

Let's hang out: Using videoconferencing platforms to facilitate agriscience education experiences

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Introduction

Technology use has been identified by teacher education scholars in the agriculture sector as “a way to address a variety of challenges in teaching and learning such as making education more accessible to remote audiences, enhancing the scope and timeliness of content resources, and expanding opportunities for writing and communication” (Coley et al., 2015, p. 35). Several organizations and governing bodies have developed guidelines and standards for technology integration, including the International Society for Technology in Education and the Council for the Accreditation of Educator Preparation (Coley et al., 2015). Previous research in the field has outlined agriscience educators’ technology and their attitudes toward and barriers to using technology in the classroom (Williams, Warner, Flowers, & Croom, 2014).

Videoconferencing has specifically been identified as both a need for agriscience educators and an area in which many schools are ill equipped (Kotrlik, Redmann, Harrison, & Handley, 2000; Miller, 1997). Videoconferencing is a key component of distance education (Miller, 1997) and has also been leveraged in traditional classrooms to give students access to unique experiences, including international agricultural practices (Sandlin, Murphrey, Lindner, & Dooley, 2014).

How It Works

Preservice agriscience education students at The Ohio State University are required to complete a classroom technology course. As part of a unit on free and low-input video conferencing platforms, the students were tasked with hosting Farmtastic AgVentures, a series of computer-mediated field trips for elementary school students created by Ohio Farm Bureau. The program takes advantage of Google Hangouts, a free online messaging platform that allows Google users to engage in text and audio chats and videoconferences. The Hangouts introduce children to key agricultural commodities in Ohio and leverage experts in each sector as guests. The sessions are aired live on Google+ and are uploaded to a YouTube channel upon completion.

The Farmtastic AgVentures sessions were scheduled and facilitated by Ohio Farm Bureau regional staff, with an office administrator handling the technical aspects of inviting participating teachers, maintaining platform connections, and troubleshooting issues. The Ohio State students met via Hangout with the administrator prior to the first Farmtastic AgVentures session of the year to discuss the groundwork required for a large-scale videoconference. They then watched a live session to gain a better understanding of the process and protocol.

After observing the first session, the students were divided into teams of four. Each team was given a topic and asked to write a script for their respective session with information provided by Farm Bureau staff. The scripts were fact-checked by the instructor and the AgVentures facilitators. Two members of each team hosted a morning session, and their remaining teammates hosted an afternoon session. The students introduced the classrooms, participating industry professionals, and Farm Bureau staff and guided a 20-minute question-and-answer session between the classrooms and experts.

Results to Date/Implications

In the Autumn 2015 semester, the agriscience education students hosted three Farmtastic AgVentures Hangouts: apple production, pork production, and soil and trees. Each session involved at least three third- and fourth-grade classrooms across Ohio, impacting approximately 75 children per session. The students also interacted with participating industry professionals, including the owner-operator of the apple farm, a pork producer, a large-animal veterinarian, a forester, and an Ohio Soil and Water specialist, and developed relationships with Farm Bureau field staff.

In their responses to the activity, the students wrote positively about their experiences: Several indicated their intention to use Google Hangouts or other videoconferencing platforms in their own agriscience classrooms. They saw value in the technology as a means to provide unique educational opportunities for schools lacking funding for field trips as well as a potential reporting tool for supervised agricultural experiences (SAEs). One student offered to host his own Farmtastic AgVentures session on sheep production. Several of the students expressed concern about the potential technological pitfalls—including poor Internet connectivity and unstable video quality—but nonetheless were intrigued by the platform's classroom implications.

All Farmtastic AgVentures Google Hangouts are publicly available on YouTube and serve as a repository for these computer-mediated field experiences. Teachers are invited to use the videos to supplement STEM-related coursework, and Farm Bureau facilitators add supplemental material throughout the year. Secondary teachers, including agriscience educators, could use a similar format to create an information library in a format accessible and familiar to their students, as statistics show that at least a quarter of American teenagers create and upload video (Lenhart, 2012) and nearly 75 percent watch YouTube videos (Bennett, 2014).

Future Plans

Ohio Farm Bureau staff were excited by the prospect of working with new agriscience education cohorts, and Ohio State preservice students will continue to work with the Farmtastic AgVentures program in Autumn 2016. To give students a deeper understanding of the platform, students will also be required to plan and execute their own Google Hangouts activity. They will be responsible for developing a topic, identifying and inviting experts to participate, writing a script, and hosting the session from their own equipment.

Costs Needed

Google Hangouts is a free alternative to institutional videoconferencing platforms, and a Google+ account is free to any Google user with an active Gmail address. The primary costs associated with the platform are hardware and network inputs: Using Google Hangouts requires a mobile device or a desktop computer equipped with a webcam, as well as a strong Internet connection to prevent lag in audiovisual streaming and dropped connections. Facilitators must also ensure that participants outside the classroom possess the needed equipment and wireless connectivity. Smartphones and Wi-Fi-enabled tablets work best for mobile connections, especially those in which participants actively move through a location or activity. Tripods, microphones, and external speakers can be used to improve sound and video quality but require additional funds to purchase or rent.

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