Emergency Remote Teaching for an Undergraduate Animal Science Class: Utilizing Videos to Teach Management Practices from a Distance

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Introduction

Emergency remote teaching (ERT) is a temporary modification in instruction to an alternate delivery model due to a crisis. While standard development and preparation for a course taught entirely online typically takes six to nine months before the delivery of the course (Hodges et al., 2020), ERT aims to provide support and temporary access to instruction in a manner that is fast to prepare and is readily accessible to both students and instructors throughout an emergency or crisis. During the Spring 2020 semester, it was necessary to suddenly shift to an ERT delivery of an introductory animal science course at Purdue University. This course introduces students to traditional livestock species, like pigs and cows, as well as aquaculture and meat science. Past course enrollment has indicated that 55.9% of students have little to no large animal experience, and the majority of the students taking this course were first-year students (Erickson et al., 2019). This introductory course was designed to increase their agricultural knowledge through experiences in the classroom setting and through off-campus trips to the research farms once per week. The on-farm learning opportunities were designed to give students of all backgrounds a chance to see management practices used in the modern livestock industry. Farm trips occurred once per week during the students' scheduled lab. The sudden shift online made it challenging for instructors to engage novice learners in instruction related to hands-on skills. To address this challenge, we utilized a combination of instructor-created and readily available YouTube videos, along with modifying lab handouts to encourage active learning from a distance.

How It Works

YouTube videos are great for remote learning due to the wealth of resources from experts, being easily shareable, viewable on demand, and able to provide both an auditory and visual means of teaching (Fleck et al., 2014). Research has determined that videos under 6 minutes maximize the ability for students to remain engaged (Brame, 2016). Originally, lab handouts had in-person, active learning activities for students to have as their laboratory material for the course. After switching to ERT, YouTube videos replaced the in-person portion and lab handouts were modified to restore active learning in a distanced setting. YouTube allowed us to have an accessible and unified location for students. The lab handouts were designed to include vivid pictures, graphics, and videos. The instructor-created videos were designed to go along with activities in the lab handouts. Three different types of videos were used for online instruction: already available videos, live-action videos made by one of the lab instructors, and narrated slide shows of pictures using PowerPoint. Students watched the videos while completing their handouts, and criteria of the activities in the handouts were formatted to participate with the information from the video. Some of the videos used in the course were recorded by one of the instructors using a cell phone. They demonstrated how to perform various animal practices at a farm, and then the videos were uploaded to YouTube. Regardless of the type of video, all videos were less than six minutes in length. Quizzes assured that students were participating, and student knowledge was assessed through timed multiple-choice exams. After spending a week on a particular species, case studies were crafted to engage students through remote active learning. The case studies helped students enhance their critical thinking skills by analyzing real-life scenarios that happen on farms

individually or with a small group of their classmates. To participate in lab activities students interacted with the videos as follows:

1. Students watch video, complete ungraded lab handout correlating activities.
2. Students take a timed, graded multiple-choice quiz with 10 questions.
3. Students complete a graded one-page essay response to a case study.

Results to Date

One of the lab instructors made three new videos including one screen recording, and about fifteen already available videos were chosen to construct six handouts for ERT. A virtual aquaculture facility tour, aquaculture water parameter quality assurance, polo wrapping a horse's leg, fitting a bridle on a horse, making homemade butter, and taking the internal cooking temperature of meat were some of the topics selected for videos in the handout. Videos can simulate what students can do at home to participate in activities. For example, while not every student may have a horse at home to practice leg wrapping on, they instead had the options to practice their wrapping on table legs, a pet, or even another person's leg. This allowed students to still participate in the activity in a hands-on way at a distance. Student feedback indicated that these videos simulated well but did not replace the hands-on experiences with the animals. The videos did have a positive effect on students, as they provided a foundation for real-life experiences outside the course. Having all the resources readily available in an emergency setting to make videos for every species presented a challenge for us. This made it difficult to maintain the hands-on experience for students every week during online instruction.

Future Plans/Advice to Others

The next goal for this course is preparing video material in advance to allow for a more natural transition to active, distant learning in an emergency. When the course is taught in-person, the videos will be used as supplemental material. Using a cell phone allowed for easy filming and uploading to YouTube. Screen recording software available through PowerPoint made it easy to delete and redo recordings when necessary. The biggest challenge was finding topics that could be taught remotely, with active-learning activities, on short notice. When utilizing already available videos, accuracy and relevance to the course material is necessary. It is crucial that instructors watch the videos in their entirety before sharing with students. Perhaps the largest positive impact from utilizing videos in a distance setting was that instructors were able to provide a personal touch to student learning and instructors could be creative in the material they were creating.

Cost/Resources Needed

Minimal financial costs are associated with this teaching approach, but there can be a significant time investment in curating or crafting videos along with appropriate activities and questions on the laboratory handout. The initial cost involves time spent preparing, creating, and gathering materials to be effective in an online format. It is suggested that YouTube is available for the classroom and to have a Gmail account to be able to upload videos.

References

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