E-mail" was the source of information most reliable with a mean value of (*M*=3.18), followed by "Newspaper" with a mean value of (*M*=3.14), "Internet (www)" with a mean value of (*M*=3.13), and "Cell phone" with a mean value of (*M*=2.67). The "Internet radio" and "Podcasts" were the least reliable sources with mean values of (*M*=1.83) and (*M*=1.75), respectively.

For both treatment and control group the source "On-line video through the Internet (www)" with mean values of (*M*=2.33) and (*M*=2.35), respectively, were perceived to be "Some what useful" (See Table 29)

Table 29: Respondents perceptions towards the usefulness and reliability of various information sources when seeking study abroad opportunities within a college:

PRETEST	**Usefulness[1]**						**Reliable[2]**					
	Control			Treatment			Control			Treatment		
	M	S.D.	N	M	S.D.	N	M	S.D.	N	M	S.D.	N
Internet (www)	3.91	.29	44	3.82	.44	100	3.00	.76	43	3.13	.82	99
E-mail	3.64	.61	44	3.68	.60	100	3.00	.81	41	3.18	.80	98
Cell phone	3.45	.86	42	3.53	.89	97	2.59	.97	39	2.67	.98	95
Newspaper	3.00	.80	42	3.09	.78	100	2.98	.70	40	3.14	.72	98
Advice from friends	2.98	.80	43	3.07	.76	100	2.59	.71	41	2.55	.74	96
Instant messenger (IM)	2.77	1.08	44	3.09	1.06	96	2.15	.96	41	2.18	.98	90
Text messaging (cell phone)	2.55	1.15	42	2.63	1.18	95	2.00	.93	38	1.93	.87	87
Television	2.51	.83	43	2.86	.92	99	2.39	.80	41	2.67	.99	96
Streaming videos trough the Internet (www)	2.23	.93	39	2.37	.90	91	2.35	.77	34	2.33	.84	84
Radio	2.17	.91	42	2.51	.81	96	2.27	.93	37	2.55	.91	91
Internet radio	1.63	.66	32	1.56	.69	73	1.88	.73	25	1.83	.78	70
Podcasts	1.46	.58	28	1.55	.71	64	1.80	.70	20	1.75	.89	55

Scale 1: 1 = Not useful (NU), 2 = Some what useful (SU), 3 = Useful (U), 4 = Very useful (VU).
Scale 2: 1 = Not reliable (NR), 2 = Some what reliable (SR), 3 = Reliable (R), 4 = Very reliable (VR).

Table 30 presents means and standard deviations for all twelve sources of information regarding respondents' perceptions on their usefulness and reliability, collected during the posttest for treatment and control groups.

Usefulness

During posttest, control group mean values for usefulness ranged from 1.54 to 3.91. Data showed that respondents tended to find two sources of information "Very useful", five sources of information to be "Useful", and five sources to be "Some what useful".

The "Internet (www)" was the source of information most useful by students with a mean value of (*M*=3.91), followed by "E-mail" with a mean value of (*M*=3.70), "Cell phone" with a mean value of (*M*=3.21), and "Advice from friends" with a mean value of (*M*=3.10). The "Internet radio" and "Podcasts" sources of information were the least useful by the students with mean values of (*M*=1.74) and (*M*=1.54), respectively.

For the treatment group, mean values for usefulness ranged from 1.51 and 3.75. Data showed that respondents tended to find two sources of information "Very Useful", six sources of information to be "Useful", and four sources to be "Some what useful".

The "Internet (www)" was the source of information most useful by the students with mean value of (*M*=3.75), followed by "E-mail" with a mean value of (*M*=3.65), "Cell phone" with a mean value of (*M*=3.25), and "Advice from friends" with a mean value of (*M*=2.91). The "Internet radio" and "Podcasts" sources of information were the least useful by the students with mean values of (*M*=1.60) and (*M*=1.51), respectively.

For the treatment and control group, the source of information "Streaming video through the Internet (www)" mean values were (*M*=2.54) and (*M*=2.43), respectively (See Table 30).

Reliability

During posttest, control group means for sources of information reliability ranged from 3.16 to 2.00. Data showed that respondents tended to find seven sources of information to be "Useful" and five sources of information to be "Some what useful".

The "Newspaper" and "E-mail" were the sources of information most reliable with mean values of (*M*=3.16) and (*M*=3.00), followed by "Internet (www)" with a mean value of (*M*=2.95), and "Cell phone" with a mean value of (*M*=2.70). The "Text messaging (cell phone)" and "Podcasts" sources were the least reliable by the students with mean values of (*M*=2.05) and (*M*=2.00), respectively.

For the treatment group, mean values for reliability ranged from 3.04 and 1.92. Data showed that respondents tended to find seven sources of information to be "Reliable" and five sources to be "Some what reliable".

The "E-mail" was the source of information most reliable with a mean value of (*M*=3.04), followed by "Internet (www)" with a mean value of (M=3.01), "Newspaper" with a mean value of (*M*=2.91), and "Television" with a mean value of (*M*=2.59). The "Text messaging (cell phone)" and "Podcasts" were the least reliable sources with mean values of (*M*=1.92) and (*M*=1.93), respectively.

For both treatment and control group the mean values for "Streaming video through the Internet (www)" were (*M*=2.53) and (*M*=2.47), respectively (See Table 30).

Table 30: Respondents perceptions towards the usefulness and reliability of various information sources when seeking study abroad opportunities within a college

POSTTEST	**Usefulness[1]**						**Reliable[2]**					
	Control			Treatment			Control			Treatment		
	M	S.D.	N	M	S.D.	N	M	S.D.	N	M	S.D.	N
Internet (www)	3.91	.29	44	3.75	.50	99	2.95	.75	44	3.01	.74	98
E-mail	3.70	.60	43	3.65	.59	99	3.00	.76	43	3.04	.76	97
Cell phone	3.21	1.10	42	3.25	.95	99	2.70	.91	40	2.53	.99	92
Advice from friends	3.10	.73	42	2.91	.90	94	2.74	.80	42	2.47	.86	93
Newspaper	3.02	.80	43	2.88	.78	98	3.16	.84	43	2.91	.72	97
Television	2.70	.77	43	2.84	.78	98	2.74	.89	42	2.59	.80	96
Instant messenger (IM)	2.68	1.16	44	2.78	1.13	99	2.17	.92	41	2.16	.93	88
Streaming videos trough the Internet (www)	2.43	.89	42	2.54	.86	96	2.47	.69	38	2.53	.75	87
Radio	2.27	.87	41	2.36	.86	97	2.69	.98	39	2.50	.81	92
Text messaging (cell phone)	2.19	1.04	42	2.34	1.12	96	2.05	1.09	40	1.92	.86	86
Internet radio	1.71	.90	38	1.60	.83	73	2.13	.83	32	2.00	.73	65
Podcasts	1.54	.74	35	1.51	.72	71	2.00	.93	29	1.93	.84	54

Scale 1: 1 = Not useful (NU), 2 = Some what useful (SU), 3 = Useful (U), 4 = Very useful (VU).
Scale 2: 1 = Not reliable (NR), 2 = Some what reliable (SR), 3 = Reliable (R), 4 = Very reliable (VR).

Objective 5: Determine the factors contribute to students' perceptions regarding participating in study abroad programs.

Factors that contribute to students' participation

In order to comprehend how different variables relate to each other a Pearson correlation analysis was run using SPSS version 15. This correlation was run with the independent variables: 1. Quiz score, 2. Importance of international issues, 3. Possession of knowledge on international issues, 4. Interest in participating, 5. Perceived barriers, and 6. Learning during Fall semester, and the dependent variable (DV) 1. Participation.

According to the zero order correlations, participation is significantly and positively correlated with "Importance of international issues", "Interest in participating", and "Learning during Fall semester". Participation is significantly and negatively correlated with "Perceived participation barriers".

The independent variable "Learning during Fall semester" is significantly and positively correlated with "Quiz score", Importance of international issues", and "Interest in participating". "Perceived barriers to participating" is negatively correlated with "Interest in participating". Interest in participating in significantly and positively correlated with "Importance of international issues" and "Possession of knowledge on international issues". Finally, the IV "Possession of knowledge on international issues" is significantly and positively correlated with "Importance of international issues" (see Table 31).

Table 31: Pearson correlations between six predictors and the DV Participation

Variables	1	2	3	4	5	6
	n	n	n	n	n	n
1. Quiz Score						
2. Importance of int'l issues	.130					
	145					
3. Possession of knowledge on international issues	-.133	.333**				
	144	144				
4. Interest in participating	.050	.508**	.243*			
	144	144	143			
5. Perceived participation barriers	-.085	-.156	-.178	-.411**		
	145	145	144	144		
6. Learning during Fall semester	.185*	.175*	.154	.238*	-.177	
	145	145	144	144	145	
DV. Participation	.063	.350**	.129	.715**	-.404**	.167*
	143	143	142	142	143	143

Note: * Significant at the .05 level (2-tailed)
** Significant at the .001 level (2-tailed)

In order to determine predictors to the DV (Participation), a step wise regression analysis was run. The independent variables: quiz score, Importance of international issues, possession of knowledge on international issues, interest in participating, perceived participation barriers, and learning during Fall semester were used in a Step wise regression.

