LEARNING AND SKILLS DEVELOPMENT THROUGH TECHNOLOGY

OUTCOMES AND BEST PRACTICES

Office of Learning Technologies

ACKNOWLEDGEMENTS

For additional copies, please contact:
Office of Learning Technologies
Place du Portage
140 Portage Street
Phase IV
Gatineau, Quebec K1A 0J9
Telephone: (819) 953-0300
Fax: (819) 997-6777
olt-bta@hrsdc-rhdcc.gc.ca

Ce document est également disponible en français sous le titre «L'apprentissage et le développement des compétences au moyen de la technologie : un examen des résultats et des pratiques exemplaires».

TABLE OF CONTENTS

DEFINITIONS

Community is a group of people that share important characteristics, such as sharing interests or common issues, speaking the same language or living in the same geographic region.

Digital Divide describes the division that exists between those who have integrated computer technology into their lives and others, who for various reasons are least likely to have access to computers and to benefit from learning technologies.

Learning Practices refers to the interpersonal and technical processes, tools and skills, and content development employed to achieve learning objectives and enhance learning.

Learning through Technologies refers to the use of information technologies such as computers, wireless devices, the Internet, and video conferencing to facilitate learning and skill development.

Marginalized Learners are learners who, for reasons of socio-economic status, geographic location or minority status, are disadvantaged in their access to learning institutions.

Networks refer both to the technology and relationships among individuals and groups that involve communication through multi-point access.

Partnerships are created to help meet the goals of a project through cash or in-kind contributions. Partnerships enhance diversity, broaden expertise and maximize the potential impact of the project's results in the targeted communities.

ACRONYMS

CAP   Community Access Program

CLN   Community Learning Networks

ICT   Information and communication technologies

LT   Learning technologies

LTW   Learning Technologies in the Workplace

NPLT   New Practices in Learning Technologies

OLT   Office of Learning Technologies

ReL   Research in e-Learning

SME   Small and medium-sized enterprises

EXECUTIVE SUMMARY

Learning and Skills Development through Technology provides a snapshot of the outcomes of projects funded by the Office of Learning Technologies (OLT) which ended in 2003, and an analysis of effective strategies employed to encourage the application of learning technologies.

A total of 75 projects were reviewed, with the following representation from the four OLT funding initiatives: 33 projects from the New Practices in Learning Technologies (NPLT), 28 from Community Learning Networks (CLN), 10 Learning Technologies in the Workplace (LTW) and 4 Research in e-Learning (ReL).

The majority of the projects were carried out by academic institutions and community-based organizations, often involving partnerships between the two sectors. The greatest number of funding recipients were in Ontario, followed by Quebec, Alberta, and British Columbia.

The projects targeted a wide variety of population groups, from all age groups and from many walks of life. The predominant characteristic of the learners was that they had been previously marginalized by socio-economic conditions and a lack of educational opportunities. NPLT, LTW and ReL project goals tended to focus on giving learners the opportunity to attain specific professional goals. CLN learning goals were of a broader nature, incorporating an introduction to computer technology with writing and numeracy skills. Most projects promoted Web-based resource supports.

The most frequently reported project outcome was enhanced lifelong learning opportunities for the target groups. Some of the projects culminated in new employment opportunities for the learners. Many more provided learners with skills, access to resources, and a positive attitude toward learning with technologies, all of which entail lifelong personal and work-related benefits. By creating networks of a variety of demographic and interest groups across the country, communities benefited from peer learning and support.

One of the successes of the projects was the partnerships created across sectors: educational and academic partners contributed a formal learning infrastructure, related resources, or research tools; business partners and unions provided jobs or internships and also access to computer hardware; and community partnerships typically expanded the reach among potential project participants.

Multi-tiered strategies are necessary to maximize the successful implementation of technology in e-learning environments. Among successful OLT funded projects, strategies were developed to:

1. Promote the project and disseminate the results: Working adult learners have competing demands for their time, and non-working adults often suffer from a lack of self-esteem that hinders personal initiative. Project promotion and dissemination of results were essential to alerting the target group to the existence – and benefits – of the suggested learning experience.

2. Reduce apprehension among learners: Successful projects considered specific strategies to minimize the fears that predominate among adults not yet introduced to learning technologies. Among these were in-person demonstrations and peer testimonials on the benefits of the learning technologies. Relationships of trust between the trainer and learner were a key factor to creating a positive attitude towards learning.

3. Ensure that projects accommodate individual learners' needs and learning styles: A focus on ease of access, including the technologies promoted, the learning processes used, and the project itself (as assured by the removal of cost and personal barriers to participation). The challenges to project success were typically caused by an underestimation of the importance of any one of these factors.

4. Keep the project well-managed and on track, particularly through on-going evaluation processes: Interim evaluations were used by some OLT funding recipients to redirect attention and resources to evolving priority areas. Interim evaluations also helped to manage other aspects of the project, including relationships with partners. Final evaluations allowed the project coordinators, institutional management, partners and other stakeholders to learn valuable lessons for future endeavors.

This review of OLT project reports provides ample evidence of the significant growth, expanded skills, and remarkable enthusiasm learners express for the outcomes and results of their initiatives in the area of learning technologies. These gains were noted according to increased opportunities for individual learners, and to the anticipated impact on the economic development and well-being of their communities.

1. INTRODUCTION

The Office of Learning Technologies (OLT) is part of Human Resources and Skills Development Canada (HRSDC). OLT is a contribution program established in 1996 to help promote a culture of lifelong learning for adults, to increase the effective use of learning technologies, and, to support innovation in skills development and learning enabled by technology.

