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## Youth services in an electronic environment

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### Introduction

Because of the pervasiveness of computers in schools and the global race of information technology and cultural change, teaching youth to use computers has become a major effort of educators. Extensive teacher training in the use of computers in the instructional environment has been popular for the past decade, and educators tend to see the internet as the resource of first preference. Dozens of online projects, CD-ROMs, websites, search engines, information resources, research tips and 'virtual' field trips are being created as practical guides for K-12 teachers and can be considered part of the electronic environment. The pace of innovation is moving quickly. According to Amanda Spink (2001) information science researchers today are developing new web tools and beginning to blueprint web size and instability, as well as model users' interactions with the web to improve information retrieval. Needless to say, challenges that have faced information science researchers since the 1950s, such as information overload and practical information organization, are in clear focus in the web-based arena. The web provides a growing user base for library and information science research and philosophy. Yet despite all the enthusiasm for the internet and the interactive poten-

tial available, there is no empirical research to date that computer-assisted learning for children is superior to the use of other resources. Mergendollar (1997) examined analyses of educational technology use in American schools and stated that computers do not automatically lead to more critical thinking, richer understanding, or increased student achievement. However, research into the cognitive consequences of children using various search processes has had implications for computer interface design. Regardless of one's attitudes towards the desirability or pervasiveness of the internet, being connected and being able to access the internet have become critical components of information literacy.

## Historical antecedents

Although each generation is convinced of the uniqueness of its problems, history often shows us quite the opposite. The development of low-cost computer power and its attendant implications for educational, industrial, social and political structures all have historical antecedents. Benjamin Compaine (1988) stated:

The introduction of photography in the 19th century collided with the popular wisdom about the role of art and painting. Then, the questions were about the new technology of the photographic process and how it might affect human views on the reality of war or on creativity. Today, similar types of questions are being raised about the effect electronic publishing is having on print and on the impact of television and video games on children. The development of current notions of literacy is closely tied to the technologies of the printing press and the steam engine. An understanding of the previous evolution in technology and literacy is context for today's changes.

Today's changes given rise to the common assumption by the educational community that positive attitudes by students and teachers towards computers will lead to effectiveness in the use of computers,

because the general assumption underlying investments in technology is that technology benefits students. On the other hand, dissension on the proper role of computers in children's lives has engendered national debate – particularly in the area of overuse. The report *Fool's gold: a critical look at computers in childhood*, written by the Alliance for Childhood (1999), recommends an immediate moratorium on adding computers to classrooms so that the presumed benefits and hazards of computer-centric education can be studied in depth. The study of children's use of computers in schools and libraries has been undermined by allegations that computers pose hazards to young children such as eyestrain and obesity, and the billions spent on equipping and wiring classrooms is fueled more by parent fears and corporate sales pitches than any real evidence of computers helping children learn. The use of computers for drills and exercise is the use of a new product to perform a conventional task utilizing the recognizable workflow approach. However, because students with disabilities (many who previously had at best limited access to most educational and reference materials) have experienced a heightened ability to participate in the learning experience with their peers because of technology, no such moratorium is advised.

The authors of the *Fool's gold* report recommend that elementary education in particular return its focus to hands-on, real-world learning and that students learn not only how to use a computer, but also how it works. The ethical and social implications of technology in the education of children are the focus of the report, as well as the ethical and social implications of technology in general. In the face of such a backlash, it is clear that the underpinnings of traditional education and its relationship to current forces are imperfectly understood.

In 1993, Seymour Papert stated that the future of learning has reached its major obstacle in educational philosophies of the late 19th and early 20th centuries and such philosophies have attempted to impose a single way of knowing on everyone. The report *Fool's gold* does make increasing demands for accountability, and that might lead

