Chapter # 39

TEACHERS PERSPECTIVES OF VIRTUAL PROGRAMS TO PROMOTE STUDENT ENGAGEMENT IN SECONDARY EDUCATION

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ABSTRACT
Households can be very distracting for students, simultaneously teachers are unable to walk around to see if students are engaged or distracted (Farah & Barnett, 2019). In addition, teachers can feel intimidated and overwhelmed by technology (Hertenstein, 2020; Schaffhauser, 2020). Teachers are struggling with virtual learning and have gotten little to no professional development on how to engage students in an online platform (Schwartz, 2020; Williams, 2021). This study will dive into various virtual programs for promoting student engagement. This perspective will help provide professional development direction on which programs could be used to engage students in a virtual setting.
The participants included current teachers enrolled in a master's of education program in southeast Alabama. The participants learned about various free online programs and were able to implement those programs in their classrooms simultaneously. At the end of the semester, students took an online survey asking which programs were least to most helpful for engagement, easiest to implement, and programs they would like to know more about.

Keywords: student engagement, virtual learning, online learning, secondary education.

1. INTRODUCTION

Student engagement is an essential part of learning, they need to be actively engaged in their learning in order to achieve mastery (Linnenbrink & Pintrich, 2010). It can be challenging for teachers to keep students engaged in a physical classroom, however, in a virtual setting it is amplified. Students are uprooted from their school learning environments into their households, most of which are not conducive to learning. Households can be very distracting for students and teachers are unable to walk around to see if students are engaged or distracted (Mobile guardian, 2020; Farah & Barnett, 2019). In virtual learning, the teacher can't be an active stakeholder in the student's learning environment. In addition, most students have no control over their learning situation and the student's home situation plays a large factor in learning. Yet, students are expected to master content to be promoted to the next grade level.

Another issue in virtual learning is the teacher's knowledge and comfort with implementing technology for learning. Teachers can feel intimidated and overwhelmed by technology (Hertenstein, 2020; Schaffhauser, 2020). They are struggling with virtual learning and have gotten little to no professional development on how to engage students in an online platform (Schwartz, 2020; Williams, 2021). Their normal engagement strategies don't translate to virtual learning. As a result, teachers are reverting back to lecture-based models as they are unfamiliar with online platforms to help engage students. Lecture-based learning provides little to no engagement opportunities for students; therefore, they are not active

learners (Terada, 2019). This study will dive into various free online programs for virtual student engagement which will provide perspective from current secondary teachers on the most to least helpful platforms. These perspectives will help provide professional development direction on which online platforms could be used to engage students in a virtual setting.

2. BACKGROUND

Students are technology savvy about gaming and/or social media but lack the technology and academic skills needed for an online class. Teachers often overestimate their student's technology readiness for virtual learning (Clark-Ibanez & Scott, 2008). They assume students can figure out the virtual platform for learning or other technical issues. Home computers and/or Wi-Fi can cause problems in a virtual learning environment. Students lack the technological knowledge to overcome the issues (Clark-Ibanez & Scott, 2008). Students don't always have someone close by or with the knowledge to help troubleshoot issues. Jaggars (2014) stated it is suggested that technical difficulties or the student's commitment to their studies tend to be the cause of dropout. Retention for online courses tends to be lower than for face-to-face classes. Students who lack motivation tend to struggle in online settings (Kahn, Everington, Kelm, Reid, & Watkins, 2017). Online learning requires students to be self-motivators and stay on top of their learning, the teacher can't be in-person to make sure they are completing their work, providing motivation, and keeping districts at a minimum. Students lack the motivation and discipline to work in isolation (TopClass, 2021). As a result, virtual learning environments make it easier for an online student to give up without anyone noticing.

In virtual settings, teachers are unable to read the room to see if students are committed, focused, and engaged. Student engagement is associated with the physical environment classroom (Spencer, 2020). The physical environment of the classroom is a positive learning environment that promotes learning, engagement, and critical thinking. In a virtual setting, it is a challenge for teachers to engage students. Teachers are unable to redirect misbehavior in a virtual setting as easily as they could in a face-to-face setting (Spencer, 2020). With cameras off it becomes even more difficult for teachers to gauge engagement, they have no idea if students are paying attention or even attending the class session. Teachers feel like they are teaching no one. In addition, not every student has a quiet workspace, internet, and materials needed. Some students are watching their younger siblings while their parents work and can't focus on their courses (Spencer, 2020). All of the situations need to be taken into consideration in virtual learning.

