KinderSITE

Do we introduce computers to children?

2 years, 3 years, 6, 8 12, 15, never, when do we start the process of introducing children to computers? Educators, parents, even gray-haired and learned professors cannot agree. The second question that then arises is whether computer based content positively or negatively affects the learning process. I can hear the screams of protest and support in full interactive, multi-media; broadband enhanced detail even as I write.

Meanwhile millions of dollars are being spent to bring computers and the Internet to elementary schools around the globe.

The only area all agree on, well maybe, is that all students should be taught how to use computers and the Internet eventually. As all will need an understanding of technology to enjoy the products of technology and in many cases within the future work environment.

In this article I will try to summarize some of the arguments for and against technology in early education and finally to make a synopsis of how I believe we should address this vital issue.

Firstly lets take a look at the arguments for early introduction.

Pros

Future Needs - the use of computers and an understanding of how to use the Internet are already critical to modern society today in manifest directions. These include, the work environment, information gathering for work or pleasure, shopping, communications etc. and if true today, how much more tomorrow. The Office of Occupational Statistics and Employment predicts that the computer industry will continue to show the greatest growth of any industry in the USA.

According to the Bureau of Labor Statistics, more than half of all workers used a computer on the job in September 2001. And nearly three-fourths of those workers connected to the Internet or used e-mail.

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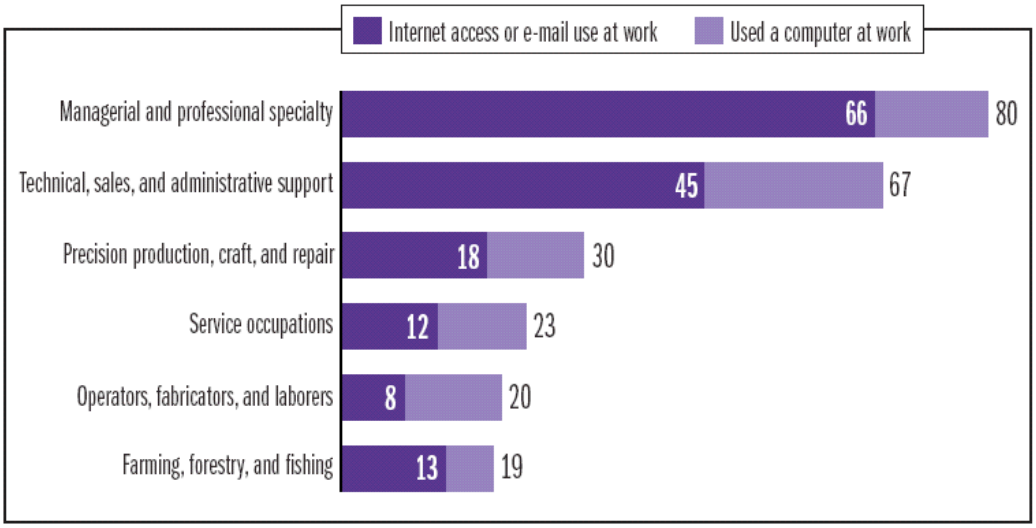

Source: Bureau of Labor Statistics USA

Early Skills Acquisition – As with all fundamental skills, the earlier the education system allows students to become familiar with technology the greater will be their depth of understanding and effectiveness in using it.

It is immaterial to argue that skills acquired today by a five year old will not be relevant later in life because technology will develop beyond comprehension. This is because skills acquired can focus on an understanding of what computers can do rather than just how to interact with today's computers. In addition, once the initial groundwork has been obtained the potential for adaptation to a dynamic system can be incrementally updated in the same way, as adults have to adapt to new technology.

Personalization - Computer based content allows a level of individual engagement and interactivity that comparative learning systems fail to deliver. By its nature learning with the computer is a one-on-one experience or at worst, small groups.

This alleviates the paradigm of large classes with minimal personal intervention.

Learning Levels - Computers allow users to individualize their speed of attainment to suite their personal needs and capabilities. The speedy are not held back and those that need greater repetition are not passed over. Additionally special groupings can be more easily and effectively catered for.

Wide Distribution of Quality Teaching - Computer based learning allows the maximum effectiveness and distribution of the best quality teaching and content.

A great teacher is not limited by the classroom but can reach out across the Internet to thousands either through building digital lessons or distance

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learning software and programs. Most distance learning systems today can be configured as live broadcasts with high levels of interactivity with the teacher.

Now, here are the equally strong arguments against.

Cons

Accessibility and Suitability - If an individual does not have access to a computer or does not understand the content through a language deficiency or cultural differences, they will be relegated to the digitally divided, 44 million at the last count just in the USA according to Professor Howard Besser, The Next Digital Divides.

