



A Study on the Use and Impact of Digital Technology in Education: A Review

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Abstract

Digital technology has become profoundly important in our society. The focus has moved from whether or not to use them in teaching and learning to figuring out which technology should be used for which educational purposes, and then figuring out how to better use and embed them across a variety of educational contexts. The effect of emerging technology on learning and teaching is examined in this article, which is based on analysis. The study examines the facilitators and obstacles to successfully using emerging technology, as well as the difficulties that educators face as they adapt to the changes brought on by these technologies. The aim of this study is to determine the consequences for potential investments in educational technology.

Key words: Digital Technology, Education

Introduction

The current paper examines how the digital transition and successful use of technology in our modern world produce new opportunities, dilemmas, and obstacles for education. Because of the use of technology by young people in their daily lives, and the challenges faced by education in incorporating and using technology for educational purposes, there is an immediate need to investigate this field further. This digital transformation is having a growing impact on teacher educators, and it has been emphasized that in order to be licensed as teachers in this new pedagogical terrain, teacher education students must gain digital literacy. It has evolved into one of the most essential fundamental skills for teachers of all subjects. Society has seen drastic changes as a result of digital media. The paradigm shift in education necessitates that new teachers take on the position of digital networkers, encouraging students to be progress enablers through digital technologies. The availability of newer technologies in the modern age necessitates a seamless improvement in the efficiency of all partners in information sharing. Teacher educators must ensure that students are safe, that the climate is protected, and that management is sustainable. The current paper further discusses the problems and concerns surrounding the use of new technologies in teaching and learning, which can serve as a motivator for addressing barriers and becoming effective technology consumers. Any emerging invention generates both hope and concern, often in equal proportion. Resistance to the lack of old ways is balanced by the desire for improvement and growth. This is especially true in the conservative field of education. Digital systems are clearly altering how we interact, access knowledge, and store that information in order to better understand and act in the world.

Given this context, policymakers, scholars, teacher educators, and school administrators agree that the digital literacy field needs to be investigated further in today's educational institutions. Despite this consensus and positive intentions, earlier attempts to incorporate information media technologies in teacher education were more rhetorically grounded than in reality. Today, we see a disconnect between the recent school reform's digital learning dreams and the realities of teacher education institutions. Even if technological access in teacher education institutions is needed, we still find that teachers lack basic digital literacy and that institutions have too much low-speed Internet access, none of which is addressed in the reformers' optimistic visions for digital literacy (Lie, 2009; van den et. al., 2011). This highlights the area's difficulty and, as a result, poses a host of concerns.

Digital Technology and Education

Since the ability of computer technology to convert teaching machines was recognized in the early days, the significance of technology in education has become a hot topic. Today, discussions on the role of technology on our culture, the effects of fast and convenient internet access to information for education and learning, the effect of new technologies on the cognitive and physical well-being of young people is often discussed in the media. As a result, it's important to take stock of what we've known about the effect of emerging technologies on education over the past fifty years.

Pupils' achievement over a variety of tested programme results has been associated with the quantity or consistency of technology available or encountered in their universities, and has been the primary method used to measure the effect of technology on teaching and learning in classrooms (Weaver, 2000). A longitudinal analysis in the United States showed only a minor connection between computer usage in the classroom and improved test scores for students (Weaver, 2000). Schools and instructors avoid doing anything else when technology is introduced. When teachers implement technology on their own, it is often done as part of an inquiry mechanism (Somekh, 2007), and it replaces or displaces some troublesome practise; when it is implemented for its own sake, it displaces or replaces other teaching and learning practices that might have been as more efficient. As a result, an ecological perspective on adoption is needed, in which technology adoption is justified on a relative basis (Zhao & Frank, 2003). As part of a more positive or productive learning sense, it can replace less effective approaches and be efficiently incorporated into the tools available to a learner to facilitate their learning (Luckin, 2008). Overall, measuring the effect is more difficult than ever before. The rise of innovation and the variety of ways they can be used in a variety of instructional environments, along with the rapid speed of technological transition, makes the challenge much more difficult. The emphasis must move from technology to pedagogies of usage, and from broad effect research to the particular changes that emerging technologies make in teaching and learning environments and experiences with various learners.

The Meta-Analyses of Review

The meta-analyses have established a variety of fields that have been extensively investigated using moderator research. Since the evidence is contradictory or inconclusive in certain circumstances, these themes should be regarded as suggestive and deserving of further study or investigation in classrooms. Unfortunately, it is impossible to determine if some technology or applications (Khalili & Shashaani 1994) are more efficient.

This variation shows that the quality of technology usage, rather than the option of a specific technology or solution, is the most critical factor. Specific use of technology is typically less successful than collaborative use in pairs or small groups. This has been established as a source of heterogeneity in different meta-analyses (Liao, 2005) as well as a general theme in technology studies (Lou et al. 2001). However, certain students,

especially younger ones, may need assistance in collaborating effectively. Moran et al. (2008) found that using technology as a brief but concentrated intervention to enhance learning can be very successful. Sustained usage for a long period of time is normally ineffective at enhancing achievement (Sandy-Hanson, 2006). However, the data on period and degree of usage is inconsistent, making it impossible to draw firm conclusions.

Lower-achieving students, those with special educational needs (Li and Ma, 2010) and those with deprived families (Cheung and Slavin, 2011) will benefit from remedial and tutorial use of technology. Technology is best used as a complement to traditional education rather than as a substitute of research-based approaches (Cheung and Slavin; 2011). This means that the way technology is implemented or embedded in schools should be approached with caution. Teachers' training and career development are critical components of sustainable approaches. The most popular alternatives tend to be at least a full day of service (Ryan, 1991) or on-going technical inquiry-based approaches. The implication is that such assistance should rely on the successful pedagogical use of technology to promote teaching and learning goals rather than on teaching skills through technology use (Cheung and Slavin, 2011). Some meta-analyses found contradictory variance correlated with age or school form, indicating that there is no clear picture of age (Blok et al. 2002). Jukes and Dosaj (2006) developed a collection of behavioral descriptions they argue that digital immigrants prefer a gradual and regulated release of content, single tasking rather than multitasking, text over images, sound and video, linear and sequential display, structured testing, and delayed incentives. Multimedia, concurrent computing and multitasking are preferred by digital native students, who choose pictures and video to email, immediate significance, and instant gratification.

Conclusions

Overall, study on the effect of computing and emerging technology on learning consistently finds favorable outcomes. It's difficult to define straightforward and precise consequences for instructional practice because of the growing variation of emerging platforms and the complexity of contexts and environments in which testing has been performed, as well as the difficulties of synthesizing information from various methodologies. Studies that connect the availability and use of technology with educational outcomes appear to find minor but consistent positive correlations with educational outcomes. This type of study, however, cannot suggest a causal relation. More effective schools and teachers are expected to use ICT and emerging technology more efficiently than less effective schools and teachers. We need to learn more about when and how it is most effective, and then look at whether this knowledge can be used to further enhance learning in other situations.

When opposed to other studied approaches, empirical results show that technology-based interventions yield marginally lower rate of change overall. The wide spectrum of influence seen in these research shows that what matters is not whether technology is used, but how effectively it is used to promote teaching and learning. It's critical that technology and education work together. Technology, without a doubt, engages and motivates young people. This benefit, though, is only beneficial to learning if the practice is well-aligned with the material to be learned.

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