



Funding Technology

Does It Make Cents?

Bonnie Blagojevic

How can early childhood education programs begin to consider funding technology equipment purchases when budgets are so tight?

When it is often difficult to pay staff competitive wages, buy basic program supplies, and purchase learning materials, is it appropriate to take precious dollars from the budget?

Can we take time from a very busy schedule to look for funding for technology resources?

Answers to these questions vary for each educational setting. But there are some compelling arguments for using technology in early childhood education programs that are important to consider.

The role of technology in early childhood education in a technological society

Taylor (2000) suggests that without opportunities to learn to use technology and develop computer literacy skills, children and families will have a hard time succeeding in our society when more than 60 percent of new jobs require these technology skills. Bowman (1998) points out the importance of starting early. She suggests that all young children must be provided with chances to use technology both in ways that will prepare them for modern society and as tools to represent their creative ideas, deepen their thinking,

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Beyond the Journal. This article also appears on NAEYC's Website, www.naeyc.org. To find it, click on *Young Children*.

and help them with problem solving. She raises important equity issues when she states, "Young children can learn that technological skills are socially desirable and expected of them or, conversely, that such knowledge is exclusive and more available to some people than to others" (Bowman 1998).

These ideas echo national concerns about a growing *digital divide* among America's citizens, the gap between those who have access to computers and the Internet and those who do not (Wilhelm, Carmen, & Reynolds 2002). And we early educators need to carefully consider our role in providing equal opportunities for all children to become skilled technology users in this digital age.

Involving all children

Considering equity issues at the center-based technology level, the computer has been called an equalizer (Hasselbring & Williams Glaser 2000) and is a tool that brings unique qualities to the early childhood curriculum. Changing the font size or contrast, manipulating touch screens or switches, or using software supporting text to speech, voice recognition, or recording features are just a few of the ways the computer makes it possible for children to access the curriculum and contribute their ideas—to really participate.

One possible scenario: It is September, and a new group of children have joined

Learn the Whole Story

"Connecting Kids to Technology: Challenges and Opportunities." www.digitaldividenetwork.org/content/stories/index.cfm?key=244

"Equity and Young Children as Learners." <http://ericece.org/pubs/books/fte/general/bowman.html>

"Technology: A Key to the Future" (theme issue), *Head Start Bulletin*. www.headstartinfo.org/publications/



the preschool program and are getting to know each other. The children work together to create their own book—"Our Favorite Things." Children have a variety of ways they can represent their thoughts in different learning areas, including finger painting and use of the computer center.

A software program is open and allows children to choose items from a picture library to create a composition representing their favorite things. When they click on one of the pictures, they hear the word spoken out loud. They may decide to use the drawing component of the program to create an original drawing. Or they can choose from a set of specially selected digital images imported into the program to personalize the picture library. They can print out the results to add to the class story.

Some children may also want to record a story or a song they make up to describe their favorite things. Nick, who has a speech delay; Ari, who is learning English as a second language; Raven, who is visually impaired; Joe, who hates to participate in messy activities; and Nadja, who gets easily frustrated when she makes a mistake, all find their learning styles

accommodated by the computer. When the children use the computer, they find the control and choices available to them to be motivating and are pleased with their products. For some children who have found little success in other learning areas, the computer center is a place they can shine, communicate, and receive recognition from peers and adults, leading to increased self-esteem (Moore 2003).

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Flexibility and choice support learners

When flexibility is introduced into the program in this way, by offering a variety of activity choices and adaptable learning tools like the computer, teachers are better able to design curriculum to meet the diverse needs of learners (Blagojevic, Twomey, & Labas 2002). *Universal design for learning* is a term used to describe this kind of intentional curriculum planning to maximize the number of children included and able to access the curriculum offered. This approach is an attractive alternative to the common practice of teaching to a selected group of children, then adapting the instruction for others. Universal design for learning suggests an aware-

ness of, respect for, and interest in matching the different learning styles of individual children to support their growth and development (CAST n.d.).