The strongest predictor for participation was "Interest in participating" explaining 52% of the variance in the DV. The step wise regression did not identify other predictors for participation. Table 32 summarizes the regression statistics.

Table 32: Regression analysis statistics

Posttest		B	R Square	T	Sig
Model 1	Constant	-.297	.518	-1.325	.187
	Interest	.997		12.219	>.001

The equation regression below is statistically significant at p>.001 and it explains the relationship between the DV participation and the IV Interest in participating.

Participation = -.297 + .997 (Interest)

Thus, of all the independent variables, interest is the strongest predictor of participation. No other independent variables explain additional variance.

Chapter 5

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

As American citizens experience living and working in a global society, colleges and universities need to adapt their teaching strategies and methods in order to produce graduates to effectively perform in this environment. American agriculture is being dramatically transformed as agricultural production competitors are located across the globe. Throughout the country students within colleges of agricultural sciences tend to have less international experiences than students enrolled in non agricultural majors (Navarro, 2006; Penn State Fact book, 2004). Penn State University is not an exception in terms of low agricultural students' participation in international experiences.

Millenial students, those born between 1982 and 2002, are filling university classrooms across America (Howe & Strauss, 2000). These students are particularly different from previous generation students, as they enter the university system being more technology savvy than their predecessors and with a 24/7 mentality (Oblinger, 2005). This cohort of students has visual and spatial skills. They prefer images other than text, and therefore on-line videos are becoming a common hobby among student in this generation. Universities are modifying their recruitment systems and creating on-line support systems for courses. What kind of on-line tools, devices, and strategies need to be used to boost colleges of agricultural sciences students to participate in international activities? This study aimed to examine the effectiveness of on-line videos in terms of modifying students' perceptions and knowledge towards participating in study abroad programs offered by the College of Agricultural Sciences at Penn State University.

Procedures

The population for the study was students enrolled in Ag150S "Be a master student" offered by CAS at Penn State University. A pilot study was conducted with students that had taken this course in previous years. In order to select the treatment group, a purposeful sampling method was used as professors and instructors of Ag150S "Be a master student" had to agree to include the activity in their syllabus. A survey questionnaire was prepared and used to collect data from all the participants during pre and posttest. The survey included four parts. The first section was used to measure interest and perceived possession of knowledge in international issues, prior international experiences, and barriers to participation. The second section of the questionnaire included questions regarding learning and use of various sources of information. The third section included 23-knowledge questions and the fourth section included demographic questions. Between pre and posttest, respondents in the treatment group were asked to watch on-line videos and to complete a brief on-line survey after each of the videos. A total of three videos were available and students were asked to watch each of the videos every other week. Data were input and analyzed during Fall 2006 and Spring 2007.

Summary of the results and discussion

The results were summarized according to the research objectives. A discussion follows after a summary of each objective.

Objective 1: *Describe the demographic characteristics of students with regard to gender, major, year in college, GPA, family ancestry, languages spoken, background, Internet access, and ownership of music player devices.*

The majority of students were female and intended to enroll at the Animal Sciences major. Since the course was a freshman seminar, the vast majority were first semester freshman students. Most respondents anticipated a GPA between 3.0 and 3.49 when completing their first semester at Penn State University. Most came from a European/Caucasian family and many come from an urban background. The majority of the respondents had access to the Internet from home. About half of the respondents owned an iPod.

The results indicated that respondents were a very homogenous group in terms of their background, family ancestors, and their year in college. The college could benefit from this homogeneity as these students potentially share the same needs and interests. These students appear to have adequate availability to the Internet since they have access at home and the university also offers free access on campus. This Internet availability provides opportunities to conduct research and teach using distance education devices and methods. Many of these students know how to use iPods and they potentially could receive and use podcasts as a way to internalize course sections and to be updated about opportunities within CAS.

Objective 2: *Describe students' awareness of international agricultural issues, students' prior international experiences, students' level of interest in engaging in international activities, perceived barriers in participating in study abroad programs, and students' likelihood of participating in study abroad programs.*

Students' awareness of international issues

Overall, there was no significant change in terms of student perceptions toward the importance of knowledge regarding international issues and student perceptions on possession of this knowledge between the control and treatment groups and between pre and posttests. Students tended to agree with all items related to the importance of knowledge regarding international issues and they tended to agree with most of the items related with possession of international knowledge.

There were no differences between students in the treatment and control group when determining students' perceptions on international experiences. Students in both groups perceived participating in study abroad programs as a positive experience. They believed international experiences are beneficial, fun, and it would be good to participate in these activities while at the university.

These results are supported by the findings of Howe and Strauss (2000) regarding this generation of students where Millennials are described as being confident, achieving, and the best educated generation of adults in years. Students perceived themselves as knowledgeable and they are interested in various subjects including international issues. These results point out the fact that students before participating in the study already had a good understanding of the importance of knowing international issues and most probably acquired this knowledge prior coming to Penn State University. This understanding of the importance might have influenced students in both groups to perceiving participating in study abroad programs as a positive experience.

Students' prior international experiences

Students in both control and treatment groups were very similar in terms of prior and current Penn State University international involvement. The majority of the students mentioned going to an international restaurant and interacting with international students as prior activities. Participating in semester-based study abroad programs was the least activity performed by both groups of students.

Even though students are confident about their knowledge, they demonstrate having little international experiences as only few of them have studied or toured abroad. These results are supported by Mamantova (2005) where freshmen students at Penn State University mentioned that going to an international restaurant as their major international experience prior coming to Penn State University. Students seem to consider going to an international restaurant and attending an international festival to be a way to engage in international activities. Considering that eating at an international restaurant by a large percent of students as a way to participate in international experiences demonstrates how little understanding these students have regarding what it means to have international experiences and to understand other cultures.

Future interventions should aim to change students' perceptions on what it means to participate in international activities. This way, students would understand how little they actually know about international issues.

Students' level of interest in participating in study abroad programs

Regarding students' level of interest in engaging in international activities, data collected demonstrated that students in both groups are interested in engaging in international

activities at Penn State University. Students were interested in going to an international restaurant and slightly less interested in hosting an international visitor. For the treatment group, students were less interested than students in the control group in participating in a semester long study abroad program and in taking classes focused on international issues.

These results are consistent with Mamantova (2005) and Mamantova & Bruening (2005) where students were also interested in going to an international restaurant as a way to participate in international activities.

Students seem interested in participating in some types of international experiences, however students in the treatment were less likely to be interested in long term programs and in taking classes with international foci. A possible explanation for these results is the existence of a "burden effect" on the students participating in the treatment, since participation interest questions were included multiple times during the experiment (McColl, 2004; Sharp & Frankel, 1983).

Long term study abroad experiences are found to be even more challenging to be promoted to students since they require more time and money from students to participate (Duke, 2000; Kehl, 2005). Due to the low participation of CAS students in study abroad programs, opportunities that are easier to promote participation should be created and promoted among students.

Perceived barriers in participating in study abroad programs

Regarding the barriers to participate in study abroad programs, students that participated in the treatment seem to have learned from the videos. Students learned that financial costs, lack of opportunities, and overall time to participate in CAS programs were not barriers to participate.

On-line videos seem an effective way to teach some students regarding various aspects of study abroad programs. In this study, videos seem effective in terms of transferring financial costs of programs and study abroad opportunities information to students and what it takes to participate in international programs offered by CAS.

Barriers to participate were also measured immediately after students watched each of the on-line videos. The video depicting study abroad in Russia was the most effective in terms of teaching students what it costs to participate and the video on Puerto Rico study abroad was the most effective in terms of reducing fear of the unknown.

The on-line videos had different effects in terms of students learning; this demonstrates the importance of developing quality scripts and tailoring the message to the audience. These results are supported by Cofield (2002) and Fielder (1993) where information recall was related with the type of information being presented, repetition of the content, and the length of specific content being shown on the videos.

On-line videos could be a viable and inexpensive way to teach students about current study abroad opportunities within CAS. Student abroad on-line 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 issue.

Students' likelihood of participating in study abroad programs

Students in the control group were asked about their likelihood of participating in study abroad programs at the posttest. Data demonstrated that respondents were more likely to participate in shorter study abroad trips (2-3 weeks) and somewhat less likely to participate

in “semester long” programs. Students in the treatment indicated that they were less likely to participate in short term programs than students in the control group.

Results regarding students’ likelihood to participate in study abroad programs after watching all of the videos were not changed. It is possible that a burden effect has taken place during the posttest for this question since likelihood of participation questions were given multiple times during the experiment (McColl, 2004; Sharp & Frankel, 1983).

At the same time, data collected from the students after watching each of the videos was very positive. This data suggests that students not only retained a great deal of information about specific aspects of the videos, but it also suggests that students might be inclined to participate based on what they wrote after each of the videos was viewed.

After watching each of the videos, students’ participation likelihood was somewhat different from the likelihood collected during the posttest. Students' responses indicated that they would likely to participate in both short term and long term study abroad programs. These results may indicate that just after watching the videos students were positively motivated to participate and sometime between watching the videos and filling out the posttest they became less motivated. More research is necessary to understand what could be the possible factors in changing students’ perspectives regarding study abroad programs between the time frame of watching the videos and filling out the posttest survey.

