

Citation:

Fehring, H 2003, 'The new generation of e-learners: Who is thinking of the children?', in e-Learning Conference on Design and Development 2003: Instructional Design - Applying first principles on instruction, Melbourne, Victoria, Australia, 10-14 November 2003.

The New Generation of e-Learners. **Who is thinking of the children?**

A/P Heather Fehring

Introduction

Young e-Learners of the 21st Century are currently 4 – 5 years old. They are sitting at computers for hours on-end playing games that utilize the insidious cognitive learning strategies devised by psychologists involving 'Operant Conditioning'. They are subtly and subliminally encouraged to believe that killing and decapitating a small cute flying dragon has nothing to do with reality. At 6 years of age they are accessing information through human-computer interaction (HCI) (Preece, 1994), hyper linking through virtual cyber space and integrating multimedia texts of unknown origins to find material for a school project. They sit in non-ergonomically designed furniture motionless for hours concentrating on bright colourful screens designed to capture, conquer and suppress the physical active that is required to develop growing bodies. Who is looking after the children of the future? Do instructional designers consider the complex interaction of learning styles of human beings? Whose responsibility is it to design, develop and mass-produce web-based educational system (WBES) that actually take into consideration the physical, cognitive, educational and social needs of the new generation of e-Learners?

This paper raises issues that need to be given a great deal more consideration for the future generations of young learners utilizing the powerful medium of HCI. We need to consider the increasing necessity for the new generation of HCI users to be not only multiliterate, but also, critically literate (Fehring & Green, 2001) in order to be empowered as learners. The one-size fits all model cannot be sustained when we take into consideration Howard Gardner's theory of multiple intelligences that includes the following types of intelligences:

- ❑ Linguistic
- ❑ Logical-mathematical
- ❑ Spatial
- ❑ Musical
- ❑ Bodily-kinesthetic
- ❑ Interpersonal
- ❑ Intrapersonal
- ❑ Naturalist (Gardner, 1983, 1993, 1998).

Context

Students in the 21st century live in an amazing world dominated by ICT (Information Computer Technology). Their education is still driven by a 20th Century Outcome Based philosophy of curriculum design (Spady, 1993). As indeed it is currently for all of us in the workforce. The measurement of academic capital is successful achievement of outcomes specified in an educational course or workplace contract.

ICT is perceived to be a way of overcoming issues of equity and achieving success for all. Online learning communities are seen as a major policy focus for many, education systems, for example, the following governmental policy initiative within Australia.

The Commonwealth Government's *Backing Australia's Ability Action Plan* (January 2001) identifies \$34.1 million, to be matched by states and territories, for The Learning Federation initiative, to fund a five year program of developing online curriculum resources, services and applications for all Australian schools. One of the objectives of the initiative is to " *make high quality online curriculum resources readily available to Australian school systems so they can fulfil their responsibility of ensuring young Australians have essential skills and knowledge for the twenty first century*". (BAA Policy Launch, Fact Sheet), http://www.isr.gov.au/iap/policy_launch/templates/fact22.doc (dk2, 2003, p. 9)

The Victorian Government is acknowledging and meeting this challenge through their statewide e-learning strategy vision "to be recognized as a world leader in the use of technology to support teaching and learning ... in preparing Victorians to maximize the opportunities of the global information economy." (*Maintaining the Edge – Strategy Overview 2000 – 04, 2000*). (dk2, 2003, p. 10)

In addition, one of the Department of Education and Training, Victoria (DE&T Victoria) policies regarding the infrastructure to support ICT in schools is *Bridging the Digital Divide*.

The *Bridging the Digital Divide* initiative ensures equity of access to information and communication technology for all students, regardless of socio-economic or geographic disadvantage. The 2001/02 State Budget provided \$23 million over three years for additional computers and networking, as follows:

- ❑ \$13 million to bring all students to a 1:5 computer to student ratio and to improve the age profile of computers in schools
- ❑ \$9 million to provide improved internet access to schools
- ❑ \$1 million to provide computers to enhance distance education for students (dk2, 2003, p.11).

This is but one example of government initiatives all over the world supporting educational systems to cater for the new generations of ICT users.

