Classroom Technology and Pedagogical Shifts

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ABSTRACT

With the introduction of screen media and 1:1 devices in the classroom, educators are finding themselves in a unique position; navigating new technological platforms, changing their teaching methods and pedagogy to adapt, and oftentimes, competing for their students' attention. Some important factors for classroom implementation and practice are the need for learner preference, differentiation, high quality applications, and a complementary balance between traditional methods of learning and the usage of screen media. Many teachers have observed the benefits of adopting new technology, but have concerns with its integration. Classrooms in the United States have undergone a significant change because of the use of screen media, including laptop computers (i.e. Chromebooks), and digital textbooks. While using technology in the classroom is undoubtedly not a novel concept, utilizing technology in place of traditional textbooks is relatively new. The motivation for this article was my personal experience and interest in technology for learning purposes. I have taught middle school students for 16 years, and throughout this time I have seen technology substitute traditional textbooks in various subject areas. Additionally, I have seen the effects of reading from a paper source and from screens, as well as the various strategies learners apply while using both to process the information. As a lifelong learner, I remain abreast of the most recent studies and advice on literacy for children, as well as technology use with adolescents. I incorporate best practices in my classroom. This article will provide ideas that have proven successful, not only in my classroom, but also in empirical research.

Keywords: Screen media, differentiation, pedagogy, Chromebooks

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The adoption of technology has become necessary in many schools as a result of recent modifications to the Common Core State Standards (CCSS) beginning in 2010 (Common Core State Standards Initiative, 2019). In this paper, I will discuss the advantages and disadvantages of using technology in the classroom, ultimately arguing that a hybrid approach, which uses both traditional methods and modern technology, is preferred. Because textbook publishers now offer online versions or digital downloads of their classic textbooks,

Chromebooks are rapidly replacing traditional paper textbooks in classrooms. Schools across the United States are choosing to buy online textbooks instead of physical ones. Electronic textbooks typically cost less than their paper counterparts, but numerous studies have produced conflicting results in terms of the format's broader implications, with some pointing to the advantages of using technology in the classroom and others the opposite. Additionally, digital copies cannot be misplaced, harmed, or stolen, saving school systems a significant amount of time and money. For instance, when a Chromebook is lost, only one device needs to be

replaced, versus multiple texts. In order to fully understand the experience and subsequent impact on educators' instructional methods, researchers are beginning to explore the topic of technology integration in the classroom and the best practices for fostering student comprehension via screen media.

Classroom Practice

In 1987, researchers began examining the usage of screen media for educational purposes (Cuban, 1987). Since the subject first caught the interest of scholars over three decades ago, screen media and how it is used have undergone significant changes. For instance, the release of Apple's iPhone in 2007 popularized the first smartphone and the first dedicated eBook reader (Amazon's Kindle) became widely available around the same time. In addition, Google released its well-known Chromebook in 2011, a compact computer made primarily for using the Internet (Burns, 2011). Because they were invented only recently, these devices did not exist during earlier studies. However, they are now widely used in schools. Currently, 97% of classrooms in the United States use computers and 58% of schools utilize portable electronic devices, such as Chromebooks (National Center for Education Statistics, 2018). Chromebooks are often favored because of their affordability.

Technology and how it is used have changed significantly since the topic initially caught the attention of experts in 1987. The teacher-student dynamic is impacted by the use of technology for learning, and it may change pedagogical approaches (Kucirkova & Littleton, 2017). Due to the lack of page turning when reading online textbooks on a screen, teachers may find it challenging to determine whether students are correctly following along (Singer & Alexander, 2016). Additionally, when using screen media, students make less eye contact with the teacher (Richert, et al., 2011).

Suggested Practice

It is crucial for educators to take into account if including computers in the learning environment could disrupt, divert, or entice the learner's process of producing new information (Clark & Mayer, 2008). One obstacle with using technology for learning is that it may be difficult

for students to study at their own pace and to collaborate, since they may be at different points in the reading due to the self-guided nature of many applications and programs. Teachers have had to surrender their autonomy to technology because of technology implementation's flexibility and customization; students now seek information from sources other than the teacher, as they are no longer seen as the expert (Waters, 2018). The use of screen media may also streamline organizational processes, allowing students to focus more on learning and engage in projects that promote individualized engagement and deeper skill development (Google, 2013).

