ENGAGING STUDENTS IN THE K – 12 DIGITAL CLASSROOM

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Abstract

In this session the authors explore numerous new, innovative, and smart technologies available for K – 12 teachers to better engage students in the digital classroom. The authors share how the use of 21st technologies in the K – 12 digital classroom provides greater support to students’ different learning modalities and enhances student engagement in the teaching and learning process. Furthermore, the presenters will convey ways in which these digital resources promote dynamic student interactions and collaborations with both teachers and peers. Finally, the authors provide examples of how teachers use new technologies to inform instructional decisions resulting in students’ deeper understanding of the content.

Keywords: Digital classroom; student engagement.

1 INTRODUCTION

Since the advent of computers in the mid 1970’s, educators have discussed the potential for computers to help improve student learning [Hew & Brush, 2007]. Computers are not the only teaching and learning options for teachers and students; the dawn of the millennia brought forth a plethora of new, innovative, and smart technologies. Greenhow, Robelia, and Hughes [8] commented that today’s youth are creative, interactive, and media oriented using these technologies in their everyday life. They further expanded that thought by stating, “more use of such technologies in schools would lead to increased preparation and engagement” [p. 247] in the academic setting. Today’s digital immigrants are looking to teachers to provide the same type of engagement they experience in their lives outside of school. “Engage me! Engage me! We are digital learners!” plead the twenty-first century learners in Nesbitt’s [14] description of today’s K-12 students. Research reveals engaging students in their learning processes increases their motivation and attention to the content, increases their critical thinking skills and promotes meaningful learning experiences for students. Over the last two decades, significant studies have investigated the significant impact of affective factors (beliefs, attitudes, expectations, emotions, attitudes, and motivation) in the learning process [18] [25] [5]. Affective factors that accompany students’ thinking can significantly facilitate or hinder learning. Consequently, teachers need to harness students’ motivation and engagement with technology to increase students’ learning.

In 2018 the National Center for Educational Statistics reported that in 2015 94% of children ages 3 to 18 had a computer at home and 61% had internet access at home. Furthermore, NCES reported the availability of computers and the internet at home increased with the age of the child and levels of parent educational attainment; the older the child and the more educated the parent resulted in increased availability of computers and internet access in the home. Of the 39% of children who did not have access to the internet at home, the expense of connectivity and absence of family need were cited as the two primary reasons the home did not have internet availability. In contrast to children with internet access at school, those who did not have this access were from low income homes and parents had lower levels of parent educational attainment. Furthermore, NCES also reported 65% of children ages 3-18 had internet access at school.

The belief that technology can positively impact student learning has led many governments to create programs for integrating technology into their schools. In the United States during the 2003-2004 academic year, school districts reportedly spent $7.87 billion on technology equipment [15]. In order to close the digital divide, it is vital teachers incorporate newer innovative technologies in the classroom; however, there are issues that impact this integration. Hew and Brush [9] examined the research to determine the barriers to technology integration. The top two more frequently identified barriers were resources and knowledge and skills. Technology can be used for many different purposes and teachers are the main factor in deciding what and how technology is integrated within classrooms and for what purpose [17]. Motivation as one of the strongest elements associated with technological activities. Campbell and Jane [2012] determined that ‘personal satisfaction’ ranked ahead of ‘fun’ when using...
technology. This ranking seems to indicate that children do not need to have fun as long as they gain some sense of achievement and fulfillment from what they are doing [3]. Some of the major ways that technology can be used to support and enhance K-12 learning is through providing visual support, building background knowledge and content organization, providing opportunities for student response, creating content and collaborating, and reviewing content. This paper identifies resources that are available free for K-12 teachers and provides an explanation of how these resources can be implemented in the K-12 classroom thus expanding teachers’ knowledge and skills.

2 PROVIDING VISUAL SUPPORT

Visual aids arouse the interest of learners and help the teachers to explain the concepts easily. Using visual aids during teaching, enhances instruction and provides students with additional ways to process the content [20]. Many different forms of technology are available that teachers can use to develop visuals to enhance students’ understanding of the content. Venngage is a free website than can be used to easily create infographics which combine both visual and textual information to expand concepts. The site provides a variety of templates, pictures, and designs. The site offers the user the opportunity to create and save five infographics free. Infographics can help to clarify content and make it most memorable for student. Creating infographics can help both teachers and students.

