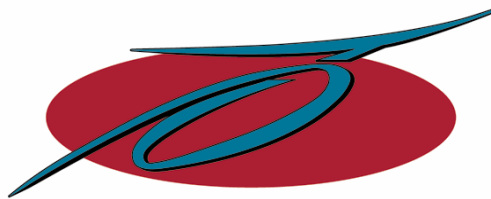# Linking Adult Literacy and eLearning:
What Needs to Be Done

Research Summary and Policy Recommendations For

- **An ePortfolio for All**
- **Literacy for eLearning**
- **eLearning Leadership**

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1. Executive Summary

For ABC CANADA Literacy Foundation, FuturEd Inc. conducted a two year study linking adult literacy and eLearning in Canada 2003 and 2004. This research study addressed the need to understand and evaluate approaches and innovations in adult, workplace and family literacy programs in the face of limited resources, competing demands for investment, and public policy imperatives. Based on this research project and extensive experience in adult literacy, eLearning and public policy analysis, FuturEd recommends that the Government of British Columbia:

1. set measurable targets and improve the adult literacy statistics in BC by systematically providing access to computers, the Internet and eLearning / ePortfolios to all potential adult literacy learners in communities and in workplaces – the statistics about adult illiteracy have not changed in more than 20 years and the public no longer believes there is an issue;

2. immediately and systematically implement a public policy initiative to ensure each and every British Columbian has an ePortfolio for motivating and managing lifelong learning and human capital asset management by 2010, beginning with teachers and tutors at all levels in the public education system – this is a fundamental shift from a deficit-based model to an asset-building model, i.e., to a focus on what people CAN do rather than what they can't;

3. fund the creation of a collaborative online service for adult learners at the basic skills level, along the model of Campus Canada or BCcampus, to provide a clearinghouse function and learning / ePortfolio management for both adult literacy learners and learning providers – there is far too much reinventing of the wheel;

4. require that all provincially-funded eLearning products and services meet the Canadian Recommended eLearning Guidelines (quality standards) for sustainability of the Canadian eLearning enterprise – there is far too much variability in the quality of eLearning and absolutely no regulation;

5. require that all provincially-funded programs study and demonstrate Return on Investment for learners – this is easy to do and FuturEd, with ABC Canada, has developed tools to use;

6. support the eLearning industry in BC to ensure quality in innovative and appropriate tools and services for lifelong learners in British Columbia and beyond – other provinces support their industry and this jeopardizes the viability of the BC eLearning industry.

These are informed opinion of FuturEd, and not necessarily those of ABC Canada Literacy Foundation. FuturEd recommends, without reservation, that a radically new approach to adult literacy is needed and possible. What we have been doing simply hasn't worked.

2. Introduction

As an innovation in the learning environment, the use of Information and Communications Technologies (ICT) and eLearning presents challenges and opportunities. It is continuously evolving and requires scrutiny to maximize the potential. The advantages and utility of eLearning, for learners in general, are well known. They include, but are not limited to, increased access to education opportunity, increased individualization, targeted skills and knowledge development, and accommodation of diverse learning styles. These advantages are being extended to all learners, including adult literacy learners.

For ABC CANADA Literacy Foundation, FuturEd Inc. conducted a two year study linking adult literacy and eLearning in Canada 2003 and 2004. This research study addressed the need to understand and evaluate approaches and innovations in adult, workplace and family literacy programs in the face of limited resources, competing demands for investment, and public policy imperatives. The general public, literacy practitioners, learners and their advocates, academic institutions and policy makers have many unanswered questions about the utilization, effectiveness and efficiency of eLearning and the use of ICT in learning systems in general, and literacy in particular. They all want to capitalize on advantages and reduce or remove perceived problems. In a 1999 study of literacy programs, policies and practices for (then) Human Resources Development Canada, Barker found that: "While evidence suggests considerable advantages in using learning technologies in adult literacy programming, some question their effectiveness and appropriateness".[1] The general public and policy makers want to see the "digital divide" reduced, overall literacy levels increased, and all learning systems using innovations to advantage.

This research project was conducted in four phases:
1. creation and updating of a "snapshot" of the eLearning products and services currently in use in both 2003 and 2004 through a survey of the literacy and eLearning communities;
2. exploration of quality and return on investment issues, through the creation and application of specialized tools;
3. examination of innovations and new eLearning services, specifically the ePortfolio; and
4. analysis of relevant adult literacy, eLearning and lifelong learning literature and policies, with public policy suggestions.

This policy-specific document, with implications and recommendations, is the expressed views of FuturEd and Dr. Kathryn Chang Barker.

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[1] *Adult Literacy Policies, Programs and Practices: Lessons Learned Final Report.* (Barker, 1999) Available at http://www11.hrdc-drhc.gc.ca/pls/edd/ALPPP_brf.shtml

Through the Phase One survey of the adult literacy and eLearning communities, in both 2003 and 2004, FuturEd concluded that adult literacy eLearning products and services in Canada include, but are not limited to:

- comprehensive "provincial" services, for some learners in some provincial jurisdictions, which include direct instruction to targeted populations, availability of tutors and mentors, access to chat rooms and other information /communication services, and online portfolios in addition to support and training for literacy workers and programs;
- an entire range of teaching/learning options for adult learners, from basic computer skills, through basic literacy skills to advanced and workplace literacy skills – for general interest and/or for academic credit;
- a growing number of software applications that are relatively new and, as such, have not been subjected to quality analysis;
- support to program providers ranging from tutor training, program management skills, to newsletters and news;
- tools for programs, including student management, financial management, reporting and evaluation tools.

A substantial number of learners are engaged in eLearning – at least 55,000 served by AlphaRoute across Canada. However, based on the notion that eLearning is more than direct instruction, we are not able to deduce how many learners are actually engaged in eLearning or what their perceptions of quality and Return on Investment (ROI) are. One can only assume that since eLearning services are increasing in number and variety, that there is growing support for and demand from learners. In summary, if an adult learner were so inclined, s/he should be able to access online learning. The only limitation would be whether the online program selected registered learners solely on a jurisdictional basis, and the learner lived outside the jurisdiction. Naturally, this should not matter in the online environment, but it often is related to "per student" funding and/or the programs capacity to support unlimited numbers of learners. Similarly, if a tutor or instructor required preliminary training or ongoing support, s/he should be able to access that online if s/he knew where to look. This speaks to the potential of a central clearinghouse for courses or services.

From this project, four interrelated papers are available from ABC CANADA Literacy Foundation:[2]

1. a complete project report with research objectives and outcomes;
2. a "snapshot" inventory of eLearning in adult literacy in 2004 in Canada;
3. a discussion document focused on the latest innovation, the ePortfolio;
4. an extensive "tool" for studying Return on Investment in eLearning; and

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[2] ABC CANADA Literacy Foundation www.abc-canada.org

3. Research Summary and Observations

At the outset of the 2-year study, FuturEd hypothesized that eLearning is among the many tools and approaches in providing learning programs and services in the context of adult, workplace and family literacy. It appeared, in 2003, that the use of eLearning was somewhat limited and at beginning stages only in Canada. This was based on the relatively small number of responses vis-à-vis the number of information requests that went out. There was evidence of some systematic use in the US and in Ontario; typically, the use of eLearning was for informal learning through such student services as chat rooms. In 2003, there were few formal teaching/learning programs online; however, there were considerably more reported in 2004 and the trend is for increasing usage of eLearning in adult literacy.

As well, we hypothesized that, as an innovation in the learning environment, the use of ICT and eLearning presents challenges and opportunities, is continuously evolving and requires scrutiny to maximize the potential. Over the year of study, we witnessed considerable changes and challenges which we continued to monitor. Among the newest uses of eLearning in literacy are "blogging" and ePortfolios for skills assessment, reflective learning, and learning management. These may be evidence of the "potential" of eLearning – a perceptible shift from eLearning as instruction to eLearning as facilitated learning.

