



***EVALUATION OF THE
SCHOOLNET MULTIMEDIA LEARNWARE AND PUBLIC
ACCESS APPLICATIONS PROGRAM***

Prepared for

Information Highway Applications Branch
Industry Canada

Prepared by

Hussein Rostum
KPMG and BYTOWN

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Executive Summary

This report presents the results of a formative evaluation of the SchoolNet Learnware Applications and Multimedia and Public Access Applications Program (henceforth abbreviated to “Learnware Program”). The evaluation was done by KPMG Consulting for the Information Highway Applications Branch of Industry Canada.

PURPOSE

The report describes the Learnware Program and its policy context, and presents findings and recommendations on program evaluation issues. The purpose of the evaluation study was to address the following evaluation questions:

- To what extent is there a continued need for the Learnware Program?
- To what extent is the Learnware Program structure and delivery appropriate?
- What are the results achieved by the Program?
- What are the lessons learned and how can the Program be improved?

APPROACH

The analysis and results of the study are based on a series of interviews with CANARIE Inc. and Industry Canada program staff and management; successful and unsuccessful program applicants; program Selection Committee members; industry associations and other industry stakeholders; and other federal government department representatives involved in similar programs. In addition, a survey was conducted of successful applicants and project managers, and relevant program documents and learnware industry references were reviewed. Lessons learned from other Canadian federal, provincial and U.S. programs, provided additional insights for the evaluation of the Learnware Program.

FINDINGS

Need for the Program

- There is a consensus that federal government support for developing e-learning solutions is as timely today as it was when the Learnware Program was originally introduced. However, the focus has shifted from the *Connectivity Agenda* to improving productivity and “achieving excellence” in the new knowledge-based economy.

- New funding should be focused on achieving commercial development of e-learning solutions and learning platforms. The challenge is to discover the best practices and the appropriate business models that work, to build a program around sustainable partnerships and consortia that address the issues of industry growth and consolidation of supply and demand.

Program Design and Delivery

- The scope and objectives of the Learnware Program were too broad, covering too many potential eligible applicants and applications with different social and economic policy contexts and motivation.
- The connectivity credit requirements of the program were too confusing and ended up being less effective than intended. As one program recipient put it—“it became a paper exercise.”
- Targeting the telcos and cable companies as lead contractors was a failed strategy. The interest of these organizations was primarily in increasing their customer base for their core business. How the Learnware Program would do this for them was unclear, and too risky for the matching investment that they would be required to commit to. Consequently, they backed out of the program.
- The selection process was fair and transparent, but the business plans submitted by applicants were generally weak. The Selection Committee had difficulties in assessing the adequacy of business plans and commercialization potential.
- The program delivery model through CANARIE Inc. is considered successful, providing value for money.
- Program reach fell short in terms of bringing on other sources of funding (e.g., from provincial government departments), and in attracting applicants from the volunteer and non-profit sectors, and libraries and K-12 school boards. The matching funds and minimum funding requirements may have hindered smaller organizations, and smaller-scoped projects, from applying.
- The claims process was problematic in that payments to program recipients took too long by normal standards—sometimes three months or longer. Although, during the latter stages of the program, over the past year, this process has now become more streamlined.
- More communication with CANARIE and IC would have been useful, particularly in setting up opportunities for program recipients from different projects to come together, to interact and to learn from each other’s experiences (e.g., in symposia, workshops, conferences).

Achievement of Results

- Industry is still fragmented. The issue of “consolidating” supply and demand is still prevalent. Creative solutions are required to address this issue – not necessarily to reduce fragmentation, but to understand how to manage it and work with it as a reality.
- There is a need to consult with industry, perhaps through existing regional associations that have e-learning as a strategic priority and as a focus of their activities, to identify the industry’s specific needs and to map out the industry infrastructure—with clarity about the relationships between suppliers and users, and supply chain dynamics. During the consultations for this study, associations have already expressed an interest in cooperating with Industry Canada to undertake a needs assessment study of the learnware sector.
- Competition from U.S. and European firms is a big challenge—even more than before, when the Learnware Program was first introduced. Some organizations in these markets have matured and captured market share faster than Canadian organizations. A strategic benchmarking study is needed to assess the competitive differences between Canadian, U.S. and European organizations.
- There is a need to develop a Canadian national e-learning policy framework and forum for coordinating the diverse federal government programs, to improve effectiveness in government support and to avoid duplication.
- The need to improve marketing skills and distribution channels is still a priority, in that developers and suppliers of learnware products generally lack these attributes. While the Learnware Program has contributed to improving skills and building capacity, the limited number of projects, and the slow sales cycle of these projects, suggests that the Program results are not adequate to address the full scope of this issue at the national level.
- There is some indication that the program helped in facilitating partnerships, but not to the full extent originally anticipated. The partnerships forged as a result of the Program signify only a limited success in bringing together “content” partners with “marketing” and “technology” partners.
- Only 7 percent of program recipients said that their partnership arrangements led to better access to markets and to potential users of their learnware products.
- None of the program recipients felt that they would have proceeded with their projects within the same timeframe, if they had not received Learnware funding. As such, the Program has had an incremental effect, stimulating the development of learnware products, albeit within the limits of the eleven projects funded.
- The Learnware projects funded are falling short in terms of time to market and reasonable sales cycles anticipated. But, generally, program recipients believe their

participation in the Program is producing learnware applications with promising commercial potential.