Support Learning Differences

"Summary of Universal Design for Learning Concepts." www.cast.org/udl/index.cfm?i=7

"Universal Design for Learning: From the Start." www.ume.maine.edu/~cci/facts/facts6/udl.htm

"Use of Computer Technology to Help Students with Special Needs." www.futureofchildren.org/pubs-info2825/pubs-info.htm?doc_id=69787

"With Computers, Children Learn the 3 Rs Plus the S: Self-Esteem." www.americconnects.net/field/F7abcd.asp

Carefully calculate costs and benefits

Investigate technology resources that can help your center save money and/or

FROM ECEOL LISTSERV

- **Date:** Mon, 8 Sep 2003
- 21:16:46 -0500
- **From:** Bob Mills, child care licensing, State of Indiana
- Young children learn with the total body. Unless the total body is involved, no real learning occurs. They also learn with their hearts how to form and understand relationships. Since children cannot analyze relationships in a theoretical way, they do so with their hearts. Children strive to make connections that feel good inside.
- Unfortunately, their desire for relationships is so great that if they cannot form relationships that feel good, they continue to seek relationships—even those that don't feel good.
- When teachers attempt to teach young children abstract concepts like letters and things that happen on computers, children do not learn what the teachers think they are teaching. What children really learn is about relationships: What happens when I mimic the teacher correctly? Of course a child will show signs of happiness because the teacher seems so delighted.

time. It may *pay* to keep an eye on current trends, as some technologies may decrease in price and increase in quality. For example, digital cameras may prove cost effective for programs taking photos daily for documentation and other purposes.

Some centers are beginning to use online assessment systems to help track individual children's growth and development. When entered once, data can be used to create a variety of reports using online assessment systems. Teachers can effectively show what a child knows, and can save time (Heroman 2003).

There are many issues to consider when deciding the role of technology in your program. In addition to direct use with children, access to computers and the Internet or other technology may help staff, families, and administrators reach their goals.

The search for solutions

Early education programs interested in using technology may lack the funding to make it happen. Many organizations are searching for

Learn to Use Technology

The Consortium: Technology Helping Educators. www.thecol.org

"The Creative Classroom."
www.asbj.com/2003/09/0903research.html

Early Connections; Technology in Early Childhood Education. www.netc.org/earlyconnections/index.html

"NAEYC Position Statement: Technology and Young Children—Ages 3 through 8."
www.naeyc.org/resources/position_statements/pstech98.htm

Technology and Young Children—NAEYC Interest Forum. www.techandyoungchildren.org

Connect with Technology Users

Community Technology Centers' Network. <http://www.ctcnet.org/>

Digital Divide Network, from the Benton Foundation. <http://digitaldividenetwork.org>

Neighborhood Networks, from the U.S. Department of Housing and Urban Development. www.Neighborhoodnetworks.org

Public Library Locator. <http://nces.ed.gov/surveys/libraries/liblocator/library.asp>

State Tech Act Programs, from the Alliance for Technology Access online book "Computer and Web Resources for People with Disabilities" (fully revised third edition). www.ataccess.org/resources/atabook/s03/s03-02.html

solutions to bridge the digital divide. Following is a sampler of programs and projects offering ideas, information, and a chance to learn from others' experiences.

The Digital Divide Network (n.d.) points out that this discussion is not only about *access*—finding the equipment you need. They suggest that a number of points are equally important:

- literacy and learning—knowing how to use the technology;
- content—being able to both receive meaningful and relevant information and create it; and
- economic development issues—considering the economic impact on the community.

These ideas provide an interesting lens through which to look at digital divide issues and some solutions that can impact our work with young children.

Access. Early education programs interested in finding or funding technology may want to search for solutions both near and far. Start by identifying, then discussing, technology goals and

needs with families and friends of the program. Work together to brainstorm strategies for meeting identified goals; then create a plan and resource map of your community. Form new and traditional partnerships; think outside the box when searching for solutions.

Schools, public libraries, universities, community technology centers, assistive technology lending libraries, State Tech Act programs, computer stores, and computer recycling programs are groups that tend to use or focus on technology. They may have information or suggestions on a variety of issues, such as criteria for accepting donated equipment or setting up and maintaining equipment. You can check online to locate these types of tech users in your area. You can also visit Websites of national organizations interested in providing equal access to technology for ideas on bridging the digital divide and for representatives in your state.

Literacy and learning. If teachers are to be successful in integrating technology into the curriculum, they must be comfortable using technology tools. Ongoing professional development and support are key in helping staff develop skills needed to use technology regularly and well. Instruction may be informal, such as mentoring by a tech-savvy staff member and providing a list of Websites with tutorials or lesson plans that showcase educational uses of technology. More formal staff development plans may involve training using online or computer-based learning modules or a combination of approaches.

