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Visual Communications on the Road in Arkansas: Analysis of Secondary Students Videos

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ABSTRACT

In the summer of 2010, the Visual Communications on the Road in Arkansas: Creative Photo and Video Projects to Promote Agriculture program was initiated. The program consisted of a two-week agricultural communications curriculum that would be taught by agricultural science teachers in Arkansas. The curriculum was composed of lessons about photography, writing, and videography, and the program introduced students to digital photography and videography equipment and the proper uses of equipment. Once the curriculum was taught in secondary schools, a mobile classroom unit—consisting of a travel trailer, photography and videography equipment, and laptop computers equipped with editing software—would visit the school to assist students with the creation of short promotional videos about agriculture. The student-created videos were used as a hands-on extension of the curriculum learned in the classroom. Completed videos were posted to YouTube and then analyzed to assess student application of competencies taught in the curriculum. The researchers created a coding sheet to systematically assess all posted videos and inter- and intra-rater reliability was maintained. An analysis of data gathered from the video assessment showed that secondary students were able to effectively apply many of the techniques taught in the curriculum through the agricultural videos created. Additional findings and recommendations for application and future research are presented.

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MEET THE STUDENT-AUTHOR

Stuart Estes

I am an agricultural education, communication and technology major with an emphasis in agricultural communications in the Agricultural and Extension Education (AEED) Department. I am a recipient of a University of Arkansas Honors College Fellowship. In the AEED Department, I am an active member of REPS (Representing Excellence, Pride and Service) and Agricultural Communicators of Tomorrow. After completing my bachelor's degree, I plan on pursuing a master's degree here at the university in Agricultural and Extension Education.

I chose to participate in this research because of my interest in agricultural communications and how agriculture is affected by the messages distributed by the industry. Another interesting aspect of this research is the understanding of how secondary students' learn through experiential curriculum will have effects on the new technology uses in agriculture. I look forward to continuing research in these areas during my educational career.

INTRODUCTION

The National Research Agenda [NRA]: Agricultural Education and Communication 2011-2015 (Doerfert, 2011) was developed to outline critical components of agricultural education and communications. For more than a century, agricultural education and communications faculty have worked together to develop courses and research projects in an effort to better to understand and promote the agricultural industry. Strong working relationships between agricultural education and communications faculty have created opportunities to broaden industry understanding and improved promotion techniques. Additionally, communication becomes ever critical to the promotion of agriculture as the availability of technology continues to grow and the public becomes further removed from the farm. (Bailey-Evans, 1994).

"As agricultural education enters the twenty-first century, it [education and agriculture] must change with emerging trends in society and the agricultural industry" (Talbert, et al., 2005). Additionally, agriculture as a field of study continues to diversify and change, aiming to meet the needs of producer and commodity groups. This change and diversification brings the need to communicate more effectively and promote agriculture to an audience who is uneducated about agriculture and its practices. At the present time, agricultural communicators use digital technologies to disseminate messages throughout media outlets. Many agricultural education courses are built on a foundation of constructivist theory and experiential learning, which opens the doors for students to learn about and use these technologies before entering degree programs or the workforce.

In 1999, the National FFA Organization, a student organization associated with agricultural education in secondary and post-secondary schools, organized the first career development event (CDE) for agricultural communications. Since that time the National FFA organization has gathered resources for agricultural science teachers to utilize when teaching students about agricultural communications. The national organization's website has links to numerous resources, including *The Guidebook for Agricultural Communications in the Classroom* (Hartenstein, 2002). The guidebook, which outlines basic materials for teaching a course or unit as well as training a team, begins with:

> Agricultural communicators play a vital role in the world of agriculture. Representing agriculturalists across the world, these individuals possess the skills to effectively communicate agricultural messages to public involved and not involved in agriculture. Because a large percentage of the population lacks agricultural understanding, it's important for agricultural communicators to provide timely, accurate information on current issues and events (Hartenstein, 2002).