Further, we hypothesized that there is an ongoing need to understand and evaluate approaches and innovations in adult, workplace and family literacy programs in the face of limited resources, competing demands for investment, and public policy imperatives. Over Year One, more resources were made available to adult literacy programs by the federal government, making it more important than ever to make informed choices about learning innovations and options. In Year Two, we planned to conduct ROI and quality analysis in order to contribute to policy and purchasing decisions. This proved to be extremely difficult and, despite the acknowledged importance, relatively unproductive.

At the outset of this study, we said that the advantages and utility of eLearning, for learners in general, are well known and they include increased access to education opportunity, increased individualization, targeted skills and knowledge development, and accommodation of diverse learning styles. This would appear to be applicable to the state of eLearning in adult literacy, i.e., programs are developed and services offered to achieve these goals. The actual degree of achievement is yet to be determined, as eLearning programs and services are in very early stages of development. Preliminary self-evaluations indicate that those learners inclined to use technology are satisfied, rated by their desire to access and continue in this learning environment.

We also asserted that this research study addresses the need to understand and evaluate approaches and innovations in adult, workplace and family literacy programs in the face of limited resources, competing demands for investment, and public policy imperatives. The general public and policy makers want to see the "digital divide" reduced, overall literacy levels increased, and all learning systems using innovations to advantage. Over the two years, there has been a perceptible increase in the number and variety of eLearning products and services, and more importantly, an increase in the number of province-wide strategies and in the reach of existing programs / services. It appears that there is both a "band wagon effect" combined with the realty that there are few, if any, real drawbacks to offering ICT-based services to learners and program providers. Despite the increased use of eLearning, however, the adult literacy statistics in Canada have not changed. A number of other things have changed.

In 1999, Barker found that, while there is still resistance and questioning about the effectiveness of using technology among some providers, the overall level of interest in using technology was reported to be high. Online technologies were not being used by the majority of adult literacy programs due to problems of cost, training, inappropriate instruction, integration, and access. Many learners had no access whatsoever. Adult literacy programs were somewhat behind in the adoption and development of technology resources; and economic considerations remained a major impediment. In 2005, circumstances appear to have changed considerably. Online technologies are now being used by a large number of programs, and the issues of cost, training, appropriate instruction, integration and access seem to have been mitigated sufficiently for ubiquitous implementation.

In 1999, according to the National Centre for Adult Literacy, technology was not being exploited because: (1) much of the software lacked creativity; (2) products were geared towards children instead of adults; (3) few literacy providers had sufficient technology for broad sustained use; (4) staff and volunteers had limited knowledge and training in the use of technology as a teaching tool; and (5) consumer electronics and broadcast technologies were surprisingly underused in adult education. Again, in 2005, these issues have been reduced or resolved to an considerable extent.

In 1999, in "Learning Online: Extending the Meaning of Community," Russell and Ginsburg from the National Centre on Adult Literacy emphasized the non-formal and informal learning opportunities available via the Internet.   They said: "current applications of technology within the adult basic education system have not taken full advantage of that potential to adapt adult education systems to incorporate Internet contexts…the capacity of the Internet to provide the transformative and self-directed learning that has been described as the ultimate goal of adult

educators." This has changed substantially, as eLearning service providers are moving away from direct instruction to services such as the ePortfolio, chat rooms, and just-in-time training for both learners and program providers. Information-based online communities now blend formal, informal and non-formal learning - learning not based on the rote, skill building and reiteration of traditional instruction but incorporating developmental attributes associated with adult learners, interactive and generative instructional models, supportive and participatory communication. Through Community Learning Networks and other eLearning innovations, the learning that takes place is more transformative, inclusive of life experience, rewarding, and accommodating of diverse learning styles.

In 2003, Middleton listed the desired features in instructional software, including but not limited to authoring capabilities, an adult orientation, student control, appropriate reading level, collaboration and interaction possibilities, Canadian content, voice-activated software, audio components, feedback, evaluations or quality assurance, and affordability. All of these attributes appear in the emerging variety of products and services for adult literacy learners, but only very recently.

In summation, it is important to note that eLearning, in the overall delivery of literacy programs and services, is relatively new. The inventory in literacy and in other education/training endeavors is relatively narrow but expanding. What is most interesting is the innovation that eLearning represents – new ways to do old things as well as different ways to do different things.

4. Policy Implications and Recommendations

Over the past two years, for ABC CANADA, FuturEd has examined various facets of eLearning and adult literacy in Canada: quantity and quality, innovations and attitudes. Papers have been prepared that present an inventory of eLearning in the context of adult and workplace literacy in Canada, and on innovations such as the ePortfolio and Return on Investment in eLearning. As well, attempts have been made to explore and assess eLearning quality, ROI and impact. This final section attempts to answer the question: *so what does this all mean, for adult learners and for public policy intended to address their needs in Canada?*

This paper represents the informed opinion of Dr. Kathryn Chang Barker, FuturEd,[3] and not necessarily those of the ABC CANADA Literacy Foundation. Barker has a long list of publications and presentations on eLearning, literacy and the ePortfolio (Appendix A). This paper begins with the current context for a discussion of adult literacy and eLearning issues and policies, and concludes with policy issues and options. On the one hand, it is noteworthy that eLearning is relatively new to the adult literacy community, and time will improve the type and amount of eLearning utilization. On the other hand, this is most likely to happen if viewed from the context of addressing persistent public policy problems in Canada.

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[3] These view are informed by the following relevant experience:
- 25 years experience working in the field of adult and workplace literacy
  - completion of the "Lessons Learned in Literacy" project for EDD/HRDC
  - past Board membership on the Movement for Canadian Literacy
  - completion of various projects for the National Literacy Secretariat, e.g.,
    - a Guide to Work Skills Analysis Tools,
    - a Guide to Return on Training Investment,
    - an exploration of the Electronic Learning Record
- considerable expertise with learning technologies and ICT
  - service on the Advisory Network of Experts to the OLT
  - undertaking of a study of virtual secondary schools in Canada (for SAEE)
  - undertaking of a project to generate quality standards for on-line education products (for OLT)
  - creation of the Consumer's Guides to Learning for CanLearn Interactive
- considerable understanding of HRDC policies and priorities
  - preparation of the policy rational for CanLearn Interactive
  - preparation of a framework for a national lifelong learning policy for HRDC
- extensive connections within Canada's education and training system, having:
  - worked with the Canadian Labour Force Development Board as Education Liaison
  - currently serving on the Board of the Canadian Education Association
  - worked with representatives of CMEC and Industry Canada on projects
  - an established reputation as an education futurist

4.1. Relevant Public Policy Problems

The context for a discussion of eLearning and adult literacy policy is the intersection of pressing challenges of increased literacy demands that incorporate ICT skills, the need for eLearning coordination in Canada, and the persistent Digital Divide. These are public policy problems to be addressed, and the obvious policy solutions build on current government priorities and eLearning innovations, especially the ePortfolio.

4.1.1. Adult Literacy and ICT

In the area of adult literacy, the public policy problem is that adult literacy / illiteracy statistics remain unchanged, in part, because literacy demands increase and change, requiring increasing degrees of ICT skill. In Canada, as in most other industrialized economies, we know the following.

