

Technology in Early Childhood Education

A Review of the Literature

Judith Mont

Towson University

October 30, 2012

Author Note

This paper was prepared for Early Childhood Education 422, Section 201, taught by Professor Zmoda.

Abstract

There are many current issues concerning the use of technology in early Childhood Education classrooms, especially with the potential negative effects of implementation. Computers can lead to negative effects on emotional development as well as leading to anti-social behavior. Overuse of technology may lead to children having ineffective problem-solving skills, poor physical health, and diminished creativity. Some of the effects on physical health include a lack of exercise which can lead to obesity, Repetitive Strain Injuries, and visual problems. There are few benefits of computer use in early childhood classrooms and they come with the cost of loss of creative, hands-on educational opportunities, as well as damage to the child's physical and emotional health. Also, many children tend to play on the computer alone, limiting their language which is intimately connected to cognitive and social development. With these obvious limitations and risks, early childhood educators can validly question the appropriateness of computers in their classrooms.

Technology in Early Childhood should be minimized because of the negative effects on the developmental growth of children. Keeping the Early Childhood classroom technology-free has been a controversial topic. For the past twenty years or more, education has been transforming with the huge change in the use of technology. I believe that there are many negatives for the child's development due to early exposure to technology. Since technology has no long history for us to learn from, it is still a 'grand experiment' in the school setting.

In Early Childhood, the brain is developing at a rapid rate. Therefore, it is a quite sensitive time and involving technology during this critical learning period has many potential hazards. It can hinder problem-solving skills, physical health, as well as diminish creativity. The main objective in a child's life is to learn by exploring the world. During this time, children are growing and advancing at a rapid rate. The child's fine and gross motor skills begin to emerge and visual-spatial awareness is developing as well. Also, there is an introduction to literacy and numerical skills. There is so much development taking place with the child and most of it is being nurtured with hands on, traditional methods. Personal one-on-one and group communication better suits the child's needs in the early years.

Mohammad, M. and Mohammad, H. (2012) stated that the "Major concerns are focused on the impact of computers on the children's social and emotional development" (pg. 98). The emotional effects of overusing technology in the early school years can lead to distractibility. "I am so tired of these kids expecting to be entertained they don't have the patience of a flea" (Healy, 1999, p. 145). If a child cannot attend to a language lesson due to distractibility, then they can eventually fall behind in language and literacy development.

Another emotional issue that can arise is anti-social behavior. According to Cordes and Miller (2000); "Children between the ages of 10 and 17 today will experience nearly one-third

fewer face-to-face encounters with other people throughout their lifetimes as a result of their increasingly electronic culture, at home and in school” (p. 104). Reducing interaction with the child’s teacher is a bad idea because the more they interact with the teacher as well as in other human encounters, the more they will feel connected to the classroom which is their child’s “society.”

Computers can lead to direct problems with the child's physical health. These include a hindrance in small motor development, a lack of exercise which can lead to obesity, Repetitive Strain Injuries, and other visual problems. Repetitive Strain Injury (RSI) is brought on by excessive computer use that affects the muscular-skeletal system. The tendons and nerves of the hand, arm, neck and shoulder are stressed by the repetitive movements of using a mouse or a keyboard. We often see children hunching over the keyboard, with their backs curved over the table so that their faces are quite close to the screen while playing computer games. These postures are undesirable for developing bones and muscles which can not only lead to stress injuries, but can also lead to poor physical development from misaligned posture (Armstrong and Casement, 2000, p 144-155).

Computers can put strain on the child’s eyes and developmental visual style which raises additional worries. This will make reading more difficult. “A young child may be hearing words from the computer sound system, but the lack of authentic, spontaneous interaction will stifle language development and stress sensitive visual systems” (Maynard, 2010, p. 17). We need to be sensitive to the developing eye in young children, especially by limiting the time spent in front of the computer screen, if not eliminating it altogether in preschool.

There are also unhealthy consequences of a sedentary lifestyle caused by too much technology practice. “Child development experts emphasize that moving in three-dimensional

space stimulates both sensory and intellectual development” (Cordes & Miller, 2000, p. 25). The value of moving around the classroom such as bending, running, and moving from one space to another, are valuable for the child’s awareness of his/her body and space. This leads to a greater chance for excellence or simply enjoying athletic endeavors which will lead to a healthier attitude and choices. If children are immobile in front of the computer screen for too long, this may lead to thoughtless snacking which can become a habit and ultimately lead to obesity. (Cordes & Miller, 2000, p. 25). Computers can take away precious time that the child should spend outdoors running, jumping, and with other activities that will make them physically stronger. “Young children learn best through using their bodies to explore the world around them” (Healy, 1999, p. 102).