- Projects are still just getting close to their commercialization phases. It may not be for another year before Industry Canada sees any payback. At the time of writing the evaluation report, only two projects had been close to commercializing and making profits.

Program Options and Lessons Learned

- The program was inherently on the right track with respect to its objective of improving access to the Internet and the *Connectivity Agenda*. The opportunities were seen by the phone and cable companies to be in this component of the program. However, connectivity and access are being achieved more effectively through other program initiatives—the Learnware Program may not have been an effective way to address these strategic directions in the first place.
- The Learnware Program is commendable in that it introduced a mechanism of sharing risk between government and recipient organizations, but the program is not as clear about how risk-sharing between recipient partners is to take place. This is an important factor to consider in the program design and criteria, if the benefits of developing sustained partnerships are to be realized. For example, during the project evaluation stage, questions should be addressed relating to whether the partners have adequately defined their respective roles and responsibilities, the nature of their commitments to each other and to the project, the motivations of the partners (are they compatible?), the extent of their respective contributions, and the legal/contractual arrangements between the partners.
- Useful program models to emulate include the TVOntario Lifelong Learning Challenge Fund (currently being evaluated by TVOntario); the New Media Fund of Telefilm Canada; and the programs of the Office of Learning Technologies (HRDC). These programs have somewhat different design and delivery aspects than those of the Learnware Program—namely, they have: narrower scopes and objectives; tighter eligibility criteria for projects and applicants; a range of projects, between them, from small, medium to large funding; simpler concepts for eligible matching funds; more streamlined contract negotiation and contract closure procedures and requirements; and communications and events for building synergy between program recipients.
- In all the aforementioned elements, the TVO Lifelong Learning Challenge Fund seems to have worked well, but a program and project evaluation study of this Fund is pending from TVOntario to better assess this matter.
- Several individuals consulted in the learnware industry sector have suggested that IC should create a network portal for exchanging industry and program information—to foster e-learning best practices, stimulate networking opportunities, and support standards and quality development, and other related points of interest, for the learnware sector as a whole. Specific models to review for this are: the initiative

known as “LearnAlberta.ca” (a learning repository project under development) and the “Health Infoway” portal developed by Health Canada.

- It was suggested by learning industry representatives that government should help in developing quality and performance standards for e-learning solutions, and for development of online learning environments and management systems (learning platforms). There is a need to look into learning management systems and platforms, to determine how this potentially reduces costs of development for learnware deployment and commercialization.

RECOMMENDATIONS

Program Need

1. Introduce a new learnware program with significant program design changes to address the lessons learned—specifically as laid out in the other recommendations listed below.

Program Design and Delivery

2. Remove the following components from the program: “connectivity credits” as a program requirement, the “Funds” approach as a program delivery mechanism, and “access” as an objective of the program.
3. Retain the “growth and development of industry” objective, but link this to productivity improvement as a strategic direction, and to the “Achieving Excellence” agenda of Industry Canada. Also retain the objective of addressing issues related to industry structure, but first undertake a study to better map out this structure (see related recommendations # 15 and # 16 below).
4. Target industry, including SMEs, as lead eligible recipients and lead contractors in the program—with partnerships and sub-contractors from other target groups (e.g., educational institutions).
5. Permit advances without interest tracking to expedite payments to project claimants, or ensure streamlined claims administration based on acceptable standards of turnaround time.
6. Develop a communications plan to announce winners and projects as they are completed—include role of IC Regional Offices in the plan. Regional Offices should also be involved at the front end, during the design phase of the program, to help promote the program to the appropriate constituencies.

7. Provide funding in the program to hold regular (e.g., bi-annual conferences) to bring program recipients together, to interact and share experiences.
8. Risk assessment in the selection process is an important part of making the right choices—especially if commercialization is to be an ultimate goal. Selection should be partially tuned in to how recipient partners intend to share the risks and whether they have a sustainable proposal for this—i.e., to keep the partnerships together throughout the project, and potentially thereafter.
9. To what extent funding should be allowed for development of course delivery platforms, and flexible (modular) online learning environments, should be considered in consultation with industry. This could impact on who participates in the program and the types of applications needed, and funded.
10. The program should focus exclusively on industry-led contractors—or Industry Canada should develop separate program components, designed and customized differently for an industry lead, an educational institution lead, and/or other target group lead. There are different dynamics, operational considerations, and motivations involved, depending on who leads the project—and in each case this requires program design refinements.
11. Continue to deliver learnware programs through CANARIE, but the financial procedures between Industry Canada and CANARIE should be streamlined in future programs—to alleviate the cash flow issues identified by program participants, with faster turnaround.
12. There is a need to include publishers on the Selection Committee, to reach out to and facilitate participation by this sector; and members or observers from other government programs, to encourage interdepartmental synergies in program design and delivery.