- Literacy -- the individual's ability to understand and use reading, writing and numeracy skills -- is *the* foundation for citizenship, lifelong learning and work in contemporary society. Literacy demands are growing in number and complexity, and will *continue* to be a foundation to citizenship, lifelong learning and work in the future, and at expanding levels of involvement -- local, national and global.
- The nature of active citizenship, lifelong learning and work are all changing, e.g., requiring more use of information and communications technologies (ICT), more individual responsibility, more demand for and access to choice, more use of information, more stress, constant change, and reduced or different resources. This means that conventional literacy is a necessary, but insufficient, condition for active participation in the life and work of the community of the future. Conventional or traditional definitions for literacy are inadequate for the globalized Knowledge-based Economy (KBE). Emerging definitions of literacy include the ability to use ICT, cultural and scientific literacy, media and social literacy,[4] lifestyle/health maintenance, global citizenship, "essential skills"[5] and learning skills.
- Conventional literacy skills are required to independently engage with ICT to any meaningful extent. This has been exacerbated by the increased use of icons in computer usage and by convergence between such technologies as television and the Internet, and by the increased use of voice-recognition software and mobile technologies,

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[4] The term "social literacy" is used in the Digital Divide study to mean the ability to understand and use information in ways that are beneficial and meaningful to everyday lives. The study asserts that social literacy deficits lead to a perceived lack of need for the Internet and ICT use by a cohort of Canadians.

[5] The term "essential" skills is used, largely by HRDC, to include basic literacy and employability skills. The employability skills are those set out by Conference Board of Canada , i.e., teamwork, problem solving and communication skills.

including telephones and personal computing devices. Reading skill is, however, at this time, a necessary condition for use of ICT and the Internet.

▪ By conventional measures, a significant number of adults do not possess adequate literacy skills to participate fully in contemporary society as active citizens, learners and workers now *or* in the future.

▪ Adult literacy has been a policy preoccupation of the federal government for at least the past 25 years, i.e., in the lead-up to and celebration of the International Literacy Year, 1991. However, the "illiteracy" statistics haven't changed in Canada. Since measurement of literacy in Canada has been undertaken, there has been no improvement in the number of adults with adequate literacy skills. This may be because the demands are increasing and changing.

As public policy concerns, adult literacy and promotion of ICT have been given different treatments, either by accident or by design. Unlike the literacy "problem" in Canada, there is little difficulty getting the public to accept that the inability to use ICT, for any Canadian, is a major problem. Computer skills training and applications of ICT are publicly funded through education and training programs, culture and heritage programs, industrial and economic development programs, etc. For the most part, literacy is seen as a personal and social issue, while ICT is seen as an economic development issue. Literacy is seen as a public policy problem; ICT is seen as an opportunity or solution. In this context, eLearning represents a means of acquiring both literacy and ICT skills, and the opportunity to improve Canadian literacy statistics is obvious.

4.1.2. eLearning Policy in Canada

The second policy problem is the need for leadership and coordination of eLearning in Canada. In the absence of coordinated leadership or direction, eLearning has emerged in a very fragmented, expensive, and experimental way. This may be understandable given the innovative nature of ICT use, and the fact that de facto eLearning policy from 10 years ago appeared to be to "let a thousand flowers bloom."   As a result, eLearning remains a relatively questionable endeavor. It is a totally unregulated industry competing in a harsh global marketplace, subject to unsubstantiated claims of quality and enhanced return on investment in learning. Leadership and action is needed to ensure consistency and quality for the consumers of eLearning both inside and outside Canada. The Canadian Recommended eLearning Guidelines,[6] quality standards developed by eLearning experts with federal government funding, have not been implemented or supported by either HRSDC or Industry Canada who spend their limited resources on technical standards only.

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[6] Complete information is available at http://www.futured.com/qualitelearningPR.htm

Despite that, a substantial number of Canadians are learning online. In 2002, Canadian students could access 66,107 courses from 36 countries or 1,952 institutions and this has grown considerably since then. The Conference Board of Canada reports in its 2003 Outlook on Training and Development that "the percentage of Canadian organizations that use a Web-based distribution method for training rose to 50 per cent in 2002 from 25 per cent in 1997. Currently, 13 per cent of all workplace training in Canada is delivered through e-learning technologies, and that is expected to double by 2004".[7]

At the federal or national level in Canada, there is currently no public policy to support eLearning, either as an industry or as a lifelong learning tool. Both adult literacy and eLearning policy exist at the contentious intersection of provincial and federal jurisdiction. When either is considered to be an education issue, provinces and territories prevail; when related to adult learning and technical infrastructure, federal policy prevails. A good description of the policy vacuum is presented in the work of Carey and Henderson who were contracted to assist the federal government in creating a strategy that could be implemented within the federal government.[8]

Carey and Henderson define e-learning as the development of knowledge and skills through the use of information and communication technologies. They note that "governments around the world are forming policies to leverage the potential of e-learning for workforce development in the 21st century economy to accelerate the creation of social and economic wealth." From a series of consultations, Carey and Henderson deduced the following vision.

> *E-learning can support all Canadians in developing their full learning potential, for the acquisition of the 21st century skills essential to wealth creation and for enhancing our social capital. A distinctive Canadian strategy can achieve this goal within the decade, and position the Canadian e-learning sector for international leadership.*
>
> *Our vision for distinctive excellence in Canadian e-learning focuses on the following mission:*
> - *Enabling Learners: All Canadians will have access to a seamless network of flexible opportunities for e-learning, to address every stage of their learning lifespan and to develop their learning capabilities.*
> - *Empowering Communities: All Canadian communities – of place, of purpose, and of practice – will have the capability for key roles in the provision of e-learning.*

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[7] Janice Cooney, Allison Cowan Training and Development Outlook 2003: *Canadian Organizations Continue to Under-Invest*, Conference Board of Canada, 2003
[8] Thomas Carey and Catherine Henderson (August, 2004). *E-Learning for 21st Century Canadians: Toward a Common Vision.*

Canada will lead the world in empowering and integrating partner networks to support learners.

- *Engaging Collaborations: All Canadian e-learning partners can integrate into world-leading infrastructures to share roles and resources across regions and sectors. The collaboration capability will engage and support all Canada's social and technical systems for e-learning.*

For these authors, action issues include enhancing aboriginal education, developing media policy and tools, building the social infrastructure, building the technical infrastructure, creating departmental exemplars, supporting the e-learning industry/sector, and coordinating research and innovation projects in e-learning. According to Carey and Henderson, there are six primary drivers for the creation of a framework specific to e-learning:

1. *Within the Government of Canada e-learning issues engage multiple departments [and involve all departments as users of e-learning]. E-learning offers an opportunity for the federal government to 'lead by example'.*
2. *In Canada the provinces and territories have major roles in, and activities underway for, e-learning - but lack the critical mass required for effective investment and exploitation.*
3. *There is a complex mosaic of overlapping responsibilities amongst federal, provincial and territorial governments, as well as other contributors from the corporate, institutional and community sectors. At the same time, there is large potential for leverage on shared investments.*
4. *High quality e-learning frequently requires significant up-front investment and economies of scale to be cost-effective.*
5. *Many competing countries have developed e-learning strategies to advance in workforce knowledge development and in the e-learning sector marketplace… This could place our e-learning sector participants at a competitive disadvantage.*
6. *E learning is simultaneously a force for social equity, for economic advance through workforce skills in a knowledge-based economy, and an industry sector - both domestic and export - in its own right. This provides special opportunities to leverage public and private sector investments, and special challenges in aligning policies across departments and jurisdictions.*

They note that "*the rationale for a policy framework specific to e-learning is driven by the interlocking of these multiple issues. For example, evidence suggests that Canada has one of the lowest levels of participation in job-related continuing education amongst the OECD countries,*

with the problem being most acute in small and medium-sized enterprises[9]. E-learning as one element in meeting this challenge is of interest to HRSDC and its Human Resource Councils, as well as in specific subject areas for departments such as Health Canada. There are special needs amongst First Nations communities, which a co-coordinated solution would address, and strong potential for new media formats to engage learners resulting from work sponsored by Canadian Heritage. Industry Canada has policy responsibilities in the Internet access infrastructure [both in the technical infrastructure of broadband communications and in insuring equity in public access to Internet resources]. Meeting the need for a skilled workforce also provides opportunities for the specialized supports and competitive pressures which underlie a leading-edge industry sector of international quality. The goal of a common framework for e-learning policies is to align the various policies across departments so that the whole is greater than the sum of the parts."