Since 2002, OLT has conducted annual reviews based on the final reports of the projects completed in the same calendar year. The following review of projects ending in 2003 provides a snapshot of learning practices undertaken by organizations and institutions throughout Canada with the financial support of OLT.

This review focuses on project outcomes in terms of the increased access and effective use of learning technologies, the skills developed for use in the labor market, the strategies in place to strengthen professional and community networks and partnerships, and the new research and products resulting from such learning technologies. These outcomes are discussed in relationship to the benefits to the learners and, in many cases, to the communities where the projects took place. The report also examines the learning practices used to achieve these outcomes. Given the recent focus on the Community Learning Networks (CLN) initiative, special attention is paid to the challenges or "lessons learned" along the way.

1.1 The Funding Initiatives

Until 2002, OLT offered financial support to applicants through four funding initiatives outlined below.[1]

New Practices in Learning Technologies (NPLT) funds cost-shared projects that contribute to the understanding, development, and awareness of new and effective learning practices in educational institutions. A central characteristic is the use of learning technologies to respond to the wide range of learning needs of Canadians.

The Learning Technologies for the Workplace (LTW) projects are based primarily in workplace settings, developing partnerships with non-profit organizations, industry associations, and educational institutions.

Research in e-Learning (ReL) supports research, including needs assessments and analysis, to provide timely and forward-looking information on the emerging practices, issues and challenges facing adult learners as they adopt learning technologies.

Community Learning Networks (CLN) pilot projects focus on the use of technologies as tools to support and enable learning and networking in the context of a community of shared interests and/or location. CLN projects involve strong community participation.

2. PURPOSE OF THE REVIEW

The purpose of this study is to provide a comprehensive overview of OLT-funded projects that ended in 2003. By identifying current practices and emerging trends in the use of learning technologies, the study will assist in examining the contribution of OLT to moving Canada toward a knowledge-based economy.

3. METHODOLOGY

The methodology was based on a review of 75 projects. Inventories of key variables were created. The reviewers noted common threads and outstanding practices that would later be used for analyzing the information.

Most of the information collected was of a qualitative nature and was summarized according to the topic area. In some cases, information collected was quantifiable and charted in order to create a profile of the predominant characteristics of the projects.

The final review stage was the analysis of outcomes. This focused on effective strategies used to maximize project outcomes and benefits, including in the areas of project promotion, adult learning practices, project management and evaluation. Conclusions were also drawn regarding the overall trends in the use of learning technologies according to the practices of OLT funding recipients.

---

[1]   For more information about the OLT program, please see: *www.hrsdc-rhdcc.gc.ca* (Use the search function with these keywords: "**OLT**" or "**CLN**").

4. OLT FUNDING INITIATIVE RECIPIENTS

4.1 Funding Initiative Recipients

In total 75 projects were reviewed, with the following representation from the four OLT funding initiatives: 33 projects from the New Practices in Learning Technologies (NPLT), 28 from Community Learning Networks (CLN), 10 Learning Technologies in the Workplace (LTW) and 4 Research in e-Learning (ReL).

The vast majority of NPLT and ReL funding recipients were academic / educational institutions, while LTW funding recipients were primarily based in the workplace and community. CLN, as per its focus, exclusively supported community-based organizations with a mandate to support the goals of physical communities, like neighborhoods, and communities of interest. These projects targeted socio-economically disadvantaged populations, cultural groups, youth, seniors, and specific sectors of Canada's workforce, such as farmers and entrepreneurs.

Chart 1. OLT Funded Projects by Funding Initiative (N=75)
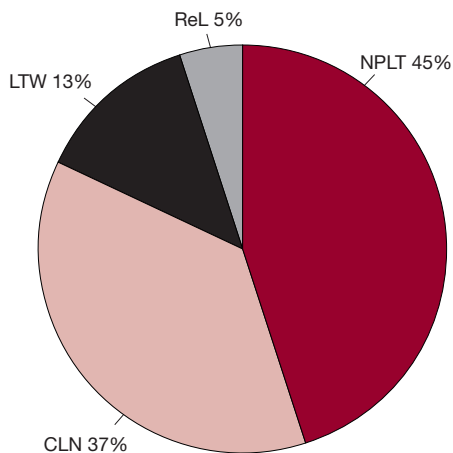
4.2 Regional Distribution of Projects

A review of the regional distribution of funded projects was also conducted to determine the balance of OLT project representation throughout the country. Chart 2 represents the provincial or territorial location of the OLT funding recipients.

Chart 2. Projects by Province/Territory
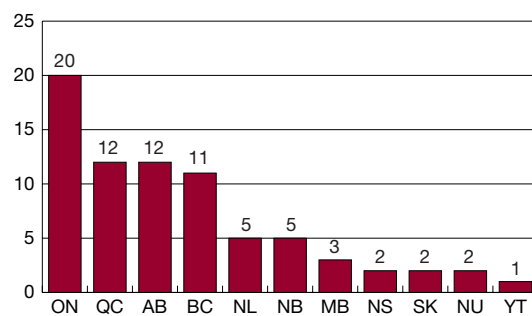
Ontario houses the highest number of OLT projects across Canada. This can be explained in part by the concentration of learning institutions and national organizations located in Canada's most densely populated province. Quebec and Alberta follow (12 projects each), with British Columbia a close fourth (11 projects). While fewer in number, projects located in the more economically challenged Prairie and Maritime provinces and Northern territories were all significant in terms of OLT's efforts to bring information resources and networks to the sparsely populated areas of Canada.