Policy

13. The government can help support industry growth by itself becoming a purchaser of the learnware products produced in Canada. A “buy-Canadian” approach, from Canadian suppliers, could be made explicit for government e-learning procurements.
14. There is a need to develop a multi-level coordinated initiative between Industry Canada, Human Resources and Development Canada, Canadian Heritage, Health Canada and other federal departments, to address e-learning from within a coherent national policy framework—particularly as it impacts on the corporate, non-profit, and academic communities, and the general public.
15. Industry Canada should undertake an industry needs study, in collaboration with e-learning associations, to map out the current demographics of the industry in Canada,

and the competitive challenges, opportunities and threats—and to identify how the e-learning business infrastructure best works, in terms of streamlined supply chain relationships, partnerships, and strategic alliances.

16. Industry Canada should also undertake a strategic benchmarking study to identify best practices and competitive challenges between U.S. and European based e-learning suppliers and Canadian suppliers. Particular attention should be placed on studying the best practices and the dynamics of moving learnware products from the R&D stage to successful commercialization.

I. Background

This report presents the results of a formative evaluation of the SchoolNet Learnware Applications and Multimedia and Public Access Applications Program.¹ The evaluation was done by KPMG Consulting for the Information Highway Applications Branch of Industry Canada.

1.1 Purpose

The report describes the SchoolNet Learnware Program and its policy context, and presents findings and recommendations on program evaluation issues. The purpose of the evaluation study was to address questions related to the following areas of investigation:

- need for the program
- program design and delivery
- results of the program to date
- lessons learned.

The evaluation is intended to provide Industry Canada management and CANARIE Inc. with feedback on the program with respect to these issue areas. The Learnware Program is an initiative of Industry Canada's SchoolNet II program, which provides funding to assist with the development of online learning content and applications aimed at facilitating online learning, and to assist with the development of the learnware industry. As a component of the government's *Connecting Canadians Agenda*, the Learnware Program contributes to the overall strategic commitment of keeping the country competitive in today's global knowledge-based economy.

1.2 Program Background

1.2.1 Objectives and Requirements

The SchoolNet Learnware Program had five stated objectives:

- to consolidate supply and demand within Canada's fragmented new media learning sector;
- to improve the availability of learning and public access opportunities for Canadians;

¹ In this report, the program will be referred to as "SchoolNet Learnware Program" or "Learnware Program" for brevity.

- to populate Canada's Information Highway with high quality Canadian learnware and public access applications;
- to stimulate the growth and development of Canada's new media learning and Internet applications industries; and
- to improve access to the Internet for schools, libraries, community access centers, and volunteer organizations.

Industry Canada originally made available up to \$20 million for the SchoolNet Learnware Program. Funding was available to firms, non-profit organizations, and consortia willing to match Industry Canada's contributions in order to establish joint funds for the production of multimedia learnware and public access applications for the Information Highway.

Joint investment—Industry Canada was willing to support up to 50 percent of the costs for all stages of product development and distribution. This included costs for:

- planning, design, implementation, commercialization, marketing, promotion, and distribution of a product or products;
- market research, prototype development, technical testing, and market testing of a product or technology;
- acquisition of materials, equipment, or services required for planning, design, implementation, commercialization, marketing, promotion, and distribution of a product or service.

Revenue sharing—Because Industry Canada was willing to share the risks of product development, joint funding partners were required to repay to Industry Canada an amount equal to Industry Canada's share of joint investments. Repayment was based on the partner's overall revenue, and repayment was to be made until 125 percent of Industry Canada's investment was recovered or for five years.

Small and Medium-sized Enterprises (SMEs)—For the purposes of the Learnware Program, SMEs were defined as organizations that employ not more than 150 individuals. At the time a project was approved, the SMEs had to be Canadian-controlled corporations. That is, they were to be incorporated in Canada and wholly owned directly or indirectly by Canadians. In aggregate, not less than 50 percent of product development expenditures by a joint fund were to be allocated to Canadian-controlled SMEs.

Connecting Canadians—Investment in joint funds by Industry Canada was contingent upon support from joint fund partners to the objectives of the *Connecting Canadians Agenda*,² with a value of five times the amount of Industry Canada's investment. This support was to be directly related to improving access to the Internet for schools, libraries, communities, or volunteer organizations and could take the form of financial contributions or of cost reductions on equipment or services.

