

**School-Based Agricultural Education Teachers Awareness of Synchronous Online
Instruction Tools During the COVID-19 Pandemic**

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Introduction

In response to the global COVID-19 pandemic, teachers across all grade levels and subject areas were forced to rapidly adapt their classrooms and teaching practices to utilize virtual platforms (Daniel, 2020). Most school districts throughout the U.S. were unprepared for a large-scale shift in learning in such a short amount of time and struggled to provide adequate teacher training or support. In fact, many districts were forced to adapt in a manner of days or weeks what would normally be introduced over months or years (Daniel, 2020). The sudden shift to online-based learning exposed numerous issues with both teacher preparedness and technological capabilities, with one study finding “teachers were devoting what would have been instructional time to tackling technology challenges, whether struggling to get up to speed learning the intricacies of a learning management system or fixing access problems on Zoom calls” (Bushweller, 2020, para. 19). While the pandemic response laid bare the problems facing educators utilizing online instructional platforms, even before COVID-19 educators were generally unprepared to engage in online learning and lacked awareness of methods best suited to virtual learning (Price, 2018).

The need for technological awareness and proficiency among educators will not subside following the COVID-19 crisis, instead researchers predict a new normal in education that will engage technology to expand educational opportunities to students (Sintema, 2020) and will further emphasize educational preparedness for response to natural disasters and health emergencies (Cahapay, 2020), including federal regulations protecting individuals with disabilities through electronic media, which gained greater awareness as courses moved online. The U.S. Access Board (n.d.) states that Section 508 includes documents such as presentations. The U.S. General Services Administration (2020) highlights the need for accessible Microsoft Word and PowerPoint documents on their Website titled Create Accessible Digital Products.

Theoretical Framework

This research of current awareness and competence among School-based Agricultural Education (SBAE) teachers is grounded in human capital theory. Human capital holds that as an individual increases their knowledge or skills, their productivity can be equally increased (Goldin, 2016). Therefore, it becomes increasingly important to accurately identify areas of need related to human capital development through cost-benefit analysis before investing finite resources (Van Loo, 2004). This study aimed to identify the human capital capacity of SBAE teachers in South Carolina (SC).

Methodology

SBAE teachers in SC (N = 155) were contacted by electronic mail requesting their participation in a researcher developed survey evaluating awareness of and perceived competence in utilizing common virtual learning platform features and accessibility features included in Microsoft Word and PowerPoint. Participants identified which virtual meeting platforms they most commonly used between Zoom, Google Meet, Microsoft Teams, and WebEx, and based on their response, completed specific questions relevant to their experiences. Pertinent demographics gathered SBAE teachers age, gender, career tenure, geographic location within SC, Title I school status, access to internet and technology, and previous exposure to synchronous learning technologies.

The survey was developed following the recommendations of Dillman et al. (2014) and was evaluated for face and content validity by five Agricultural Education faculty members at Clemson University and the SC Agricultural Education Director before distribution. SPSS version 27 was used to analyze descriptive statistics.

Results/Findings

SBAE teachers ($n = 57$), responded resulting in a 37% response rate, of which, 59% were female, 39% male, and 2% preferred to not identify. A majority of participants (61%) were under 40 years of age and the overall population ranged from 22 to 63 years of age. More than one-half of the respondents reported being in their current position for less than ten years (65%). Additionally, 63% of respondents reported having a master's degree or higher, with 56% reporting their highest degree in agricultural education. A majority of participants indicated they used Google Meet (60%) followed by Zoom (20%), Microsoft Teams (14%), and Cisco WebEx (5%). Due to varying responses from question to question based on respondents selected synchronous learning platform, all data discussed below will be given as valid percentages for the responses received.

SBAE teachers utilized mostly reported using Google Meet (60%), although their ability to share files (27%), to use the mobile application to start meetings (36%), and to use virtual backgrounds (42%) was lacking. Similarly, those using Zoom lacked proficiency in the ability to live-stream a meeting through social media platforms (70%), to access a meeting recording transcription (71%), and to utilize a practice room for panelist preparation (73%). Additionally, respondents indicated low awareness of accessibility features and practices in Microsoft Word and PowerPoint. Rates of awareness ranged from 27% (proper use of hyperlinks in Word) to 54% (ability to use the accessibility checker in PowerPoint) and a majority of respondents indicated perceived competence in only two of the fifteen features and skills identified in the survey.

Conclusions/Implications/Recommendations

The majority of SBAE teachers in SC utilized Google Meets, with respondents reporting a general perception to be competent in the use of their preferred meeting platform. Although general competence was reported, room for improvement among SBAE teachers in SC still exists. Further, very low awareness and competence of features and best practices to make electronic documents accessible to all audiences regardless of ability level in Microsoft existed.

Continued professional development is needed for SBAE teachers in SC regarding (1) use of accessibility features and practices and (2) use of synchronous learning platform features beyond basic meeting creation and use. Professional development opportunities should be platform specific to ensure full usage of unique features for student engagement. Additionally, SBAE teachers should be made aware of accessibility resources within their schools to help meet the needs of all learners, without increasing teacher workload. This study should be replicated to determine if these areas of awareness and competence are SC specific or found throughout the region and/or nation. Additional findings would allow for the coordination of regional and national resources to foster the development of skills necessary for SBAE teachers to effectively and efficiently educate students through virtual and hybrid learning environments. SBAE teacher educators should consider the findings of this study as they prepare and evaluate relevant curriculum and develop resources for SBAE teacher candidates.

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