

Parents, early childhood educators and instructional leaders need to identify how technology can be applied to the educational program to ensure the highest level of success for young learners in Pre-K-3 settings. High quality early childhood programs can have a lasting impact on young children living in poverty (Schweinhart, 2013). A sound educational framework, such as the High Scope Curriculum, promotes “active participatory learning” in which students are provided with hands-on experiences with people, objects and events (High Scope, 2015). Active learning, along with the proper scaffolding, can promote problem-solving skills that extend from the classroom and into the home. The National Association for the Education of Young Children recommends that technology should not be used for activities that are not educationally sound or developmentally appropriate (NAEYC, 2012).

The guidelines developed and listed below are done according to age classification beginning with three to five year olds, five to six year olds and six to eight year olds. While these guidelines are age specific, successful technology integration for young children is dependent upon their physical, mental, and social readiness, and therefore could be used at different age levels.

The National Association for the Education of Young Children and the Fred Rogers Center discourage the use of screen media for children under the age of 2 in early childhood programs (NAEYC, 2012). The guidelines below are to be used with children three to five years

old. Educators and parents are encouraged to examine technology use for students at this age level. Technology should never replace educationally sound practices such as play activities, engagement with other children and interactions with adults (NAEYC, 2012).

Guideline: Children should experience technology with parent involvement. Technology emphasis for each situation will be different because of varied home environments and equipment provided; however, parents who concern themselves with technology involvement can easily facilitate initial exposure to technology (Kersten, 2006). Young children need opportunities to develop the early technology-handling skills associated with early digital literacy (NAEYC, 2012), and parents can actively be a part of this learning.

Guideline: The use of certain types of technology can help young children who struggle with social-emotional skills. Research has shown that children with social-emotional difficulties have a harder time succeeding both socially and academically (Elias, 1997). The WePlay Multi-Touch Table is an example of technology used to help preschool aged children develop better social and emotional skills (Hatch, 2015). The National Association for the Education of Young Children (2012) states that technology should support students with disabilities by allowing them to participate more fully.

The guidelines below are recommended for children along the Pre-K3-Kindergarten Continuum.

Guideline: Physical development and health are some of the essential building blocks that are critical to a student's optimal learning. The integration of technology can be incorporated seamlessly throughout the preschooler's day in order to create meaningful experiences that are developmentally appropriate. According to the High Scope Curriculum (2015) hand-eye coordination using small muscles are an essential component of fine motor skills which are critical in the early stages of learning. Educational applications, such as Dexterity, can be easily downloaded to an Ipad at school or even at home. The app aids preschool children in mastering dexterity. Instructional tools such as the LeapPad tablet can also assist with the development of fine motor skills while personalizing learning to meet individual needs.

Gross motor skills are also necessary to a child's development in order for them to gain strength, flexibility and balance. Web-based programs such as GoNoodle are free of charge and can provide opportunities for students to develop their large muscle groups while challenging their young minds. Parents and teachers alike can sign up to the website and select one of the many student-friendly video clips to get children into motion.

Guideline: Early interventions for children with disabilities are an essential component of early childhood programs. As indicated by the National Association for the Education of Young Children (2009) preschoolers who have learning difficulties or disabilities that receive early intervention services function well in the classroom. The implementation of early childhood interventions is consistent with theory and research showing the importance of the first few years of life for cognitive, language, and social development in general (Kolb, 1995; Chugani et al., 1987; Ramey et al., 1992; Dunham and Dunham, 1992) as cited in (Bowman, B.,

Donavan, S., and Burns, S., p. 166.) Educational apps such as LetterReflex aid children that experience dyslexia by overcoming letter reversals and backwards writing. Smart Oral Motor is another Ipad application that can be used to aid with oral motor exercises for children with autism, apraxia and articulation disorders.

Guideline: Early literacy and numeracy create the necessary foundation to build upon in the later grades to close the existing achievement gap (NAESP, 2014). Digital storytelling is one of the vast array of Web 2.0 tools that can promote early literacy. With the use of some basic digital tools, items such as a digital camera and a scanner can easily be used to support early literacy by bringing the curriculum to life. In addition, web-based programs such as ABCmouse.com provide a full preschool through kindergarten curriculum in both English and Spanish. The website introduces oral literacy, phonics, shapes, number sense and numerous essential skills to promote school readiness in the early years. All of which are key elements in curriculum planning for children in primary grades (NAEYC, 2009).

The guidelines below are to be used with children six to eight years old. As children reach this level, parents and educators may see a varied difference in a child's ability to understand, use and manipulate technology due to technology exposure.

Guideline: Technology and media can be powerful tools if implemented properly in early childhood classroom settings. Appropriate applications of technology and media need to be active not passive. They should allow students hands-on experiences. Also the technology needs to engage students by giving them a sense of empowerment (National Association for the

Education of Young Children, 2012). Lego EV3 provides a solution to these needs (Eguchi, 2014). Children participate in inquiry based learning by building a variety of objects and then control them by writing software. 3D printing is another way technology can serve the needs of children (Thornburg, 2014). Design skills are revealed in a physical manner when using this equipment. Film making is another example of a hands-on technological application (Eckhoff, 2015). Students can create videos on a variety of topics that relate to their interests.

Guideline: Technology and media should also promote the healthy cognitive, social, emotional, physical, and linguistic development (National Association for the Education of Young Children, 2012). Children should be taught how to use the internet and social media in a responsible and safe manner. Common Sense Media provides teachers and parents with a variety of tools to use in both formal and informal early childhood settings (Common Sense Media, 2014). Students learn rules of remaining safe online while visiting interesting sites. They are taught to keep certain information private because some websites ask them for their personal information and this is dangerous. An introduction to ownership of creative information is also provided.

Guideline: Teachers and parents should consider developmentally appropriate teaching practices when selecting technology and interactive media (National Association for the Education of Young Children, 2012). Selection of quality evaluation tools enhances this process. Evaluation of how a child uses a peculiar technological resource needs to be evaluated properly to recognize strengths and weaknesses, and to implement adaptations. David Squires suggests that parents and teachers create a rubric that considers a socio-constructivist view of learning

which includes a wide spectrum of factors (Squires, D. 1999). Grymes, Henley and Williams emphasize that parents and teachers should support each other in determining quality literacy applications because children access media at home and in school (Grymes, Henley & Williams, 2014).

As evidenced in this document, there are numerous ways of incorporating the sensible use of technology within the Pre-K through grade 3 continuum. As leaders in the field of educational technology it is extremely critical to ensure that adequate funding is set aside to provide digital resources in early childhood classrooms. Job embedded professional development should also be provided in order to support the instructional staff in meeting the unique demands of early childhood learners. Parents are also key stakeholders in the process. By working collaboratively with one another, parents and teachers will be able to provide meaningful learning experiences that expand beyond the confines of the classroom.

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