“How does an intense focus on learning about nature and every other aspect of the world through a computer screen affect a child’s sense of wonder?” (Cordes & Miller, 2000, p. 35). Children are “hungrily exploring their world and literally absorbing their surroundings through direct sensory experiences. That is, their "absorbent minds" are constructing, and being constructed by various multisensory interactions with nature, objects, and people that they can see, hear, touch, taste, and hold” (Montminy, 1999, p. 30).

Imagination is lost when children are involved in too many electronics. Organic forms of learning are essential for developing an appreciation of the natural world. The animated images which are available with the ease of clicking a button leaves the children “heavily dependent on external stimuli” rather than digging into their own self to become creative thinkers (Cordes & Miller, 2000, p. 33). Expressing their emotions through arts and crafts is beneficial on many levels. “Freehand drawing is a common activity for which preschoolers represent their thoughts and knowledge” (Couse & Chen, 2010, p. 77). When children are exposed so often to computer

images, they find it harder to generate their own images and ideas. “There is no real opportunity for multisensory exploration and physical manipulation of a three-dimensional object” (Montminy, 1999, p. 30). The computer supplants the child’s mental work. Instead of youngsters using their prefrontal brain development which develops imagination and wonder, they only follow the pre-structured computer program that requires only responses, rather than independent thinking. (Couse & Chen, 2010, p. 77) This possibility of stunted imagination should alert us as teachers to the importance of controlling technology for the young and impressionable mind.

Rather than having our children’s minds dependent on the development of the newest software, educators should lean heavily on the arts program instead to help establish the growth of divergent thinking. In addition to relying on more creative methods when dealing with young children, eliminating the computer can make a more pleasant learning atmosphere. This is because of sharing issues arise that may take time from more productive interactions. We should strive to actively engage the young children as we do not want to produce passive learners. Because of the limited time we have in the classroom, we must maximize our teaching strategies to most benefit the child’s development. How do educators have enough time to utilize computers in the classroom as well?

The ideal preschool classroom is a return to basics in using hands-on experiences that focus on the three-dimensional world that we live in. Using creative methods that involve the development of original ideas should be the main thrust in the classroom. The model of centers in the classroom which encourage discovery has been teaching method that has worked prior to the technology craze. Continuing down this road appears to be most prudent so that we can avoid

the hazards previously mentioned. Sometimes less is better, and in this instance, less computer time is better for young and tender minds.

If computers must be used, it may be advisable to have a separate computer room removed from the everyday classroom. This “Tech room” could be used for only special projects so that the child can be introduced to technology without being bombarded by it. The computer furniture should be adjusted for the child’s use. Time on the computer should be limited and never used as a route to “babysit” the child. Schools should emphasize the importance of play. “Further studies show that when children play, they do better academically, socially, and, not unsurprisingly, physically. We want to support children in becoming well-rounded people, who experience and appreciate all facets of the natural world” (Herman, 2012, p. 40). By removing the computer from the classroom, it is being controlled just by the fact that it is not physically present as an out of sight, out of mind phenomenon. For every time there is a purpose, and for early years the purpose is exploration in the natural world.

References

- Armstrong, A., & Casement, C. (2000). *The Child and the Machine. How Computers Put Our Children's Education at Risk*. Beltsville, MD: Robins Lane Press.
- Cordes, C. & Miller, E. (2000). *Fool's Gold: A Critical Look at Computers in Childhood*. Spring Valley, New York: Alliance for Childhood.
- Couse, L., & Chen, D. (2010). A Tablet Computer for Young Children? Exploring Its Viability for Early Childhood Education. *Journal of Research on Technology in Education*, 43(1), 75-80.
- Healy, M.J. (1999). *Failure to Connect: How Computers Affect Our Children's Minds and What We Can Do About It*. New York, NY: Touchstone.
- Herman, J. (2012). Creating Balance in the New Age of Technology. *Montessori Life*, 24(3), 36-43.
- Mohammad. M., & Mohammad, H. (2012). Computer Integration into Early Childhood Curriculum, *Department of Curriculum & Instructions*, 133(1), 97-116.
- Montminy, P. (1999). Best Practice Guidelines for Computer Technology in the Montessori Early Childhood Classroom. *Montessori Life*, 11(4), 30-31.