Key players in eLearning development and implementation in Canada agree upon the following goals for coordinated eLearning policy:

- Accessibility to high quality, lifelong learning for all Canadians.
- Removal of structural and geographic barriers for learners in remote locations and for specific demographic groups such as First Nations and Métis peoples.
- Facilitation of the integration of immigrants into the national workforce.
- Building on investments already made in infrastructure, applications, content and services.
- Economic development.
- International leadership.
- Improved productivity and capacity for institutions and sectors.
- Knowledge generation.
- Competitiveness and wealth generation.
- Human capital development.

The Carey and Henderson 2003 consultations indicated that the following challenges had thus far defied resolution:

- *Cultural barriers to e-learning adoption, e.g., fears of teachers and disappointment of workers who would rather go away to a learning event.*
- *Roles and responsibilities among key players have not been negotiated.*
- *There is a limited and fragmented Canadian market for e-learning products and services. In many case, in order to amortize development costs across a sufficiently large body of learners we will need to export e-learning products and services..*
- *Connectivity is not yet complete.*

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[9] *Performance and Potential 2003-04:Definng the Canadian Advantage*, Conference Board of Canada, 2003.

- *While initial funding has been available, a transition fund to make projects sustainable or market-ready has been lacking.*
- *There is an urgent need for strong federal policy, clear technical standards and a vigorous relevant research agenda.*
- *Priorities have not been clear. The most urgent and productive priority sectors would be learning, health and culture as broad areas and community specific content as required. It is important to mobilize communities of interest in the key application sectors.*
- *The e-learning industry has not had a coherent commercialization strategy.*
- *There is a lack of widely-available evidentiary data regarding ROI in e-learning.*
- *There is urgent need for Canadian copyright reform.*

Inside the eLearning endeavor –both public and private sector, none of this is news. The outcome of this unsolved problem is that the eLearning industry is struggling and adult literacy learners are not considered to be a viable market or client base.   FuturEd research indicates that there is a narrow range of products and services available to adult literacy programs and learners, even if they have access to computers and the Internet.

There is a vast literature speculating on the benefits of eLearning to learners in general, and to those in rural and remote communities in particular.   For example, the Action Research Roundtable on E-Learning, convened by the Canada School for Public Service in 2003, concluded that high quality e-learning for the workplace can complement other learning options through the capability to achieve the following increase access and flexibility for learning, engage learners in more active modes of learning, personalize learning opportunities, and integrate into the workplace, for 'just-in-time/just enough' learning. These are benefits that are just now being extended, in fragmented ways, to adult learners. Clearly, national leadership and a federal policy would support wider and more coordinated implementation with attention to opportunity and quality for consumers.

4.1.3.The Digital Divide

The third policy problem, and the direct link between adult literacy and eLearning, is the persistent "Digital Divide." From studies conducted by the federal government and others, the "Digital Divide" has been characterized as:

- the situation in which one group of people use ICT and the Information Highway (IH), having the necessary skills, interest/motivation, and resources (hardware, access) to varying degrees, and another doesn't;

- the circumstance in which levels of awareness and use of new technologies and services, among Canadians, are highly polarized along social class and generational lines;

- a problem because the distance between the two groups is growing, "distance" being the privileges or benefits conferred by using ICT.

This characterization of the Digital Divide is limited in that the use of the IH or Internet has been measured as a proxy for general use of ICT.   That being said, using this as a framework, we know the following.

- A large number of Canadians do not engage with ICT -- banking machines, the Internet, government kiosks. According to the study *Information Highway and the Canadian Communications Household*, youth and better educated Canadians tend to have the highest levels of access and use.

- According to a study conducted for HRDC and Industry Canada,[10] the use of ICT is directly related to income. Higher income households are three times more likely than lower income households to have home access to the Internet. Two thirds of upper income households have home access compared to about one quarter of low income households. Cost or affordability is the most significant barrier to connectivity.

- The barriers to use of ICT have been identified, through research, to be lack of financial resources for hardware and access, lack of literacy and ICT skills, and a lack of perceived need.   According to the Digital Divide study, these barriers are aggravated by factors such as employment status and income, gender, education, technological literacy, and regional disadvantages.

- The Digital Divide is widening. So is the income gap between middle and upper class Canadians. The Digital Divide is further evidence of the bifurcation of Canadians into "haves" and "have nots." According to Statistics Canada,[11] those who most need the benefits of new technologies -- those with low income, unemployed status and lower education -- risk becoming further marginalized as other Canadians benefit from the development of computer literacy skills. Those without the skills, motivation or resources to use ICT are in danger of getting "left behind," at least temporarily. It is unlikely that ICT will diminish in importance to all aspects of contemporary society, but the next iteration of ICT may be less obtrusive, easier, more imbedded in other tools.

- The form and use of ICT is constantly changing, becoming more ubiquitous, less expensive, more imbedded in all aspects of contemporary society. ICT, and especially the Internet, is a tool, a means to an end and not an end in itself. The use of the Internet

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[10]   *The Dual Digital Divide: The Information Highway in Canada* (Reddick, Boucher and Gorseilliers, Public Interest Advocacy Centre, 2000)
[11]   *Computer Literacy - A Growing Requirement* (Statistics Canada, 1996).

by individuals loosely falls into three categories, in descending order of magnitude and importance: commerce, information sourcing, and communications / community building. These are the three functions that are "denied" to a portion of Canadians; however, those Canadians do use other sources and those sources must be maintained.

- The use of ICT is pivotal to the knowledge-based economy because of the nature of the networked economy, characterized by Kelly[12] as including distributed cores, adaptive technology, flex manufacturing, mass customization, industrial ecology, global accounting, co-evolved customers, a knowledge base, free bandwidth, increasing returns, digital money and underwire economies.

- Governments have been involved in increasing access to and use of ICT for several reasons: provision of government services, economic development, and access to learning opportunities.

- Prosperity for the individual, the community, and society at large is linked to "work" -- the generation of products and services which are increasingly knowledge-based. Unless there is a productive role in the KBE for a group of Canadians, they will have to be "looked after." This would be a viable policy option -- albeit questionable, at best -- were it not for the fact that children born into these groups will be raised with similar values and limited opportunities.

- Some non-users have no intention or desire to use ICT. Others have deliberately withdrawn from use, choosing "voluntary simplicity" and disconnectedness from technology. Communities will continue to thrive without extensive use of ICT, and they will/may have the same needs for quality of life, information and government services as all other citizens.

It is clear that the same group of Canadians that are not engaging with ICT probably are those who have deficits in conventional literacy skills. In this context, eLearning is more of a challenge than a solution unless eLearning is used differently, and this is where the ePortfolio comes in.

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[12] *Out of Control: The New Biology of Machines, Social Systems and the Economic World* (Kelly, 1994) pp. 200-201.

4.2. Policy Options and Recommendations

To reduce the Digital Divide, generate eLearning coordination and address increasing ICT skill demands, one solution is to simply spend more money doing more of the same thing. A second, more interesting solution, is to do something different.

4.2.1.The ePortfolio as eLearning

To bring about immediate, positive change, the word ePortfolio could be "substituted" for eLearning, and the entire endeavor would experience paradigm shift.