² *Connecting Canadians: An Agenda for the Knowledge Economy and Society*, Industry Canada, 1998-1999.

Intellectual Property—Industry Canada was to retain a non-exclusive, royalty-free license to the product(s) developed by a joint fund. This license would expire at the end of the term of the agreement between CANARIE Inc. (on behalf of Industry Canada) and the joint fund partner, and was to be for non-commercial purposes only. The license would include the right to reproduce, communicate to the public by telecommunication, perform, and translate the materials associated with the products and to sub-license others to do so.

1.2.2 Selection Process and Criteria

Selection Process—the formal process for assessment of proposals under the Learnware Program was as follows:

- CANARIE staff reviewed all proposals received to ensure that mandatory requirements were met.
- The Selection Committee reviewed qualified applications and developed a short list of potential funding candidates.
- Short-listed applicants were asked to provide a detailed business plan to CANARIE Inc.
- CANARIE reviewed the business plans submitted by the short-listed applicants.
- CANARIE staff met with each short-listed applicant to discuss identified shortcomings.
- Applicants addressed the issues discussed and re-submitted their refined plans.
- The Selection Committee reviewed the revised business plans and made recommendations to Industry Canada.
- Industry Canada forwarded the recommendations to the Minister of Industry Canada for consideration.
- Industry Canada directed CANARIE staff to negotiate contracts with successful applicants, ensuring that issues raised by the Selection Committee were addressed.

Selection Criteria—Proposals were subject to two sets of selection criteria: *criteria for funds* and *criteria for projects*.

The *criteria for funds* were:

- relevant experience in the area of multimedia learnware and/or on-line public access applications;
- financial, business and marketing stability and viability;
- impact on new media learnware and Internet applications industries;
- support of the Canadian government's Connecting Canadians Agenda.

The *criteria for projects* were:

- nature and quality of the project;

- impact on new media learnware and Internet applications industries;
- quality of project plan;
- return on investment potential;
- increased accessibility—Connecting Canadians *Agenda*.

Fund proposals that did not include a specific project or projects were to be subject to a two-stage evaluation process. Initially, this meant they were to be evaluated according to the criteria for funds. Proponents of funds selected from the initial stage were then to submit proposals for projects, which were assessed according to the criteria for projects. *Fund proposals that included a specific project or projects* were subject to only a one-stage evaluation process. They were assessed according to both the criteria for funds and the criteria for projects at the same time.

Selection Committee—Proposals to establish joint funds under the SchoolNet Learnware Program were evaluated for selection by an arm’s length committee of experts established by Industry Canada. This Committee included representation from universities and colleges, multimedia industry, libraries, community organizations, and the information highway.

1.2.3 Administration by CANARIE Inc.

The selection process, and all Industry Canada funding for the SchoolNet Learnware Program, was administered by CANARIE Inc. (Canada’s Advanced Internet Development Organization). All successful program participants worked directly with CANARIE to establish their joint fund and to implement funding for product development.

The program was based on a “third-party” delivery model. CANARIE Inc. represented the administrative component of this “third-party” program design. CANARIE also provided lead contractors with advice and assistance in identifying partnerships with SME sub-contractors. CANARIE Inc. is a not-for-profit, industry-led and managed consortium which was created as an innovative way for the federal government, the research community and the private sector to collaborate in stimulating the development of the Information Highway in Canada. Its mission is to facilitate the development of Canada’s communications infrastructure; stimulate next-generation products, applications and services; and, communicate the benefits of an information-based society. All successful *Learnware* Program participants worked directly with CANARIE to establish their joint funds and projects, and to implement funding for product development.

Industry Canada had overall program design and oversight responsibilities, and observed in the selection process, and in monitoring and evaluating the program.

1.3 The Original Policy Context of the Program

The Learnware Program is one of the SchoolNet series of programs and activities, which are related to providing Canadians with increased computer access to the Internet (i.e., increased “connectedness”) and facilitating their use of this access to address a variety of needs.

SchoolNet initiatives are programs of the Information Highway Applications Branch (IHAB) of Industry Canada. IHAB’s vision has been to use the Information Highway to build Canadians’ skills and knowledge to promote Canada’s economic competitiveness and social well-being.

There are several programs that comprise the SchoolNet initiative. The Learnware program is consistent with the overall objectives of SchoolNet. The specific objectives of Learnware were listed above in Section 1.2.1. The original mandate of the SchoolNet program as a whole, put forward in November 1994, was to help “connect all 16,500 schools and 3,400 libraries in Canada by 1998”. This mandate was considerably expanded since that time, partly because of the success of the program in fulfilling its original mandate and partly because connectedness (in 1998) had become a much higher priority of the federal government. The SchoolNet Program became a key part of the government’s *Connectivity Strategy*, the overall goal of which was described in the 1997 “Speech from the Throne” as follows:

We will make the information and knowledge infrastructure accessible to all Canadians by the year 2000, thereby making Canada the most connected nation in the world. This will provide individuals, schools, libraries, small and large businesses, rural and Aboriginal communities, public institutions, and all levels of government with new opportunities for learning, interacting, transacting business, and developing their social and economic potential.

