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# **Continuing Professional Education For the Information Society**

The Fifth World Conference on  
Continuing Professional Education  
for the Library and Information Science Professions

Edited by  
Patricia Layzell Ward

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## TABLE OF CONTENTS

Dr. Elizabeth Stone Blanche Woolls.....	9
Foreword..... Ian Johnson and Diann Rusch-Feja	11
Introduction..... Ann Ritchie	13

### CPE: DEVELOPING TOMORROW S LEADERS

<i>Filling the Empty Chair: Succession Planning Strategies for Senior Information Management Posts in Higher Education</i> .....	15
Christine Abbott	
<i>Staff Development and Continuing Professional Education: Policy and Practice in Australian Academic and Research Libraries</i> .....	25
Ian W. Smith	
<i>Retooling Cataloguers and Indexers for the Information and Knowledge Management Society: A Needs Assessment for Continuing Professional Education in the UK and the US</i> .....	39
Patricia A. Lawton	
<i>Opportunities and Strategies for Continuing Professional Education In India Through Distance Mode</i> .....	49
Dinesh K. Gupta and S. B. Ghosh	
<i>The SEFLIN Technology Training Program: Linking Lifelong Staff Learners Through Continuing Professional Education</i> .....	61
Bruce E. Massis	
<i>Knowledge Management and Information Literacy: A New Partnership in the Workplace?</i> .....	70
Jan Houghton and Sue Halbwirth	

## CPE: DEVELOPING INFORMATION LITERACY

<i>Cognitive Apprenticeships in Education for Information Literacy</i> .....	80
Penny Moore and Nicki Page	
<i>Teachers Continuing Professional Education in Information Literacy: The Case Study of French Secondary Schools</i> .....	94
Viviane Couzinet	
<i>Learning to Learn: An ICT Training Model to Support Ongoing Professional Development and Change in School Libraries</i> .....	105
Dorothy Williams	
<i>Information Literacy for Mere Mortals</i> .....	115
Susie Andretta	
<i>Information Literacy: Helping Librarians Apply the Research to Teaching Information Skills to Patrons: The Importance of the Human Interface</i> .....	126
David V. Loertscher and Blanche Woolls	

## DEVELOPING GLOBAL CPE

<i>East-West Co-operation Between Bio-Medical University Libraries: Information Skills for Albanian Librarians</i> .....	134
Elisabetta Marinoni, Pierangela Mazzon and Maurizio Tiziano Moretto	
<i>Local Touch, Global Reach: Transborder CPE in Texas-Mexico</i> .....	139
Barbara Immroth	
<i>Promotion of the Information Research in the Republic of South Africa, DISSA-net: 1988-2000 in a Social and Intercultural Perspective</i> .....	143
Irene Wormell	
<i>Special Libraries Association's Global 2000 Conference Leads to Creation of a Community of Practice for Developing Country Librarians: A Case Study</i> .....	150
Sue O'Neill Johnson and Judith J. Field	
<i>Global Continuing Professional Education Via the Web: The Challenge of Internationalisation</i> .....	157
Anna H. Perrault and Vicki L. Gregory	
<i>Continuing Education for LIS Professionals in Canada</i> .....	167
Fiona Black, Judy Dunn, Rhonda Miller and Stan Skrzyszewski	

## VIRTUAL DELIVERY OF CPE

<i>Successful Faculty Participation in Distance Education: What Research and Experience Can Teach Us</i> .....	182
Pamela P. Barron	
<i>Developing a Model for Web Enhanced Continuing Education Programs for LIS Professionals</i> .....	188
Uma Kanjilal	
<i>Learning to Teach in the Virtual World</i> .....	196
Lynne Rudasill	
<i>Web Based LIS Education: Potentials and Feasibility of Regional Models</i> .....	205
Kornelija Petr, Radovan Vrana and Tatjana Aparac	
<i>Digital Professional Education for Digital Librarians</i> .....	214
Alastair G. Smith	
<i>CPE Anywhere Anytime: Online Resources for the Information Society</i> .....	224
Lesley Moyo	

## QUALITY ISSUES IN CPE

<i>Quality Control and Assurance for Continuing Professional Education</i> .....	232
Jana Varlejs	
<i>Chasing Certificates: Problems of CPE Assessment and Quality Assurance Within the South African National Qualifications Framework</i> .....	243
Clare M. Walker	
<i>Continuing Professional Education as an Ethical Issue</i> .....	256
Jitka Hurych	

# **INFORMATION LITERACY: HELPING LIBRARIANS APPLY THE RESEARCH TO TEACHING INFORMATION SKILLS TO PATRONS: THE IMPORTANCE OF THE HUMAN INTERFACE**

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**Abstract:** The paper traces the use of the term 'information literacy' from 1974 noting that a variety of definitions have been attached to the term. Many activities carried out in the past have been subsumed under information literacy. Collections have grown in size and complexity as a result of technological sophistication. The authors have carried out extensive research into the use of information in basic education and comment on research in the school setting but which has value to all librarians especially those working in public libraries with children. Focussing on how more adults can become information literate they draw upon the literature and personal experience to identify 10 approaches which can assist this process, and comment on the role of continuing education providers.