Bender (2003) found online classes are more work for the teacher than face-to-face classes. Teachers were trained to teach in a face-to-face environment, not a virtual setting. When teachers were required to shift from in-person to virtual learning they were scrambling to adapt to virtual learning platforms (Williams, 2021). They received little to no training and only had a week at most to prepare. Teachers had to convert their current planned content to virtual. They also had to deal with technology/ Wi-Fi issues. This resulted in online instruction mostly relying on lectures where students are the recipients of information in the learning process. Students are expected to learn and master the content knowledge by just listening. Many times, teachers were unaware till the end of the lesson, week, or month that students were not mastering the content.

Most engagements in online environments stem from adaptions of teaching strategies from face-to-face instruction. Many teachers were plagued with the myth that virtual learning was equivalent to face-to-face learning (Williams, 2021; Meyers, 2008). As a result, they are

expecting the material to easily transfer to a virtual setting and for students to respond accordingly. Teachers needed professional development geared toward effectively teaching online (Williams, 2021). Teachers often teach how they were taught; however, some never experienced an online learning environment and have no idea how to conduct such. Technology professional development is important however it should continue beyond learning the technology to engaging in learning virtually (Williams, 2021). Teachers need tools to engage all students regardless of their circumstances in a virtual setting.

3. METHODOLOGY

This research study is a survey research design, in which quantitative data is collected from the survey (Creswell, 2015; Glasow, 2005). The survey was an electronic self-administered questionnaire that included a series of items reflecting the research aims (Ponto, 2015; Costanzo, Stawski, Ryff, Coe, & Almeida, 2012; Ponto, Ellington, Mellon, & Beck, 2010). The results from the survey provide a general picture of the overall context of the entire set of research questions (Creswell & Plano Clark, 2007). The following research questions assisted in concluding the purpose of the study:

1. What are the perspectives of secondary teachers of programs that promote engagement in a virtual setting?
2. What are the perspectives of secondary teachers on program implementation in a virtual setting?

3.1. Virtual Programs to Promote Student Engagement

Eleven different virtual programs were focused on during the study. Those programs include Kahoot, Google Docs, Socrative, Google Slides, Google Forms, Google Sheets, Edulastic, Go Formative, Classkick, Pear Deck, and Blooket. Each program was free during the time of the study. Below is a description and usage of each program.

Kahoot is a student-centered learning platform and content hub designed to help students to take an active role in their education through powerful play. It can be used in your classroom to: engage your class with interactive lessons, access ready-to-play learning content by subject and grade, get instant feedback from every student in the class, track learning progress over time for formative assessment, and foster creativity and teamwork to turn learners into leaders (Kahoot, 2022).

Google Docs is used to create, and collaborate on online documents. Students are able to edit together with secure sharing in real-time and from any device, with no special software required. Multiple students can work at the same time, you can see each other's changes as they make them, and every change is saved automatically (Google, 2022).

Socrative offers immediate feedback, which is a vital part of the learning process. It provides an efficient way to monitor and evaluate learning that saves time for educators while delivering fun and engaging interactions for learners. It is a classroom app for fun, effective engagement, and on-the-fly assessments, available on all platforms (Socrative, 2022).

Google Slides is used to create online slideshows. Students are able to make beautiful presentations together with secure sharing in real-time and from any device (Google, 2022).

Google Forms is used to create online forms and surveys with multiple question types while analyzing results in real-time and from any device. Teachers are able to get results at the same time by secure sharing in real-time and from any device (Google, 2022).

Google Sheets is used to create and edit online spreadsheets. Teachers and students get insights together with secure sharing in real-time and from any device (Google, 2022).

Edulastic is an engaging technology-enhanced assessment for benchmarks, the classroom, or distance learning. Teachers are able to easily administer district common or classroom formative assessments using high-quality item banks, diagnostic or curriculum-aligned assessments, create your own questions or mix and match (Edulastic, 2022).

Go Formative gives you the teaching tools to engage, instruct, and assess. It helps teachers improve student engagement and accelerate learning, they are able to start seeing real-time student responses (Formative, 2022).

Classkick allows teachers to see all their students working and give high-quality feedback–from anywhere. Teachers upload their own content or create something new–with drawings, text, images, audio, links, and videos to provide instruction or create assessments. Individually or in group settings, students input drawings, text, images, and audio or answer fill-the-blank or multiple choice in response to teacher-created material. Teachers provide individualized, real-time feedback and grading with an array of tools–directly on the canvas, in the help center, or with pointed stickers. Students can even ask their peers for help anonymously. Teachers can see who needs help and how students are progressing through the assignment (Classkick, 2022).

