A Case Study Analysis on the Evolution of Technology Integration in Schools

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Introduction

From 2003-2004, as technology integration in the classroom continued to increase, a case study was performed in Northern Ohio to investigate the uses and effects of mobile computing devices in K-12 classrooms. The case study was intended to answer the question of how students used mobile computing devices, whether technology affects learning and engagement, and if the technology supports the learning process. In the early 2000s, it is clear that the main reason for why many of these technologies were used were due to a desire to increase student engagement in the classroom, and give students new ways to represent their learning rather than just producing pencil and paper desk work. Technology use is much wider ranging today, and the similarities and differences in technology use since this case study will be discussed in subsequent sections.

Similarities of Technology Use

There are many similarities between technology use now and in the early 2000s in relation to how the technology is used, and what specific technologies are used. One site within the case study gave 50 students mobile devices to see the impact of the technology on learning, while one other site involved classes spending one half of a school day, every day for 6 weeks in a high-tech learning environment, outfitted with 1 to 1 mobile computing devices for students, laptops, desktop computers, a document camera, scanners, printers, and video recording tools (Schrum, 2011). These tools are still often seen today in classrooms, and while the sheer volume of new technology that we see far surpasses what is in this study, the effectiveness of these tools is highlighted by the fact that they are still used today and have no sign of discontinued use. The uses of these technologies in the case study range from using them to take notes, draft writing projects, complete worksheets, create drawings, make video projects, and create models like venn diagrams and t-charts. Teachers in the case study also noted that the use of technology for

journaling and writing increased student engagement, particularly with special needs students who had trouble with productive writing tasks (Schrum, 2011). Technology is still used as a means of improving engagement today, and all of these uses of technology in the case study are still seen in modern schools.

Differences of Technology Use

In modern education, the sheer volume of technological tools that are at the disposal of students and educators is striking. We often see interactive whiteboards in classrooms, which were not referenced in this case study. Also, students are given 1 to 1 laptops in many schools now, though true equitable technology distribution is still yet to be achieved. Current trends in educational technology use point towards an increased proliferation in the use of virtual reality, augmented reality, and haptic technologies in the classroom (Pelletier et. al, 2021). The rise of video conferencing tools like Google Meet and Zoom have led to the development of hybrid learning models and remote learning, which makes collaboration between students much easier even in a remote learning environment. Gamification of learning is a common trend in education as well, and that allows teachers to use gaming mechanics to increase student engagement and improve learning outcomes. The rise of the COVID 19 pandemic has also prioritized the use of adaptive learning technology in order to personalize learning for students. Assistive technology like text to speech or speech to text software give special needs students and students with disabilities access to learning in new ways. The ability to create video projects, like digital storyboards that combine drawing with video and voice technology are often used in classrooms. Also, learning analytics technology is being used for behavioral modification. For instance, U-Behavior is a teaching and learning method developed at Colorado State University that instructs students to self regulate their learning using science-of-learning strategies (Pelletier et.

al, 2021). The main difference between technology use between the time of the case study and present day is that technology was once mainly seen as a tool to increase student engagement, but now the myriad of ways that technology can not only improve engagement, but support learning as well, is ever expanding.

References

Pelletier, K., Brown, M., Brooks, D.C., McCormack, M., Reeves, J., Arbino, N., Bozkurt, A.,

Crawford, S., Czerniewicz, L., Gibson, R., Linder, K., Mason, J. & Mondelli, V. (2021).

2021 EDUCAUSE Horizon Report Teaching and Learning Edition. Boulder, CO: EDU.

Retrieved September 17, 2021 from https://www.learntechlib.org/p/219489/.

Schrum, L. (2011). Considerations on educational technology integration: The best of JRTE.

Eugene, OR: International Society for Technology in Education [ISTE].