Students with intentions to enroll at the Animal Sciences major are more likely to participate in short term study abroad programs than to participate in long term programs. The ability to fit study abroad programs within students’ academic program and costs were a major concern for CAS students. The realization that animal science students are more likely to participate in shorter programs is supported by Mamantova (2005) and Mamantova &

Bruening (2005) where students demonstrated more interest in short term international experiences.

Perhaps CAS should consider more targeted videos and short term programs within specific disciplines to facilitate more participation by students. Also CAS should look toward the summer to offer programs to entice more students to participate in study abroad programs. Countries such as Brazil, New Zealand, and Argentina could be possible destinations for these students.

Objective 3: *Describe students' learning regarding study abroad opportunities within the College of Agricultural Sciences.*

Students' learning about study abroad opportunities

Students were asked the ways they have increased their learning about study abroad opportunities in CAS during Fall 2006 semester. 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". Where as students in the control group indicated that they increased their knowledge about study abroad opportunities from "Lectures".

These results indicate that "Videos through ANGEL" and "Lecture" were effective ways to increase students' knowledge regarding study abroad opportunities within the CAS. These results also suggest that students that participated in the treatment became more aware of international issues or programs. Since students mentioned that they learned significantly more about the international issues not only through on-line videos but also through lectures,

outside activities, and through the Internet. On-line videos seem as an efficient way to spark interest on students.

Students' intermediate term knowledge gain

Students that participated in the study completed a 23-item knowledge test before and after watching the three videos. By the end of the Fall semester, students in the treatment increased their knowledge by 36 percent, where as students in the control group increased their knowledge by only 7 percent.

On-line videos were effective in transferring information on culture, agricultural production, students' activities, landscape and natural resources for Russia, Brazil, and Puerto Rico. Since this on-line activity was not graded, students did not really have to internalize the information that was being displayed. More research could be done in order to understand the impact of the same videos if in fact students received a grade when completing the knowledge test.

Students' immediate knowledge gain after watching each web video

Students were asked to respond to three qualitative questions on-line regarding the content of the videos. For the question: "What do you remember most?" the most common cited topics per video were: cattle/beef production in Brazil, Puerto Rican agriculture, and participation costs in Russia.

For the question: "What did you like most about the video?" the most common topics mentioned were: interest created in participating, scenery, and students' testimonials.

For the question: "Why do you remember those scenes or information" the most liked aspects of the videos by the students were: students testimonials, portrait of fun and exciting activities, scenery, and music used in the background.

Many students answered the on-line survey and provided in-depth feedback for the on-line questions. Students were able to describe scenes in details and paraphrase information that was presented in the videos. Cattle production was a very popular topic which might be explained by the large number of students interested in the Animal Science major within the population. Videos seem to be perceived as an efficient way to create participation interest with students. Regarding the reasons why students were able to recall information, students' testimonials appeared to be the most important factor. These results are supported by the literature where peer-to-peer communication might increase credibility of the information being communicated (Besen, 2006; Harder & Bruening, 2007).

Videos that display in-depth information about study abroad opportunities seem to facilitate learning. However, when this information is explained by other students, videos become even more powerful in terms of information recall.

Immediate learning and interest created

After watching the videos students evaluated each of the videos in terms of learning and interest created. Overall, all videos were effective in terms of generating interest and learning. The video on Puerto Rico was more effective in terms of creating a positive opinion regarding students' participation on study abroad programs. The video about Russia study abroad was more effective than the others in terms of teaching students about study abroad opportunities within the CAS.

As more students rely on the Internet and emails, perhaps these videos could be displayed on CAS websites such as the International Programs and the International Agricultural minor web pages in order to create interest and motivate students to participate. These videos could also be incorporated into CAS electronic marketing campaigns in order

to spark students' interest. Strategies such as share this video with friends could help spread the impact of the videos within these students. In addition, videos could be made available at Penn State University "My Space" pages and or even be emailed to prospective students and parents.

Since videos portray different and important aspects of studying abroad, they could also be used as supporting material in presentations and seminars targeting CAS students. Videos could be incorporated into the Ag150S "Be a master student" as an integral part of the international component of the course in order to promote awareness on the available international experiences in the college.

Objective 4: *Describe students' perceived usefulness and reliability of various sources of information.*

Students were asked to evaluate various sources of information regarding their usefulness and reliability when searching for information on study abroad programs.

For both control and treatment group during pre and posttest there were no significant differences in terms of how students use and rely on different sources of information. Overall, students perceive the Internet and the e-mail as the most reliable and useful sources of information. Cell phones were also found to be a useful source of information. In addition, students perceive the Internet radio and podcasts as the least reliable and useful sources of information when searching for study abroad opportunities.

These results highlight the importance of building a strong on-line marketing strategy for this cohort of students as the Internet and email are the most reliable and useful way to acquire information. Advices from friends are another source of information that could be

explored in promotional campaign throughout the campus since many students seem to rely and use friends as a way to gather information.

In this sense, peer-to-peer communication devices that incorporate the Internet and the ability to talk with friend could be extremely useful to generate dissemination of information among students. For instance, Wikis are open ended web sites that could be used to promote the interaction of students within Penn State University. Building a Wiki website that promotes the exchange of information between students that have participated in study abroad programs and those who are willing to understand the premises of this experience could be an interesting way to disseminate information. During spring 2007, Penn State University has constructed a Wiki in order to facilitate interactions of students within the university. This website could also include a category for those students interested in participating in international experiences.

Since students seem to have an inaccurate perspective on what it means to participate in study abroad programs and many believe that costs and time to participate are barriers to participate in study abroad programs. More sources of information need to be made available to change students' perceptions. International program staff could be made available through wikis, instant messengers other on-line communication devices in order to provide just in time and reliable information for these students. Students would use the communication medium they are most comfortable with to acquire trustful information.

Another possible communication medium to disseminate information regarding study abroad programs is cell phones. The incident at Virginia Tech made university administrators aware of the importance of broadcasting reliable and fast information to students on campus (Owczarski, 2007). Various universities in the country started to analyze

the possibility of creating text messaging systems to disseminate information. Since August 2006, Penn State University has made available a text message service for the students and it is now expanding the system to include other subjects and campuses (LIVE PSU, 2007). Students can choose to receive these important messages about the college and this service is free of charge. Messages regarding study abroad events and opportunities could be broadcast through this medium.

Objective 5: *Determine the factors contribute to students' perceptions regarding participating in study abroad programs*.

In order to comprehend factors that contribute to students' perceptions to participate in study abroad programs a correlation analysis was run. Participation is positively correlated with "Interest", "How important international issues are for the students", "How much students have learned during Fall semester". Participation is negatively correlated with "How many barriers students perceive to exist towards participating in study abroad programs". In a step wise regression analysis, the best predictor for intent to participate indicated was "interest".

In order to increase the participation intent within CAS students, interventions that boost students' interest of participating, students learning on international issues, and the importance of international issues should the emphasized. Interventions should clarify and explain the costs involved in participating and what strategies are in place to guarantee students that they would graduate within their four-year time frame.

Conclusions

In order to summarize the findings in this study a list of conclusions was developed. Conclusions were written following the order that the information was collected. These conclusions may help faculty and administrators at Penn State University when planning and/or promoting study abroad opportunities within CAS.

1. Students perceive that it is important to participate in study abroad programs.
2. Students believe that they possess knowledge regarding international issues.
3. Students possess an inaccurate perception regarding what it means to participate in international activities.
4. Students have a positive perception regarding participating in study abroad and international activities.
5. Students fear the cost and the ability to fit study abroad programs in their program.
6. Students have interest in participating in international activities.
7. On-line videos are an effective medium of transferring information regarding financial costs and study abroad opportunities.
8. On-line videos increased students interested in participating in study abroad programs.
9. The Internet and emails are the most effective ways to reach students when promoting study abroad programs.
10. The use of background music and students testimonials increased the appeal of used on-line videos for this group of students.

11. Students perceived the videos were of good quality.

12. Videos had different effect on students in terms of transferring the information.

13. Videos had similar effect on students in terms of creating interest in participating in study abroad programs.

The figure bellow illustrates how the conclusions regarding students' perceptions relate to each other in this study (Figure 9) (the quality of the video is not represented in this figure 'items 7-13').