The ePortfolio is formally defined as "a collection of authentic and diverse evidence, drawn from a larger archive representing what a person or organization has learned over time on which the person or organization has reflected, and designed for presentation to one or more audiences for a particular rhetorical purpose" (National Learning Infrastructure Initiative, 2003). The word "ePortfolio" is shorthand for two products – a digital archive and purpose-driven products drawn from that. As a digital tool, the ePortfolio incorporates both process and product. ePortfolio tools help creators to identify and reflect on the outcomes of learning experiences. Creators can be individuals, organizations, even businesses – and they can be the receivers/processors as well. A number of commercial and non-commercial ePortfolio tools exist, with more under development at this time, and there is a need for ePortfolio systems that are received and processed effectively and efficiently in order to maximize the ePortfolio creator's return on investment of time and energy. This gives rise to the need for interoperability of tools and systems for "one ePortfolio for life" which, in turn, gives rise to the need for "an ePortfolio for all."

FuturEd has studied and promoted the ePortfolio since 1997. FuturEd research[13] demonstrates that the ePortfolio is linked closely with:

- Human resources development and Human Capital Management – as the means of identifying and managing what a person and a group of persons knows and can do;
- lifelong learning – as the method of tracking and recognizing ongoing learning, as an incentive to the lifelong learning requirement;
- Prior Learning Assessment – as the outcome of the PLA process of exploring and determining an individual's non-formal and informal learning;
- education and training at all levels (K-12, PSE and workplace) - as a teaching tool (reflection as a basis for learning), as a learning management tool (e.g., project-based learning) and as an alternative form of learning assessment;

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[13] A large number of research and ePortfolio policy papers are in the eLibrary at www.FuturEd.com

- eLearning – as a type of Knowledge Management, a part of a Student Information System and a potential form of "Usable Learning Object" repository;
- learning organizations – as a means of tracking and developing human capital and assisting professional development of employees within organizations across sectors;
- community economic development – as an inventory of collective community human capital assets;
- future learning systems that rely less on credentials and more on competencies; and
- ePortfolio systems of "producers" and "consumers" to enhance return on investment for users.

Knowledge Management is a concept that can be used effectively by employers to identify the knowledge resources in an enterprise and increase worker productivity. It is common knowledge that adults with limited Essential Skills often have a valuable bank of skills and knowledge that they've acquired through various non-formal learning opportunities, skills and knowledge that could be "used" to advantage by employers and by the overall Canadian economy. The process of Prior Learning Assessment helps individuals to identify and verify their skills inventories and the ePortfolio is the record of that process. Using the principles of Human Capital Assets Management (HCAM), employers can better maximize the use of the knowledge resident in their workers and target training to increase Return on Training Investment.[14] FuturEd research has established that the ePortfolio is the basic tool for HCAM.[15]

eLearning is a recognized method of increasing access to training. The Open eQuality Learning Standards[16] (formerly the Canadian Recommended ELearning Guidelines) state that good eLearning begins with assessment of prior learning and ends with a method by which the learner can add to his/her individual learning portfolio. The ePortfolio is becoming a ubiquitous personal management tool – many public education institutions and career development agencies are encouraging and assisting students to develop digital records or ePortfolios. However, there are huge variations in, e.g., the approach to learning (formal vs. non-formal), format, evidence required, and technical aspects (interoperability).

The development of the ePortfolio, in Canada, is in early stages. A Google search reveals numerous ePortfolio tools and services at American colleges and universities. Canadian colleges and universities are slowly implementing portfolio concepts, largely from the perspective of Prior Learning Assessment – recognition of non- formal and informal learning for advance standing and

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[14] Consumers Guide to Return on Training Investment (Barker, 2001) available at www.FuturEd.com
[15] ePortfolio and Human Capital Accounting is available at http://www.futured.com/library.htm
[16] *Open eQuality Learning Standards* are available at http://www.lifia.ca/en/learn_equal_proj.htm

credits. A closer examination of existing ePortfolio tools and services reveals that most are highly targeted to particular audiences and not "transportable" across sectors.

With the emerging ePortfolio, the paramount issue is quality from the perspective of those who create and intend to "use" an ePortfolio. Internationally recognized quality standards (Appendix B) have been developed by an international committee of ePortfolio experts under the leadership of FuturEd.[17] In Canada, indeed globally, systematic ePortfolio policy and implementation should strive to achieve the those quality standards. Instead, federal funds are directed solely at technical standards, as with eLearning.

Based on extensive research and experience (Appendix C), Barker / FuturEd believes that the ePortfolio represents the single greatest innovation in the use of ICT for the following long list of reasons.

1. It is eLearning at its finest – the best, least complicated, most appropriate use of ICT for learning and learning management on an individual and a societal basis.
2. It is an elegant use of inelegant technologies – using complex technological developments in simple, practical ways. Unlike most eLearning, the ePortfolio tool is typically user-friendly and appealing with great and immediate utility.
3. It is a learning leveler – it can be made accessible to each and every person regardless of skill levels and personal assets, and there is seldom a substantial cost involved. An ePortfolio can be as ubiquitous and equalizing as the Internet itself.
4. It focuses on "the positive" – archiving and showcasing what a person knows and can do. The outcome of an ePortfolio is "look what I've achieved!" Rather than being deficit-based, it is asset-based.
5. It can become a complete description of a person's "human capital" – acquired skills and knowledge, including and going far beyond those represented by formal credentials. An ePortfolio incorporates learning from formal, informal, non-formal, accidental and incidental learning environments.
6. It is a more accurate description of a person's "human capital." Being competency-based, it doesn't assume or imply competence or use proxies for learning.
7. For teaching purposes, it builds on best practices in designing, delivering and assessing skills and knowledge.   Authentic assessment is a cornerstone of the ePortfolio.
8. For learning purposes, it is appropriate for all levels and types of learners. It builds on best practices in how people learn and shows positive change in the acquisition of

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[17]   ePortfolio Quality Discussion paper is available at
http://www.futured.com/pdf/ePortfolio%20Quality%20Discussion%20Paper.pdf

new skills and knowledge. Reflective learning another cornerstone of the ePortfolio process.

9. It is equally adoptable in both formal and informal learning situations. Teachers and instructors can use if for alternative assessment of learning aimed at accreditation. Lifelong learners can use it to understand and record ongoing acquisition of insight and competencies.

10. It is endlessly scalable – from the individual to an entire business or nation. This is, in part, because of interoperable technologies and, in part, because of common learning and learning management needs at all levels.

11. It can be both deeply private and universally accessed. While the content of an ePortfolio is the sole property of the person or body creating the ePortfolio, it can be shared by them in many controlled ways or eBroadcast to the world.

12. It is a comfortable means of communication between learners and teachers / mentors / advisors and friends. It is exploratory rather than definitive.

13. It can be a critical transformation tool for learning systems – to outcomes based, learning-centred learning.

14. It enhances creativity and problem-solving. With the ePortfolio, there are many ways to explore and present learning.

15. It can be, at one time, both a teaching and learning tool – with the ePortfolio creator both learning through reflection and teaching through sharing the acquired insight and competencies.

16. It has endless utility to individuals and those they engage with. People of all ages can use it as a personal knowledge management tool, recording achievements, targeting new learning requirements, even making application for advance standing in formal learning environments. Employers can use it to understand and manage an entire workforce of any size, for identifying human resource needs and best utilizing human capital. Communities of place, interest or practice can inventory entire competency banks and human capital resources for development and marketing purposes.

17. An ePortfolio system can do what computers do best – sorting and matching.

18. The ePortfolio, as a teaching/learning tools, creates a unique balance between structured and unstructured learning. The tools guide but do not limit learners.