Interfering with Natural Development - Young children should be utilizing their natural propensity for physically based activity rather than be 'stuck' in front of a computer.

They already spend damaging amounts of time glued to televisions, as researchers have discovered, that impairs development. Our children, the Surgeon General warns, are the most sedentary generation ever.

Lack of Depth - Computer based content is a long way from offering the depth, flexibility and tried and tested results that a trained, dedicated and experienced teacher can offer children. In addition, the interaction with a sophisticated adult allows critical advanced vocabulary and personalization skills.

Quality of Content – Most digital content is overly simplistic in its structure. For example, a sum can only be wrong or right. The content will not explain to the student why the sum was wrong.

A real teacher will mark a piece of work and offer the essential logic reasoning for the decision that will enable the student to gain a fundamental understanding of the system behind what constitutes correct/incorrect.

Health Hazards - Computers pose health hazards to children. The risks include repetitive stress injuries, eyestrain, obesity, social isolation, and, for some, long-term physical, emotional, or intellectual developmental damage.

Safety – Children must be protected from the dangers of the Internet, stalkers, adult content, hate and violence. Filtering software is notoriously inefficient.

By no means am I attempting to articulate all the arguments or cover them in real depth but just to raise some of the issues we all face.

In my opinion both the Pros and Cons are very strong arguments all of which need serious consideration and answers.

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Now to put this in to an importance perspective, digital technology is invading virtually every aspect of modern society and its impact is becoming fundamental to how we work, play and learn. Technology within education also has a huge role to play but its' effectiveness and impact has not been studied in the depth and breadth that such a fundamental development requires.

In the work environment, mistakes in the use of technology are paid for in monetary terms. How much less can we afford to make mistakes with introducing technology to our children, mistakes made here cost far more than damaged business, with education we are talking damaged lives.

At the moment we just seem to be 'throwing' computers and the Internet at teachers and children, as I state above, without any real understanding of what we are actually doing to the children or should I call them 'guinea pigs'. The logic seems to be, at least on the governmental level, that we cannot afford for the coming generation not to be computer enabled, as this ability will be critical for a country to be economically competitive. In fact every country is being driven to ensure it's digital competitiveness. At a governmental level this logic is difficult to fault but it is our job as educators and parents to ensure that the effectiveness of the headlong plunge is in the best interests of all the children.

My opinion is that large-scale research in to the issues needs to be carried out. Not on the scale of a few dozen subjects over weeks as many examples of current research do, but thousands or even tens of thousands of subjects over years.

These subjects need to be from 2 years to 8 years old. They need to be widely dispersed geographically. Come from all levels of the social and attainment spectrum. In fact technology and the Internet is a perfect platform to carry out this type of research. I founded the Internet based Kindersite Project to enable researchers to accomplish this type of wide-scale program.

I believe that only significant research that studies thousands of subject children over a long-term, years probably, will allow the educational community to really gain full and meaningful answers to the questions such as:

1. Does the early introduction of digital content positively or negatively affect young children?
2. What should be the parameters of the introduction (if any)?
3. What content types should be employed within the introductory process?
4. What constitutes 'good' or 'bad' content and why?
5. What parameters define 'good' or 'bad' content?

As a result of sustained and profound research, guidelines should be drawn. These guidelines should offer teachers and parents tried and tested

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parameters for the use of computers for their children at each age level. It should include areas such as; how long should a child use a computer over a period, maximum and minimum attainment levels to be expected for each age group based on set proficiency standards, how digital content should be integrated in to standard lesson plans in a similar way that other media is used.

Most importantly, set standards for educational content providers must be laid down that they must adhere to if they wish to produce educational content utilizable by educationalists. In addition all young children's' content, educational or leisure should be labeled with its appropriateness for each age group. These standards should be defined by the research.

In conclusion, it is fairly obvious that computer based educational content is becoming a feature of schools, whether we like it or not. In the home we see increasing evidence that even the smallest children are gaining access to computers either with parents or through watching older siblings. It is unreasonable to expect to turn back the clock and bar children below a certain age from computers, this is unenforceable and ineffective.

It is our duty to ensure that clear usage standards are set, content guidelines are drawn and sites rated at a governmental level so that children, parents, caregivers and educators have a clear and safe basis for using computers and the Internet with their charges. Anything less is an abrogation of all our responsibility.

About the author

Joel Josephson has been involved in consulting to high tech companies for 8 years. He founded two Internet companies. He is the father of 2 girls (2.5 and 4 years).

He is the founder and executive director of the non-profit Kindersite Project http://www.kindersite.org. The Kindersite is involved in the innovative use of technology to address the introduction of technology to early learners. He can be contacted at: joel_Josephson@kindersite.org

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