Media: A tool in early childhood education

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Media has revolutionalised very fast. Today's children are growing up in a rapidly changing digital age that is far different from that of their parents and grandparents. A variety of technologies are all around us in our homes, offices, and schools. When used wisely, technology and media can support learning and relationships. Support for early childhood professionals is critically important. Educators need available, affordable and accessible technology and media resources as well as access to research findings, online resources and links, and a professional community of practice. Preservice and professional development opportunities should include in-depth, hands-on technology experiences, ongoing support and access to the latest technology tools and interactive media. To improve and enhance the use of technology and interactive media in early childhood programs, educators also need positive examples of how technology has been selected, used, integrated and evaluated successfully in early childhood classrooms and programs. Present paper is an attempt to understand how media is an important tool for early childhood education and what are the principles to be followed by educators to utilize it fully.

Television was once the newest technology in our homes and then came videos and computers. We must not underestimate the importance of early childhood education on the intellectual development of future generations. Early exposure to various forms of media leaves lasting impression in the minds of children these days. UNESCO arguing that the first eight years of life are critical for brain development, advocates for early education that promotes health, nutrition, and holistic growth. Studies have shown that children who watch educational television programming benefit from increased cognitive capacity, improved preparedness for school and enhanced social skills. However, many households throughout the world do not have the means to provide their children with preschool education. Enjoyable and engaging shared experiences that optimize the potential for children's learning and development can support children's relationships both with adults and their peers. Thanks to a rich body of research we know much about how young children grow, learn, play and develop. There has never been a more important time to apply principles of development and learning when considering the use of cutting-edge technologies and new media. When the integration of technology and interactive media in early childhood programs is built upon solid developmental foundations and early childhood professionals are aware of both the challenges and the opportunities, educators are positioned to improve program quality by intentionally leveraging the potential of technology and media for the benefit of every child. There are concerns about whether young children should have access to technology and screen media in early childhood programs. Several professional and public health organizations and child advocacy groups concerned with child development and health issues such as obesity have recommended that passive, noninteractive technology and screen media not be used in early childhood programs and that there be no screen time for infants and toddlers.

Educators and parents have been cautioned about the negative impact of background television (Kirkorian et al., 2009) passive use of screen media and the relationship between media use and child obesity (Birch, Parker, & Burns, 2011; Schepper, 2011). Possible negative outcomes have been identified, such as irregular sleep patterns, behavioral issues, focus and attention problems, decreased academic performance, negative impact on socialization and language development, and the increase in the amount of time young children are spending in front of screens (Bartolic & Vandewater, 2009; DeLoache et al., 2010; Tomopoulos et al., 2010). However, research findings remain divided and therefore can be confusing to educators and parents. Some children's media researchers have found no evidence to support the belief that screen media are inherently harmful. The evidence from public broadcasting's ready to learn initiative suggests that when television shows and electronic resources have been carefully designed to incorporate what is known about effective reading instruction they serve as positive and powerful tools for teaching and learning. Similarly, Wainwright and Linebarger (2006) concluded that while critics have issued many warnings against television and computers and their negative effects on children's learning, the most logical conclusion to be drawn from the existing scholarly literature is that it is the educational content that matters not the format in which it is presented (Wainwright & Linebarger, 2006). In short, there are some educationally valuable television shows, websites, and other digital media, and there are some that are less valuable or even educationally worthless. The amount of time children spend with technology and media is important (Tandon et al., 2011) but how children spend time with technology must also be taken into account when determining what is effective and appropriate (Tandon et al., 2011). The impact of technology is mediated by teachers' use of the same developmentally appropriate principles and practices that guide the use of print materials and all other learning tools and content for young children (Stephen, 2007).

There are some principles to guide the appropriate use of technology and interactive media as tools in Early Childhood Programs

There should not be any harm to children with the use of technology tools and interactive media: The healthy cognitive, social, emotional, physical and linguistic development of the whole child

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is as important in the digital age as ever. Access to technology tools and interactive media should not exclude, diminish or interfere with children's healthy communication, social interactions, play and other developmentally appropriate activities with peers, family members and teachers. Technology and media should never be used in ways that are emotionally damaging, physically harmful, disrespectful, degrading, dangerous, exploitative or intimidating to children.

Using technology and media appropriate to the age, developmental level, needs, interests, linguistic background and abilities of each child: There is a developmental progression in children's use of tools and materials, typically moving from exploration to mastery and then to functional subordination (using the tools to accomplish other tasks). Anecdotal evidence suggests this same progression is evident in the ways that children interact with technology tools. Children need time to explore the functionality of technology before they can be expected to use these tools to communicate. Just as we encourage children to use crayons and paper well before we expect them to write their names, it seems reasonable to provide access to technology tools for exploration and experimentation. Certainly, most technology and media are inappropriate for children from birth to age 2 and there has been no documented association between passive viewing of screen media and specific learning outcomes in infants and toddlers (Schmidt et al., 2009). Infants and toddlers need responsive interactions with adults. Yet mobile, multi touch screens and newer technologies have changed the way our youngest children interact with images, sounds and ideas (Buckleitner, 2011b). Infant caregivers must be sure that any exposure to technology and media is very limited; that it is used for exploration and includes shared joint attention and language-rich interactions; and that it does not reduce the opportunities for tuned-in and attentive interactions between the child and the caregiver. Preschoolers have varying levels of ability to control technology and media but with adult mediation they can demonstrate mastery of simple digital devices and are often seen using the tools as part of their pretend play. Technology tools and interactive media are one more source of exploration and mastery.