For all these reasons, by substituting the ePortfolio for eLearning, resources will be better expended and change more readily achieved. Public policy to improve literacy levels, increase ICT skills, and reduce the Digital Divide should be based on a universal ePortfolio system for all Canadians. To aid in forward movement, FuturEd has created a Consumer's Guide to the

ePortfolio, intended to help make informed decisions about tools and services.[18] FuturEd would like to see the immediate implementation of a national ePortfolio system for all Canadians, and together with LIfIA, asserts that there is a urgent need for national leadership and coordination.

4.2.2.eLearning and Lifelong Learning

Until very recently, operational definitions of eLearning implied direct instruction.   FuturEd's own working definition in 2002 was "teaching and learning using a computer and the Internet." Contemporary understanding of eLearning is changing to incorporate indirect and informal learning, i.e., eLearning is becoming almost anything that someone learns in the process of using technology. This raises a number of interesting issues. The first is the "purpose" for learning. At one end of the purpose spectrum is accredited learning – formal courses and programs for degree completion and professional accreditation. Essentially, this is externally-driven and optional for the individual.   At the other end of the spectrum is accidental or incidental learning with no particular purpose in mind. This type of learning is more internally-driven and less optional – i.e., we survive as a species by continuously learning from our environment.   In the context of adult literacy, then, the first question is "eLearning for what purpose? Literacy for what purpose?"   Clearly, it is seldom for accredited learning until such demands as the GED are imposed.

A second issue is that of learning as process versus learning as product. As product, learning is assumed to be acquired, changed or improved skills and knowledge.   As process, learning implies change – an increase in skills and knowledge.   In the context of adult literacy, then, a second question becomes: "is eLearning a process or a product?" The new understanding of eLearning is moving it towards becoming a process, and as such, then, available in countless technological ways and from countless technological sources.   It is highly unstructured and the question is: "is highly unstructured eLearning a solution to public policy problems associated with adult literacy?" Probably not, given the issues of limited access and ICT skills among adult literacy learners.   One could say that, if adult learners were inclined to achieve new skills in this way, they would just be doing it, and that no additional interventions or resources were required.

This leads to the third issue: the management of learning. At one end of the management spectrum is the self-directed, highly motivated learner who is able to identify learning needs, seek and acquire skills and knowledge when and as needed – whether through formal or non-formal learning channels – and manage his/her own learning.   At the other end of the spectrum may be the unmotivated individual incapable of learning through formal or non-formal learning

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[18] Available at http://www.lifia.ca/en/learn_eport_info_guides.htm

channels for any number of reasons. The adult literacy learner is likely closer to this end of the spectrum – clearly in need of assistance and motivation, highly unlikely to manage his/her own lifelong learning.

The 2004 Speech From the Throne stated that

> "*To meet the challenge of the new economy, Canada's workers must have the opportunity to upgrade their skills, to improve their literacy, to learn on the job, and to move onto the path of lifelong learning*".

In reply to the Speech From the Throne, the Prime Minister expressed the government's commitment to developing Canada's learning capabilities:

> "*We want a Canada where … lifelong learning is part of the national fabric.*"

This priority for strengthening Canada's learning capability is directly related to the opportunities that eLearning presents, and this is slowly being negotiated between numerous federal government departments and agencies. The Interdepartmental E-Learning Task Group has representatives from HRSDC, Industry Canada, Indian and Northern Affairs, Heritage Canada, Health Canada, and DFAIT – all departments active in eLearning in some fashion.

The first necessary step, then, is to develop a national eLearning policy that includes lifelong learning policy for a Knowledge-based Society. Among the goals and objectives of a lifelong learning policy would be to assist all Canadians by ensuring a range of quality lifelong learning opportunities --formal, informal and non-formal, and ensuring the necessary supports for individuals, including but not limited to:

- equitable access to learning opportunities;
- assurance of quality learning opportunities;
- preparation for learning (readiness to learn and acquisition of learning skills);
- accurate, current and accessible information about learning opportunities;
- accurate, current and accessible information about learning requirements;
- tools for assessing learning and making learning plans;
- means of assessing and recognizing all forms of learning;
- motivation for the acquisition of new skills and knowledge; and
- incentives for continuous learning.

A second policy goal would be to provide learning motivation and management tools such as the ePortfolio for all. As has been stated earlier, both literacy and ICT are necessary, foundational tools for lifelong learning. In this context, it makes sense to implement a national ePortfolio

system as a lifelong learning management tool and adopt an asset-building model -- identifying and building on what individuals know and can do.

4.2.3.Literacy for eLearning

Using the IALS measurements, between 18% and 44% of adult Canadians have limited or inadequate literacy skills. It is estimated that a similar number of adult Canadians do not have adequate technology skills. However, not all those individuals think they need to engage in either learning or using advanced skills. It is estimated that less than 6% of adults need literacy upgrading are engaged in programs, despite the fact that learning opportunities exist in some/most communities. First, there are considerable barriers making it difficult for adults to enroll in and attend a learning program. Then, there are additional barriers to completing a program, and for all programs, there is a significant drop-out rate. In addition, the quality of programs is highly variable and there is little accountability for program outcomes. Finally, there are few tangible incentives for adults to improve their literacy skills; although adults can and do acquire improved skills, it takes quite some time to achieve even minimal improvements, and "life" doesn't improve very much for most adult learners: they don't suddenly get great jobs, get accepted into college or university, get leadership opportunities. If literacy statistics are to change, through adult literacy policy and programs, there must be real -- measurable, not imaginary -- incentives to elicit genuine personal motivation and commitment.

In the knowledge that resources are finite, in the short-term, it is right and proper to target those most in need. Research has established that certain groups in society are more likely to have literacy deficits and less likely to use technology: the poor, some youth, women, First Nations peoples, those who are incarcerated. They should be the focus of immediate, meaningful attention. To do so, direction is provided by the HRDC report "Lessons Learned in Adult Literacy." In 1999, FuturEd examined adult literacy policies, programs and practices in Canada and other industrialized economies over the past 10 years, and concluded that the following seven lessons were to be learned.

1. *Adult literacy programs benefit both individuals and society, but these benefits have not been fully realized due to insufficient levels of public interest and political support.*
2. *Experiences suggest how to design and deliver quality adult literacy programs, but conditions don't always exist to allow that to happen consistently or systematically.*
3. *While evidence suggests considerable advantages in using learning technologies in adult literacy programming, some question their effectiveness and appropriateness.*

4. *Adult literacy programs aimed at specific target groups appear to have better results, but such programs are not delivered consistently in an effective, efficient or equitable manner.*

5. *Barriers facing adults in need of literacy upgrading limit their capacity to enter and remain in literacy programs.*

6. *It is important that adult literacy learners have a say in policies and programs addressing their needs*

7. *More systematic evaluation of adult literacy policies, programs and practices is needed to increase accountability and to improve the knowledge base in the field.*

The report, produced by Evaluation and Data Development of HRDC, went on to make three recommendations for future consideration. In addition to (1) creating one comprehensive, consensus-based description of best practice in literacy programs, by pulling together all that is known, to serve as a set of guidelines for planning and evaluation purposes; and (2) imbedding literacy policy in all social policy, the report recommended (3) that all seven lessons be addressed as challenges. Therefore, one of the most research-based plans of action that the federal government, with its partners in the private and public sectors, could undertake would be to address the seven challenges. This research project goes a long way to addressing and alleviating the concerns with eLearning and serves to support increased use and study of eLearning in adult literacy in Canada.