According to Parkay, et al. (2014), curriculum should be developed with the advancement of technology and its integration into the classroom environment in mind. This applies to curriculum created for both new educators entering the field of education and seasoned educators already working in the classroom. According to Seward and Nguyen (2019), having computer skills in the classroom can help students' creativity to blossom in multiple subject areas. It can also improve reading and writing skills, and critical problem-solving capabilities.

A policy brief was created by the U.S. Department of Education (DE, 2016) to outline the major issues and potential remedies for the efficient integration of technology in teacher development. The policy provided a set of guidelines for teachers on how to successfully incorporate technology into the curriculum. Furthermore, the policy provided curriculum updates for programs preparing teachers in order to find avenues for cooperation in the educational sector (DE, 2016). As they spend up to five hours a day using technology for schoolwork, students have expressed frustration that it can be "boring and annoying to just sit there and stare at a computer all day long... you have to teach yourself" (Malkin, 2019, para. 10).

The DE (2016) underlined the necessity for curriculum leaders and faculty to collaborate in sharing cutting-edge tools and practices in the field to ensure that technology is used in a way that is conducive to learning and success rather than simply being used for the sake of the technology. The responsibilities of instructors

and students have been impacted by these technological advances. In order for students to develop into critical thinkers who can, from the immense pool of materials, distinguish important information from the immense pool of available materials, instructors must assist students in this process (Parkay et al., 2014). Due to the ease of access and regular usage of cellphones, laptops, and social media among students today, educators must be able to design learning experiences that seamlessly integrate technology (DE, 2016). In this manner, curriculum helps students form good habits towards the use of technology and its function in daily life.

Implementation

Because of the vast array of learner preferences, differentiation is crucial for the successful implementation of technology-based education tools (e.g., eBooks). Students perform better when using the platform they are most familiar with since it gives them more freedom to seek information and demonstrate their expertise. For reading novels and other literature, as well as assignments posted on digital platforms like Google Classroom, students frequently ask for paper copies of the assignments. It is crucial to differentiate instruction and take into account students' learning preferences when integrating technology into the classroom, particularly for kinesthetic learners who might benefit from engaging in tactile, three-dimensional activities. Gifted and special education students, as well as those with reading difficulties, frequently have particular needs when it comes to knowledge acquisition.

Technology and paper resources are complementary; students use their Chromebooks to look up unfamiliar words they come across while reading a book with their class. Moreover, students find it helpful for comprehension to read a synopsis after reading a certain passage or text, and if they want to know what an author looks like, they can simply use the Internet. However, students may not always treat technology assignments with the same seriousness they would if they were on paper. Utilizing technology effectively usually means pairing it with another resource, such as a textbook, workbook, or primary source, or dividing class time between using technology and textbooks.

Conclusion

It is necessary to allow for learner preference and differentiation while using technology for educational purposes. While there are many favorable outcomes when using technology, there are still issues and concerns. Classroom teachers grow frustrated by some students' inability to use the Internet when working from home and the instability of the Internet in the classroom. Paper copies of assignments are often required since students frequently forget to charge their devices or forget them altogether. It is advantageous to be able to boost student engagement by implementing educational games and applications tailored to the material being taught in the classroom. On the contrary, students frequently lose attention due to the allure of online distractions and often browse unrelated websites, necessitating teachers' constant monitoring of student activities to ensure that students stay on track. Using instructional time to monitor off-task activities and manually block students' tabs (i.e. "policing"), in addition to distracting the teacher, ultimately forms a barrier to student learning.

Students "learn best with a combination of technology and paper," according to earlier research, which found textbooks to be a "useful springboard" for learning (Arnold, 2013, p. 234). When switching from one medium to another, it is advantageous for educators to discuss variations in educational techniques through collaboration with other educators. Since the empirical literature has indicated that children learn best when given material through both mediums, educators should not completely abandon textbooks by replacing them with computers. Technology should not be utilized solely to supplement conventional paper means of information delivery.

The best way to evaluate learners' knowledge is to interact and participate in oral dialogues. When using technology for learning, it should be possible to accommodate student preferences. Being mindful of students who may have differing abilities, unique reading levels, and prior understanding and experience with technology, are all factors of importance when

engaging learners with technology. The modern classroom must maintain a balance between teaching and learning; utilizing technology, traditional methods, and paper-based resources.

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