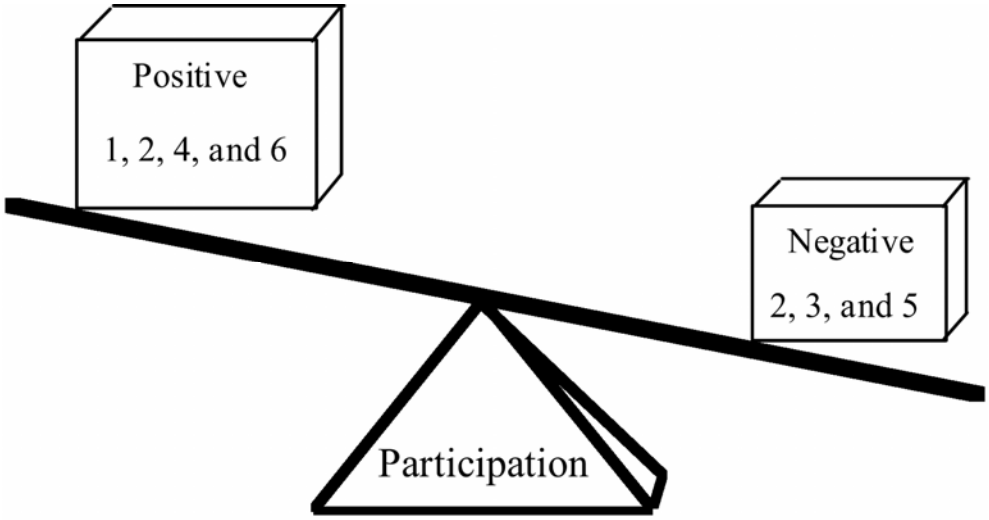

Figure 9: Participation scheme

This scheme takes into consideration the main findings regarding students' perceptions towards participating in study abroad programs. Issues such as students perceiving that it is important to participate in study abroad programs; believing that study abroad and international activities are positive things to participate; and demonstrating that they have interest in participating in international activities are considered positive factors that foster their participation. On the other hand, finding such as students' inaccurate perspective on what it means to participate in international

activities and students fear regarding costs and the ability to fit study abroad programs in their program are factors that constrain their participation.

There is one conclusion that is not perceived as a positive or negative factor towards participation in study abroad programs. This conclusion is based on the students' misplaced perception that they already possess knowledge of international issues. On one hand this is a positive conclusion in so much that this perception could aid and encourage students to participate in more international programs. However, because student have a limited knowledge of international agriculture this inflated perception might limit future growth of students in the international studies area.

Recommendations

In order to facilitate faculty and administrators within colleges of agricultural sciences to boost participation of American students in international activities a set of recommendation were developed based on the results from this study.

- In order to boost participation in international activities within the CAS, faculty could create various short study abroad programs and integrate them in their courses.
- Study abroad programs could promote the interaction of American students with international students and consequently increase the possibility of American students making friends while abroad
- Programs would likely to be more successful if "fun" and "exciting activities" are portrayed in the promotional materials

- Faculty should have to choose the locations of these programs carefully as a way to fulfill students' expectations regarding having fun, making friends, and learning.
- Programs should be tailored to students' area of interest
- International programs should sponsor more scholarships in order to boost students' participation in international programs
- Upon their return, students that received a scholarship should be asked to develop a video that could be used as promotional material within CAS. Students should also be required to provide their e-mail or IM address to be posted on-line or in brochures so that perspective students could ask questions regarding specific international programs.
- Peer-to-peer technology could be employed to disseminate information regarding study abroad programs.
- Multimedia such as videos should be used with other mediums to enhance learning among students.
- In order to boost participation of the students in study abroad programs, production of videos should be tailored to specific audiences.
- Videos should include students' testimonials, portray fun activities, and beautiful scenery in order to capture this audience attention.
- The selection and use of background music was an important factor in capturing students' interest and in motivating students to watch the videos. Thus background music should be used in other videos as a way to increase the appeal of the videos to this generation of students.

- Videos should include detailed and interesting information about the program being portrayed.
- These videos could be incorporated into the Ag150S “Be a master student” curriculum as part of the international component of the course.
- Videos could be used in multiple on-line promotional strategies within the CAS.

Study abroad model for students' participation

In an attempt to describe the relationship between factors of students' participation a model was created. This model takes into account the most influential factors identified in this study as well as factors that might influence the decision making process of participation (see Figure 10).

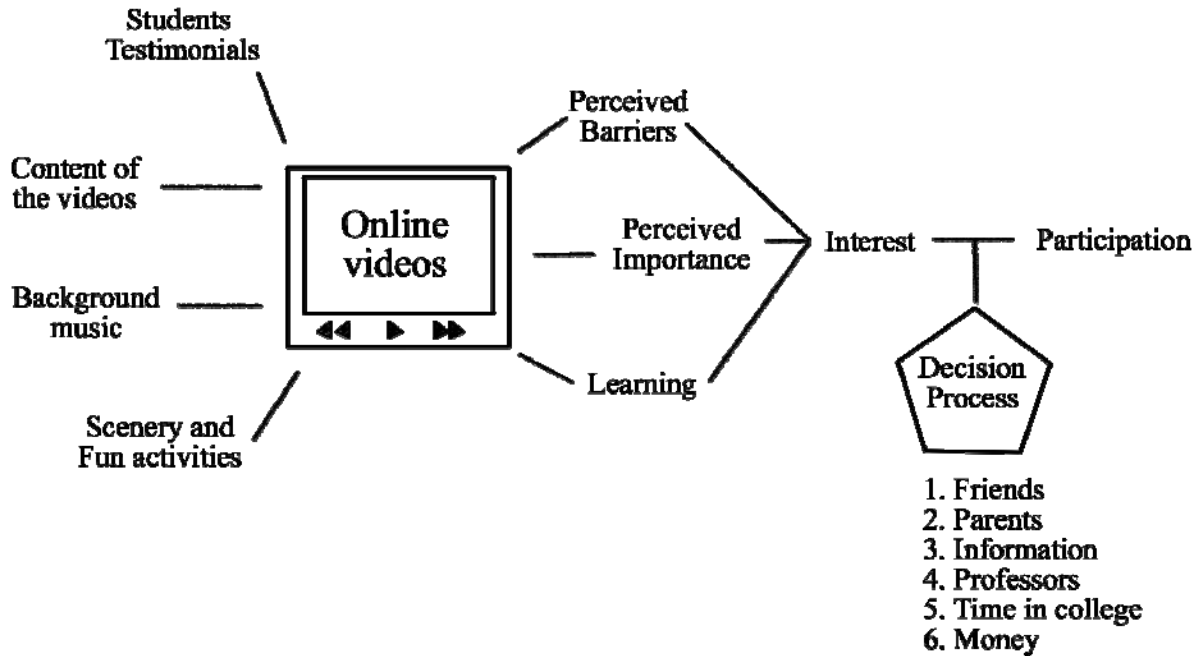

Figure 10: Students' participation model

The content of the videos used in this study were a combination of information, students' testimonials, and use of background music, scenery and fun activities. All of these positively influenced students perceived barriers, perceived importance of participating in study abroad programs and students' learning. By changing students' perceptions on these issues the videos ultimately created interest among students to participate in study abroad

programs. However, when students were finally asked about their likelihood of participating in study abroad programs, no changes in perceptions were observed.

Other factors must exist in terms of influencing their participation likelihood. For that reason a decision process box was added to the model. Issues regarding students' decision process should be investigated in order to comprehend factors that were not identified in this study. Factors such as parents and friends influence, interaction with faculty members, other types of information, and year in college are suggestions of factors that should be closely investigated in the future.

Future Research

In order to promote future inquiry and further understanding regarding the premises of increasing students' participation in study abroad programs and increasing their learning about international issues, a proposal research agenda was developed as following.

- Study the decision making process for study abroad participation within CAS students. A qualitative study could help identify factors not identified in this study.
- Conduct a follow up study regarding study abroad participation with the same cohort of students. This study would take place when students were approaching their last year in college so that a measurement on the long term impact of the treatment could be assessed.
- Conduct the same study with another group of freshman students in the CAS in order to increase the reliability of the data.

- Repeat this study with students in another university in order to comprehend whether this profile of students is limited to Penn State University students within the CAS.
- Study what other communication mediums could be used to teach and create interest in participating in study abroad programs with this population of students.
- Research what would be the best combination of interventions to promote modifications on students' perceptions and learning (video and lecture; video and outside classroom activities).

References

AboutVideoEditing (2003) How *to shoot streaming videos for the web*. Retrieved July 23, 2006 from http://www.aboutvideoediting.com/articles/shooting-streaming-video.shtml.

Arker, D. (1999). Improving the quality of higher education in agriculture globally in the 21st Century: constraints and opportunities. *Journal of International Agricultural and Extension Education*, Vol. 6, 2, 47-53.

Arker, G. D. & Scanes, C. G. (1998). A case for globalizing U.S. colleges of agriculture. *Journal of International Agricultural and Extension Education,* 5, 1, 59-63.

Arker, G. D., & Scanes, C. G. (2000). A case for globalizing undergraduate education and student learning at Colleges of Agriculture. *Journal of International Agricultural and Extension Education,* 7, 1, 49-54.

Bailey, J. L. & Stefaniak, G. (2002). Preparing the information technology workforce for the new millennium [Electronic version]. *ACM SIGCPR Computer Personnel Arquive.* 20, 4, 4-15. Retrieved from http://portal.acm.org/citation.cfm?id=571475.571476

BBC News (2006) *Google buys YouTube for $1.65bn*. Retrieved January 21, 2007 from http://news.bbc.co.uk/2/hi/business/6034577.stm

Besen, Y. (2006). Exploitation or fun?: The lived experience of teenage employment in suburban. *America Journal of Contemporary Ethnography*, 35, 3, 319-340.