The provinces with the highest number of CLN projects were Ontario, Quebec and British Columbia. No CLN projects were completed in Manitoba and Nova Scotia during the review period.
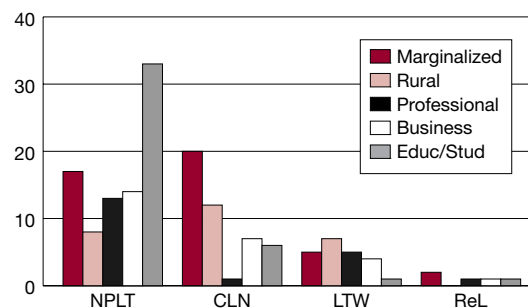
5. PROJECT REACH

In order to determine the relative impact of OLT projects on various population groups, the types of learners targeted by the projects were examined. Sometimes, more than one of the categories listed below applied to the learners reached by OLT projects. For instance, a project that reached entrepreneurs living in rural regions was categorized in two different ways. Thus, the typology of learners in the following chart may represent a single project two or three times, based on the number of categories of learners that were reached.

The following categories of learners were reached:

- **Marginalized learners** are adults who, for reasons of socio-economic status, geographic location or minority status, are disadvantaged in their access to learning institutions. OLT projects reached Aboriginals, people with disabilities, visible minorities, low income earners or persons who are unemployed.

- **Rural and remote learners** live in locations where physical access to learning institutions is limited. For many OLT beneficiaries, distance learning was an avenue to skill development, access to resources, and networking.

- **Professional groups and individual learners** are actively engaged in a professional career. The groups most frequently targeted by the OLT projects were health care professionals and people working in the trades.

- **Businesses and entrepreneurs** included both large and small business owners either with a significant number of employees or others existing as a one-person home-based enterprise. Included here also were associations representing entrepreneurs within particular types of business.

- **Educators and students** were found within formal or informal educational settings, in the workplace and in the community. The learning was provided through on-line curricula, on-the-job training programs, or with community-based continuing education courses.

Chart 3. Targeted Learners

Noting once more the overlap among the designated categories of learners, the reach of OLT projects extended to wide-ranging and diverse groups of individuals and communities. All NPLT projects involved educators and students (33). Marginalized learners were targeted in 50% or more of the projects in all funding initiatives (NPLT – 17; LTW – 5; ReL – 2; CLN – 20), followed closely by businesses and entrepreneurs, and professionals in the NPLT and LTW funding initiatives. ReL had learners in every category with the exception of rural learners. Generally, there was a smaller representation of rural and remote populations across the funding initiatives.

In several cases, LTW funding initiatives targeted businesses and entrepreneurs involving marginalized learners or learners located in rural and remote areas. One LTW project specifically targeted professional women; another involved people with disabilities.

Over half (20) of the 28 CLN projects targeted marginalized learners. CLN networks were created to reach all age groups, seniors, parents (and indirectly children) and in one case, youth; in six cases these included educators and students. Twelve projects specifically targeted rural Canadians; seven reached businesses and entrepreneurs.

6. GOALS

OLT projects ending in 2003 contributed both to helping Canadians respond to labour market requirements and to achieving personal learning and networking objectives.

Enhanced learning and increased job skills were the most prevalent goals reported across all initiatives. Sometimes the enhancement of lifelong learning was an implicit rather than explicit goal of a project. Almost all of the OLT projects reviewed offered new learning opportunities facilitated by the unique features of computer-based learning, which allow self-pacing, visual presentations, and alternate formats for persons with disabilities and seniors. Aside from project goals that focussed on acquisition of job-related skills or the updating of professional qualifications, OLT projects aimed to reduce the feeling of isolation in the work lives of individuals living in remote areas, including entrepreneurs.

NPLT and CLN projects are distinguishable from one another by the strong focus of the former on testing new approaches to learning and developing new technology-enhanced programs, while the latter emphasized network and community development. Increased awareness and positive attitudes toward the application of learning technologies were generally not found among the project goals. However, these emerged as significant project outcomes, as described below.

7. OUTCOMES

7.1 Enhanced Learning Opportunities

OLT projects demonstrated a wide range of enhanced learning opportunities through technology:

- independent on-the-job learning opportunities for shift workers

- increased use of technological products and e-learning among disadvantaged populations

- access to French language information for Francophones outside of Quebec

- increased awareness of learning assets available in the community

- increased access to resources and information geared to specific age-groups, like seniors and youth

Technology provided a means of communication otherwise impossible due to geographic distances, so that new access to peers, mentors and resource information were all significant outcomes. In one project that involved a coalition of Western farmers, the farmers came together to determine which technologies were most friendly and accessible in terms of meeting their future learning goals. This learner involvement had the immediate benefit of creating enthusiasm for and awareness of learning technologies, in place of what might otherwise have provoked considerable anxiety and apprehension.

The project *Removing Barriers to Professional Development: A Holistic Collaborative Model* (Grant MacEwan College) provided an innovative example of enhanced learning through a well-designed mentoring model. This project used learning technologies to facilitate mentoring that was accessible, supported a range of learning styles, incorporated an active learning model, provided accessible learning, and the shared expertise of a technology facilitator. Since many projects identified learners' lack of technological skills as a barrier to meeting project learning objectives, this project provided an excellent example of how the requisite skills could be developed to assist with the distance delivery of course content.

For many CLN learners, OLT projects did not simply 'enhance' current education or learning resources; they provided new or the sole learning opportunities. In order to increase the use of learning technologies, it was also necessary to facilitate access to the computer hardware. Two projects noted that free client access to computers constituted an essential step in breaking down the Digital Divide. One organization stated that even a small fee for training ($3 – $4 per hour versus a normal $15 per hour) could be prohibitive in terms of accessing Internet training programs.