to more testing, more top-down planning and more of a curriculum-driven style of schooling – a ‘back-to-the-basics approach’ rediscovered repeatedly. Perhaps popular conceptions of the meaning of widespread use of computers by children call for a more holistic assessment, one that incorporates the concept of multiple intelligences. It is important that students find communities to learn by and with, and this may require a redesign of internet delivery. Interaction itself must drive the learning experience, as technology only has two purposes, to create databases and to facilitate communication. Children must still be taught how to locate, use, analyse, and evaluate information effectively, and this gives them practice in critical thinking, but this is only part of the story. Holistically speaking, programme outcomes for children are far beyond computers in the classroom. The most powerful of these programme outcomes, basic as it is, states: ‘Children will have their basic physical, social, emotional, and intellectual needs met. Babies will be born healthy’ (Evaluating the National Outcomes: Children, 2000). The implication for society is a grave one – although computers can meet some intellectual needs, they cannot meet basic physical, social or emotional needs, and they cannot take the place of a parent in the child’s life. The topic of discovery learning now available with technology must take place within a context of the overall welfare of the child. Knowledge of the overall welfare of the child brings with it knowledge of social inequities. According to T.-M. Lai (1995), Jesse Shera believed that the knowledge of knowledge is the basic intellectual foundation for all librarians and information specialists. Knowledge itself can help in the struggle of placing the proverbial ‘cart before the horse’ when debating the benefits and liabilities of technology in the context of youth services in an electronic environment.

## The digital media landscape

### *Internet background*

In America, the National Information Infrastructure Plan, outlined by Vice-President Gore in January 1994, provided funds to public schools for distance learning, video field trips, video teleconferences, collaborative projects, teacher training online research, electronic mail and home/school communication. Fibreoptic networks linking state agencies, schools and universities, courts, doctors and hospitals, local governments and private companies were constructed. The intention of the plan was that the best schools, teachers and courses would be available to all students, without regard to geography, distance, resources or disability.

Through the use of these technologies and a national commitment to quality education, students of all ages and abilities will reach the highest standards of academic achievement. Students will be able to access multimedia electronic libraries and museums containing text, images, video, music, simulations, and instructional software. Teachers, engineers, business managers, and all knowledge workers will have available new methods of working and learning, and will collaborate and share ideas with one another (Education Applications of the National Information Infrastructure, 2001).

Although the ultimate shape of the new digital media landscape is unknown, three key elements – interactivity, convergence and ubiquity – will have important effects on children. First, the new media are more interactive, or participatory, than the old media. The internet increasingly offers several ways for children to communicate with each other, interact with the material on a site, and create their own content. Second, new media combine existing technologies in new ways, a phenomenon referred to as convergence. Technologies that were once discrete, most notably the television and computer, are being combined to offer the power of digital electronics with the

simplicity of the television remote. Third, the new media are becoming ubiquitous, touching all aspects of children's lives. As digital circuitry becomes smaller, cheaper and more plentiful, new-media implementations are likely to show up anywhere, including the nursery and the playground.

### *The internet*

In its short history, the internet has undergone several critical transitions, evolving from a non-commercial, publicly funded, closed network that connected government agencies and research institutions into a privatized and increasingly commercialized global 'network of networks'.

The internet itself - with the advent of the graphically rich world wide web - has become a much more user-friendly tool, rapidly making its way into homes, schools and libraries. The internet increasingly offers several ways for children to communicate with each other, interact with the material on a site and create their own content. Technologies once discrete are being converged to offer the power of digital electronics. Turow (1999) reported that parents have embraced the new technology as a positive influence in their children's lives for reasons such as these, but not without some serious reservations. Much of the public discourse concerning children and the internet has revolved around the possibility of online access leading to exposure to indecent and violent material, predation, and similar harms in cyberspace. However vital these issues may be, many educators believe that the debate over online safety has diverted public attention from other important developments in this new medium. A new children's digital media culture is swiftly moving into place on the internet and market forces are shaping this culture with a rich array of choices for children and teens.

### *Social competence and the 'Clickerati' Kids*

In an interview with Soledad O'Brien (2001), Idit Harel refers to chil-

dren growing up in the digital age as the 'Clickerati Kids', because they spend so much time clicking the computer mouse, and they have evolved their own culture of computing. Children at the turn of the millennium have definite expectations for interacting with what's on the screen and those expectations have given them a much different relationship with the media than their parents had. Generation Y – the nearly 60 million children born after 1979 – will be the first to grow up in a world saturated with networks of information, digital devices and perpetual connectivity.