Boster, F. J., Meyer, G. S., Roberto, A. J. Inge, C & Strom, R. (2006 January) Some effects of video streaming on educational Achievement. *Communication Education*, 55, 1, 46-62.

Brooks, S.E., Frick, M. J. & Bruening, T. H. (2006). *An examination of international studies at 1862 Land Grant institutions*. AIAEE 22nd Annual Conference Proceedings, Clearwater Beach, Florida. 102-111.

Bruening, T. H. & Frick, M., (2004). Globalizing the U.S. undergraduate experience: a case study of the benefits of an international agriculture field-based course. *Journal of International Agricultural and Extension Educatio.* 11, 1, 89-96.

Budweiser (2006) Retrieved from http://www.budweiser.com

Campbell, D. T., Stanley, J. C. (1963). Experimental and quasi-experimental designs for research on teaching. In handbook of Research of Teaching, ed. N. L. Gage, 5, 171-246. New York: Rand McNally

Canning-Wilson, C. (2000). Practical Aspects of Using Video in the Foreign Language Classroom. [Electronic version] The Internet TESL Journal, 6, 11. Retrieved from http://iteslj.org/Articles/Canning-Video.html

Chambers, R. (1994. The origins and practice of participatory rural appraisal. *World Development*, 22, 7, 953-969. Retrieved June 17, 2007 from http://www.sciencedirect.com/science/article/B6VC6-45F5WRF-5G/2/6c15bb76d4535016f5064da4c1075251

Chapman, D. W. (1981). A model of student college choice. *The Journal of Higher Education*, 52, 5, 490-505. Available at www.jstor.org

Cofield, J. L. (2002). *An assessment of streaming video in web-based instruction*. Procedings of the Mid-South Educational Research Association (Chattanooga, TN, November 6-8, 2002).

Coyne, I. T. (1997). Sampling in qualitative research. Purposeful and theoretical sampling; merging or clear boundaries? *Journal of Advanced Nursing*, 1997, 26, 623–630

Creswell, J. W. (1998). *Qualitative inquiry and research design: choosing among five traditions.* Sage Publications, Thousand Oaks, California.

Dancyger, K. (2002) *The technique of film and video editing: history, theory, and practice*. New York. NY: Focal Press.

DeBard, R. (2004). Millenials coming to college. *Serving the Millenial Generation*, 106, 33-45.

DesJardins, S. L., Dundar, H., Hendel, D. D. (1999). Modeling the college application decision process in a Land-Grant university. *Economics of Education Review*, 18, 117-132.

Discovery Education (2007). United Streaming retrieved June 16, 2007 from http://www.unitedstreaming.com

Duke, C. R. (2000). Study abroad learning activities: A synthesis and comparison. *Journal of Marketing Education*, 22, 2; 155-166.

Dziuban, C., Moskal, P. & Hartman, J. (2004) *Higher education, blended learning and the generations: knowledge is not power no more*. Higher Education Leaders Symposium. Unlimited. learning: Preparation for a life of change and challenge. February 45, 2004, Redmond, Washington, 1-17. Retrieved February 24, 2007 from http://www.sc.edu/cte/docs/KnowledgeisPowerOct.%2027,%202004Final.pdf

Education Abroad: Student Profile (2003-04). Unpublished manuscript, Penn State University at University Park.

Erikson, C. W. H., & Curl, D. H. (1972). *Producing audiovisual media*: *Fundamentals of teaching with audiovisual technology.* New York, NY: The Macmillian Company.

Etling, A. (1996). Problems and prospects for internationalizing the Land Grant University. *Journal of International Agricultural and Extension Education*. 3, 1, 7-15.

Fielder, C (1993) A content analysis a survey research review to determine the effectiveness of college image / recruitment videos: a pilot study. Proceedings of Joint Meeting of the Southern States Communication Association and the Central States, Lexington, KY. Retrieved July 9, 2006 from http://eric.gov/ericdocs/data/ericdocs2/content_storage_01/0000000b/80/26/fl/a9.pdf.

Fletcher, J. D. (1990, July) *Effectiveness and cost of interactive videodisc instruction in defense training and education* (IDA Paper P-2372). Alexandria, VA: Institute for Defense Analyses.

Gardner, S. & Eng, S. (2005). What students want: generation Y and the changing function of the academic library. *Libraries and the Academy*, 5, 3, 405-420.

GDA Integrated Services (2000-2001). National research findings among college-bound high school students.

Genovese, M. (2000). Video on the Internet: the ultimate promise of global communications? (Master thesis, The Fletcher School of Law and Diplomacy, 2000) p.122.

Giordani, P. (2005). "Y" Recruiting": new generation inspires new methods. *Nace Journal,* summer 2005, 65, 4, 23-25. Retrieved February 8, 2006 from http://spsbe.jhu.edu/pdfs/career/yrecruiting.pdf

Grimshaw J, Campbell M, Eccles M and Steen N. (2000). Experimental and quasi-experimental designs for evaluating guideline implementation strategies. *Family Practice*, 17, 11–18. Retrieved June 17, 2007 from http://fampra.oxfordjournals.org/cgi/reprint/17/suppl_1/S11

Harder, W. C. & Bruening, T. H. (2007). *Challenges of Communicating Indigenous Knowledge within Guarani-Kaiowa and Terena Communities: A Brazilian Case Study*. Proceeding of the 23rd Annual conference for the Association of International Agricultural Extension and Education, Polson, Montana.

Hartsell, T. & Yuen, S. C. (2006) Video streaming in on-line learning. *AACE Journal,* 14, 1, 31-43.

Hazen C., Kelly D., & Sramek, H. (2002). *Video as a tool to change attitudes on teaching science and mathematics.* Pathways to Change: An International Conference on Transforming Math and Science Education in the K16 Continuum Proceedings. Retrieved July 14, 2006 from http://k12s.phast.umass.edu/stemtec/pathways/Proceedings/Papers/Hazen-p.doc

Hoban, C.F. & Van Ormer, E. B. (1950) *Instructional film research, 1948-1950* (tech. Rep. Document Reproduction Service Nº SDC 269-7-19). Port Washington, NY: U.S. Naval Special devices Center. (ERIC document Reproduction Service ED 647 255).

Hodson, D. (2003). Time for action: science education for alternative future. *International Journal of Science Education.* 25, 6, 645-670.

Howe, M. J. A. (1983) *Learning from television: Psychological and educational research*. London: Academic Press.

Howe, N., & Strauss, W. (2000). *Millennials rising: the next great generation.* New York: Vintage Books.

Institute of International Education (2004). *Opendoors: Report on International Educational Exchange* [Electronic version]. Retrieved February 10, 2005 from http://www.opendoors.iienetwork.org

Johnson, S. (2007). *We're losing the information war*. Newsweek Magazine, January, 15 issue.

Kang, S. Norton, H. (in press). Colleges and universities' use of the World Wide Web: A public relations tool for the digital age. *Public Relations Review*. August 2006. Retrieved October 25, 2006 from www.sciencedirect.com.

Kappes, S. M., Schmidt, S. J. (2002 March) Effectiveness of using QuickTime movies in an introductory food science and human nutrition course as affected by learning styles. *NACTA - National Association of Colleges and Teachers of Agriculture Journal*, 68-78.

Kealy, M. J. & Rockel, M. L. (1987). Student perceptions of college quality: the influence of college recruitment policies. *The Journal of Higher Education*, 58, 6, 683-703. Available at www.jstor.org

Kehl, K. (2005). Differences in self-efficacy and global-mindedness between short-term and semester-long study abroad participants of selected Christian universities. (Doctorate thesis, Baylor University, 2005) p. 133. Retrieved June 28, 2007 from https://beardocs.baylor.edu/handle/2104/3013

Kerschbaumer, K. (2005) *Media giants' big broadband push*. Broadcasting & Cable Magazine. Issue 21, May 23, p.13.

King, F.B., Harnar, M. A., & Mayall, H. J. (1999, April). *Implications of using asynchronous video in distance learning*. Paper presented at the Annual Meeting of the American Educational Research Association, Montreal, Quebec, Canada. (ERIC Document Reproduction Service No. ED429591)

Kris, O. (2005) Study: Video keeps viewers' attention. *Advertising age*. 76, 41. Retrieved April 18, 2006 from http://search.epnet.com/login.aspx?direct=true&db=ufh&an=18565483.

Lai, S.L. (2000) Influence of audio-visual presentations on leaning abstract concepts. *International Journal of Instructional Media,* 27, 2.

LIVE PSU, (2007). PSUTXT keeps University community informed. *Penn State LIVE* [electronic]. Retrieved July 6, 2007 from http://live.psu.edu/index.php?sec=vs_highlight&story=24228&highlight=1

Lowery, J. W. (2001). "The Millennials Come to College: John Wesley Lowery Talks with William Strauss." *About Campus, 6,* 3, 6-12.

Lowery, J. W., (2004) Student Affairs for a New Generation. *Serving the Millenial Generation*, 106, 87-99.

Maha, M. N. & Asay, S. M., (2003). The world as a classroom: the impact of international study experiences on college students. *College Teaching*. 53, 4, 141-147.