Some organizations identified technical access for persons with disabilities as an outcome. The Burnaby Learning Network, for example, partnered with the Neil Squire Foundation, which is dedicated to people with learning disabilities. While the initial intention was to target the persons with disabilities through separate activities, the project coordinators soon realized the value that the Foundation's expertise would add to all community partner sites.

7.2 Increased Job Skills

Job-related skill development was one of the most commonly cited outcomes. Projects responding to the needs of unemployed or underemployed persons focused on raising the general education level of disadvantaged learners, in some cases with literacy and numeracy training, and in others, by teaching the skills needed to use the Internet to do job searches for increased access to the labour market. For persons already in a profession, particularly where staying abreast of new information was key (as in health care), OLT projects were used to increase the depth of knowledge in specific aspects of a profession. Some of the projects culminated in new employment opportunities for the learners. Many more provided the learners with skills, access to resources, and a positive attitude to learning with technologies, all of which entailed lifelong personal and work-related benefits.

NPLT, LTW and CLN projects demonstrated that access to learning technologies increased opportunities for workers to engage in self-development, both in and outside of the workplace, by making customizing training more cost effective and efficient. One NPLT project demonstrated that learning through simulation technology could provide fire-fighters with greater ease and flexibility when faced with risky on-the-job situations. Similarly, an innovative LTW project introduced e-learning tools to increase job safety for heavy equipment workers. Through virtual manipulation, the learners operated equipment which would otherwise be considered dangerous and expensive for use during training.

Common outcomes among the work-related CLN projects were the increased capacity of entrepreneurs to use the Web for business skills training, peer contact, and market growth. Several CLN projects focused on creating basic job readiness and self-confidence among the learners. These projects resulted in broadening participants' job searches, while also increasing their computer skills and expanding their general learning – ranging from basic literacy skills to the attainment of college entry-level qualifications. According to the evaluation of the project *Yukon branché* (Association franco-yukonnaise), "85% of respondents confirmed that their learning venture had a positive impact on their professional and personal development."

7.3 Increased Partnerships

Whereas many OLT project applicants had already established partnerships to support their application for OLT funding, additional and sometimes unanticipated partnerships were formed over the course of projects. Educational and academic partners contributed a formal learning infrastructure, related resources, or research tools; business partners and unions provided jobs or internships as well as access to computer hardware; and community partnerships typically expanded the reach among potential project participants.

Across the four funding initiatives, the greatest number of OLT partnerships were created with academic institutions. Most projects had more than one partner involved, and, often from more than one sector. A significant number of partnerships were created among community, government and corporate institutions that fundamentally shaped the value of learning through technologies. These partnerships were vital to the success of the project.

Chart 4. Sector of Partnerships (N = 101)

Health 4%
Other 2%
Corporate 16%
Academic 33%
Government 21%
Community 24%
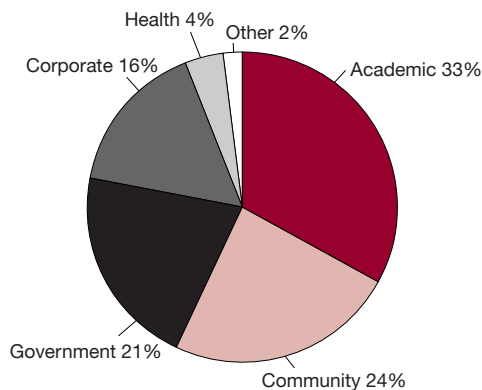
7.4 Improved Networking

Some of the OLT projects benefited existing communities and created new ones, defined by geography, culture, or other shared demographic characteristics. For instance, networks were created among Francophones and immigrant groups living throughout Canada. Collegial relationships were established within particular professional and educational groups, thanks to the possibilities of computer-based learning technologies. Other projects reinforced communities by helping people who live in rural or remote areas share resources and network. Several examples follow.

With an ultimate goal of reducing child and youth suicide, The Education Network of Ontario and the Hospital for Sick Children worked together to create networking opportunities for several related professional groups. While 200 teachers were involved in the pilot project, it is anticipated that over 80,000 will eventually participate in the newly established program. This example demonstrates how OLT-funded project networks not only benefited the pilot project participants, but may continue to extend benefits through future professional development and project sustainability. In this sense, networking was also a vehicle for project marketing.

Youth One was an example of an outstanding CLN project, in terms of using the unique advantages of the Internet to build social networks. The Edmonton-based Support Network capitalized on the anonymity of on-line disclosures in order to create a youth crisis line and support network. To say that the project reached its goal is an understatement. Operated almost entirely by volunteer youth (70 on-going positions), the peer support program features a staff-monitored chat-room frequented by youth in crisis around the world.

7.5 Increased Awareness and Positive Attitudes

Positive attitudes to technology were frequently noted and highly rated as critical outcomes, particularly when resistance was evident at the outset of the project endeavor. People expressed joy and satisfaction related to gaining expertise in the use of technology, above and beyond the specific skills they acquired. Appreciation for the benefits of learning through technology far exceeded the apprehension about being an isolated learner, with limited access to material or human resources.

Typically, adult learners in any educational setting or workplace face personal barriers related to their perception of being 'learners' again. The extremely steep learning curve, linked with what is known commonly as 'adult learner apprehension', suggests that hesitance is not about the use of technology in itself. Poor quality of instruction was frequently linked to negative attitudes about computer learning technologies. On the contrary, good instructors could maximize the students' learning experience, while minimizing frustration they were experiencing with learning technologies.