Upon completion of a national Delphi study, Akers et al. (2001) concluded that high school seniors in agricultural sciences curriculum should be competent in 76 skills of agricultural communications. The major themes surrounding those competencies included (a) agricultural skills, (b) communication skills, (c) ethics, (d) professional development, (e) public relations, (f) research gathering, and (g) writing. The study concluded these skills should be taught at various levels throughout the freshmen, sophomore, junior, and senior educational levels. It is suggested that an introduction, intermediate, and advanced course be developed for teaching agricultural communications competencies and skills.

Postsecondary and secondary education today is a dynamic educational environment as new electronic technologies and their educational potential emerge. Additionally, agricultural communications is an important and valuable discipline. However, little agricultural communications curriculum exists in secondary school programs. By teaching high school students communications and technology skills, they learn valuable techniques while supporting and promoting the agricultural industry.

Overview of the Program

The Visual Communications on the Road in Arkansas: Creative Photo and Video Projects to Promote Agriculture [Visual Communications] program was initiated during the summer of 2010. The goal of the program was to assist high school students with creating short promotional videos about agriculture. The program's audiences are Arkansas secondary agricultural science teachers and students enrolled in agricultural science courses. The target objectives included: (1) developing electronic agricultural communications curriculum, (2) creating a mobile classroom to educate teachers and students about visual communication technologies, and (3) assisting high schools throughout Arkansas in the development and creation of YouTube videos to promote and market agriculture.

The curriculum included three educational units and was disseminated to participating secondary schools in Arkansas prior (no less than four weeks) to the mobile classroom visit. The instructional modules support student/teacher knowledge and skill development in the three specific agricultural communications areas: writing, photography, and videography. Secondary agricultural science teachers may incorporate this curriculum into any course they teach. After high school teachers finished teaching their students the curriculum, a mobile classroom was used to assist the secondary students in shooting footage and digital images, editing photos and video, combining the visual formats, and adding title scripts, music, and credits (specifically to the USDA). The completed videos were then rendered by the project staff and posted to YouTube.

Prior to participating in the educational curriculum units and the mobile classroom visit, secondary students were evaluated (pre-assessment) to determine current knowledge in writing, photography, and videography. Upon completion of curriculum units, students were evaluated (post-assessment) for knowledge gained and for perceptions. Students were assessed for the final time after completion of the experiential learning activity. Assessments were used to periodically adjust educational units and the hands-on mobile classroom training experience. On the day of the mobile classroom visit, students began by reviewing the basic information that had been covered by their teachers prior to the visit. Students then spent three hours refining their stories, taking photos, and capturing video clips to tell the agricultural-related story they had written. During the afternoon, students used professionally accepted software to edit both the photos and video. Upon completion, student-created agricultural videos were posted to YouTube.

The purpose of this study was to assess student videos created as part of the Visual Communications program. Specifically, to determine if skills taught through the objectives of the visual communications curriculum were visible in secondary student video projects.

MATERIALS AND METHODS

This study was part of a larger study that used a pre-experimental design (#2), modified one-group pretest-posttest-delayed posttest from Campbell and Stanley (1963). The subjects of this study were high school students enrolled in agricultural science courses. The focus of this article is to serve as a discussion of the effectiveness of the curriculum in allowing students to understand the concepts presented, and thus use the concepts to create promotional videos about agriculture.

Upon completion and rendering of the videos, the students' projects were posted to YouTube. This occurred approximately 48 to 96 hours after the completion of the mobile classroom day visit. This allowed time for faculty and staff at the Agricultural and Extension Education Department (AEED) to ensure the videos were accurate and contained credits.

A video content analysis was developed by the researchers in order to evaluate each student's ability to apply competencies and objectives of the curriculum. Each video project completed was evaluated based on this content analysis. Areas from the photography unit were assessed by counting the number of photos used and determining the element(s) of composition (framing, centering/symmetry, leading lines, rule of thirds, simplicity, and/or subject background relationship) applied, if photos were or should have been manipulated (edited using software),

and if captions for photos were written correctly. For the writing unit, videos were assessed based on the viewer (coder's) ability to identify the "who", "what", "where", "when", "why" and "how" elements of the story being told. For the final videography unit, videos were assessed based on video capturing techniques, including the use of a tripod and lighting, interviewing techniques, and overall quality of the video in relation to the story being told. A coding form was developed based on the objectives of the curriculum units. Three researchers in the AEED at the University of Arkansas completed the content analysis.

