

Research Poster

Did you listen to it? The evaluation of podcasts as a learning tool in agricultural communications.

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Introduction

Today information is accessible and can be found in different online communication tools (Strickland et al., 2021). Digital resources can be applied to classrooms to enhance students' learning skills and teachers' educational techniques (Hurajova et al., 2022). Podcasts are digital audio programs shared to online platforms that allow the audience to listen to content asynchronously while engaging in other activities (Sturgess et al., 2023). According to Strickland et al. (2021), podcasting is considered an online learning resource that provides students with reliable information through science-based conversations with experts in the field. Studies have used podcasts to explore student knowledge retention and compare it to the information learned from traditional classroom tools (McCarthy et al., 2023). Few reports on podcasts and their performance as a learning tool have been published in agricultural communications (Hurajova et al., 2022). This study aimed to (1) evaluate and compare learning from podcasts versus traditional learning techniques in an agricultural communications undergraduate course, also it sought to (2) compare learning techniques performance by gender, and (3) by topic reviewed in classes.

Theoretical Framework

This research was based on the Cognitive Theory of Multimedia Learning (CTML), which explores how people can learn from multimedia resources (Downs et al., 2011). Podcasts integrate audio material to enhance the learning process for college students by addressing experiences that facilitate knowledge retention (McNamara & Drew, 2019). The use of CTML as a guiding framework allows educators to design and develop effective educational podcasts. According to Mayer (2005), CTML entails three principles to reduce the cognitive load of multimedia resources based on (1) human information processing systems, (2) limited capacity for processing, and (3) active learning through relevant and organized information.

Methodology

For this study, a descriptive, comparative, quantitative analysis was used to explore and evaluate the performance of podcasts in an agricultural communications course for undergraduate students. Podcasts that were each approximately 20 minutes in length, were created and recorded by the course instructor, meeting the widely accepted quality criteria for educational podcasts (McCarthy et al., 2023), and shared on Blackboard. For evaluating this multimedia tool, two exams were taken during the Spring 2023 semester. Table 1 details the topics and number of questions written for the two different learning tools. A non-probabilistic, purposive sample was used by taking the exams to 28 students, 11 male, and 17 female, enrolled in the agricultural communications course.

Table 1

Design of the Exams According to Their Topics Included and Type of Question.

Exam	Agricultural topics Included	Number of podcast questions	Number of lecture questions
Exam 1	Publications, Magazines, Photography	8	14
Exam 2	Newspapers, Organizations, Radio	6	12

The exams were taken on Blackboard, and the results were exported on an Excel spreadsheet where the questions were classified according to their learning tool (podcast and traditional) and topic reviewed in classes. Learning tools performance was measured by the

percentage of total points obtained on each question. The information was analyzed using SPSS using descriptive and comparative statistics. To achieve the research objectives, a Mann-Whitney test with an alpha level of $p < .05$, was used to identify differences between types of learning tools and compare their performance by gender and by topic.

Results

Objective one findings showed that in the first exam traditional learning technique ($M = 80.76$; $SD = 38.47$) performed significantly better than podcast tools ($M = 72.44$; $SD = 43.07$), $z = -2.66$, $p < .01$. Exam two showed the same findings where traditional techniques ($M = 85.19$; $SD = 35.37$) had significantly higher performance than podcasts ($M = 75.31$; $SD = 43.25$), $z = -2.61$, $p < .01$. Results of objective two indicated no significant differences in the performance of podcasts between male ($M = 69.10$; $SD = 45.19$) and female students ($M = 76.47$; $SD = 41.62$), $z = 1.57$, $p = .12$. While using traditional tools, females ($M = 86.11$; $SD = 33.95$) performed significantly greater than males ($M = 77.37$; $SD = 41.27$), $z = 2.92$, $p = .01$. Finally, objective three results showed there is a statistical difference ($p < .05$) in the performance between podcast and traditional techniques of the following topics reviewed in class: agricultural photography and radio broadcasting, where traditional tools performed better than podcast. However, classes about agricultural publications, magazines, organizations, and social media, didn't show statistical differences ($p > .05$) between the learning techniques.

Conclusions/Implications/Recommendations

The exam results for traditional teaching techniques performed better than podcasts as an online multimedia tool for undergraduate students. According to Shahrizal et al. (2022), one of the major limitations of using podcasts is that it is challenging to verify which students listen to the entire episode and educators must address this drawback by ensuring their students listen to the complete audio. Podcasts indicated no differences in performance between male and female students. According to McCarthy et al. (2023), demographics such as gender do not show differences in podcast users at college because females and males can multitask while listening to podcasts and doing other activities. Also, both genders perceived podcasts as an enjoyable way of learning, where they can repeat what they are listening to, compared to traditional lectures, where not all students listen to the complete explanation (Sevnarayan, 2023). Finally, only two of the six units covered in the exams have significant differences between the learning tools, where podcasts performed lower than traditional lectures. According to Shahrizal et al. (2022), students have preferences in certain topics and are willing to pay more attention to the podcast, which content is interesting for them.

This was the first effort in assessing learning outcomes from podcasts in this course. Although the data do not indicate a significant difference, the podcasts prompted rich discussion in the classroom. Further research should assess mixed methods approach to provide a more comprehensive understanding of the effectiveness and impact of podcasts in agricultural communication courses. Educators should establish ways to ensure students listen to podcasts and evaluate which strategy improves students' exam performance. This study can be done in other agricultural communication courses or degrees to evaluate the implementation of podcasts as a learning tool.

Commented [HE1]: You can cut this for room if needed. Also, I think we can say that we're looking to do a longitudinal study. Maybe..... :) How long will you be at TTU? :)

Commented [HE2]: Reword this. It's hard to understand.

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