8. MARKETING AND DISSEMINATION

8.1 Project Marketing

Working adult learners have competing demands for their time, and non-working adults often suffer from a lack of self-esteem that hinders personal initiative. It is essential to alert target groups to the existence and the benefits of learning experiences provided by OLT-funded projects through project marketing and promotion. While NPLT and ReL projects often had a ready and willing academic target population, community and workplace projects (CLN and LTW) were more likely to seek out the participation of the learners. This was commonly accomplished through the use of:

- posters, brochures or pamphlets
- newsletters
- public awareness raising events and presentations
- email correspondence to stakeholders
- Web sites

LTW funding recipients often used electronic communications with various membership groups as a part of their marketing efforts. They also promoted the projects through presentations to professional meetings, public forums, or other community-based groups. Several organizations mentioned the creation of a business plan as useful in promoting workplace projects. Surveys, evaluations, needs assessments and electronic tools were also used during program development.

Among CLN projects, significant efforts were made to build public awareness about CLN projects. Almost all CLN projects (25 of 28) used electronic media for project marketing, including their own Web sites, and those of related organizations, as well as the creation of CD-ROMs and audio-visual materials. Many CLN funding recipients also promoted their projects through personal presentations, often as a part of the project's educational activities. Print and audio media were used in about half the cases, including brochures or advertising in community and organizational newsletters.

Project initiatives were also creatively promoted through the use of magnetic stickers, balloons and gadgets – all with Web addresses. One CLN project invested in a bulletin board to provide updates at the local post office.

8.2 Dissemination of Project Results

OLT project results were reported in presentations at conferences, in the workplace and in the community, as well as articles in journals, company or community newspapers, and annual reports. Links from existing Web sites were a common cyber-avenue for disseminating project results and creating new networks.

Dissemination of research results is common practice in academic and workplace settings. Perhaps this explains the greater emphasis on dissemination practices among NPLT, ReL and LTW projects, in comparison to CLN projects, where journal publications and peer conferences are exceptional. Among CLN projects, results were reported via the Internet, newsletters, community presentations, and by word-of-mouth.

Generally, projects did not specify to whom dissemination or marketing practices were targeted. Among NPLT and ReL projects, results were typically shared with peer researchers and end users. The primary target group for dissemination of CLN and LTW purposes was the end user. Secondary target groups included partners, funders and decision-makers.

9. LESSONS LEARNED

While many positive outcomes were reported by funding recipients, some projects encountered challenges. The lessons learned by these funding initiatives are summarized below according to themes and are equally valuable to future OLT projects.

9.1 Lessons Learned Related to Technology

The project reports highlighted several challenges to the use of new learning technologies, with impacts on either the end-users or the project managers.

The lack of availability of mentors or instructors and the time required to learn about the technology in order to efficiently access the content were key challenges for end-users. Technology, while valued for its accessibility, also created a sense of alienation among newer learners. Bulletin boards, chat rooms, and other forms of synchronous communication helped to alleviate feelings of isolation.

Another challenge reported by project leaders was the unanticipated time and technological problems related to Web site revisions and regular updating of time-sensitive information. This was experienced by a project which promised to provide current weather conditions to determine the application of farm pesticides.

Other challenges across NPLT, CLN, LTW and ReL related to technology included:

- copyright issues related to the use of materials online

- the purchase and application of new learning technologies for an educational or training program that had already begun

- disparity between home and workplace technologies available to learners

- poor response time of instructors to learners' learning needs via the Internet

- limited access to necessary resources (i.e. libraries, discussion with peers)

- feelings of isolation among learners or end users, particularly in the absence of a learner bulletin board or chat line

- limited technical skills of program managers or educators offering an online training program or curriculum

Outmoded technology was identified as a major challenge among community-based projects. Older computers initially offered budget savings, but were incompatible with up-to-date computer software. Difficulties with servers, portals and unreliable Internet connections all created project challenges. The absence of high speed Internet service limited many projects, particularly in rural areas. Some CLN projects opted for simpler Web sites to ensure access. In one case, high speed Internet access became the focus of an initiative to complement the OLT project.

The *Quebec Learner's Network* reported that, "only a few people are interested in technological innovation for its own sake. People in general are busier than ever, and this decreases their tolerance for experimentation."

9.2 Lessons Learned Related to Partnerships

Whereas partnerships contributed to the success of projects, the establishment and maintenance of partnerships were also considered challenges. This was due to a low level of commitment among some project partners. One CLN project reported that in future it would request signed agreements to ensure that everyone understood the partnership requirements.

While often fruitful, partnerships between academic and community-based initiatives encountered obstacles such as cultural sensitivities, disparate professional languages, methods, and in shared goals and activities. While both groups were clearly interested in the project, they differed in their views on how to achieve the goals.

One CLN identified trust as the basis for building partnerships among diverse geographical and social communities, The *Burnaby Learning Network* (Burnaby School District 41) advised future OLT funding recipients to find a trusted intermediary between themselves and the target population to attract and increase the comfort level of the learners.

> "Even our community schools, with excellent grass-roots connections with their communities, experienced enormous problems attracting clientele until a requisite amount of client trust and understanding of computers and their use could be established."

10. EVALUATION

10.1 Evaluation Practices

Project evaluations are mandatory for OLT funding recipients. Project leaders are required to produce interim and final evaluation reports by an independent evaluator. Evaluations provided valuable insights and objective interpretations of the results through focus groups, surveys, questionnaires, interviews, team meetings, and informal communications. External evaluators communicated with a range of stakeholders in a way that leaders and learners could not.

In its final report, the City of Fredericton gave credit to the OLT evaluation requirements for successful project management.

> "Along with the formal evaluation, each of the major milestones had to be evaluated on an on-going individual basis. OLT quarterly reports summarized the activities that did or did not take place during that time period which was an excellent way to keep the project on course."