Technology and media enable enhancement of children's cognitive and social abilities When used appropriately: Technology and media offer opportunities to extend learning in early childhood settings in much the same way as other materials such as blocks, manipulatives, art materials, play materials, books and writing materials. Screen media can expose children to animals, objects, people, landscapes, activities, and places that they cannot experience in person. Technology can also help children save, document, revisit and share their real-life experiences through images, stories and sounds. The active, appropriate use of technology and media can support and extend traditional materials in valuable ways. Research points to the positive effects of technology in children's learning and development, both cognitive and social (Haugland, 1999-2000; Freeman & Somerindyke, 2001; Heft & Swaminathan, 2002; Clements & Sarama, 2003a-2003b; Fischer & Gillespie, 2003; Rideout, Vandewater, & Wartella, 2003; Greenfield, 2004; Kirkorian, Wartella, & Anderson, 2008; Linebarger, Piotrowski, & Lapierre, 2009; Adams, 2011). Additional research is needed to confirm the positive outcomes of technology tools on children's language and vocabulary development, logical-mathematical understanding, problem-solving skills, self-regulation and social skills development. Interactions with technology and media should be playful and support creativity, exploration, pretend play, active play and outdoor activities.

Play is central to children's development and learning. Children's interactions with technology and media mirror their interactions with other play materials and include sensorimotor or practice play, make-believe play and games with rules. Therefore young children need opportunities to explore technology and interactive media in playful and creative ways. Appropriate experiences with technology and media allow children to control the medium and the outcome of the experience, to explore the functionality of these tools, and to pretend how they might be used in real life. Increasingly, educational media producers are exploring the learning power of interactive games and collaborative play involving children and their family members or teachers.

Homeschool connectionscan be made and strengthened using technology tools: With technology becoming more prevalent as a means of sharing information and communicating with one another, early childhood educators have an opportunity to build stronger relationships with parents and enhance family engagement. Early childhood educators always have had a responsibility to support parents and families by sharing knowledge about child development and learning. Technology tools offer new opportunities for educators to build relationships, maintain ongoing communication and exchange information and share online resources with parents and families. Likewise, parents and families can use technology to ask questions, seek advice, share information about their child and feel more engaged in the program and their child's experiences there. Technology tools such as smart phones, mobile devices and apps offer new and more affordable ways for busy family members to communicate, connect to the Internet and access information and social media tools to stay in touch with their families and their child's teachers and caregivers. Internet-based communication tools offer new opportunities for video calling and conferencing when face-to-face meetings are not possible; these same technology tools can connect children to other family members who live at a distance. As they do for young children, educators have a great responsibility to parents and families to model appropriate, effective and positive uses of technology, media, methods of communication and social media that are safe, secure, healthy, acceptable, responsible, and ethical. Technology tools can support the ways educators measure and record development, document growth, plan activities, and share information with parents, families, and communities. Teachers can use digital portfolios that include photographs as well as audio and video recordings to document, archive, and share a child's accomplishments and developmental progression with families in face-to-face conferences or through communication and social media tools.

Displaying photos in the classroom of children's drawings or block buildings, along with narratives dictated by the children or explanations of why these types of play are important, can help families understand the critical role of play in early childhood development. Sending weekly, monthly, or even daily updates through social media or e-mail can help families feel more connected to their children and their activities away from home. Inviting children to take a picture of something they have done and helping them upload the photo to a file that can be e-mailed promote children's understanding of ways to communicate with others while also contributing to their learning more about the functions of reading and writing. Most educators understand the value of writing down or recording notes that a child may want to give to parents. Using e-mail, educational texting, or other communication tools

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demonstrates the same concept about communication and helps to build digital literacy skills at the same time. If information is stored on a computer, the photos and notes can be printed and given to families who do not use technology to send or receive messages (Edutopia 2019). Modeling the effective use of technology and interactive media for parent communication and family engagement also creates opportunities to help parents themselves become better informed, empowers them to make responsible choices about technology use and screen time at home, engages them as teachers who can extend classroom learning activities into the home, and encourages co-viewing, coparticipation, and joint media engagement between parents and their children (Stevens & Penuel, 2010; Takeuchi, 2011).