The *1999 Federal Budget* confirmed this commitment as follows:

The federal government has been implementing a plan to make Canada the most connected country in the world—ensuring that all Canadians will be able to benefit from the knowledge and opportunities for learning that the information highway has created....

Canada’s SchoolNet program is on target to connect all of Canada’s public schools, libraries and First Nations schools under federal jurisdiction to the Internet by March 31, 1999—ahead of both the U.S. and the U.K. SchoolNet is helping teachers and students alike acquire new skills while at the same time fostering the development of a Canadian learnware industry. 3

It was expected that making Canada the most connected country in the world would promote a more innovative and competitive economy. Canadians would be better positioned to capitalize on existing and new economic and market opportunities in the knowledge-based economy. It would enhance Canada’s ability to attract investment from home and abroad. In practical terms, it meant that Industry Canada’s connectedness programs would help make a leading-edge knowledge infrastructure readily accessible to all Canadians.

However, it was also recognized that the main responsibility for building the Information Highway resided with the private sector. The government was helping to create the

³ *Budget 1999: Building a Strong Economy Through Knowledge and Innovation*, February 1999.

environment for achieving these goals through “six pillars” of its connectivity agenda (see Exhibit 1.1). The Learnware Program was directly situated in this so-called *Connecting Canadians Agenda* primarily in the first and third pillars, but Learnware Program activities also indirectly addressed the other pillars. The Learnware Program was also consistent with Industry Canada’s strategic goal of helping build a more innovative Canadian economy – i.e., contributing to building Canada’s knowledge economy.

“Connectedness”, in this context, refers to the process of getting educational institutions and libraries hooked up to the Internet, integrating the Internet into their learning and related activities, and developing applications for public online access to learning opportunities.

As part of the *Connecting Canadians Agenda*, the Learnware Program was expected to help accelerate development of new educational products and services by the Canadian private and non-profit sectors, and by educational institutions; and to contribute to developing Canadian content online to become a leading-edge supplier of online content and public access applications.

Exhibit 1.1: Six Pillars of the *Connecting Canadians Agenda*

Connectedness: Making Canada the most connected nation in the world. Industry Canada has set performance goals against the six pillars of the connectedness agenda.
1. Canada Online: to provide access to a world-leading Information Highway infrastructure and to the learning network.
2. Smart Communities: to encourage communities to become leading-edge users of information technologies through a coast-to-coast network of Smart Communities.
3. Canadian Content Online: to make Canada a world leading-edge supplier of digital learning materials and multimedia content.
4. Electronic Commerce: to create a legal and regulatory framework that will make Canada a global centre of excellence for electronic commerce.
5. Canadian Government Online: to connect citizens and government.
6. Connected Canada to the World: to promote a connected Canada to the world.

1.4 Phases of the Program

BCE Fund—The first phase of the program consisted of an unsolicited proposal from Bell Canada Enterprises Inc. (BCE) to set up a joint fund with Industry Canada in 1998, to undertake learnware applications projects. This first joint fund was originally composed of \$9 million from BCE Inc., to be matched by a \$9 million contribution from Industry Canada. Under this Phase, all funds were to be reviewed by a Steering Committee composed of an equal number of representatives from BCE Inc. and CANARIE Inc. Two projects under this fund were eventually approved to go forward (two contracts were signed for \$880K and \$650K, respectively).

First Call for Proposals—With respect to the remaining funds available in the Learnware Program (\$10 million), two calls for proposals were completed in 1999. In the Spring of 1999, Industry Canada and CANARIE Inc. issued a first call for proposals for the first round

of the SchoolNet Learnware Program. Applicants were asked to submit their preliminary proposals to CANARIE by May 31, 1999. 57 proposals were received, with 49 applications meeting the mandatory criteria. Ten projects were short listed by the Selection Committee, and proponents of these projects were asked to submit a detailed project and business plan for further review by the Selection Committee. As a result of this competition, five proposals were eventually approved for funding for a total of \$3 million. One successful first-round applicant subsequently withdrew from the program.

Second Call for Proposals—Industry Canada and CANARIE issued the second call for proposals for another round of the SchoolNet Learnware Program on September 30, 1999. CANARIE assisted Industry Canada in promotion of the program by making presentations in Vancouver, Calgary, Winnipeg, Toronto and Montreal. Applicants were asked to submit their preliminary proposals to CANARIE. A total of 46 preliminary proposals were received by the closing date of November 12, 1999. The Selection Committee reviewed all preliminary proposals and identified a short list of nine projects which proceeded to the next step: the submission of a business plan. Out of the nine short listed projects, seven were approved for funding for a total of \$6.9 million. Two successful second-round applicants subsequently withdrew from the program.