Pear deck is the fastest way to transform presentations into classroom conversations. Pear Deck is an add-on for Google Slides and as a result, you can add formative assessments and interactive questions to your presentations right from Google Slides (Pear Deck, 2022).

Blooket is an exciting new take on the modern classroom review game. It aims to match action with education to create the ultimate learning experience. Students are encouraged to participate in games with rewards for answering questions and exploring new methods of learning. Overcoming our challenges drives students to perform well while reviewing. Question sets can be painlessly imported or created easily. Teachers can also edit game settings with a variety of options (Blooket, 2022).

3.2. Sample Population

The sample population was 32 graduate students who were also currently secondary teachers in Southeast Alabama. These participants were either pursuing a master's degree in education or taking the courses needed to progress from a temporary to a professional teaching certificate. The participants have enrolled in a secondary methods course taught in the evening via zoom for safety purposes. Concurrently participants were virtually teaching their students during the day via zoom also.

The racial demographics of the population were 64% White/Caucasian and 36% African American. There were 28 females and four males. The ages ranged from 21-46 years old. 10 participants had less than a year of experience in education, five participants had less than three years of experience in education, two participants had 5 years of experience in education, 10 participants had ten years of experience in education, and five participants had more than 15 years of experience in education. The sample population was teaching a subject area of math, science, history, art, or English language arts at a middle or high school. Six participants were teaching math, four participants were teaching science, four participants were teaching history, four participants were teaching art, and ten participants were teaching English language arts.

3.3. Quantitative Data

To collect the quantitative data, a survey was sent to participants via email using Google Forms. The survey was comprised of five items, not including the demographics, and addressed the two research questions. The survey asked which technology programs were

the most helpful in engaging students in a virtual setting, least helpful in engaging students in a virtual setting, easy to implement in a virtual setting, difficult to implement in a virtual setting, and programs they would like to know more about. Each question was multiple selection options including all the free technology programs covered (Kahoot, Google Docs, Socrative, Google Slides, Google Forms, Google Sheets, Edulastic, Go Formative, Classkick, Pear Deck, and Blooket), participants weren't limited to selecting a certain amount for each question. Multiple select questions allow the researcher to gain more understanding of their participants (Pollfish, 2021). The results of the survey revealed the perspectives of secondary teachers on programs that promoted student engagement and the difficulty of implementation.

3.4. Data Collection and Analysis

Before the survey was sent an expert panel was used to analyze the questions. The expert panel consisted of assistant and associate professors in the southern region of the United States with a doctorate degree in education with previous experience teaching in a secondary school. There were 10-panel members in total. The panel was given the opportunity to examine, question, and express any concerns involving the survey.

Once the data was collected, descriptive statistics were used on each question separately. Descriptive statistics helps to simplify large amounts of data in a sensible way for a simpler summary (Trochim, 2021). This helped answer the four research questions.

4. FINDINGS

Through an analysis of the data, the participant's perspectives on the most helpful programs for engaging were similar to the programs for easiest implementation. Vice versa, the programs least helpful for engaging students were similar to the programs for easiest implementation, and some of the program's students wanted to learn more about it.

4.1. Perspectives of Programs for Engaging Students

The perspectives of which programs were the most and least useful for engaging students in a virtual setting were the first two questions in the survey. The survey was given after participants had an opportunity to learn about each technology program and potentially implement it in their classroom. All participants responded to the question of which programs are the most helpful for engaging students in a virtual setting and a few participants selected more than one answer. The top three programs participants selected as most helpful when engaging students in a virtual setting were Kahoot, Google Slides, and Google Docs. Results can be seen in Table 1.

Table 1.
Participant Responses: Which program(s) are the most helpful when engaging students in a virtual setting? (select all that apply).

Programs	*n*	%
Kahoot	31	91.2
Google Docs	24	70.5
Socrative	7	20.6
Google Slides	27	79.4
Google Forms	17	50.0
Google Sheets	16	47.1
Edulastic	3	9.0
Go Formative	3	9.0
Classkick	2	5.9
Pear Deck	11	32.4
Blooket	7	20.6

The next question asked participants which program(s) are the least helpful when engaging students in a virtual setting. Not all participants answered the questions. Only 27 participants responded to the question however there were multiple responses for some participants. Table 2 shows the results, the top four programs participants selected as the least helpful when engaging students in a virtual setting were Edulastic, Go Formative, Socrative, and Classkick.

Table 2.
Participant Responses: Which program(s) are the least helpful when engaging students in a virtual setting? (select all that apply).