Before coding, a lead researcher led the coders through the ideas and concepts outlined in the curriculum. The lead researcher and coders then watched videos together and completed the analysis individually. The researchers then compared analysis notes and reconciled differences via negotiations (Weber, 1990). The study maintained inter-coder reliability and researcher coding was assessed using at least 20% overlap of the analyzed videos. Final reliability was calculated using a random sample of 10% of the analyzed videos. Reliability was assessed using Spearman's rho. Reliabilities met or exceeded the minimum standard of 0.70 (Bowen et al., 1990; Tuckman, 1999). Inter-rater reliability was taken into account and corrected by reviewing discrepancies in an initial coding of a number of videos and agreeing on content before moving on to coding of the entire collection of videos produced. Intra-rater reliability was maintained by the creation of a coding sheet that all coders used to analyze the videos.

RESULTS AND DISCUSSION

Information regarding the participants' gender, grade level, number of agricultural courses and geographic division (rural or urban) was gathered when students completed the delayed posttest instrument. Students participating in this study were 35.3% ($n = 36$) female and 64.7% ($n = 102$) male. Classification of students ranged from 7th through 12th grade. Students in the 7th and 8th grade represented 6.86% ($n = 7$) of the participants in the program, 12.74% ($n = 13$) were freshmen, 22.54% ($n = 23$) were sophomores, 23.54% ($n = 23$) were juniors, and 35.29% ($n = 36$) were seniors.

A video content analysis was completed for each video produced during the project to determine if objectives of the curriculum were apparent in student video projects. Videos were assessed for competencies and objectives from each curriculum area (photography, writing, and videography). There were 49 videos assessed in the content analysis.

Photography

In the photography curriculum area, four areas of content were assessed: (a) image choice for stories, (b) elements of composition, (c) photo manipulation, and (d) photo captions. One hundred percent of the videos using images displayed proper choice of images to help enhance or portray their topic. Analysis of videos utilizing elements of photo composition showed students used the "centering/symmetry" composition element often, with a range of zero to 24 uses per video ($M = 3.47$, $SD = 4.41$). A composition element used less frequently was "framing", with a range of zero to five uses per video ($M = 1.60$, $SD = 1.24$). Table 1 displays student use of all photo composition elements.

Photo/image manipulation was the third key objective analyzed in the videos from the photography unit. Of the 599 photos identified, 50.11% were manipulated correctly or were not in need of further manipulation. The final competency from the photography unit analyzed in the student-created videos was photo captions use. Only 12 videos utilized photo captions in their video, and of the captions that were written (20 total), 19 were written correctly.

Writing

Student created videos were analyzed based on uses of writing techniques that were taught in the curriculum unit. Video projects were assessed to determine if the audience was able to identify the "who", "what", "where", "when", "why", and "how" of the story being told. One hundred percent of the videos produced properly told a story through video that addressed the above outlined key components taught. Also, program facilitators noted that 100% of the students utilized a storyboard as well as a modified script for producing their videos, although a portion of the scripts were limited.

Videography

The final unit analyzed was videography. This unit included using proper camera techniques, observing proper interview practices, and ensuring the video footage used directly related to the story being told. Forty out of 49 (81.63%) videos properly utilized a tripod to stabilize their video footage, while 9 out of 49 (18.36%) videos should have, but did not utilize a tripod to capture their footage. In addition to using proper equipment for stability, lighting was assessed in the videos created. Forty-seven of the 49 (95.91%) videos displayed consistent lighting throughout the video, while 2 of the 49 (4.08%) did not. Next, interviews conducted for the created videos were assessed. Fifteen of the 49 videos created utilized an expert in the

field via an interview for the produced video. Of those 15 interviews, 100% were conducted correctly and were used to enhance the video and storyline. The final unit of analysis for the video content was the overall video footage and how it related to the story being told. Of the 49 videos produced, 48 had video/image footage directly related to the story being told through film.