Mamantova, N. (2005) Undergraduate students' perceptions of internationalization and international involvement activities/A study of internationalization at the institutional level. (Master thesis, University of Pennsylvania, 2005) p.76.

Mamantova, N. N., & Bruening, T. H., (2005) *Undergraduate Students Perceptions of Internationalization and International Involvement Activities*. AIAEE 21st Annual Conference Proceedings, San Antonio, Texas.

Martin, T. F. (2006). Information processing and college choice: An examination of recruitment information on higher education web sites using the heuristic-systematic model. (Dissertation, The Florida State University, 2006) p. 144.

Mazur, J. M. (2000 June) Applying insights from film theory and cinematic technique to create a sense of community and participation in a distributed video environment. *The Journal of Computer-Mediated Communication*. 5, 4. Retrieved April 18, 2006 from http://jcmc.indiana.edu/vol5/issue4/mazur.htm.

McColl E. (2004). Best practice in symptom assessment: a review. [on-line] *International Journal of Gastroenterelogy and Hepatology*.53;49-54 Retrieved June 7, 2007 from http://gut.bmj.com

Michelich, V. (2002) Streaming Media to Enhance Teaching and Improve Learning *The Technology Source*, January/February 2002. Retrieved July 17, 2006 from http://ts.mivu.org/default.asp?show=article&id=1034.

Miller, L. & Madou-Bangurah, K. (1993). *Identification of researchable topics on international agriculture education.* Paper presented at the American Vocational Association Convention, Nashville, TN. 18p.

National Association of State Universities and Land-Grant Colleges [NASULGC], People and programs report (2005). Washington, DC: NASULGC.

National Association of State Universities and Land-Grant Colleges [NASULGC], Expanding the International Scope of Universities: A strategic vision statement for Learning, Scholarship and Engagement in the New Century (2002). Washington, DC: NASULGC. Retrieved June 16, 2007 from http://www.nasulgc.org/publications/Visions.pdf

National Association of State Universities and Land-Grant Colleges [NASULGC], International Agricultural section (1997). *Globalizing agricultural science and educational programs for America.* Washington, DC: NASULGC.

Navarro, M. (2006) *Priorities for the undergraduate agricultural curriculum, internationalization, and the comparison dilemma*. AIAEE 22nd Annual Conference Proceedings, Clearwater Beach, Florida. 444-454.

Noel-Levitz, Inc. (2005). E-expectations: Class of 2006. Received January 2006, http://www.noellevitz.com/Papers+and+Research/Research/ResearchLibrary/E-Expectations+Class+of+2006.htm

Oblinger, D. (2003a). Boomers, gen-Xers, & millennials: understanding the new students. EDUCASE review, 37-47.

Oblinger, D. (2003b). *Higher Education Leaders Symposium*: The next generation student. June 17–18, 2003. REDMOND, WASHINGTON. Microsoft Corporation, 13-28. Retrieved February 8, 2007 from

Oblinger, D. (2005). Learners, learning and technology: The Educause learning initiative. *Educause Review.* 40, 66-75.

Oblinger, D. G., & Oblinger, J. L. (2005). *Educating the net generation*. [Electronic version]. Available at: www.educause.edu/educatingthenetgen.

Owczarski, M. (2007). Students, faculty, and staff sign up to receive text messaging, other alert messages. *Virginia Tech News* [electronic]. Retrieved July 6, 2007 from http://www.vtnews.vt.edu/story.php?relyear=2007&itemno=382

Paivio, A. & Csapo, K. (1979) Picture superiority in free recall: Imaginary or dual coding? *Cognitive Psychology* 5, 176-206.

Paivio, A. (1991) Images *in mind: the evolution of a theory.* Great Britain: Harvester Wheatsheaf.

Patton, Q. M. (1990). *Qualitative evaluation and research methods*. Sage Publications, Newbury Park, California.

Penn State University fact book: University budget office (2004) *Undergraduate Enrollment by Class Level University Park Fall 2004* Retrieved February 20, 2005 from http://www.budget.psu.edu/FactBook/StudentDynamic/UGEnrollByClassStandingDetail.asp?ReportCode=UP&YearCode=2004

Picha, D. (2004). International Horticulture: An interdisciplinary course for agriculture undergraduates. Acta Hort. (ISHS) 641:35-38 Retrieved November 18, 2006 from http://www.actahort.org/books/641/641_4.htm

Place, N. P., Irani, T., Friedel, C., and Lundy, L., (2004). Beliefs, attitudes, perceptions and predictors of international involvement among college of agricultural and like science students. AIAEE 20th Annual Conference Proceedings, Dublin, Ireland. 284-294.

Reith, J. (2005) Understanding and appreciating the communication styles of the millennial generation. [electronic version]. VISTAS –Perspectives on Counseling, 70, 321-324. Retrieved February 8, 2007 from http://counselingoutfitters.com/vistas/vistas05/Vistas05.art70.pdf

Rozelle, A. L. & Landis, S. L. (2002). An examination of the relationship between use of the Internet as a recruitment source and students attitudes. *Computer in Human Behavior*, 18, 593-604. Available at www.elsevier.com/locate/comphumbeh

Sandelowski, M. (2000). Focus on Research Methods Combining Qualitative and Quantitative Sampling, Data Collection, and Analysis Techniques in Mixed-Method Studies. *Research in Nursing & Health*, 2000, 23, 246–255. Retrieved June 17, 2007 from http://www3.interscience.wiley.com/cgi-bin/fulltext/72508727/PDFSTART

Sharp, L. M. & Frankel J., (1983). Respondent Burden: A Test of Some Common Assumptions. *The Public Opinion Quarterly*, 47, 1, 36-53.

Shephard, K. (2003) Questioning, promoting and evaluating the use of streaming video to support student learning. *British Journal of Educational Technology*, 34, 3. June 2003 295-308. Retrieved January 23, 2006 from http://docstore.ingenta.com/cgi-bin/ds_deliver/1/u/d/ISIS/30549985.1/bpl/bjet/2003/00000034/00000003/art00006/57956A9B4D8E19FB11531684860095DA5B35E4AE65.pdf?link=http://psu.library.ingentaconnect.com/error/delivery&format=pdf.

Skiba, D. J., Barton, A. J. (2006). Adapting your teaching to accommodate the net generation of learners. [Electronic version]. OJIN: The On-line Journal of Issues in Nursing. 11, 2, manuscript 4. Retrieved February 8, 2006 from www.nursingworld.org/ojin/topic30/tpc30_4.htm

Strachan, D. (1996, February). Video compression. *Society of motion picture and television engineers journal.*

TechNews (2007). Administrative Office of the Courts (AOC) uses video to help citizens fulfill their civic duty. *Washington State Department of Information Servi*ces. Retrieved February 10, 2007 from http://www.dis.wa.gov/technews/2006_02/20060202.aspx

The Pennsylvania State University [PSU] (2006) Retrieved from www.psu.edu

Thompson, S. (2002) Virtual Path to teen tummies. *Advertising age*. 73:46. Retrieved April 18, 2006 from http://search.epnet.com/login.aspx?direct=true&db=ufh&an=8503115.

Tower, J. (2006). New technologies in student recruitment. [Electronic version] *New Technologies*. Retrieved February 8, 2006 from http://www.jamestower.com/files/newtech.10-19.pdf

Van den Bor, W., Bryden, J. M., and Fuller, A. M. (1995). Rethinking higher agricultural education in a time of globalization and rural restructuring. *Journal of Agricultural Education and Extension*, 2, 3, 29-40.

Wakshlag, J., Reizt, R., & Zillmann, D. (1982) Selective exposure to and acquisition of information form educational television programs as a function of appeal and tempo of background music. *Journal of Educational Psychology*. 74, 666-667.

Weiler, A. (2004). Information seeking behavior in generation Y students: motivation, critical thinking, and learning theory. *The Journal of Academic Librarianship.* 31, 1, 46-53.

Weiser, C. (2006) Video Streaming, *Media & Methods*, 38, 4.

Wetzel, C., Radtke, P. & Stern H. (1994) *Instructional Effectiveness of Video Media.* New Jersey: Lawrence Erlbaum Associate Publishers Hilldale.

Wikipedia (2006) MySpace from Wikipedia, the free encyclopedia Retrieved July 22, 2006 from http://en.wikipedia.org/wiki/Myspace.

YouTube (2007). *CNN, NBC, MSNBC, Budweiser, Coke, Hilary Clinton, and Barack Obama.* Retrieved February 8, 2007 from www.youtube.com

Zhai, L & Scheer, S. D., (2002). Influence of international study abroad programs on agricultural college students. *Journal of International Agricultural and Extension Education,* 9, 3, 23-29.

APPENDIX A

(On-line survey activity)

Study Abroad Video Activity / Survey for videos 1, 2, and 3.

Instructions: The following survey contains questions about student's knowledge, awareness and understanding of study abroad programs. The survey also has questions about the video you have just watched. If you want to watch the video again, please do it before starting to answer the survey. You will have 20 minutes to complete the survey. Please complete the following questions with the best of your ability.