Programs	*n*	%
Kahoot	2	7.4
Google Docs	3	11.1
Socrative	12	44.4
Google Slides	1	3.7
Google Forms	3	11.1
Google Sheets	4	14.8
Edulastic	13	48.1
Go Formative	13	48.1
Classkick	11	40.7
Pear Deck	8	29.6
Blooket	1	3.7

4.2. Perspectives of Programs for Implementation

Questions three and four of the survey focused on which programs were easy or hard to implement in a virtual setting. All participants responded to question three about which programs were the easiest to implement in a virtual setting, most participants selected more than one answer. The most selected responses were from Kahoot, Google Docs, and Google Forms. Results are shown below in Table 3.

Table 3.
Participant Responses: Which program(s) are the easiest to implement in a virtual setting? (select all that apply).

Programs	*n*	%
Kahoot	34	100.0
Google Docs	28	82.4
Socrative	1	2.9
Google Slides	15	44.1
Google Forms	20	58.8
Google Sheets	12	35.3
Edulastic	5	14.7
Go Formative	10	29.4
Classkick	11	32.4
Pear Deck	8	23.5
Blooket	15	44.1

The fourth question asked about the programs that were difficult to implement in a virtual setting, it had a lower response rate of 25 participants. Again, some participants selected more than one answer. The results are below in Table 4. The top four programs the participants selected for hardest implementation were Edulastic, Go Formative, Socrative, and Classkick.

Table 4.
Participant Responses: Which program(s) are the hardest to implement in a virtual setting? (select all that apply).

Programs	*n*	%
Kahoot	0	0.0
Google Docs	4	16.0
Socrative	15	60.0
Google Slides	1	4.0
Google Forms	10	40.0
Google Sheets	11	44.0
Edulastic	18	72.0
Go Formative	15	60.0
Classkick	14	56.0
Pear Deck	10	40.0
Blooket	5	20.0

5. FUTURE RESEARCH DIRECTIONS

The last question on the survey asked participants which programs they wanted to learn more about. This question did not correlate to any research questions and had a response rate of 32 participants with some participants selecting multiple answers. The top program's participants wanted to learn more about was Classkick, Go Formative, Pear Deck, Edulastic, and Socrative. The results are below in Table 5.

Table 5.
Participant Responses: Which program(s) would you like to know more about? (select all that apply).

Programs	*n*	%
Kahoot	5	15.6
Google Docs	3	9.4
Socrative	15	46.9
Google Slides	4	12.5
Google Forms	3	9.4
Google Sheets	2	6.3
Edulastic	15	46.9
Go Formative	17	53.1
Classkick	19	59.4
Pear Deck	16	50.0
Blooket	4	12.5
Other	0	0.0

Table 5 addresses the future research directions. Even though the participants found the programs to be least engaging and/or difficult to implement they still want to learn more about them. The next step in the study is to provide more in-depth professional development training for those programs. Future research would focus on current teachers implementing free online programs and the integration of instructional methods for learning in virtual settings for teacher preparation programs.

6. CONCLUSION/DISCUSSION

As a whole, participants found some of the free online programs to be engaging and helpful in a virtual setting. Participants shared that the programs they found to be most engaging in a virtual setting were Kahoot, Google Docs, Google Slides, Google Forms, and Google Sheets. In addition to most engaging they shared that these programs, with the exception of Google Sheets, were the easiest to implement. These programs help eliminate purely lecture-based lessons, students are able to engage in their learning using various programs (Khan, Egbue, Palkie, & Madden, 2017).

Unfortunately, there were some programs participants found ineffective in a virtual setting. Participants shared that the programs they found to be least engaging in a virtual setting were Edulastic, Go Formative, Socrative, and Classkick. These programs were also selected as the most difficult to implement. In a virtual setting, programs need to be engaged but also user-friendly so it does not take time away from learning (Bowman, 2010). In addition to these four programs not being engaging and difficult to implement, the participants wanted to learn more about these programs, including Pear Deck. This data leads to the conclusion that the participants were not trained effectively on the program and it could have led to ineffective usage. Therefore, more time needs to be spent on delivering professional development for the programs the participants found nonengaging and difficult to implement. The lack of understanding surrounding the various programs could be preventing the various programs from being implemented correctly to help increase engagement in learning.

Nonetheless, participants were eager to learn various programs for engaging students in virtual learning. Despite their limited training with programs participants implemented them in their own virtual classrooms. This shows teachers are eager to learn and adapt new instructional practices, they just need the proper professional development training.

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