Assistive technology must be available as needed to provide equitable access for children with special needs. For children with special needs, technology has proven to have many potential benefits. Technology can be a tool to augment sensory input or reduce distractions. It can provide support for cognitive processing or enhancing memory and recall. The variety of adaptive and assistive technologies ranges from low-tech toys with simple switches to expensive high-tech systems capable of managing complex environments. When used thoughtfully, these technologies can empower young children, increasing their independence and supporting their inclusion in classes with their peers. With adapted materials, young children with disabilities can be included in activities in which they once would have been unable to participate. By using assistive technology, educators can increase the likelihood that children will have the ability to learn, move, communicate and create. Technology has supported inclusive practices in early childhood settings by providing adaptations that allow children with disabilities to participate more fully. Augmentative communication devices, switches and other assistive devices have become staples in classrooms that serve children with special needs. Yet, with all of these enhanced capabilities, these technologies require thoughtful integration into the early childhood curriculum. Educators must match the technology to each child's unique needs, learning styles and individual preferences (Sadao & Robinson, 2010). It is critically important that all early childhood teachers understand and are able to use any assistive technologies that are available to children with special needs in their classrooms and to extend similar or comparable technology and media-based opportunities to other children in their classrooms.

Early childhood educators need training, professional development opportunities and examples of successful practice to develop the technology and media knowledge, skills and experience needed to meet the expectations set forth in this statement. In recent years, smart phones, tablets, apps, game consoles and handheld game devices, streaming media and social media have found their way into the personal and professional lives of early childhood educators; into early childhood programs serving young children, parents and families; and into the homes of young children (Donohue, 2010a-2010b; Simon & Donohue, 2011). Early childhood educators, parents and families need guidance to make informed decisions about how to support learning through technology and interactive media which technology and media tools are appropriate, when to integrate technology and media into an early childhood setting and at home, how to use these tools to enhance communication with parents and families, and how to support digital and media literacy for parents and children. To realize the principles and recommendations of this statement, early childhood educators must be supported with quality preparation and professional development. Early childhood educators need available, affordable and accessible professional development opportunities that include in-depth, hands-on technology training, ongoing support, and access to the latest technology tools and interactive media (Barron et al., 2011). Educators must be knowledgeable and prepared to make informed decisions about how and when to appropriately select, use, integrate and evaluate technology and the term digital citizenship refers to the need for adults and children to be responsible digital citizens through an understanding of the use, abuse and misuse of technology as well as the norms of appropriate, responsible and ethical behaviors related to online rights, roles, identity, safety, security and communication.

Educators also need to be knowledgeable enough to answer parents' questions and steer children to technology and media experiences that have the potential to exert a positive influence on their development (Barron et al., 2011; Takeuchi, 2011). Teaching in the age of digital learning also has implications for early childhood teacher educators in how they integrate technology tools and interactive media in the on-campus and online courses they teach, how well they prepare future early childhood teachers to use technology and media intentionally and appropriately in the classroom with young children and how well future teachers understand and embrace their role with parents and families (Barron et al., 2011). Teacher educators need to provide technology mediated and online learning experiences that are effective, engaging, and empowering and that lead to better outcomes for young children in the classroom. This requires knowledge of how adults learn and of how technology can be used effectively to teach teachers. Current and future early childhood educators also need positive examples of how technology has been selected, used, integrated, and evaluated successfully in early childhood classrooms and programs. To implement the principles and recommended practices contained in this statement, educators need access to resources and online links, videos, and a professional community of practice in which promising examples and applications of emerging technologies and new media can be demonstrated, shared, and discussed.

The established body of research and literature on the effects of television viewing and screen time on young children, while foundational, does not adequately inform educators and parents about the effects of multiple digital devices each with its own screen. As multi touch technologies and other emerging user interface possibilities become more affordable and available, new research is needed on what young children are able to do and how these tools and media can be integrated in a classroom. Research-based evidence about what constitutes quality technology and interactive media for young children is needed to guide policy and inform practice and to ensure that technology and media tools are used in effective, engaging, and appropriate ways in early childhood programs.

Conclusion

Research is needed to better understand how young children use and learn with technology and interactive media and also to better understand any short- and long-term effects. Research is also needed to support evidence-based practice for the effective and appropriate uses of technology and interactive media as tools for learning and development in early childhood settings. Educators should use

professional judgment in evaluating and using technology and media just as they would with any other learning tool or experience, and they must emphasize active engagement rather than passive, non-interactive uses. To achieve balance in their programs and classrooms, they should weigh the costs of technology, media, and other learning materials against their program's resources and they also should weigh the use of digital and electronic materials against the use of natural and traditional materials and objects. Educators should provide a balance of activities in programs for young children and technology and media should be recognized as tools that are valuable when used intentionally with children to extend and support active, hands-on, creative and authentic engagement with those around them and with their world.

When the integration of technology and interactive media in early childhood programs is built upon solid developmental foundations and early childhood professionals are aware of both the challenges and the opportunities, educators are positioned to improve program quality by intentionally leveraging the potential of technology and *media for the benefit of every child.*

-*Erikson (2011)*

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