## **INTRODUCTION**

The term, 'information literacy', was first used in 1974 by Paul Zurkowski, then president of the Information Industry Association, in a proposal he submitted to the U.S. Government. He suggested that information literates were "people trained in the application of information resources to their work... They have learned techniques and skills for utilizing the wide range of information tools as well as primary sources in molding information-solutions to their problems."<sup>1</sup> Between 1974 and the present, a variety of definitions have been attached to this term, and many activities conducted in libraries in the past under other names such as teaching the card catalogue, bibliographic instruction, library skills, have been subsumed under 'information literacy'. Certainly it has been the role of the librarian in all libraries to teach patrons how to apply information resources to their work, whether writing school reports or finding out the cost of shipping materials to another country. Librarians, beginning in elementary school and continuing through higher education, and through the public library, have taught the techniques and skills to use a wide range of information tools to solve problems. What has happened in recent years has been the change in information tools available.

In most developed countries, libraries and information systems were quite predicable at least until a decade ago. Librarians offered their patrons a collection of printed books, a print reference collection, and an indexed periodical collection, in the US, indexed by the H.W. Wilson Company. The major difference between libraries was not the indexing systems used, but the size of the collection available. Learning Wilson's *Reader's Guide to Periodical Literature* opened not only access to the few periodicals owned locally, but the same index could be used in the school, public, academic, and special library. Library skills taught to students of all ages consisted mostly of acquaintance with classification and periodical index searching.

With the arrival of the Internet, online databases, and digitised information, collections not only grew exponentially, but also in complexity. At the same time,

patron access became unpredictable because of the technological sophistication needed to access information both locally and beyond. Collection development became 'not what you owned', but 'what you provided access to'. Suddenly reference librarians changed from intellectual sleuths into computer searching troubleshooters.

Equally as suddenly, librarians who had been educated before 1980 had little expertise in a technology rich environment. Neither did teachers of young people or adults. As high tech information systems were installed, everyone was reduced to being novices. And as time has passed, many have never gained sufficient expertise to cope, either as a user of information systems or as a teacher of information systems. It has been the responsibility of continuing education providers to help bridge the gap between librarian as novice and the technologies available, and to help them become able to share this knowledge with their patrons. The technologies continue to change and make it even more difficult to 'keep up'.

Speaking of technological connectivity, the *National Geographic* recently reported that "The Internet drives demand. International telephone calls continue to increase, but phone use can't keep up with Internet traffic, which doubles every year. The volume of data transmitted on U.S. long distance lines should exceed voice traffic within a year [2002]; world crossover will follow soon. Predictably, most traffic flows between countries with the best technological infrastructures. More than 96 percent of computers connected to the Internet are in the wealthiest nations, home to 15 percent of the world's population."<sup>2</sup>

From the poorest to the wealthiest nation, implementing the concept of information literacy moves the librarian from helping patrons find information, to helping them sort through the available information and use it to problem solve. The continuing education provider plans the programs to move the novice into the mainstream of helping patrons become information literate. Understanding and using the research on information literacy helps the provider and the librarian as student, and ultimately the patron in the best possible environment to succeed. Well planned continuing education experiences improve the librarian as human interface with patrons who are putting information literacy skills into practice.

## **MESSAGES FROM THE RESEARCH**

Because the authors have done extensive research on the development and use of information literacy instruction in basic education, the research reported here is more often directed to the school setting. However, the points made are applicable to all types of librarians, but particularly to librarians working in public libraries with children.

The essential nature of a human interface in an information rich environment with librarian as a coach and a guide, presumes that there are many adults who are already competent in the new information world, and already possess superior skills of locating and sorting information and only children need to be taught. This is not true.

Tallman and Henderson<sup>3</sup> wondered about the adults in children's lives, questioning whether adults had the mental models adequate to deal with the far reaches of the online world. In their study, when adults discovered that their mental models were incorrect or needed to shift, some made a successful transition mentally, but others did not. The information guides and coaches for children needed training and retraining themselves to function effectively. This research points to the need for school librarians to work closely with teachers.