Teachers must provide young children with developmentally appropriate ways to use the computer, and they must be available to help them develop a range of skills. Children also benefit from carefully planned instruction and teacher support as they learn how to

operate the equipment and use it to solve problems, gain knowledge, and express ideas. Characteristics of a creative classroom that help children develop positive dispositions for learning, as described by Black (2003)—such as providing time to consider topics in depth, ask questions, take risks, explore big ideas, and represent understanding in a variety of ways—should inform the development of technology curricula for young children.

Content. Having the technology and knowing how to use it make it possible to create content and to benefit from content created by others. Children and adults can use technology tools to publish for their own child care communities or to share ideas with a broader audience by publishing on the Internet. Online publishing can take many forms, including stories, drawings, multimedia



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FROM ECEOL LISTSERV

- **Date:** Tue, 9 Sep 2003
- 06:34:13 -0400
- **From:** Mary Horsley, Head Start teacher, King and Queen County, Virginia
- When the computer is one of several classroom centers, children make their own choices about when to use it.
- Most children spend no more than 5 to 10 minutes at the computer, and usually several children use it together while interacting with each other and exploring the visual display.
- Since television entered our world, many children became visual learners. Whether that is good or bad doesn't matter. They just are. Computers will become an increasing part of our lives. Nobody is saying teach children abstract concepts solely through the computer. But if the children are interested in these tools of learning then by all means we should make use of them just as we use tape recorders, CD players, light boards, and other forms of technology.

children deserve a good cyberstart (CyberStart 2003) and a chance to be part of the digital economy. The CyberStart initiative was developed to address the digital divide, so that all young children enter school prepared to use technology. The Pennsylvania Department of Community and Economic Development, in conjunction with the Department of Public Welfare, administers this multiyear initiative. It has provided

slide shows, original songs, digital videos, or professional development materials.

Issues to consider in the creation of information include the literacy level of the learner, availability in language that is easily understood, relevancy to the viewer, clarity of presentation, and accessibility to people with a range of abilities. Various types of content must be created to meet the diverse needs found in society. For example, there are many Websites with early education information, ranging from simple to more complex articles, some with text supported by video or audio clips.

Online publishing provides an opportunity to share ideas, exchange information, and receive feedback, which can extend and strengthen the learning process. Imagine a preschool program posting a digital photo and children's stories on its Website, describing the day children found a butterfly, put out sugar water, and watched the butterfly drink through its proboscis. When an entomologist reads their work, writes back sharing interesting facts, and responds to their observations, children know their work has been considered and valued. Or perhaps online documentation of a long-term "chicken" study helps a classroom connect and exchange ideas and approaches with others learning about the same topic.

Economic development. A recent statement by business leaders suggests that state and federal governments should invest in quality early childhood education to improve educational opportunities for children, workforce productivity, and economic growth and to benefit society (BRT & CVWF 2003).

Pennsylvania has an interest in similar goals and believes its young

computers, software, printers, Internet access, and training to nearly a thousand child care centers across the state.

Conclusion

When searching for solutions to the challenges involved in finding funding for successful implementation of technology, it is helpful to keep in mind "the 4 P's to funding—patience, politeness, paying attention to details, and persistence" (MaineCite 2003). It may take time to achieve identified technology goals. And each early education program has unique circumstances leading to the development of its own philosophy about the role technology should play in its setting, and the resulting strategy.

Whatever individual choices programs may make, in this information age it is increasingly important for early educators to learn about technology issues and trends. This knowledge can help us to make informed decisions about technology use and support our efforts to prepare today's young children for their future.

Create and Share Content

- Exhibits: Digital Edge Learning Interchange, from Apple Computer and the National Board for Professional Teaching Standards. http://ali.apple.com/ali_sites/deli/exhibits/1000445/The_Lesson.html
- Candy's Project Website (Project Topic: Chickens). www.cds-sf.org/cproject/index.htm
- Contentbank. www.contentbank.org/firsttime/index.asp
- Early Childhood Research and Practice, an Internet journal. <http://ecrp.uiuc.edu/>
- Kids' Space, from a children's educational foundation. www.kids-space.org/
- Kidsmart Guide to Early Learning and Technology for Home and School. www.kidsmartearlylearning.org

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Read Economic Arguments for Investing in Early Childhood Education

“Business Leaders Warn of Early Learning Gap; Urge States, Federal Government to Build High-Quality Early Childhood Education Programs.” www.brt.org/press.cfm/902

CyberStart Pennsylvania, state initiative of the Department of Community and Economic Development. www.cyberstart.org/

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