Technology and Early Childhood Education

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This paper was completed and submitted in partial fulfillment of the Master Teacher Program, a 2-year faculty professional development program conducted by the Center for Teaching Excellence, United States Military Academy, West Point, NY, 2014.

Technology has the potential to increase developmental skills and offer solutions to the challenges faced by educators in creating a positive learning environment. Technology is rapidly changing the teaching landscape. Early childhood education is shifting from determining whether technology is appropriate for a young child’s development to how can technology, accompanied by software be utilized effectively in the classroom. There are innovative technology based software that are designed to enable children to develop a solid knowledge content and critical thinking, thus technology is becoming a critical part of the classroom. Using technology in the classroom will better equip children with the necessary skills to independently use technology as their educational level progress.

This literature review will discuss and evaluate concepts and objectives that support using technology to enhance early childhood education. Integrating technology with classroom instruction is a process that uses technology to actively support and enhance the tasks of teaching and learning. Technology allows students to work productively than in the past, but a teacher’s role in a technology driven classroom is more demanding than ever. Teachers must strive to engage their students in activities that incorporate technology to promote learning since learning is the most important result. Understanding the role of technology in the process of early childhood development is crucial to ensure that all children have equal access to opportunities that maximizes their ability to learn in school.

Technology itself is not a good substitute for good instruction. Teachers who are effective in the classroom work to integrate technology into their lessons to engage the different learning styles and abilities that are present in their students. Keengwe and Onchwari (2009) mentioned that when a teacher creates intellectually engaging technology activity using any piece of software or object, it will promote children’s learning and development. Teachers and students must first learn to use the technology and any supporting software before being integrated into the curriculum. Achieving educational goals with technology like computers are typically viewed as a source that provides a variety of options and information for the curriculum. Wood et. al. (2008) described the specific advantages in using technology for children included the motivational appeal of the computer; its speed, color, and dynamic presentation; opportunity for individualized instruction and independent learning; and the ability to do something and see the immediate effect. These advantages illustrate the unique potential to enhance the instructional environment in the classroom.

There have been several studies conducted with elementary school age children on the use of technology to supplement their education. Burnett (2010) conducted a small-scale study with 4 to 5 year olds that suggested children who used PictoPal showed improvement in early literacy development. PictoPal is a computer program designed to support reading and writing using images and texts. The findings from this study varied since children who used these programs often did no worse than those who had received the same instruction from their teacher. The study also suggested that educational software can be useful in supporting and motivating children to read. Burnett (2010) mentioned that such findings will be valuable to those designing educational programs or in guiding teachers’ selection of resources. This technology can support teachers, especially those with busy classrooms.
Another study into enhancing learning using technology is the Effects Project. This project was designed to examine the use of information and communications technologies (ICT) in schools, as well as, its impact on learning and teaching. Dwyer (2007) described the study specifically investigated how teachers are integrating ICT into the classroom, the impact ICT is having on teachers’ pedagogical, curriculum and assessment practices, how ICT is mediating students learning, how different groups of students were being addressed with ICT and the ICT-related resources schools had available to them and how they were located and allocated. Understanding how an ICT environment is established in the early primary school years is necessary to capitalize on the potential learning benefits that ICT can provide to young students.

Supporting technology in early childhood education can be a challenge since a technological based curriculum or program may not be adequately funded or properly staffed by trained teachers. Parette and Stoner (2007) described that all individuals must develop operational competence, which requires them to learn how to use an assistive technology (AT) device correctly, though he or she is not yet accurate or fluent in the use of the device. Although someone has developed some familiarity with the functions of an AT device, that individual still needs repeated opportunities to practice and develop speed and understanding. Thus, teachers should strive for functional competence through accuracy in using the AT device to perform essential or specific tasks. Once a teacher has become familiar and understands how to use the AT device with ease, then the teacher has gained AT skills that can be used in different situations or classroom settings.

As teachers get more knowledgeable and comfortable in the use of technology, the expectation is for the instructional practices to improve and the integration of technology to become a critical part of the curriculum. Keengwe and Onchwari (2009) listed various strategies to enhance technology integration in early childhood education: 1) school leaders must make technology requirement as an integral part of the instruction through all the grades; 2) as the teachers are concerned about the time it takes to prepare a lesson, technology professional development activities should be directly aligned to their lessons; 3) school leaders should install new technology tools that support new educational software; 4) Technology integration specialists, coordinators or technical support personnel must follow-up with teachers who attend professional development opportunities to offer further assistance and support, if and when needed; 5) technical personnel should help teachers with their questions including coming into the classroom to assist with projects, help develop integrated lessons or demonstrate the use of a program or equipment to the teachers. Meaningful educational reform using technology goes beyond just buying technology and developing teaching strategies that complement technology use in the curriculum.

Many young children engage in technology via digital practices in school and the experience needs to be recognized as a resource for their current and future development. New ways of thinking about the relationship between technology and learning in the early childhood years are needed. Burnett (2010) suggested that there would seem to be a particular need for more qualitative research which, by adopting a broader gaze, investigates children’s sustained engagement with digital texts in educational settings by investigating the meaning-making processes associated with these and their relationship with digital identities and practices forged in more informal contexts. Technology use may be able to express the different ways that some devices can contribute to young children’s education and learning in the classroom.
Annotated Readings:
This journal article provides an overview of research into technology and literacy for children aged 0 to 8 years in educational settings from 2003 to 2009. The author explores the different assumptions about the role of digital texts that support the studies considered by identifying three categories of technological positions: deliverer of literacy, site for interaction around texts and a medium for meaning-making. The author also suggest that an actor-network theory may offer a way of destabilizing assumptions that frame research into young children’s engagement with new technologies.

An expectation that all primary school students and teachers are using information and communications technologies (ICT) in their learning is the premise of this journal article. The author uses the study of Enhancing Learning Using New Technologies, known as the E.ffects Project, to discuss the observed differences in approaches between primary and later primary, i.e. middle school programs from the perspective of early childhood philosophies that support the first years of school.

A good journal article that suggest teachers who are successful in incorporating educational technology into their instruction recognize that although technology tools have the potential to help children, they are not the absolute solution. The authors offer reflections on the need to adopt a suitable technology integration professional development model in early childhood education classrooms to support young learners through the empowerment of teachers in integrating technology into their pedagogy.

This journal article discusses the potential that assistive technology (AT) has to increase developmental skills and provide solutions to the challenges that teachers face in the classroom, such as behavior, attention and communication. Teachers face these challenges when engaging students identified with disabilities or being at risk in their development. The authors suggest that overcoming these challenges is critical since teachers share responsibility for effectively preparing all young children to develop important readiness and literacy skills to successfully enable them to participate in school.

The authors discuss a study conducted to assess the educator’s perspectives on the introduction of computer technology in the early childhood education environment. The study analyzed focus group discussions among educators. Results of this study revealed that many of the educator’s concerns involved the effect of technology on the educator’s themselves with secondary emphasis on how computers affected the students. Identifying critical concerns and limitations with the integration of computers was also a concern among several focus groups of educators.
**Additional Resources:**