Another problem with teachers is their awareness level of potential electronic information sources even when a school librarian is present. Thomas<sup>4</sup> found that vocational education teachers in four comprehensive high schools were not often familiar with major databases and spent little time in planning to incorporate information literacy skills. The mere installation of an extensive information rich environment did not yield immediate results even when the faculty had been involved in the planning.

Yitzhaki and Bibi<sup>5</sup> found that senior high school students in Israel preparing their final major research paper received very little guidance from adults in doing the project, and almost no instruction in the use of library resources. Perhaps they were being left alone to see how sophisticated they were as they were about to graduate, but the researchers were not impressed by these students' reported use of information sources, technology, or libraries. Thus, the human interface may be present, but does the learner take advantage of it?

In an interesting Australian study, Henri<sup>6</sup> asked 91 teachers who were taking a foundation course to become a library media specialist, to track their progress through a major research project. To gather the data, he used questionnaires, self efficacy rating, diaries, drafts, thinking logs, and think aloud protocols. Henri concludes:

"The study indicates that teachers demonstrate much of the impoverished information behaviour shown by senior school students that has been identified by other studies. On the other hand, teachers do demonstrate a more robust use of higher order thinking skills than portrayed by senior students. The study confirms the reliability of Kuhlthau's ISP particularly in terms of the affective cycle of uncertainty through certainty. The study also demonstrated that teachers are vague on issues of focus and closure. Like students, teachers see the information task as one of finding the right answer rather than one of finding a good answer.

The study suggests that caution should be taken in expectations that teacher librarians are equipped to role model good informing practice and act as role models for class teachers. It suggests that in writing about the role of the teacher librarian in developing an information literate school community it is important to distinguish between qualified and unqualified teacher librarians. What this study demonstrates is that unqualified teacher librarians are no better equipped to employ an information model than are their classroom colleagues. Whether or not qualified teacher librarians are equipped to act as informing mentors remains to be tested" (pp. 127-28).

Moore's<sup>7</sup> Australian study observed teachers attempting to teach information literacy skills without a school librarian. She watched children in various stages of the research process and then mused that children's understanding of the task at hand was a function of how well the teacher explained the task.

"Teachers were surprised by the sophistication of children's thinking in some cases and dismayed by lack of skills in others, but all emerged with a clear understanding of the need to address information problem solving skills explicitly in the classroom... The most compelling aspect of the study for some



of the teachers was the change they observed in children's learning outcomes' (p. 131).

Yet Moore was not impressed with the ability of any of the teachers who had had an inservice about information literacy to deliver good instruction.

Wolfram, Spink, Jansen, and Saracevic<sup>8</sup> after studying Web searching for several years reported at various stages. They examined information searching behaviour on the EXCITE Web search engine by users of all ages. Most users did extremely simple searches or multiple simple searches with almost no use of Boolean logic or other more sophisticated search strategies. Instant gratification rather than persistence was the obvious strategy.

## WHAT IS TO BE DONE?

The question of how all types of librarians can prepare and encourage more adults to be information literate, and able to educate the next generation of information users, is an interesting one. It remains as much a state of mind as it is a set of tool skills that keep evolving as information systems evolve. It is up to the continuing education provider to ensure that staffs have the proper state of mind and keep up with the evolving set of tool skills. The ideas here have been encountered in the literature as well as through the experience of the authors:

- 1 **Do Little or Nothing.** Expect that both children and adults will naturally learn many ways of dealing with information systems as they encounter them and practice. Most children, teens, and adults who are connected to the Internet use common search engines. Through trial and error and through suggestions from friends or colleagues, they bumble through, finding as much by serendipity as actual skill. They develop bad habits, to be sure, but for many, their ignorance and inefficiency if often viewed as a pesky irritation rather than an awareness of lack of skill. The general population comes to information systems with a wide diversity of critical thinking skills and information organisational abilities. These will sharpen naturally as they try to navigate their way through various information systems – call it the survivor instinct at work. Thus, professionals will encounter within the general population a wide variety of sophistication in information location and information handling. They will encounter the self taught expert beside the novice interspersed with the bumbler. After all, some children and even adults can learn to ride a bicycle even if no help manual is available. For others, the mere pointing to the manual or to the self help portion of a computer program or information system is all that is needed. These self starters will actually do some reading of the screen, using help menus, and may even consult a training video or short course. Such people may be motivated by a major project they are confronting or their simple desire to know and understand. The problem with this approach, of course, is that many patrons build bad habits and have an inflated sense of their expertise simply because they don't know what they don't know.