The capacity among OLT funding recipients to undertake thorough evaluative processes indicated effective management practices, with a willingness to reflect and act on evidence of learning barriers and successes. Opportunities for future project sustainability were maximized by continually evaluating the internal and external environments of the project.

10.2 Integration of Evaluation Results

Evaluation processes assured that programs were responsive to the changing priorities of the users. Several organizations noted that periodic evaluations helped to correct or reorient their projects, for example: increasing the user-friendliness of a Web site or program or developing new strategies for the promotion of the project.

Evaluation can also provide a means of noting and celebrating progress. The *Upper Skeena Learning Community Partnerships* (Upper Skeena Development Centre) reported that evaluation meetings were a sharing period in a safe place where 'conflicts could emerge and be resolved.'

> "Informal weekly reflection tools were used by the staff, as well as reflective diaries used by each practitioner and a field diary used by staff. These evaluation processes were used for guidance and direction, as well as a tracking process and to capture learning."

11. STRATEGIES FOR PROJECT SUCCESS

The development of a strong e-learning environment demands multi-tiered strategies put in place to support access to learning. Among successful OLT projects, strategies were developed to:

1. Promote the project at the outset and disseminate end results.

2. Reduce apprehension among learners.

3. Ensure accommodation of individual learners' needs and learning styles.

4. Keep the project well-managed and on track.

11.1 Project Promotion and Dissemination of Results

Many of the successful projects, particularly among LTW and CLN, allocated significant time and resources to project promotion, most commonly through targeted electronic and print advertisement, as well as personal presentations. The most effective campaigns sought learner or community engagement in setting out project goals and activities as an indirect way of seeking 'buy-in.' To attract learners, at least two projects created partnerships among trusted associations of the target group.

Other factors for success include: ensuring that the legal and regulatory practices are in place, that computer hardware, software and Internet servers will all be made available, and that staff have and demonstrate supportive attitudes. Where project initiatives relied on the relationship of the learner to an intermediary, for instance volunteer trainers or teachers, more than one organization emphasized that the intermediary must be committed to the project and convinced of its benefits.

CLN funding recipients identified the time involved in developing the product as the greatest challenge. One report identified marketing delay as having significant negative implications for project success. The general advice among the funding recipients was to begin project promotion as soon as possible.

Dissemination of project results through the sharing of academic papers, presentations and Web site links, helped to promote the projects. Especially among NPLT projects, results were disseminated through the addition of new courses to university curricula. In a few cases, the success of the projects gained wider recognition through the acceptance of national and international awards.

11.2 Reducing Apprehension Among Learners

The principles that guide adult learning in all settings apply to the learning environments in which information technologies are used. Successful projects considered specific strategies to minimize the fears that predominate among adults who had not yet been introduced to learning technologies such as in-person demonstrations and peer testimonies of the benefits of the learning technologies. Trust was also critical to successful learning. According to the *Quebec Learners' Network*, the initial introduction of the project to the learners is key to creating a positive attitude towards it.

> "The extra effort and money put into a strong, clear message of who you are and what you do will save the time and resources otherwise needed later to counter myths and misconceptions about your project."

Borrowing from adult learning principles that invite 'champions' to mentor and support adult learners, the *Workplace Online Reskilling Center* (Office for Partnerships for Advanced Skills) introduced the concept of an 'e-champion.'

> "Working with two industry sector organizations, an initial cohort of 30 "learning champions" …were provided with a two-day workshop to equip them to learn online and encourage workplace peers to do so. The results of the project were dramatic. The demand for this assistance was so great that the project was extended and the number of participants far exceeded the target of 600…. The clear message here is that working people want and need assistance to gain proficiency in online learning."

11.3 Accommodating Learners' Needs and Learning Styles

Among the OLT projects reviewed, learners' needs included adaptive equipment for disabled persons, multiple formats of information presentation, and program access through dial-up service versus digital service. A common need among economically disadvantaged populations was easy accessibility to the computer hardware. Access points included community centres, libraries, and schools in rural and remote settings. Partnerships were created with the centres often providing the hardware and complementary expertise to ensure that a shared vision and strategy would guide the project.

The *Gold Country Communities Society* offered other strategies for meeting learners' needs and learning styles:

- Connect the needs of the community with the skills available, and proceed to fill the gap

- Recognize that no two learners require the same level of guidance

- Honour cultural and heritage learning differences

- Constantly adjust to the times and resources available

11.4 Evaluation as a Project Management Tool

Evaluation is a means to learn from project progress, to identify changes in learners' priorities and to respond to challenges from internal and external elements. Through evaluation, some OLT funding recipients redirected attention and resources to evolving priority areas. Interim evaluation results were helpful to the management of other aspects of the project, including relationships with partners. Final evaluations allowed the project coordinators, institutional management, partners and other stakeholders to learn valuable lessons for future endeavors.

Several project coordinators reported that the use of an external evaluator was key to their project success, thanks to the objectivity and new insights they brought to the program. External evaluators were most effective when they were involved in the development of the evaluation framework, and when they maintained an overview of project progress through periodic reviews. The most successful evaluation began with baseline data and the identification of verifiable expected results, and data collection and analysis were continuous up to the final evaluation and report.

12. CONCLUSION

The projects which ended in 2003 had a stronger emphasis on rural and remote communities, and communities in the Prairie and Atlantic regions. They also reflect a shift toward the creation of peer networks among groups who encounter barriers to learning.

The CLN projects reviewed tended to focus on the facilitation of broad access to learning through technologies, often with consideration to innovations required for access by disabled persons and persons with special learning needs.

Projects completed in 2003 demonstrate the increasing prevalence of learning technologies to meet the informal learning needs of today's Canadians from all demographic and socio-economic groups. Outcomes were not limited to the personal gains of individual learners, but entailed significant steps toward the future development of local and regional communities undergoing economic transition.