5. Summary Recommendations

Based on this research project and extensive experience in adult literacy, eLearning and public policy analysis, FuturEd recommends that governments at all levels:

1. set measurable targets and improve the adult literacy statistics in Canada by systematically providing access to computers, the Internet and eLearning / ePortfolios to all potential adult literacy learners in communities and in workplaces;

2. immediately and systematically implement a public policy initiative to ensure each and every Canadian has an ePortfolio for motivating and managing lifelong learning and human capital asset management by 2010, beginning with teachers and tutors at all levels in the public education system;

3. fund the creation of a collaborative online service for adult learners at the basic skills level, along the model of Campus Canada, to provide a clearinghouse function and learning / ePortfolio management for both adult literacy learners and learning providers;

4. require that all federally-funded eLearning products and services meet the Canadian Recommended eLearning Guidelines for sustainability of the Canadian eLearning enterprise;

5. require that all federally-funded programs study and demonstrate Return on Investment for learners;

6. support the eLearning industry to ensure quality in innovative and appropriate tools and services for lifelong learners in Canada.

Appendix A

Selected eLearning Publications and Presentations
Dr. Kathryn Chang Barker

November 4, 2003. eLearning in Canada: Who Can You Trust? *National Post Business.* At
www.nationalpostbusiness.com

July - September 2003. Canadian eLearning Guidelines Protect Consumers. *The Learning
Citizen, no. 6, p 13.* Available at
http://www.learningcitizen.net/download/LCCN_Newsletter_N6.pdf.

March 2003. Studying ICT Use in International Education: Comparing On-line and On-site
Delivery of International Education (Research Report: Canadian Bureau for International
Education) Available at http://www.cbie.ca/download/ict/Phase4final.pdf

January 2002. *Canadian Recommended E-learning Guidelines.* Vancouver: FuturEd for
Canadian Association for Community Education and Office of Learning Technologies,
HRDC. At http://www.futured.com/pdf/CanREGs%20Eng.pdf

The Canadian Recommended E-learning Guidelines (2002, FuturEd Inc.) are available and
recommended on-line at:
- http://www.futured.com/qualitelearningPR.htm (FuturEd: copyright holder)
- http://www.col.org/newsrelease/0206ConsumersGuide.htm (Commonwealth of Learning)
- http://www.amtec.ca/site/publications/reports/canregs.html (Association for Media and
Technical Education in Canada
- http://www.cade-aced.ca/en_link.php (Canadian Association for Distance Education
- http://strategis.ic.gc.ca/epic/internet/incts-scf.nsf/vwGeneratedInterE/sl00180e.html
(Industry Canada)
- http://www.canlearn.ca/planning/pro/support/pdf/GuidelineseLearning.pdf (Human
Resources Development Canada)
- http://teleeducation.nb.ca/english/article.cfm?sbsec_ID=64&sec_id=9 (Telecampus)
- http://eduspecs.ic.gc.ca/Addressing_Concerns/description.html (Industry Canada)
- http://www.albertaonline.ab.ca/ols2001/ppts/session_idx.htm (Alberta Online Consortium)
- www.licef.teluq.uquebec.ca/fr/pdf/CanREGs%20Eng.pdf (Licef - Teleuniversite)
- http://www.logos-net.net/ilo/150_base/en/init/can_16.htm (UN International Labour Office,
Geneva)
- www.nald.ca/WHATNEW/hnews/2002/elearnin.htm (National Adult Literacy Database,
Canadian Association for Community Education)
- http://www.ecc.org.sg/cocoon/ecc/website/services/newsletter/feel04/article11.newsletter
(E-Learning Competency Centre, Singapore)
- http://ericacve.org/docs/pab00032.pdf (ERIC)
- www.workinfonet.ca/cwn/english/ newsletter/news_0209_e.pdf
- http://presta.luc.ac.be/Newsletters/ELearning/e-learning%20newsline/E-
Learning%20Newsline_%20Managing%20Risk%20in%20E-learning.htm
- http://www.trainingreport.ca/news.cfm
- www.seelnet.org/seel/ (Support European E-Learning, European Commission)
- http://tecfa.unige.ch:8888/cvs/13 (Belgium)
- http://www.bc4.bc.ca/news/reportcoates4.html
- http://www.rrc.mb.ca/library/Reference/instructor_info.htm (Red River College)

February 2002. *Consumer's Guide to E-learning.* Vancouver: FuturEd for the Canadian
Association for Community Education and Office of Learning Technologies, HRDC.
Available at www.eQcheck.com.

February 2002. E-Learning in Three Steps. *School Business Affairs.* Vol. 68, No. 2, pp. 4-8. available at asbointl.org/asbo/files/ ccPageContentDOCFILENAME001006705546SBA_Feb02_article_E-Learning.pdf

November 2002. *Innovations in Workforce Management: the Electronic Learning Record, Prior Learning Assessment and Human Capital Management* available at http://www.innovation.cc/volumes&issues/Barker%20Workforce%20Mgmt.pdf

February 2001. *E-Learning: Studying Canada's Virtual Secondary Schools* (Society for Advancement of Excellence in Education) available at http://wwew.saee.bc.ca/ELearning.pdf

Spring 2001. Learning Systems in the Future for the Future. *Education Canada.* Vol. 41, No. 1, pp. 16-19.

Spring 2001. Return on Training Investment: An Environmental Scan. Available at http://www.futured.com/pdf/FuturEd ROTI Backgrounder 2001.pdf

October 2001. Information and Communication Technology in International Education in Canada's Public Post-secondary Education System: Literature Review (Canadian Bureau for International Education) Available at http://www.cbie.ca/download/publications/Conf%20paper%20ICTs%20and%20IE%20final.pdf

January 2000. *The Electronic Learning Record: Assessment and Management of Skills and Knowledge: Research Report.* Vancouver: FuturEd (for the National Literacy Secretariat, HRDC) available at http://www.futured.com/pdf/FuturEd%20ELR%20research.pdf

August 1999. *The Electronic Learning Record: Assessment and Management of Skills and Knowledge: A Literature Review.* Vancouver: FuturEd (for the National Literacy Secretariat, HRDC) available at http://www.futured.com/pdf/FuturEd%20ELR%20lit%20review.pdf

Spring 1999. Serving the Learning Needs of Education Consumers. *Education Canada.* Vol. 38, No. 4, pp. 25-27.

1999. Linking the Literature: School Effectiveness and Virtual Schools. Available at http://www.futured.com/pdf/Virtual.pdf

1999. Quality Guidelines for Technology-Assisted Distance Education. Available at http://www.futured.com/pdf/distance.pdf

1998. *On-line Skills Self-Assessment Tools for CanLearn: Design Considerations and Development Plan.* Vancouver: FuturEd for HRDC.

Barker, et. al. 1998. Survey of Perceptions and Attitudes Toward Learnware Quality in Canada (1998, Office of Learning Technologies) available at http://olt-bta.hrdc-drhc.gc.ca/resources/Survey_e.pdf

1997. *Learnware Quality Background Paper.* Vancouver: FuturEd for HRDC. Available at http://www.yorku.ca/research/dkproj/etpnet).

E-Learning Keynote Presentations
available in the e-library at http://www.futured.com/library.htm#elearn

- *Quality Assurance and e-Learning*
- *Canada's Quality Initiative*
- *Introducing eQcheck*
- *The e-Learning Imperative*
- *Learning Systems for the Future*
- *Managing Learning in the Workplace with the ePortfolio*

Appendix B

ePortfolio Quality Standards
Prepared by Dr. Kathryn Barker, FuturEd Inc.
April 2004

1. A digital archive and an ePortfolio are developed and owned by the individual or organization creating them. The use of both or either, and any changes to them, are under the control of the individual. Both are confidential and access is controlled by the individual.