- 2 **Purchase and implement information systems that are more intuitive and have excellent built in help menus, tutorials, quick assists, wizards, or other self help features.** Search engines get better and better over time as competition for the library dollar drives vendors to make improvements. Meta search engines, for example, might replace the need to search thirty databases separately by doing one search through many databases. Vendors need librarians to provide feedback from users as these new technological features are implemented. When continuing education providers teach librarians about information systems, the group process can be used to share information.
- 3 **Create brief help guides.** Librarians need to learn how to create help menus or tutorial systems when they are lacking. Continuing education providers must teach how create guides for all ages. They can encourage librarians to ask an information literate person to work with them in creating these guides. Some examples of brief help guides might include:
  - a. Helpful bookmarks available near searching terminals or as clicks off the library home page
  - b. Instruction sheets both print and electronic
  - c. Brief manuals or how-to tutorials either print or electronic

Often the mere necessity of creating a tip sheet or directions manual requires the preparer to gain enough expertise to teach someone else.

- 4 **Encourage librarians to teach alongside another adult in the role of a colleague and an information coach.** Librarians have many opportunities, particularly school and public librarians to jointly teach learners of any age. Building an information skill into the teaching forces both teaching partners to increase their expertise as they assist others.
- 5 **Ask librarians to create a new information literacy model after comparing and contrasting a number of published models.** Developing understanding of information literacy can be enhanced quickly when a group of adults who don't understand the concept suddenly have to compare and contrast already published information literacy models. During their comparison, group members participate both first in sense making and then in creativity as they adopt other's ideas to make them their own. Such an activity with groups of 4 to 6 usually take about an hour and provide a strong base for advanced thinking about and application of information literacy principles. To merely give a group of adults a copy of an information literacy model with a brief introduction does not guarantee true understanding. Only when adults take an active roll in model development do they begin to grasp the meaningful concepts.

- 6 **Lead librarians through a simulated or actual research project having them apply an information literacy model as they progress. They can then work with adults to replicate this.** When a group of librarians must pursue for themselves a typical problem solving task they expect of others, they might learn more about the pitfalls of the tasks they assign to others. A teacher who expects students to do research on topics for which there is little or no information in the library will suddenly realise the folly of the assignment. On a different task, library administrators who make impossible demands on their staff might learn how to design tasks/assignments better if they suddenly have to experience what they require.
- 7 **Teach librarians in both school and public libraries how to help teachers integrate information literacy models into process models of their own disciplines.** A little probing of various disciplines can reveal a wide variety of teaching strategies that mirror the goals of an information literacy model. By integrating these, both the librarian and the teacher may find 'marriages made in heaven.'<sup>9</sup>
- 8 **Learn how to integrate an information literacy model into curriculum or governmental standards of a particular discipline.** Teachers who are faced with 'standards' or testing mandates benefit greatly when they help integrate information literacy principles into their own agendas. The very act of integration will require the librarian and the teacher to internalise both sets of goals so that as teaching activities develop, a natural integration emerges.
- 9 **Integrate an information literacy model into technology standards or goals to teach process and technology expertise simultaneously to library patrons.** As new hardware, software, networking, and other technological advances become available in schools and libraries, librarians and patrons, realising the potential of the new devices, use these new opportunities to further the agendas of both librarians and patrons.
- 10 **Ask librarians, after a training session, to analyse their information literacy teaching for a month. What steps of the information literacy model are covered regularly? Rarely? Almost never?** Librarians tend to concentrate their teaching on the finding and location of information, ignoring or assuming that learners already have expertise. Some librarians regularly teach their favourite topics such as web-site evaluation or plagiarism. Yet other critical pieces of the information literacy model go wanting. Such an analysis can lead the trainer and the librarian to a discussion of how to teach tough topics such as synthesis of gathered information.

## CONCLUDING THOUGHTS

As librarians respond more and more to the Internet and to other digital information sources, they must discover ways to provide high quality subsets of information rather than just turning users loose on the chaos of the Internet. However,

the complexity of the new information systems requires quantum leaps in both connectivity and in searching skill across many varied information systems and searching engines. Librarians are being left behind if they do nothing to upgrade both their connectivity and their information literacy skills. Continuing education providers must help them understand the research and apply it helping their patrons. While librarians could, as this paper suggests, allow both adults and children to founder in an ocean of information, the better strategy is to take a leadership position, first by becoming more and more information literate themselves, and then employing strategies to help the patrons in our organisations to increase their sophistication. The power of information systems keeps improving without an equal gain in the sophistication of users. While it is possible that information systems will become more and more user friendly and assistive, it appears that the human interface, the librarian, will be needed for some time. It is up to continuing educator providers to make it possible for them to learn the best methods, based upon the research, to become the best human interface possible.

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