## Wired

Today's kids, particularly teenagers, are building 'electronic empires'. According to the 1998 Roper youth report (Roper Starch Worldwide, 1998), among children aged 6 to 17, 86% have access to a VCR, 70% have a video game system at home, 50% have a television in their own room, 40% have their own portable cassette/CD player, and 35% have their own stereo system. It is evident that electronic media are playing a significant role in the lives of children and teens. For example, they have expectations for interacting with what is on the PC screen, and their attention spans are notoriously short: they may not have the sophistication to grasp the commercialism behind sites sponsored by multinational media giants, nor the will power to resist.

## *The dark side of commercialism*

In an article entitled 'Technology might be the answer if we understood the questions' Gilchrist (1998) stated that commercialism and technology work against the transformation of information into knowledge and knowledge into wisdom – a transformation that is necessary for the creation of the information society. He also expressed his opinion that commercial pressures affecting information technology and implementation are its 'dark side', and they must be recognized as such so as to minimize the effects of exploitation. Griselda

Greaves (1991) argued that British children were under threat of exploitation, betrayed by parents who expose them to banality and violence on television, teachers who underestimate their imaginative potential and publishing houses where accountants preside over editorial decisions. She stressed the vital role of librarians and teachers in promoting quality literature to children and preventing commercialism from killing children's imaginations and their appreciation of poetic writing. We see that both Gilchrist's and Greaves's different observations on the danger of commercialism are indicative of the need for a solid philosophical framework for educators and librarians in order to balance the involvement of children and youth in our technologically enmeshed consumer society.

### *Merchandising*

An increasing number of children's websites feature advertising and online sales. Children are being treated predominantly as consumers within the context of the new interactive environment. Branding has become a pervasive and dominant theme of these interactions. The anticipated growth in children's spending power has spurred the creation of an infrastructure of companies studying the youth market, and these companies are engaged in a variety of market research to determine children's behavioral responses to new media. Two strategies to promote brand loyalty among children have emerged in the digital culture, banner ads (flashing brand names at the top of web pages) and direct sales (encouraging children to ask their parents to buy the product). Since legislation has been passed in the USA to cover commercial websites targeted at children under the age of 13, some companies have seized upon parental concerns themselves as a marketing opportunity, creating safe zones for children that are designed to make parents more comfortable with their children going online.



## *Social responsibility*

The antidote to rampant commercialism on the net seems to be the acceptance of not only personal, but also social responsibility as a knowledge competency, because quality in websites does not necessarily mean popularity with children. For example, in the year 2000, only about 20 of the ALA's 700 acclaimed websites appear on the list of the 100 most popular among children. Dominating the list of the 25 most popular are commercial sites sponsored by media giants such as Nickelodeon, Disney, Fox and Time Warner, as well as toy companies such as Nintendo, eToys, Lego and Mattel. These facts are perhaps not surprising when one realizes that, in the past, television too was heralded as the greatest educational device ever created. Television cannot provide socialization nor social responsibility. Since the time of Albert Bandura, social learning theorists have been saying that the assistance of an adult accelerates the child's learning by enabling him or her to make sense of the world around him more quickly. The electronic environment also requires the assistance of an adult, a truism made evident by the filtering, blocking and monitoring software tools now available to protect children from harmful internet content and predators.

## **Gender factors**

Gender factors need to be taken into account in any discussion of social responsibility and education for children, as they too are part of the equation. While researching the topic of gender in computer-mediated communication, Sierpe (1999) concluded that the influence of society on new technological expressions leads to a seemingly unavoidable preservation of the existing social power structures. As kids enter pre-adolescence (eight to 12), a technology gender gap emerges and continues into the teen years. Recently, efforts to correct for gender bias in education have gained momentum. Gender bias is related to the electronic environment because many girls feel disen-

franchised. It seems as if the computing culture has not incorporated girls and their unique ways of learning. For example, S. C. Leong and S. Hawamdeh (1999) studied a mixed-gender science classroom using web-based lessons to teach the top primary year five (11 years old) class of 40 pupils. A constructivist approach to learning was incorporated in lesson design. The study showed differences in gender attitudes toward computers. Generally, boys spent more time with computers at home, playing games, and had more experience using the world wide web than did girls. On the other hand, more girls preferred the web-based lesson compared with traditional classroom-based lessons. They learnt more from paired group work and preferred to work with a partner while boys preferred working alone and learned less working with a partner. The study also found that, unlike girls, boys disliked reading from computer screens because they had difficulty reading long pages of text.