1. What do you remember from the video?
2. Why do you remember those scenes or information?
3. What did you like most about the video?

4. On a scale from one to five, with **1 =Very effective (VE), 2 = Effective (E), 3 = Slightly effective (SE), 4 = Not effective (NE), 5 = don't' know (DK),** please indicate the level of effectiveness on the video when:

	VE 1	**E 2**	**SE 3**	**NE 4**	**DK 0**
A. Learning about the countries' culture					
B. Learning about study abroad opportunities in the College of Agricultural Sciences					
C. Having a positive opinion about participating in study abroad programs					
D. Increasing your interest in participating in study abroad programs					
E. Becoming motivated to participate in study abroad programs					

5 – On a scale of one to four, with **1 = Strongly agree (SA), 2 = Agree (A), 3 = Disagree (D), 4 = Strongly disagree (SD), 0 = Don't know (DK),** please indicate the degree to which you perceive the following to be barriers to you personally participating in international programs such as a study tour.

	SA 1	**A 2**	**D 3**	**SD 4**	**DK 0**
Overall time to participate in a study abroad program					
Ability to fit a study abroad program in a 4-year program					
Costs					
Language skills					
Lack of interest					
Fear of the unknown					
Fear of being by yourself / lonely					
Miss out Penn State University on campus activities					

6. How many times did you watch the video?
a. 1
b. 2
c. 3
d. 4
e. more than 5

7. Would you recommend this video to your friends? a. Yes b. No

8. Regarding the length, this video was:
a. appropriate length
b. too long
c. not long enough

9. Please rate the overall the quality of the video.
a.  (Excellent)
b.  (Very good)
c.  (Good)
d.  (Ok)
e.  (I don't like it)

10. Would you likely participate in a study abroad program offered by the College of Agricultural Sciences?
a. Very likely (1)
b. Likely (2)
c. Somewhat likely (3)
d. Not likely (4)
e. Don't know (0)

APPENDIX B

(Pre and Post Surveys)

AG 150S Section #_____

Name: _____

Pre & Posttest

Introduction:

Treatment and Control groups: The following survey contains questions about students' knowledge, awareness and understanding of study abroad programs in general. It also contains questions regarding Brazil, Puerto Rico and Russia study abroad programs within the College of Agricultural Sciences. This survey is part of your Study Abroad, Internships and Externships content at AG150S. Please answer each item to the best of your ability. **(Regardless of how you answer the questions it will not count against your grade in this course)** Thank you for your participation in this important survey.

Section I

1. Using a scale of one to four with **1 = Strongly agree (SA), 2 = Agree (A), 3 = Disagree (D), 4 = Strongly disagree (SD), 0 = Don't know (DK),** indicate how your perceptions regarding the statements bellow:

How important do you consider each of the following?						**To what extent do you feel you possess each of these attributes?**				
SA 1	**A 2**	**D 3**	**SD 4**	**DK 0**		**SA 1**	**A 2**	**D 3**	**SD 4**	**DK 0**
					Understanding the differences between developed and developing nations					
					Awareness of cultures of other countries					
					Knowledge of production systems in other countries					
					Knowledge of global agricultural export markets and marketing systems					
					Knowledge and what other countries' culture has added to U.S. society					
					Ability to interact with people from other parts of the world					
					Ability to function as a citizen in a global society					

2. Please indicate by selecting either “Yes” or “No” which of the following you have completed prior to coming to Penn State University?

	Yes	No
International study tour		
Hosting an international visitor		
Interaction with international exchange students		
Participating in a study abroad programs		
Church mission in another country		
International guest speaker in a class		
Taking a class focused on international issues		
Going to an international restaurant		
Attending an international festival		
Other (if “Yes”, please indicate)		

3. On a scale from one to four, with **1 = Very interested (VI), 2 = Interested (I), 3 = Slightly interested (SI), 4 = Not interested (NI), 0 = Don’t’ know (DK),** please indicate your level of interest in engaging in each of these activities if available to you while at Penn State University:

	VI 1	I 2	SI 3	NI 4	DK 0
International study tour (10 to 15 days long)					
Hosting an international visitor					
Interaction with international exchange students					
Participating in a semester long study abroad					
Taking a class focused on international issues					
Going to an international restaurant					
Attending an international festival					
How interested would you be to take a job doing international work in another country?					

4. I feel that participating in international study abroad is? (put an "X" in each row):

	1	2	3	4	5	
Good						Bad
Beneficial						Harmful
Positive						Negative
Wise						Foolish
Favorable						Unfavorable
Fun						Boring
Safe						Risky

5. On a scale of one to four, with **1 = Strongly agree (SA), 2 = Agree (A), 3 = Disagree (D), 4 = Strongly disagree (SD), 0 = Don't know (DK),** please indicate the degree to which you perceive the following to be barriers to you personally participating in international programs such as a study tour.

	SA 1	**A 2**	**D 3**	**SD 4**	**DK 0**
Difficulty of adding more credit hours to existing academic program of study					
Overall time it would take to participate					
Fear of traveling outside the U.S.					
Not wanting to spend time away from family/friends					
I can't speak the language or need better language skills					
Don't see the value					
Lack of knowledge about availability opportunities					
Concern about financial costs of programs					

Section II

6. To what extent have you learned about study abroad opportunities within the College of Agricultural Sciences since the beginning of the Fall 2006 semester? Please indicate how much you learned from one to four, **with 1 = A lot , 2 = Something, 3 = A little bit, 4 =Almost nothing and 5 = Don't' know**.

	A lot 1	**Something 2**	**A little bit 3**	**Almost nothing 4**	**Don't know 5**
Lectures					
Outside classroom activities					
By yourself through Internet					
Videos through ANGEL					
The Collegian newspaper					
Talking to friends					

7. Using a scale of one to four with 1 **= Very useful (VU), 2 = Useful (U), 3 = Some what useful (SU), 4= Not useful (NU), 0 = Don't know (DK),** please indicate the usefulness of these information sources in your daily life and **,** using another scale from one to four, with 1 **= Very reliable (VR), 2 = Reliable (R), 3 = Some what reliable (SR), 4= Not reliable (NR), 0 = Don't know (DK),** please indicate the level of reliability of these information sources when you are seeking for study opportunities within a college:

USEFULNESS **Please indicate the <u>usefulness</u> of these information sources in your daily life?**						**RELIABILITY** **Please indicate the level of <u>reliability</u> of these information sources when you are seeking study opportunities within a regarding college:**				
VU 1	**U 2**	**SU 3**	**NU 4**	**DK 0**		**VR 1**	**R 2**	**SR 3**	**NR 4**	**DK 0**
					Internet (www)					
					E-mail					
					Instant messenger (IM)					
					Streaming videos trough the Internet (www)					
					Text messaging (cell phone)					
					Cell phone					
					Podcasts					
					Internet radio					
					Television					
					Radio					
					Newspaper					
					Advice from friends					

Section III - Knowledge acquisition

1. Which of the alternatives below is a unique activity in Puerto Rico?
a. Cock fighting - X
b. Coffee production
c. Plantain production
d. Tourism

2. In Puerto Rico, one of the main educational activities performed by the students was:
a. Visiting the university
b. Interviewing farmers - X
c. Visiting historical sites
d. Taking notes of production systems

3. According to the students who traveled to Puerto Rico one of the main reasons to visiting the island was:
a. Swimming in the Caribbean Sea - X
b. Eating Puerto Rican food
c. Escaping to warm weather
d. Enjoy a relaxing trip

4. How long was the Puerto Rican study abroad tour?
a. Ten days - X
b. Three weeks
c. A month weeks
d. A semester

5. Before going to Puerto Rico, one of the students was afraid of:
a. Swimming in the ocean
b. Talking to the farmers
c. Flying - X
d. Dancing salsa

6. One of the most well known animals in the Puerto Rican Island makes a sound like cokee, cokeeee. Which of the following is this animal?
a. Bird
b. Parrot
c. Frog - X
d. Toad

7. Puerto Rican farmers are described in the video as being:
a. Curious
b. Hostile
c. Hospitable - X
d. Wealthy

8. Where is Iguacu falls located?
a. Brazil - X
b. Uruguay
c. Puerto Rico
d. South Africa

9. Which water fall has the largest volume of water in the world?
a. Victoria Falls
b. Iguacu falls - X
c. Niagara Falls
d. None of the above

10. Pantanal is a unique ecosystem in Brazil. What makes it unique?
a. It is the largest wetland area in the world - X
b. It has a collection of crocodile species
c. It has the longest dry season in the world
d. It is known for its sustainability projects

11. One of macaw's unique characteristic is that:
a. They have strong beaks
b. They mate for life - X
c. They eat coconuts
d. They are huge birds

12. Cattle in Brazil have a unique characteristic. What is that?
a. Ability to resist to long dry seasons
b. Resistance to heat and insects - X
c. Resistance to sun light and grass
d. Ability to put on weight

13. According to the Brazilian video, which of the following popular leisure activities often takes place at the Iguacu falls?
a. Tanning
b. Swimming
c. Riding a power boat - X
d. Hunting butterflies

14. Recently Brazil was in the news for a particular policy. Which of the following is policies was in the news?
a. Kyoto's protocol
b. Gas policy - X
c. Environmental policy
d. Farmers rights movement

