Teach Ag Digital Escape Room

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Introduction

School-based agricultural education (SBAE) programs have been in existence since the early 1900s. Hillison (1987) identified the shortage of qualified teachers dating back to the Smith-Hughes Act of 1917. A century later, the demand for SBAE teachers continues to grow (Ingram, Sorensen, Warnick, & Lawver, 2018) and filling those positions has been a prolonged struggle (Smith, Lawver, & Foster, 2018). The *2017 Agriculture Teacher Supply and Demand Study* (Smith et al., 2018) reported an all time high of 75% (n = 556) of agricultural education graduates entering the SBAE profession. However, 462 positions were left to be filled by alternatively certified or non-licensed teachers along with the closure of over 120 programs nationwide (Smith et al., 2018), leaving an estimated 48,000 secondary students without a highly qualified SBAE instructor (NAAE, 2018). With the increasing demand for SBAE teachers, the need to further develop interest and increase capacity becomes even more apparent.

The National Teach Ag Campaign, through direction from the National Council for Agricultural Education and the National Association of Agricultural Educators, initiated a National Teach Ag Day to be celebrated on the third Thursday of September to "encourage others to teach school based agriculture and recognize the important role that agriculture teachers play in our schools and communities" (NAAE, 2018). To accomplish these objectives and to engage the freshmen and sophomore agricultural education students, a goal identified by the faculty of Oklahoma State University, graduate students designed a Teach Ag Digital Escape Room as the centerpiece of Oklahoma State University's National Teach Ag Day celebrations.

Escape rooms implement game-based learning in a fun active learning method (Kinio, Dufresne, Brandys, & Jetty, 2018). Game-based learning, or gamification, is designed to engage learners in motivational situations that require application of previous knowledge, problem solving skills, and teamwork (Adams, Burger, Crawford, & Setter, 2018). Game-based learning has been shown to increase student motivation and engagement in the curriculum (Bunch, Robinson, Edwards, & Antonenko, 2014). As a method of game-based learning, escape rooms require students to solve puzzles and complete tasks which activate their content knowledge so that they may "escape" the room (Adams et al., 2018). With the potential to further engage students (Kinio et al., 2018) and encourage critical thinking (Adams et al., 2018), a Teach Ag Digital Escape Room was implemented at the Oklahoma State University Teach Ag Night.

How It Works

For National Teach Ag Day, the Oklahoma State University Agricultural Education students in their first or second year were invited by email to participate in *Teach Ag Night*. To incorporate a fun and active learning experience for the attendees, the Oklahoma State University graduate students and faculty planned an Escape Room. The Escape Room pitted groups of students against each other in four identical rooms and challenged the teams to be the first to escape. The objective was to foster a structured environment for students to compete but also learn about the opportunities and resources available to them as future SBAE teachers.

After researching other game formats, including some very expensive pre-made escape room kits, the Oklahoma State University graduate students decided to develop Google Forms with

data validation to make the game both cost effective and easy to replicate for multiple rooms. Digital escape rooms also require less storage, as the props and tools needed to build a traditional escape room can be bulky and difficult to store.

Using the Google Forms platform, a series of 10 clues were developed that challenged students to work together as a team to solve the clues that helped them to "escape" the room. The clues ranged from FFA history to National Agricultural Education Supply and Demand Study statistics. With use of the data validation tool on Google Forms, students were forced to answer each clue correctly before they could move onto the next clue. In addition, iPads were placed in guided access mode so that the students could not leave Google Forms.

Students were split into groups and placed in different rooms. Four rooms had been prepped to contain the same materials and iPad needed to solve the puzzles and escape. A graduate student served as the gamekeeper to guide students if they struggled with a particular clue.

Results to Date

The students who attended the Teach Ag Night were excited to learn about opportunities as future agricultural educators. Each group was successful in escaping their room. Groups reconvened for pizza and a debriefing session. Students commented that they enjoyed the challenge and were introduced to several SBAE teacher resources, such as the Oklahoma Agricultural Education Teacher and Staff Directory. The game was made more relevant by incorporating clues as talking points for the debrief. The night was a success on all levels.

Future Plans

To meet the continued need to include freshman and sophomore students in the department, it is planned to include the Oklahoma State University Teach Ag Night as an annual event. Furthermore, changes to the increase the rigor, including the addition of other clues and more complex puzzles, remains at the forethought of the gamemakers. Finally, it is also planned to develop prizes specific to the Digital Teach Ag Escape Game such 'I ESCAPED' stickers, t-shirts, etc.

Costs/Resources Needed

Approximately 25 hours were spent on developing the digital escape room. The resources needed for this Escape Room were various props found around the department and/or acquired from promotional materials. As the Digital Escape Room was based within Google Forms, there was no need to purchase any additional escape room elements (locks, lockboxes, etc.). Participants had access to department owned iPads, which were purchased for use in undergraduate courses. The largest resource included the printing and organization of clues, including printing full color on heavy cardstock. The resources used for this escape room were saved for future implementation.

References

Adams, V., Burger, S., Crawford, K., & Setter, R. (2018). Can you escape? Creating an escape room to facilitate active learning. *Journal for Nurses in Professional Development, 34*(2), E1-E5. doi:10.1097/NND.0000000000000433

Bunch, J. C., Robinson, J. S., Edwards, M. C., & Antonenko, P. D. (2014). How a serious digital game affected students' animal science and mathematical competence in agricultural education. *Journal of Agricultural Education, 55*(3), 57-71. doi:10.5032/jae.2014.03057

Hillison, J. (1987). Agricultural teacher education preceding the Smith-Hughes act. *Journal of the American Association of Teacher Educators in Agriculture, 28*(2), 8-17. doi:10.5032/jaatea.1987.02008

Ingram, M. L., Sorenson, T. J., Warnick, B. K., & Lawver, R. G. (2018). The influence of school-based agricultural education on preservice agriculture teachers' choice to teach. *Journal of Agricultural Education, 59*(2), 64-78. doi:10.5032/jae.2018.02064

Kinio, A. E., Dufresne, L., Brandys, T., & Jetty, P. (2018). Break out of the classroom: The use of escape rooms as an alternative teaching strategy in surgical education. *Journal of Surgical Education, 0*(0), 1-6. doi:10.1016/j.surg.2018.06030

National Association of Agricultural Educators (NAAE). (2018). *2018 national teach ag campaign.* Author. Retrieved from https://www.naae.org/teachag/news/2018_TeachAgOverview.pdf

Smith, A. R., Lawver, R. G., & Foster, D. D. (2018). National agricultural education supply and demand study, 2017 executive summary. Retrieved from http://aaaeonline.org/Resources/Documents/NSD2016Summary.pdf