Gender issues seem to pervade through to adulthood. For example, Busselle and Reagan (1999) studied the factors affecting internet use in a sample drawn from the University of Washington staff and faculty. They sought to answer the research question, are certain user groups on campus advantaged in terms of using technology? They found that gender and age were significant demographic predictors of use, younger males being heavier users; those owning more technologies were heavier users; those more positive on two perceptual factors (viewing the internet as less complex and seeing more advantages) were heavier users.

Exploring how adult perceptions and use of the internet may impact the teaching and use of computers in the school or library classroom is a topic worth exploring. For example, in an article entitled 'Finding help in all the right places: working toward gender equality', Jacobson (1994) noted the value of electronic mail discussion groups and local women's groups in acquiring help to overcome the gender inequality in the use of computers. Suggestions by the American Association of University Women (1998) are: the enhancement of community investment in the future of girls, the transfor-

mation of the approach of girls to knowledge enquiry in technological design, and the enhancement of collaborative learning opportunities in the classroom.

Successful implementation of technology in classrooms seems to be dependent on the willingness to create a type of sustainable community for computer projects. We might speculate that there are public service elements that make one programme more successful than another through inculcation of social responsibility. There is greater need for planning and defining purpose when one uses computers to teach.

## Enhancing social competence

The acquisition of social competence by youth may be seen as a type of information seeking in the context of the school or public library, just as proper socialization is the purpose of education. The constructivist approach gives emphasis to the senses in which human beings shape their own social milieu and are shaped by them in a complex reciprocity. Computer literacy is required, but reciprocity is demanded. Being comfortable with computers also means being comfortable with the use of computers in all types of social milieus. Leslie Edmonds (1992) suggested that public libraries provide training sessions and co-operate with schools in an effort to help children to understand what they are doing when they use a computer.

The use of computers in school librarianship centres on focused projects and these projects may engage practical problem-solving ability as well as verbal ability. This emphasis and the accompanying literacy development offered by public libraries for children are part and parcel of social competence. The price of successful literacy is a trained and socially competent instructor who will model thoughtful assessment of how the computer can enhance learning. The parents of pre-school children have long been engaged in encouraging literacy and the development of social competence through storytime attendance at schools and libraries.

Although the electronic library concept does not seem to have much appeal for parents of very young children (as developmentally appropriate picture books and a skilled storyteller cannot be reproduced in other formats), integrating multimedia computer use into storytimes has been done with some success (Voors and Miller, 1997). This storytime programme involves parents and is meant to supplement the learning environment with multimedia computer use. The pre-school children are given the opportunity to meet computers in a friendly environment. The programme creates equal opportunities for learning about the technology, as well as encouraging the development of social competence.

This is no less robust than the collaborative access used to connect information seekers or researchers in geographically dispersed locations to mutually solve problems or increase knowledge (Lancaster, 1993). Electronic environments can function on many different levels because of their unique nature. E-mail can function as a telephone, search engines as a library, chat rooms as a public square, product-based sites as a mall, and downloadable movies and games as a theatre or video arcade, but electronic environments cannot replace the 'ethic of care' (Vandergrift, 2000). In 1992, Leslie Edmonds wrote that the library's goals for bringing children and computers together may include converting to a computerized catalogue, making online or CD-ROM searching available to youth to support term paper and other research, and networking electronically with other libraries and agencies to provide more effective interlibrary loan services. These goals remain current because the library as a place for children and young adults cannot be replaced by a virtual community. Face-to-face communication remains the richest form of communication.