15. Brazil is a leading producer of:
a. Cotton
b. Orange juice - X
c. Alfafa
d. Apples

16. According to the Russian video, professionals that speak another language are perceived by employers as:
a. Systematic
b. Efficient
c. Flexible - X
d. Patient

17. Regarding the amount of money necessary to participate in the Russian study abroad program, students reportedly spent…
a. A tremendous amount of money
b. More money than what they would spend when living in State College
c. The same amount of money as they would spend when living in State College
d. Less amount of money than they would spend when living in State College - X

18. Maslanita is a Russian cultural celebration that…
a. Celebrates the beginning of spring - X
b. The end of the Soviet Union
c. The end of the spring semester
d. The beginning of the spring semester

19. While in Moscow students participated in various fieldtrips which of the following is an example of these trips?
a. Open market
b. Moscow State Agro-Engineering University
c. Dairy farm - X
d. Mushroom farm

20. Recently a second language is becoming one of the characteristics sought by employers, besides Spanish which of the languages are becoming very important in the recruitment processes.
a. Russian & Chinese - X
b. French & German
c. German & Italian
d. Chinese & French

21. Usually what percentage of College of Agricultural Science students participates in study abroad programs?
a. 2% - X
b. 10%
c. 25%
d. 90%

22. The Russian program at Moscow State Agro-Engineering University lasts?
a. 10 days
b. A month
c. Two months
d. A semester -X

23. In order to participate in the Russian program, students are encouraged to have _____ Russian language skills.
a. No
b. Some - X
c. Excellent
d. Fluent

24. Would you likely participate in a study abroad program offered by the College of Agricultural Sciences?

Participate in a study abroad program	**Very likely 1**	**Likely 2**	**Somewhat likely 3**	**Not likely 4**	**Don't know 0**
10 days during spring break					
Semester long					

Section V. Demographics

1. Gender: ☐ Male ☐ Female

2. Major: _____

3. Are you a:
   - ☐ Freshman
   - ☐ Junior
   - ☐ Sophomore
   - ☐ Senior

4. What is your approximate Grade Point Average (anticipated)?
   - ☐ Less than 2
   - ☐ 2.0 to 2.49
   - ☐ 2.5 to 2.99
   - ☐ 3.0 to 3.49
   - ☐ 3.5 to 4.00

5. Check one of the following alternatives that best describe your family's ancestry.
   - ☐ European/Caucasian
   - ☐ Black or African American
   - ☐ Asian
   - ☐ Native Hawaiian or other Pacific islander
   - ☐ American Indian or Alaska Native
   - ☐ Hispanic or Latino

6. What languages do you speak fluently to the extent where you could comfortably get around in another country? Please, indicate

_____

7. Did you grow up on a working farm? ☐ Yes ☐ No

8. Do you have access to Internet at home? ☐ Yes ☐ No

9. If yes, what type of connection do you have? ☐ Dial up ☐ Cable

10. Do you have an iPod? ☐ Yes ☐ No **If yes,** what generation? _____

Students' Perceptions Regarding Study Abroad Programs

FALL 2006

AEE – PSU

APPENDIX C

(IRB # 24021)

From: Mathieu, Jodi
Sent: Wednesday, September 20, 2006 7: 13 PM
To: 'wch11 7@psu.edu1
Cc: 'thb2@psu.edu'
Subject: IRB# 24021 - "Determining the Effectiveness of Video Streaming in Modifying Students' Perceptions and Knowledge regarding Study Abroad Programs"

Hi Wilmara,
The Office for Research Protections (ORP) has reviewed the above-referenced study and determined it to be exempt from IRB review. You may begin your research. This study qualifies under the following category(ies): Category 1: Research conducted in established or commonly accepted educational settings, involving normal educational practices, such as (i) research on regular and special education instructional strategies, or (ii) research on the effectiveness of or the comparison among instructional techniques, curricula, or classroom management methods. [45 CFR 46.101(b)(I)] Category **2:** Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures, or observations of public behavior unless: (i) information obtained is recorded in such a manner that human participants can be identified, directly or through identifiers linked to the participants; and (ii) any disclosure of the human participants' responses outside the research could reasonably place the participants at risk of criminal or civil liability or be damaging to the participants' financial standing, employability, or reputation. [45 CFR 46.101(b)(2] -PL-EA SE NOTE THE FOLLOWING: **a** Include your IRB number in any correspondence to the ORP. 'The principal investigator is responsible for determining and adhering to additional requirements established by any outside sponsors/funding sources.
Record Keeping
o The principal investigator is expected to maintain the original signed informed consent forms, if applicable, along with the
research records for at least three 3 years after termination of the study.
o This will be the only correspondence you will receive from our office regarding this modification determination.
MAINTAIN A COPY OF THIS EMAlL FOR YOUR RECORDS.
Consent Document(s)
o The exempt consent form(s) will no longer be stamped with the approval expiration dates.
o The most recent consent form(s) that you sent in for review is the one that you are expected to use.
Follow-Up
o The Office for Research Protections will contact you in three (3) years to inquire if this study will be on-going.
o If the study is completed within the three year period, the principal investigator may complete and submit a Project
Close-Out Report. (http:llwww,research.psu.edulorplareaslhumanslapplicationslcloseout,rff)
a RevisionslModifications
o Any changes or modifications to the study must be submitted to the Office for Research Protections on the Modificafion
Request Form - Exemption available on our website:
http:llwww.research.psu.edulorplareaslhumanslapplicationslexemptmod.~
o Modifications will **not** be accepted unless the Modification Request Form is included with the submission.

Please do not hesitate to contact me if you have any questions or concerns.

APPENDIX D

(Quality of the videos data)

Table 1: Overall watching frequency of each of the videos

	Puerto Rico			Brazil			Russia		
	Mean	S.D.	n	Mean	S.D.	n	Mean	S.D.	n
Likelihood of participation	1.16	.37	101	1.08	.27	100	1.10	.30	102

Scale: 1 = Once, 2 = Twice, 3 = Three times, 4 = Four times, 5 = More than five times

Table 2: Students likelihood to recommend this video to peers

	Puerto Rico			Brazil			Russia		
	Yes	%	n	Yes	%	n	Yes	%	n
Likelihood of participation	82	81.2	101	84	84	100	79	79	102

Table 3: Students perceptions towards the overall quality of the videos

	Excellent (%) n	Very good (%) n	Good (%) n	Ok (%) n	I don't like it (%) n	N
Puerto Rico	14.9	54.5	26.7	4	0	101
	15	55	27	4	0	
Brazil	14	52	25	8	1	100
	14	52	25	8	1	
Russia	16	48	28	5	3	100
	16	48	28	5	3	

APPENDIX E

Item "Other (if "Yes", please indicate)

Pretest*
If. Yes Indicate
Student Ambassador Program
Travel Abroad with Family
Travel to Europe on Vacation
Travel to London and Paris
Traveled to Germany
Travel
Visit Germany
Travel with School
Band Trip to the Netherlands
Lived in other countries
Visited other countries
Student Ambassador Program
Family Vacation to Germany
Lived in Korea

* Note: Responses are mixed for control and treatment groups

Posttest*
If. Yes Indicate
Visited Sweden, Germany and The Netherlands
Student Ambassador Program
Performed in an Ensamble in Denmark
Family Travel
Irish Festival
Traveling
Travel to Europe
Visited Germany
Family Travel to Europe

* Note: Responses are mixed for control and treatment groups

VITA

Wilmara Harder

Education

2004-2007	**Doctor of Philosophy** The Pennsylvania State University Agricultural Education and Extension
2002-2004	**Master of Science** Federal University of Mato Grosso do Sul, Brazil Agricultural Production, Specialization in Horticulture
1994-1999	**Bachelor of Science** University of São Paulo, ESALQ, Brazil Major: Agricultural Engineering Minor: Rural Economics and Administration

Professional Experience

2004-2007	**Graduate Assistant** The Pennsylvania State University, College of Agricultural Sciences
2003-2004	**Research Assistant** Federal Universtiy of Dourados, Brazil
2001-2002	**Fieldwork Manager** Multinational Marketing and Agricultural Kleffmann Partners, in Brazil
1999-2001	**Content manager** MegaAgro Comercial, São Paulo, Brazil

Selected Publications

Harder, W. C & Bruening, T. H. (2007). *Challenges of Communicating Indigenous Knowledge within Guarani-Kaiowa and Terena Communities: A Brazilian Case Study*. Proceeding of the 23rd Annual conference for the Association of International Agricultural Extension and Education, Polson, Montana.

Harder, W. C. & Bruening, T. H. (2006). Students' Perceptions of Learning and Teaching in Ukraine and Russia. Paper Presented at the 8th European Conference on Higher Agricultural Education (ECHAE), Prague, Czech Republic.

Harder, W.C., Bruening, T. H. & Tmanov A. (2006). *Students' Perceptions of Learning and Teaching at Lviv State Agricultural University in Ukraine.* Paper presented at the 22nd Annual conference for the Association of International Agricultural Extension and Education, Clearwater, Florida, 143-151