Issues Related to Young e-Learners of the Future

Kindergartens in the 21st Century are introducing computers into their play environment. Computer equipment (chairs, desks, computer screens, laptops) that has standard adult and industry designed specifications but has not been specifically designed for children. Standard keyboards are not designed for hand spans of 3 - 4 year old children. Such equipment has not been ergonomically designed for the physical stature of kindergarten nor primary school children. We are already witnessing young children developing inefficient keyboard skills because we are not teaching touch-typing skills to these young learners until after inappropriate habits have already been established. We have young learners spending hours a day on computers both for pleasure and for schooling. Young children email each other regularly and for extended periods of time, they are surfing the Internet for information to complete project work, they are involved in extended courses designed for schools to overcome the disadvantage of scarce resources. Perhaps more significantly they are involved in educational games where they create personalities and relationships, raise children and control the lives of the participants in a simulated environment. We are already starting to count the costs in terms of inappropriate chat room contacts, social isolation and poorly developed interpersonal skills, physical issues related to poor posture and eyesight related issues for children with vision problems. This is not to imply that there is an automatic need for censorship or the banning of products that flood the markets related to e-Learning, computer games, use of the Internet or email communication.

There are gender issues reemerging in the 21st Century related to the ICT industry. In the 20th Century we had gender issues related to the content of texts, gender biased practices in our schools and the workforce and gender biased occupations that had to be challenged. In the 21st Century we are beginning to see a similar situation emerging but this time the context is ICT. For example, there is a growing awareness that the content of some of the current computer games is gender biased. It is very interesting to note that there is not one female in the Australian team going to the World Cyber Games to be held in Seoul, Korea in December 2003. Computer games seem to be dominated by violence, aggression and competition: traits that would historically appear to be more male characteristics. The following question emerges "Is there a gender bias in the language, logic, multimedia material selected and the types of illustrations used to represent situations in curriculum programs?" This question raises significant educational ramifications in relation to equity and the design of curriculum.

Curriculum Considerations and the Human Element

The holistic nature of educational experiences has taken a back seat to the outcomes based content driven instructional designed curriculum. The dominance of current technological capabilities has overridden the need to consider the student as a social

being in a global environment that in actual fact demands more social interaction and people skills than ever before.

Instructional designers involved in e-Learning need to work in partnerships with a range of educational professionals to produce the very best teaching and learning environments possible. As educators we need to revisit and give serious consideration to such issues as diversity in learning styles, gender related curriculum and the human and societal consequences and costs of social isolation.

Learning Styles

The theories of Multiliteracies (Cope & Kalantzis, 2000) and Multiple Intelligences (Gardner, 1983, 1993, 1998) have been around for a decade or more. Multiliteracies refer to the ability to be literate in a multiple of media. The generic term literacy refers to reading, writing, speaking and listening in a written and oral language. However, learners in the Information Age must access, understand, transform and transmit information at an exponential rate.

Accessing information requires identifying and finding printed, oral, and graphic information; *gaining* information requires comprehension, analysis, synthesis, and evaluation; *transforming* information requires writing, speaking, and representing; and *transmitting* information means publishing or disseminating transformed knowledge (Kibby, 2000, p.380).

In conjunction, Multiliteracies incorporates numerous other forms of communication, such as: the ability to be mathematically literate, visually literate in terms of graphics and literate in terms of the many forms of multimedia communication. The dimension of literacy has expanded considerably and is being incorporated into the daily routine of primary and secondary school students and teachers throughout the world.

In schools of the 21st Century Howard Gardner's theory of Multiple Intelligences (Gardner, 1983, 1993, 1998) have important educational consequences for all design features in educational programs. Gardner's Multiple Intelligences theory relates to the following identifiable abilities:

- ❑ Linguistic
- ❑ Logical-mathematical
- ❑ Spatial
- ❑ Musical
- ❑ Bodily-kinesthetic
- ❑ Interpersonal
- ❑ Intrapersonal
- ❑ Naturalist.

The singular text based curriculum has vanished and has been replaced by curriculum incorporating diverse and flexible delivery of content and processes. All teaching and learning environments need to capitalize on these theories of learning and communicating. The multimodal presentation of information through e-Learning possibilities needs to be capitalized for all learners.

In addition, the notion that teaching and learning is a social activity requiring the interaction of human beings is still fundamentally important to the creation of effective learning environments. Interactive participation by learners is a facet of e-Learning capabilities that is still in its embryonic stage. Techniques are still being developed for 'realtime ' interaction. However, unless as educators, we keep this fundamental learning tenet a priority for all of us involved in the development of educational material and programs it may well be displaced for an economically rationalized alternative such as on line chat sessions.