### *Young adults*

In the process of building relationships with young adults, librarians provide opportunities for this special group to have ongoing relationships with libraries, and this is what builds social competence. In

1968, Eric Erikson proposed that identity development is a developmental stage in adolescents, and adolescents face the challenge of the search for a personal identity compatible with their values and experience. Communication technologies can address feedback in identity development, and are particularly popular with young adults, who are known for a type of natural social competence, such as using the telephone to chat with friends. If the adolescent socialization process is an interactionary procedure with the fundamental task of assuming a stable self-identification, the ability of computers to enhance social competence is particularly powerful, because the desire to learn from one another is innate in adolescence.

Perhaps the challenge for schools and libraries is to see how, where and when they can assist and actively enhance local community development in terms of improving connectedness between families and education. They can use technology to bring about such 'partnering'. Manghani (1999) identified five possible key features of a sustainable library community:

- care and support networks – both formal and informal
- a culture of inclusion and recognition of diversity
- outlets for expression – a structure in place to facilitate artistic and creative expression
- social factors – such as informal meeting places
- environmental factors – trust and a culture of no fear.

### *Social competencies*

It is generally agreed that social competence is domain specific and developmental. Most powerfully, social responsibility has been conceptualized and linked to diversity, ethnicity, tolerance, and gender issues. According to the report, *Evaluating the national outcomes: youth* (2001), the component elements of social competencies are as follows:

- effective communication in various social relationships
- social problem solving and decision-making ability
- constructive resolution of conflicts
- effective use of basic social skills, e.g. starting a conversation
- accurate identification and understanding of the social cues/rules present in one's social environment
- self-control and self-monitoring of one's behavior and how it impacts others
- perception of self-efficacy
- a belief in the capacity to influence one's social environment
- respect for individual differences based on gender and ethnicity
- ability to solicit and utilize social support
- effective coping ability
- future-orientation, e.g. setting and working toward goals
- sincere interest in the wellbeing of others shown through socially responsible behaviour
- empathy and perspective-taking ability
- ability to initiate and maintain relationships
- maintaining an attachment to school
- ability to distinguish between positive and negative peer influences.

Such competencies are aimed at shaping the behaviour of young people in order that they should demonstrate the knowledge, skills, attitudes and conduct necessary to live fulfilling and contributing lives.

### *Non-commercial sites*

Many opportunities to engage children in culture, art, science and education are available via the internet. As a non-commercial portal, the American Library Association maintains a site with over 700 links to excellent sites for children. Many non-profit organizations, educational institutions and government agencies are developing online content for children through online community and civic networking projects. UNICEF's Voices of Youth ([www.unicef.org/voy/](http://www.unicef.org/voy/)) provides



online forums for children, global learning projects for classes, and conferences for teachers. The International Education and Research Network ([www.iearn.org/](http://www.iearn.org/)) has member schools in more than 30 countries and features online and offline activities. Some of the most interesting and useful sites for children are the non-profit sites that offer resources for children, their parents and the professionals who work with children. Children can download stickers, art and other items to engage in both online and offline activities.

### *Academic sites*

Of the many websites for children and parents maintained by educational institutions, special interest collections such as children's literature websites are assembled with great attention to detail. Various government agencies have set up informational sites specifically for children, on topics such as conservation and pollution, health and nutrition. The educational, cultural and civic content available on such sites can help children become engaged citizens of the future.

### *Commercial sites*

For the most part, however, non-commercial sites have been overshadowed by the more heavily promoted commercial sites, many of them tied to popular television shows and consumer products. In a US study of the 25 most popular children's sites on the web as of March 2000, only four noncommercial sites were included: *PBS Online*, the *Smithsonian Institution*, *Thinkquest* and *Sesame Street*.

### *Deep learning*

The emphasis on interaction with peers is one component of a theory of learning known as the phenomenographic approach. This theory has revealed two different approaches to learning in students: the surface approach and the deep approach (Grant, 2000). In the sur-

face approach, students tend to have a conception of learning as passive, but in the deep approach students feel a sense of ownership of the material. The learning is said to be significant because students are looking for the point of what is being learned, for links and relationships between ideas, and between ideas and the real world.