Exhibit 1.2 provides a summary of the original, approved project funding for the first and second Calls for Proposals. Three of the proponents have since withdrawn from the program, not proceeding with their projects under the program.

**Exhibit 1.2: Summary of Original Learnware Program Awards:
First and Second Calls for Proposals, and BCE Fund**

LEAD APPLICANT	PROJECT TITLE	AWARD
FIRST CALL FOR PROPOSALS		
Confederation College, LISME	SME Global Learnware Development & Marketing	\$500 K
Logo Computer Systems Inc.	Internet Construction Kit	\$600 K
University College of the Fraser Valley	CanLearn	\$700 K
Memorial University, Newfoundland *	Health Promotion Learnware Fund	\$500 K
EI Education International Ltd.	On-line Academic Counseling Services	\$700 K
TOTAL		\$3,000 K
SECOND CALL FOR PROPOSALS		
Nuratek	Web Tools Distance Education	\$614K
CIODE *	Work to School Transition Program	\$1,300K
Innova	Whale of a Tale K-3 Lesson Subscription Service	\$513K
University of Saskatchewan / Inroad	This Land	\$500K
Tyndal Stone Media	Language World	\$997K
NAIT *	The Trades Training	\$515K
Ingenuity Works	The Learning Window	\$2,500K
TOTAL		\$6,939 K
BCE FUND PROJECTS		
Cogigraph Technologies Inc.	Explora II	\$880 K
Solutions Alto Inc/University of Montreal	ALTO	\$650 K

* These three projects withdrew from the program.

II. Approach

The approach of the evaluation is tailored to address the particular issues identified for the study. The study is a *formative* evaluation since the Learnware Program projects are mostly still ongoing; and expected results and overall impacts of the program have not yet fully matured to yield measurable returns.

2.1 Evaluation Issues

The evaluation issues addressed in this study are generally related to the underlying logic associated with the program. Any government program usually has a context, a *rationale* for being introduced as a government initiative; and the program's underlying logic links this rationale to the program's major activities, and to its outputs, impacts and the ultimate achievement of its objectives.

The *program activities* are the major tasks and any powers or functions that characterize the program and that are performed or administered by the program personnel. The *program outputs* are the results directly controlled by or derived from the program, and distributed outside the program organization. The program *impacts*, as well as the ultimate achievement of *objectives*, are the results of the program activities and outputs—they are the chain of outcomes that occur outside the program on society or parts thereof. Listed below are key elements of these various components of the Learnware Program:

Rationale:

- need for the program related to *Connecting Canadians Agenda*
- growth and development of the Canadian learnware industry
- public access to the Internet and new media learning opportunities for Canadians.

Program activities:

- program design
- selection of projects
- contract negotiation and disbursement of funds
- program management and administration
- monitoring and evaluation.

Expected program outputs:

- joint funding partnerships

- industry and user participation in the program (including participation by SMEs, non-profit organizations, libraries, educational institutions, Internet service providers and cable companies, communities and volunteer organizations)
- learnware and public access applications projects
- learnware content and related software applications projects
- improved access (by program participants, including SMEs) to capital and information, and awareness of government services, programs and related regulations.

Impacts (*results which occur outside the program on society or parts thereof*):

- accelerated development of new educational content products and related applications
- stability of the Canadian learnware industry, including small companies
- improved Internet access for educational institutions, libraries, community access centres, and volunteer organizations
- improved distribution benefits for Canadian learnware products
- contribution to increased export sales potential
- contribution to jobs and wealth creation.

Objectives achievement:

- consolidation of supply and demand in the Canadian multimedia learning sector
- improved availability of learning and public access opportunities for Canadians
- high-quality Canadian learnware and public access products
- growth and development of multimedia learning and Internet applications industry
- improved access to Internet for schools, libraries, community access centres, and volunteer organizations.

The evaluation issues addressed were designed around the program logic as follows:

- **Rationale:** To what extent is there a need for the Learnware Program?
- **Program activities:** To what extent is the Learnware Program structure and delivery appropriate?
- **Program outputs and impacts:** What are the results achieved by the Program?
- **Improvements:** What are the lessons learned and how can the Program be improved?

Since this is only a formative evaluation (see Section 2.3 below), questions related to impacts and achievement of objectives are only partially addressed. Sections III and IV of this report present the findings and analysis of issues.

2.2 Methodology

The analysis and results of the study are based on a series of interviews with CANARIE Inc. and Industry Canada program staff and management; successful and unsuccessful program applicants; program Selection Committee members; industry associations and other industry stakeholders; and other federal government department representatives involved in similar programs.