The development of re-usable learning objects (RLOs) that are universally generic and therefore cannot be context specific must now address the issues of gender bias, inappropriate meta-tagging and stereotyped and outdated concepts. For example, there is tendency for instructional designers to build into curriculum courses for children cartoon-based characters, sitcoms and comedy in the belief that this will appeal to primary school students and students in the Middle Years. Such situations can be very sexist in their orientation, out of touch with the reality of the psychology of the audience and unrelated to the complex concepts that are being covered in the curriculum.

It is the combination of these three above mentioned factors (learning styles, social communication and gender issues) that needs to be reexamined in relation to the current status of e-Learning in the ICT world. There are a number of simple features that can be built into our online learning environments (Snyder, 2000). For example, there is a need for all of us involved with education to embed critical literacy skills in our curriculum programs and courses. Neil Bechervaise and Peter Chomley at this forum on e-Learning call it "the exponential generation of unqualified information" (Abstract). For example, a simple and elementary concept of challenging the source of the information that our students soak up as if by osmosis through Internet searches could easily be built into our courses and programs. The following table in a course guide or online learning program may well encourage very young children to begin to challenge the sources of information presented by nameless individuals in data bases transported through hyperspace from a virtual reality.

Research and Critical Literacy Skills

Threaded through this course are skills, which require you as a learner to be able to research information with increasing levels of sophistication, and demonstrate the ability to be critical literate.

To begin this process please investigate the following web site form the John Hopkins University Library Web page.

www.library.jhu.edu/elp/useit/evaluate/index.html (accessed 8.11.2003)

This is web site checklist will assist you in the process of making value judgements about information you retrieve off Internet sources.

When you research Internet sites for information use a diversity of search engines. Although most of you will use www.google.com and www.metacrawler.com try Alta Vista, Infoseek or Hotbot.

More importantly ask your education librarian liaison staff for the 2004 updated information regarding the current library data base access recommendations.

In addition, a core component of every course or program could be an offline cooperative learning group, peer group, or small group task. Such an activity can contribute to the social interaction between humans that is a fundamental aspect of any workforce requirement. Have you ever seen a job description that does not ask for “good interpersonal skills”? This attribute begins in kindergarten, develops in primary and secondary schools and is a desirable skill in the workforce. It is not developed in an isolated fully online course with the occasional asynchronous or synchronous chat session between students and/or teachers.

Conclusion

My proposition is simple as educationists we need to rethink the notion of holistic curriculum design. Flexible delivery, mixed mode and multimodal dimensions of curriculum need to be embedded into our programs for 3 year old to life long learners. This is the responsibility of each and every one of us in the chain of planning, designing, production and delivery of education programs.

References

- dk2. (2003). Distance education center Victoria. Center for excellence project evaluation report. Moonee Ponds, Victoria: www.dk2.com.au
- Cope, B., & Kalantzis, M. (Eds.). (2000). *Multiliteracies. Literacy learning and the design of social futures*. London & New York: Routledge.
- Fehring, H., & Green, P. (Eds.). (2001). *Critical literacy. A collection of articles from the Australian Literacy Educators' Association*. Newark, Delaware: International Reading Association.
- Gardner, H. (1983). *Frames of mind. The theory of multiple intelligences* (Tenth Anniversary Edition ed.). New York: Basic Books.
- Gardner, H. (1993). *Creating minds*. New York: Basic Books.
- Gardner, H. (1998). A multiplicity of intelligences. *Scientific America Presents: Exploring intelligences*, 9(4), 18 - 23.
- Kibby, M. W. (2000). What are the demands of literacy in the workplace in the next millennium? *Reading research Quarterly*, 3(July/August/September), 380 - 381.
- Preece, J. (1994). *Human-computer interaction*. Harlow, UK: Addison-Wesley.
- Snyder, I. (2000). Literacy and technology studies: Past, present, future. *Australian Educational Researcher*, 27(2, August), 97 - 119.
- Spady, W. G. (1993). *Outcome-based education* (Workshop Report No.5). Belconnen, Australian Capital Territory: Australian Curriculum Studies Association.