### *Social competence and adolescents*

The capacity of youth to make decisions in their own lives, even if those decisions are incorrect, is seen as a road to healthy identity. It is a truism that personal information seeking is the most significant kind of information process. Young adults can accelerate their learning process through an examination of what motivates them and others. Technology can be socially inclusive in this regard, and this is its real strength. A programme development approach is needed. The web can become quite powerful in evoking community within adolescence, because adolescents learn a great deal from one another. Teachers can take advantage of this developmental social need. Programme outcomes for youth can be defined in terms of social competencies rather than academic abilities alone. Critical thinking skills need to be applied to social competencies. Family variables such as parenting style and family communication patterns are found to strongly influence adolescent social competence. S. H. Wee (1999) found significant relationships between the use of internet by secondary school students and gender, English grade, parents' level of education, parents' income, availability of the internet in school and the location of the internet in school. It has also been suggested that the cultural dimensions of information seeking are dependent on the nature of the organizational culture of the school just as much as they are on the individual and his or her background. If this is so, then there is no alternative than to examine the underlying philosophy of the school with regards to student-centred learning. Gullotta (1990) stated that family variables such as parenting style and family communication patterns could strongly influence adolescent social com-



petence. The development of social competence is facilitated by strong social support, through supportive relationships and a supportive sociocultural and physical environment. According to Katz et al. (1995),

There is no one 'picture' of a socially competent person, no specific list of skills that indicate competence, and no one way to enhance social competence. What has been found to be most effective is a unified effort to ensure that the development, maintenance and enhancement of social competence is appropriate to the variety of differing target populations and contexts, and that interventions occur as early as possible in a child's life. Social competence should be considered an important developmental goal for all children.

Personality development in adolescence precedes the adult role of acquiring skills and attitudes for occupations and is a social adaptation. Besides school peers, family and teachers who aid in this adaptation, books chosen by young adults themselves have the most to offer adolescents engaged in the process of personality developing. According to Grams (1969), reading in adolescence is an emotional rather than an intellectual activity – it is a social adaptation that is humanistic rather than technical in orientation. Social adaptations can be addressed through the development of social competencies. The acquisition of social competencies can be facilitated through the use of technology, and this will preserve the concept of childhood for this generation and beyond. There are key attributes that young people need in order to participate constructively in civil society: intellectual abilities such as reasoning skills for making informed judgements, moral traits, and practical experience in community organizations, from which young people learn how to work within groups.

## Conclusion

It is not surprising that the most effective educational programmes are multidimensional and multilevel and include skills-based approaches with environmentally oriented approaches. If children can obtain what they want, and make critical choices, they will find themselves at a rich intersection of print, electronic media and the affective learning process. They need committed librarians and teachers for this to occur.

Perhaps the best way to enhance learning is to rethink learning and knowledge in order to reform education, and education in the electronic environment begs for reform. Reform can begin with the strong philosophical basis of committed teachers and a healthy environment for all children, away from the classroom as well as in it. Computer programs for children can address a bewildering range of different outcomes and issues, generally because children themselves are developing and changing in so many ways in the years from birth to adolescence. Balancing the beneficial and negative effects of computers requires an understanding of childhood, especially the difference between human knowledge and today's computer programs. Human perceptual and conceptual capabilities bring an aspect of improvisation and reinterpretation to every human action. Computers cannot replicate these abilities – they cannot self-filter. If inertia haunts the educational system, perhaps a focus on how the child develops social competence is the key to reform. The ways in which educators can create and measure social competencies in the web-based environment may be the wave of the future. It goes without saying that socially competent children and adolescents not only have a sense of belonging, they are given opportunities to contribute to society. It is certain that we cannot go back to the past. As Kay Vandergrift (2000) wrote:

Young people are increasingly being exposed to electronic media during their years in school. There is, at the local and national level, great

support for wiring classrooms and libraries to give youth access to the resources of the Internet. It is essential that as we purchase cable and computers, we also equip the professionals who serve young people with the technological and critical thinking skills to use these tools effectively.

The focus of the educational use of technology must always be how well the children are served, and not just on their ability to help themselves. The recurring cultural paradox of materialism versus individual self-realization makes it clear that youth librarians must live and survive in the real world, and they must help children to do that too, through building communities of their own. The struggle against materialism and the commercialism that feeds it makes it apparent that there are limitations to the electronic environment, but there are also endless possibilities for perpetual connectivity and human development.

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