In addition, a survey was conducted of successful applicants and project managers, and relevant program documents and learnware industry references were reviewed. Also examined were online and offline resources and information materials of organizations involved in learnware product development and distribution.⁴

Overview of interviews:

- Forty interviews were carried out with Learnware program participants and other e-learning experts and stakeholders. The number of interviews by group of interviewee are summarized as follows:

Interviewee Group	Number of Interviews
CANARIE Inc.	5
Industry Canada	4
Unsuccessful applicants	5
Approved firms that withdrew from the program	2
Selection Committee members	2
Industry Canada regional representatives	5
Cable and phone companies	2
Associations	5
Other government programs	6
Follow-up interviews with successful project applicants*	4
Total Interviews	40

* Successful applicants were also surveyed (see overview of survey below).

- In total, eight interviews were done in person, with the remainder done by telephone.
- A list of individuals interviewed is provided in Appendix C and a list of the interview questions is in Appendix D
- The interview questions addressed issues related to program rationale and delivery, as well as issues concerning program results and lessons learned. Questions about the

⁴ Appendix A provides a list of references and documents reviewed and Appendix B provides a list of individuals interviewed and surveyed. The remaining Appendixes provide the questions and responses to the interviews and survey.

need for government support to e-learning and alternative program approaches and improvements were also discussed with interviewees.

Overview of survey:

- Out of a possible 23 survey respondents, 19 responses were received, achieving an overall survey response rate of 83 percent.
- Thirteen “for-profit” organizations and six “non-profit” organizations responded to the survey.
- Eleven respondents indicated that they are predominantly “private sector” organizations; two indicated that they are “government” related; four are predominantly “educational” organizations; and one indicated it is a “community group”.
- Ten of the respondents indicated that they were prime contractors, and nine indicated they were funded by Learnware “indirectly” as sub-contractors.
- The total Learnware funding, as reported in projects represented by the survey respondents plus BCE projects, add up to approximately \$13.3 million. Federal support for these projects through the Learnware Program is calculated to be \$4.624 million (after three project withdrawals) for non-BCE projects, plus \$880K for the first BCE project (Cogigraph) and \$650K for the second BCE project (ALTO)—totalling \$6.154 million. This represents the reported amount for projects covered in the survey, plus Cogigraph and Alto.

2.3 Limits of the Methodology

As a formative evaluation, this study does not tackle issues related to the overall impacts of the Learnware Program and the ultimate achievement of its broad objectives. Expected results and overall impacts of the program have not yet fully matured to yield measurable returns. For example, the issue of return on investment is not possible to address at this time since there are very few projects that have started to yield revenues from commercial sales. The government has not, at the time of writing this report, received any dollar returns on investment (i.e., sharing of profits) from any Learnware Program project. While it is too soon to evaluate this question because no returns have been realized yet, some observations and opinions are presented about the expectations of returns being realized.

Another limitation is in the scope of the consultation process. While the Learnware Program participants have been adequately surveyed and consulted, the learnware industry in general in Canada is very broad with numerous stakeholders and participants in many public and private organizations and industry sectors. Some associations, government departments and other organizations were consulted about issues related to the learnware industry, but the sample is not sufficiently representative of all the learnware industry.

III. Program Rationale, Design and Delivery

The findings of the evaluation study on the issues related to need for the program, and program design and delivery, are contained in this section of the report. The results regarding these issues, from the survey, the consultations undertaken, and other background research, are presented in the following sections.

3.1 Need for the Program

The specific evaluation issues addressed are:

- Continued need to invest in the Learnware Program (see Exhibit 3.1 and below)
- Relation of the Learnware Program to *Connecting Canadians Agenda* (see Exhibit 3.1 and below)
- The policy context and industry needs (see Exhibit 3.1)
- Learnware Program contribution to industry needs (see Exhibit 3.1 and below).

Exhibit 3.1 provides the findings from the survey and the consultation process on these specific issues. Additional highlights from the survey of program recipients and other research are presented below.

Continued need to invest in the Learnware Program:

- 84 percent of program recipients believe that there is a continued need to invest in the Learnware Program [Survey Question 18a]. This high proportion of positive answers can be expected since these are the beneficiaries of the program responding. (Perhaps it is interesting to note, however, that 16 percent were honest enough to say that they were not sure about whether the government should continue investing in the Learnware Program.)
- Similarly, 82 percent of program recipients believe that government should continue to invest in multimedia learnware product development through other programs [Survey Question 18b].
- When asked where government should direct its support, 58 percent said that this program funding should be directed at commercial development, while 16 percent feel it should be in the pre-commercial R&D phase [Survey Question 18c].

Relation of the Learnware Program to *Connecting Canadians Agenda*:

- 69 percent of recipients felt that the *Connecting Canadians Agenda* program requirement was either not clear or required elaboration. Only 31 percent thought this was clear or easy to understand [Survey Question 21b].