Visual information can provide the necessary bridge or scaffold between everyday language and the more difficult academic language students are exposed to in the classroom [4]. Yang [24] and Schmidt-Weigand and Scheiter [19] determined that visual and auditory display models had a positive impact on learning and confirm that students learn more effectively when presented with contents represented as dual codes rather than just using a single modality auditory or textual code. Both studies determined that the integration of verbal input and visual imagery appeared to enhance memory, thus enabling learners in the experimental group to outperform their counterparts in the control group.

In addition to infographics, electronic flashcards via Quizlet, is another program that can provide visual and audio assistance for learners to practice using the academic vocabulary. Through this program flashcard sets can be created to specifically match the content. The Quizlet app includes activities for practicing, writing, spelling, matching, gaming and quizzing of new vocabulary words or phrases [16].

3 BUILDING BACKGROUND KNOWLEDGE AND CONTENT ORGANIZATION

Building a student’s background knowledge is another important consideration as background knowledge plays an important role in supporting increased conceptual understanding. In contrast, lower vocabulary understanding and a lack of background knowledge both create academic challenges [2]. Academically complex texts place heavy demands on readers requiring them to integrate their background knowledge with information presented in the text [1]. Students may not have the cultural and personal experiences to access the required background knowledge. Thus, differences in relevant background knowledge may negatively impact students’ comprehension of a complex text. NearPod Field Trip is an engaging resource for enhancing or building background knowledge. To create the virtual field trip, the teacher chooses a content slide, selects the Field Trip option, and indicates a destination. This can be, for example, a physical location on the earth like the country of Egypt, an underwater locale, or a position in space. Students see a 360-degree visual of the site enabling them to make relevant connections and build background knowledge.

Background knowledge can also be enhanced through reading about a topic in the encyclopedia; however, students may find this academic format to be more challenging. Simple English Wikipedia might be an effective resource to consider using with these students. Although not a scholarly source, it is a version of the standard Wikipedia site that has been adapted for ELLs, younger students, or anyone else who might struggle with reading printed English text [11].

4 CREATING CONTENT AND COLLABORATING

Typically, the most successful learning occurs when teachers are facilitators or activators of learning and allow for student creation or formatting of information in a method that makes sense to them [13]. Collaborative tools such as VoiceThread provide unique opportunities for students to work together and organize content in a way they understand. VoiceThread can be used for enhancing student engagement and online presence. With VoiceThread, instructors and students can create, share, and comment on images, presentations, videos, audio files, documents, and PDFs. Students can
comment using a microphone, webcam, text, phone, and/or audio-file upload. These recording are then available for synchronous use [22].

Popplet is another resource that is available free. It is a tool that allows users to visualize ideas through graphic organizers, timelines, and numerous other forms. Students can incorporate images, videos, text, and drawings into the Popplet they create while collaborating with others. However, all editing on texts and images is more easily accomplished before importing the information to Popplet since the program does not offer much flexibility in editing text or images [21].

5 REVIEWING CONTENT

Apps such as Quizlet and Plickers are effectively used in classrooms. Quizlet (https://qui2let.com/) is a web-based study application using flashcards for review purposes, whereas Plickers (https://www.plickers.com/) is a web-based formative assessment tool used within the classroom. A distinct advantage of Plickers for those classrooms without an abundance of technology is that only one cell phone is needed.

Post-it Plus is a free iPad or cell phone app that allows for the capture of up to 50 post it notes. Through the app the notes from the captured picture can then be arranged and rearranged in various ways to organize and share with others enhancing team work and collaboration. Additional notes can be created on the app to expand the synchronous collaboration session asynchronously [7]. This app is also effective for content review of matching terms to definitions or organizing details under a larger concept or topic.

6 CONCLUSION

Technology has and will continue to change the teaching and learning environment. However, technology, although important, does not replace the teacher. Teachers need to provide guidance on how to differentiate between real and fake information found on the web and between credible and non-credible programs and web sites. Incorporating technology for formative assessments can be effectively employed to guide instruction. Using technology, teachers can move past lecture to engaging students more fully in the learning process. Today’s digital natives expect immediate and continuous connectivity at their fingertips. Effective teachers can build on their enthusiasm for connectivity. Through their constant use of social media, it is obvious that students crave interaction. Technology allows educator to bring that interaction and engagement into classroom learning environment [10].

REFERENCES