2. The ePortfolio system has the capacity to maintain a complete inventory of skills and knowledge acquired by the individual through formal, non-formal, informal, accidental and incidental learning. The ePortfolio development process includes thoughtfulness about learning represented.

3. The ePortfolio system lists and describes skills and knowledge in a way that is recognized and respected by educators, employers, professional bodies, and others who receive and process ePortfolios. Where possible, the ePortfolio system links to established competency standards but also allows flexibility to accommodate unique or non-specific competencies.

4. The content of the ePortfolio is current, accurate, and verifiable.   Methods of validating learning are flexible, appropriate, and credible.

5. To develop the ePortfolio, there are explicit instructions with examples, a universally-recognized glossary of terms, and professional assistance if required. The ePortfolio is easy to access, use, and modify by the owner.

6. The ePortfolio and archive have the capacity to incorporate a variety of media.

7. The ePortfolio is portable and interoperable in a technical sense.

8. The ePortfolio service is multi-purpose, customisable and adaptable to various uses, e.g., assessment by teachers, learning through personal reflection, planning, individual or community asset mapping.

9. An ePortfolio system is seamless, allowing the individual to create many versions of his/her ePortfolio and use this process throughout life, from primary school through higher education and career training to the workplace and lifelong learning environments.

10. An ePortfolio system provides secure long-term storage, privacy, access and ongoing support.

In generating these standards, FuturEd appreciates the input and assistance of the following organizations and individuals.

Participating Organization	Representative
AAHE (American Association for Higher Education)	Darren Cambridge
AMTEC (Association of Media and Technical Education in Canada)	Genevieve Gallant
CACE (Canadian Association for Community Education)	Barb Case
CADE (Canadian Association for Distance Education)	Bill Muirhead
Campus Canada (Industry Canada)	Jane Kralik
CanLearn (Human Resources Development Canada)	Karin Fuller
CAPLA (Canadian Association for Prior Learning Assessment)	Sandra Aarts / Bonnie Kennedy
CEA (Canadian Education Association)	Penny Milton
COL (Commonwealth of Learning)	Angela Kwan / Paul West
CSBA (Canadian School Board Association)	Lionel Sandner
ElfEL (European Institute for E-Learning)	Maureen Layte
Licef –TeleUniversite	Karen Lundgren
CERI / OECD ("watching brief")	Kurt Larsen
Additional ePortfolio / eLearning Experts	Helen Barrett Barbara Cambridge Marquis Bureau

Appendix C

**FuturEd Qualifications for
ePortfolio Research and Leadership**

1. **Concept development** – I have been responsible for:

    1.1. pioneering work on the ePortfolio, beginning from the PLA / PLAR perspective in 1996, generating and promoting the Skills and Knowledge Profile concept for the Canadian Labour Force Development Board (please see Corporate Profile, page 53; also please see the 1996 Digital Learning Record paper at http://www.futured.com/pdf/ePortfolio%20Backgrounder%2096.pdf)

    1.2. articulating and promoting the public policy and HRD goals associated with the ePortfolio (please see 2003 White Paper at http://www.futured.com/pdf/ePortfolio%20HRD%20White%20Paper.pdf)

    1.3. developing the application of ePortfolio to Human Capital Accounting (please see 2003 White Paper at http://www.futured.com/pdf/ePortfolio%20HCA%20White%20Paper.pdf)

    1.4. research and ePortfolio implementation strategies linking the Portfolio to:

    - eLearning – as a type of Knowledge Management, a part of a Student Information System and a potential form of "Usable Learning Object" repository;

    - education and training at all levels (K-12, PSE and workplace) - as a teaching tool (reflection as a basis for learning), as a learning management tool (e.g., project-based learning) and as an alternative form of learning assessment;

    - lifelong learning – as the method of tracking and recognizing ongoing learning, as an incentive to the lifelong learning requirement;

    - Prior Learning Assessment – as the outcome of the PLA process of exploring and determining an individual's non-formal and informal learning;

    - Human resources development and Human Capital Management – as the means of identifying and managing what a person and a group of persons knows and can do;

    - future learning systems that rely less on credentials and more on competencies.

    1.5. seeking to balance the development of the ePortfolio as both process and content

    1.6. furthering the understanding of ePortfolio as both digital archive and purpose-driven digital applications

    1.7. focusing on effectiveness, efficiency and ROI for users

2. **Current ePortfolio initiatives** - FuturEd is either leading or involved with ePortfolio applications and implications in the context of:
    - Aboriginal and First Nations (unique cultural opportunities and challenges)
    - Skilled immigrants and recognition of foreign credentials/work experience (for BC Ministry of Culture, Aboriginal and Women's Services, and for LIfIA/HRSDC)
    - Employers and sector councils (with WPLAR and Learning Agents in Manitoba)
    - Literacy, workplace literacy and adult basic education (for ABC Canada)
    - K-12 (with Open School BC, eTraffic Solutions)
    - Adult and PSE (in the context of PLA/RQL)
    - Undereducated youth (as a planning tool for recognition of all learning)
    - PLA and lifelong learning (as an outcome and tracking tool)
    - Community Economic Development (inventory of collective learning)
    - Quality assurance for organizations, products and services (a transparent assessment method and marketing tool)

3. Actual ePortfolio **research,** including:

    3.1. Application in the workplace/workforce (please see Research Report at http://www.futured.com/pdf/FuturEd%20ELR%20research.pdf)

    3.2. Efficacy in adult literacy context (in process for ABC Canada)

    3.3. Quality standards from the consumer's point of view (please see http://www.futured.com/pdf/ePortfolio%20Quality%20Discussion%20Paper.pdf)

    3.4. Comparison of commercially-available ePortfolio products and services (in process for LIfIA)

4. **Publications and conference presentations**, including but not limited to:

    4.1. Papers listed above, located in the FuturEd eLibrary at www.FuturEd.com

    4.2. Editor of a special edition of *Innovate*, an online journal (in process; currently I'm receiving manuscripts and articles from around the world)

    4.3. Numerous conference presentations in Canada and in the European Union (please see http://www.lifia.ca/en/learn_eport_conf_van04_pre.htm)

    4.4. *FuturEd Consumer's Guide to the ePortfolio* (available at http://www.lifia.ca/en/learn_eport_info_guides.htm)

5. **Originality** – uniquely and independently advocating, via, e.g., letters to the Prime Minister and Ministers of HRSD Canada and Industry Canada, for:

    - *One ePortfolio for life.*
    - *An ePortfolio for all Canadians.*
    - An ePortfolio system of production and consumption (concept paper attached)
    - Quality criteria from the user's point of view (an iterative process)
    - Informed choice using the FuturEd *Consumer's Guide to ePortfolio*
    - Strategy for national implementation (available upon request)

6. **ePortfolio networks** - established connections, through responsibilities with LIfIA, EIfEL Board, Innovate Editorial Board, with:
    - experts at all different levels (K-12, adult and PSE, communities)
    - initiatives and leaders in Canada
    - International experts and developments
    - researchers in the US and EU
    - commercial producers of ePortfolio products and services

7. **Acknowledged leadership**

    7.1. in Canada – recent introductory workshops for:
    - BC Campus
    - Canadian Association for Distance Education
    - CSTD (Montreal branch and New Brunswick conference)
    - Manitoba WPLAR and Manitoba PLA Network

    7.2. Internationally – invitations to speak in
    - France (European Institute for eLearning, ePortfolio 2004 and 2005)
    - Australia and New Zealand (December 2004)
    - Cambridge (October 2005)

    7.3. For the Americas – through LIfIA, creation of ePortfolio Working Fora:
    - Vancouver, April 2004
    - Montreal (with Concordia University), November 2004
    - Vancouver (panAmerican) April 2005