APPENDIX A. PROJECTS ENDING IN 2003 BY FUNDING INITIATIVE

Community Learning Networks (CLN)

Project #	Name of Organization	Project Title
89271B	Société d'aide au développement de la collectivité (SADC) *http://www.megacom.net/~sadc/RACCORD/index.html*	Raccord Matawinie
89279B	Association Francophone de Campbell River *http://www.afcr.bc.ca*	Élaboration d'un centre d'expertise bilingue à Campbell River
89281B	Société éducative du Nouveau-Brunswick *http://www.senb.org/*	Développement d'un réseau d'apprentissage communautaire pour les entrepreneurs à domicile du sud-est du Nouveau-Brunswick
89286B	Association Franco-Yukonnaise (AFY) *www.afy.ca*	Yukon branché
89289B	Monashee Learning and Training Centre *http://www.monashee.com*	White Valley Community Resource Centre Society
89290B	Destinations Canada Ouest Inc. (DCO) *http://www.tourismebranche.net*	RAC pour l'industrie du tourisme
89291B	La Société éducative de l'Alberta *http://www.infojob.net/sea/francais/famille.html*	La famille de l'an 2000
89292B	Réseau des SADC du Québec *http://www.reseau-sadc.qc.ca*	Formation continue "sans papier"
89300B	Centre des services communautaires de Vanier *http://mlc.ncf.ca*	Millennium Learning Centres
89306B	Upper Skeena Development Centre *www.upperskeena.ca*	Creating A Learning Community Through Service-Learning
99232B	Deline Land Financial Corporation *http://www.deline.ca/index.html*	DelCommNet – Deline Community Learning Network
99235B	University of Regina, Seniors' Education Centre / CATALIST *www.catalist.ca*	CATALIST network

Community Learning Networks (CLN) *(continued)*

Project #	Name of Organization	Project Title
99236B	Société pour l'apprentissage à vie (SAVIE) *http://www.savie.qc.ca*	Centre d'expertise francophone communautaire
99237B	Media Awareness Network (MNet) *www.media-awareness.ca*	Web Awareness Canada
99238B	Gold Trail Open Network Society *www.gtnet.ca*	Regional Learning Network
99256B	Newfoundland and Labrador School Board Association (NLSBA) *http://www.nlsba.nf.ca/nlsba.shtml*	NLSBA Learning Network
99257B	Quebec Learners Network *http://www.qln.ca/*	Quebec Learners' Network
99274B	Burnaby School District 41 *http://sd41.bc.ca*	Burnaby Learning Network
99276B	Design eLab & Electronic Commons Research Network *www.ecommons.net*	Electronic Commons
99286B	The Support Network *youthone.com*	Edmonton Youth Online Project
99292B	Canadian Institute of Child Health *http://www.cich.ca/*	e-Parenting Network
99299B	L'@venue, centre Internet communautaire *http://www.arrondissement.com*	Portail Internet Communautaire
99332B	L'Union des Cultivateurs Franco-Ontariens (UCFO) *www.lavoieagricole.ca*	La connexion d'apprentissage Franco-Agri-Tech
99373B	SADC D'Autray *www.reseautray.qc.ca*	Le Réseau de références et d'apprentissage interactifs de D'Autray
20072B	Lillooet Learns *http://lillooetlearns.ca*	Lillooet Learns!
20080B	Random North Development Association *http://www.nald.ca/PROVINCE/NFLD/ lfg/shoal/random.htm*	Linking Social and Economic Development Through Community Learning Networks

Community Learning Networks (CLN) *(continued)*

Project #	Name of Organization	Project Title
20176B	National Education Association of Disabled Students (NEADS) *www.neads.ca*	NEADS CampusNet Project
20209B	J'aime Apprendre Inc. *http://www.unexia.com/action/*	Site de formation à distance pour alphabétiseur(e)s

Learning Technologies in the Workplace

Project #	Name of Organization	Project Title
20069WB	Tourism Standards Consortium (Western Canada) Inc. *URL not available*	Electronic Needs Assessment for Workplace Training, Using National Occupational Standards
20081WB	Alberta Forest Products Association *http://www.albertaforestproducts.ca/*	Teaching Workplace Literacy as a Safety Initiative in the Forest Industry
20082WB	Corporation of the City of Fredericton *www.cybercrimecourse.org*	Web Based/On-Line Training Model for Investigation of Internet and Computer Crime
20089WB	Société d'aide au développement de la Collectivité d'Achigan-Montcalm *www.sadc.org/*	E-Business continuous and Interactive Learning Center for the rural SME
20091WB	Office for Partnerships for Advanced Skills (OPAS) *http://www.opas-partnerships.com/*	WORC – Worker Online Reskilling Centre
20093WB	Cultural Careers Council Ontario *http://www.workinculture.on.ca/*	Interactive, Online Case Study Learning Application
20094WB	Random North Development Association *http://www.nald.ca/PROVINCE/NFLD/ lfg/shoal/random.htm*	Pilot Delivery of Technology Enhanced Education
20106WB	Conseil de développement de la Nouvelle-écosse *www.cdene.ns.ca/*	Programme d'amélioration des compétences en commerce électronique
20118WB	Industry Training and Apprenticeship Commission *http://www.learnandearn.bc.ca/*	Industrial Hydraulics E-learning Program for the Trades
20179WB	Association of New Brunswick Registered Nursing Assistants (ANBRNA) *URL not available.*	Reducing Training Barriers for Rural Canadian Licensed Practical Nurses