The Visual Communications on the Road in Arkansas: Creative Photo and Video Projects to Promote Agriculture program allowed students to make reflective observations and apply abstract conceptualizations (Kolb, 1984) taught via curriculum and applied during the mobile classroom experience. Students then applied concrete experiences along with active experimentation (Kolb, 1984) during the video production process, which positively impacted student perceptions. Each lesson plan was designed to allow students to collaborate and reflect on new information. This allowed for students to develop a stronger understanding of each concept by the time they applied it when creating their videos. While creating their videos, students were able to see how all the pieces of the curriculum fit together and were used to create a finished product (video posted to YouTube).

Wagner (2008) discussed the need for students to analyze and interpret media and create and produce projects using digital media. This study showed that students do prefer to engage in this type of learning and are successful when doing so. Therefore, this research supports previous research noting that experiential learning activities can positively impact students at the secondary level through creating meaning (Brooks and Brooks, 1999).

In *Born Digital*, Palfrey and Gasser (2008) stated that learning environments "where students are doing applied work, research and writing, and problem solving are obvious places to seek integration" of digital technologies, and that technology should be a part of the "every-day curricula in schools" where appropriate. Agricultural education has many academic areas where technology can be integrated, agricultural communications being one. Expanding agricultural education curriculum to add communications knowledge, skills and competencies will aid in meeting the needs of today's agricultural industry. In addition, secondary teachers will be giving their students opportunities to find jobs and seek post-secondary education in competitive career fields.

Since the 1990s, agricultural communications has evolved into a highly competitive industry requiring knowledge of business practices and editorial skills as well as farming (Burnett and Tucker, 2001). "Visual images are very powerful in their occupation of the publics' time and the shaping of how we process our surrounding environments" (Sadler-Trainor, 2005). As more people become disconnected from production agriculture and receive an increased amount of information through digital means, visual promotion may play an increased role in perpetuating agriculture. In 2010, over three hundred million people were living in the United States (USDA, 2012). Of that population, less than 1% claimed farming as an occupation (and about 2% actually live on farms); therefore, there is a need to tailor agricultural curriculum to the non-farm student. According to website-monitoring.com (SITEIMPULSE, 2010), the number of hits to videos on YouTube exceeds two billion per day, and the number of advertisers has increased ten-fold in the past year.

Schools could continue to create video projects on their own without the mobile-classroom component. If funding is available, teachers could purchase the equipment and software needed to more fully engage students with digital, visual media. If funding is not available, videos may still be produced because many schools have digital cameras with photo and video capabilities that teachers can reserve, and freeware such as Windows Movie Maker (video editing) and GIMP (photo editing) are available for download at no cost. These devices and electronic software could be used along with the developed curriculum to serve the same purpose as outlined by this program. In order for teachers to be successful, workshops should be conducted by knowledgeable university faculty and staff to ensure that secondary teachers are informed and comfortable with the digital and visual technology. Teaching students to promote agriculture via short videos provides an additional outlet for those disconnected with agriculture to find information.

CONCLUSIONS

The Visual Communications on the Road in Arkansas: Creative Photo and Video Projects to Promote Agriculture program proved to be an effective way for secondary students to learn in an experiential fashion about the burgeoning career field of agricultural communications. The curriculum for the program laid a strong foundation for the secondary students, upon which they were allowed to create short promotional videos about agriculture that not only served to promote, but more importantly to provide the students with an opportunity to become familiar with digital media equipment and outlets. Through the use of programs and curriculum like this, secondary agricultural science students can more effectively learn hands-on techniques that will prove vital to their education, and will also aid in the continuation of agriculture as an industry. Student produced videos can be viewed at http://www.youtube.com/user/AEEDVisual. At the time of this publication student created videos had been viewed more than 18,000 times.

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Table 1. Average number of student use of elements of composition in photography.

Element	Mean	Standard Deviation
Centering/Symmetry	3.47	4.41
Framing	1.60	1.24
Line	3.33	2.33
Rule of Thirds	2.77	2.14
Simplicity	2.73	2.32
Subject/Background Relationship	1.86	1.86