New Practices in Learning Technologies

Project #	Name of Organization	Project Title
99525	College of the North Atlantic, Distributed Learning Centre, Clarenville Campus http://dls.cna.nl.ca	Developing and Evaluating Learning on Demand in a Refinery
99530	Ludolettre, Centre d'éducation populaire www.ludolettre.qc.ca	La formation à distance alphabétisation-internet
99569	Deer Lodge Centre Inc. http://www.deerlodge.mb.ca/	Improving Skill for Preventing and Managing Aggressive Behaviours in Cognitively Impaired Long Term Care Residents Using Interactive CD-ROM Training
99604	Université Laval http://www.gci.ulaval.ca	Utilisation des laboratoires à distance dans la formation continue
20087	Concordia University, Native Access to Engineering Programme http://www.nativeaccess.com	Distributed E-Learning Community for First Nations Science Education
20300	Assiniboine Community College http://public.assiniboine.net/	Industry Certification: A Technology Enhanced Testing Tool
20304	Fire etc. (Emergency Training Centre) / OLD Alberta Fire Training School http://www.fire-etc.ca/	Evaluating Multi-Modal Computer Based Fire Fighter Training
20312	Télé-université (Université du Québec) www.teluq.uquebec.ca/	Projet Qualités (gestion de la qualité en formation continue)
20315	Athabasca University http://www.abcounsellored.net/	Campus Alberta: Counsellor Education Initiative
20318	Grant MacEwan College http://learn.gmcc.ab.ca	Removing Barriers to Professional Development: A Holistic Collaborative Model
20321	Cree Regional Authority www.envcree.ca	Development and Evaluation of a Pilot Environmental Learning and Resource Web site Designed to Support Local Environmental Administrators
20322	Memorial University http://www.mun.ca/	Study of a Distributed Learning System for Instruction in Health Professional Education
20328	Canadian School Boards Association http://www.cdnsba.org/	School Governance Development Program

New Practices in Learning Technologies *(continued)*

Project #	Name of Organization	Project Title
20332	Simon Fraser University *www.telementoring.ca*	The Telementoring Orchestrator
20337	Confederation College of Applied Arts and Technology *http://www.confederationc.on.ca/*	The Employability Skills Program: New learning models for job entry/re-entry
20341	Grant MacEwan College *http://www.hcs.gmcc.ab.ca/ palliative/distributed*	Distributed Palliative Care Programming in a Large Rural Health Region
20342	Cégep de Chicoutimi *http://abc.virtuelle.ca*	ABC des déplacements sécuritaires à domicile pour les aidants naturels aînés
20347	Agriculture Institute of Management in Saskatchewan *http://www.sccd.sk.ca/aims/*	Evaluation of Distance Education Alternatives for Western Canadian Farm Families
20350	Nunavut Arctic College *http://www.nac.nu.ca/*	Nunavut Arctic College/Carleton University – BA Course Delivery
20351	University of Ottawa *http://www.uottawa.ca*	Enhancing Research Use Through On-line Action Research
20355	Cambrian College of Applied Arts and Technology *http://homepages.cambrianc.on.ca/snrrc/*	Transitional Access for Northern Youth with Disabilities
20357	Athabasca University *http://www.ne-community.com*	A Virtual Learning Community for Adults with Developmental Disabilities and Their Families
20366	University of New Brunswick *http://fitness.unb.ca/demo.shtml*	Choices, Retention, Confidence: The Power of Fluency in Information Technology
20368	British Columbia Institute of Technology *http://www.bcit.ca/*	Designing for Access: Reducing Barriers Through Learner Adapted Content
20371	The Education Network of Ontario *http://hsc.enoreo.on.ca*	Child and Youth Suicide Intervention & Prevention: Online Training for Educators and Caregivers
20373	New Brunswick Community College – Saint John *http://www.saintjohn.nbcc.nb.ca/*	Canadian Learning Exchange

New Practices in Learning Technologies *(continued)*

Project #	Name of Organization	Project Title
20380	University of Calgary *http://www.ucalgary.ca/*	Supporting Adults to use Assistive Technologies to Cope with Written Language Difficulties
20384	Oshki-Pimache-O-Win Education and Training Institute *http://www.oshki.ca*	Developing an Aboriginal Statistics Course for Remote Communities
20385	University of Calgary *http://www.ucalgary.ca/*	Computer-Assisted Instruction for Rural Health Care Training
21020	Saint Mary's University *http://www.stmarys.ca/welcome3.html*	Camera Ready: Learner-Centred Skill Development in Literacy and New Media
21037	Open Learning Agency *http://continuinged.vcc.ca/interpreting/programcourses.htm*	Building Legal Interpreting Capacity in Smaller Communities
21073	University of Waterloo – on behalf of the Co-operative Learnware Object Exchange *http://cloe.on.ca/*	Impact Studies and Interactive Case Studies for the Co-operative Learnware Object Exchange (CLOE)
21084	Association québécoise des utilisateurs de l'ordinateur au primaire-secondaire *http://zoom.cyberscol.qc.ca*	Modèle d'exploitation stratégique de la vidéo pour la formation continue du personnel enseignant

Research in e-Learning

Project #	Name of Organization	Project Title
99294R	Centre AlphaPlus Centre *http://alphaplus.ca/index1.htm*	AlphaRoute Research Project
99541R	The University of Western Ontario *http://www.uwo.ca/*	Assistive Technology and Independent Written Expression in the Workplace
99581R	Athabasca University *http://www.athabascau.ca/*	Advantages and Stressors for Multiple Role Professional Women Using Different Distance Education Technologies
20065R	Canadian Bureau of International Education *www.cbie.ca*	Researching Information and Communication Technology in International Education in Post Secondary Education in Canada