- Only 21 percent feel that these requirements are appropriate for the program with no change. The remaining either do not know or think some changes are required [Survey Question 21c].

Learnware Program contribution to industry needs:

- Overall, the program has only “definitely” met the expectations of 27 percent of program recipients. 67 percent said it “somewhat” met their expectations [Survey Question 22].

Other findings:

- Technology is a part of the equation in the learnware industry sector, but the key decisions about funding e-learning initiatives should be based on the content, and the demand for that content by users.
- If there is anything to learn from recent experiences with the collapse of the dotcoms, there is nothing inevitable about the pay-off from investments in Internet applications. This is why managers in private and public sector organizations need to examine the business processes, along with the business model that underpins them, before grappling with the technology issues.
- The Learnware Program design was predicated on the notion that partnerships needed to be forged to make a successful learnware business model. The business model that seems to be most successful in the e-learning sector, however, can best be described as one that is led by an “integrator” firm building strategic alliances with key players. This model is best exemplified by McGraw Hill Lifetime Learning. The McGraw Hill model builds on the supply chain for developing learnware applications that can be successfully commercialized. Strategic alliances are drawn as follows: the “integrator” firm (namely, McGraw Hill) forms its alliances with (i) “content partners” (Harvard Business School, Corpedia); (ii) “technology partners” (namely, Docent, Saba); (iii) “channel partners” (TrainSeek.com); and (iv) associations (e.g., ASTD, American Society for Training and Development).
- The “content partners” provide expertise in a variety of content areas, delivering subject matter experts who develop cutting-edge curriculums based on current business and industry trends and standards. The “technology partners” provide learning management systems and other technology related products and services to compliment the Internet-delivered learning content. The “channel partners” provide alternative and additional sales and marketing opportunities. Associations help raise the standards of the training market. Associations also create an open forum by which everyone learns more about building better products, technology and services. Associations help keep the eyes and ears of the e-learning community open to opportunities domestically and internationally, and keep them in touch with the needs of customers and colleagues.

Exhibit 3.1: Need for the Program

Organization or Group	Feedback from Organizations and Groups by Issue Area To what extent is there a need for the program?			
	Need to invest in the Learnware Program	Relation to Connecting Canadians Agenda	Policy context and industry needs	Learnware Program contribution to industry needs
Successful applicants	<ul style="list-style-type: none"> ▪ There is a continuing need for federal government support to the learnware industry. ▪ The challenges in the present context are somewhat different than 3-4 years ago—with greater emphasis on market share, and content development. There is a need to focus assistance on content development. ▪ The need for this kind of program is particularly important for smaller regions (Atlantic), especially since organizations in these regions are unable (or find it difficult) to raise capital for product development. ▪ Some applicants are familiar or involved with other CANARIE and IC programs, such as the “Learning Program”. ▪ Need to have a variety of funding opportunities, at different levels, targeting different audiences or content types and applications (e.g., corporate needs versus higher learning educational institutions, technical colleges, and K-12 schools). The needs of the non-profit sector need to be addressed more adequately. 	<ul style="list-style-type: none"> ▪ Generally, successful applicants agreed with the “connecting Canadians” context of the program, but thought the connectivity credits requirements of the program to be complicated, not easily understood, and largely an ill-defined “paper-exercise”. ▪ Most learnware developers were not familiar with the connectivity initiatives, the “six pillars”, and the terminology of Industry Canada. It seemed to be a source of confusion, especially in the initial phases and during contract negotiations. 	<ul style="list-style-type: none"> ▪ Industry still fragmented, with many players. ▪ Competitive challenges still present—especially from bigger organizations in U.S. and some from Europe. ▪ Help in marketing and distribution still needed. ▪ Connecting Canadians not as significant a priority today, but developing high quality learnware applications is still a very high priority—both for corporate and public sector needs. 	<ul style="list-style-type: none"> ▪ Learnware funding was instrumental in bringing projects to development stage. ▪ Projects would generally have been undertaken anyway by applicants, but with smaller amounts of financing, reduced scope, and in a longer timeframe. ▪ Some contribution by the program to facilitating or stimulating partnerships, but not to the full extent originally expected. ▪ Program helped in improving skills and knowledge of project development staff and participants. ▪ Program has contributed to capacity building of participating organizations, particularly in terms of software and hardware upgrades, and business planning and marketing. ▪ Some successful applicants are developing stronger ties with international networks as a result of their Learnware projects (e.g., Ingenuity Works and Innova). ▪ Consensus is that CANARIE is doing a fantastic job, but more is needed.
Unsuccessful applicants	<ul style="list-style-type: none"> ▪ Agree that there is a continuing need for the program. Might possibly consider re-applying if the program was re-introduced, but not certain. 	<ul style="list-style-type: none"> ▪ Seems like a reasonable linkage for the program. 	<ul style="list-style-type: none"> ▪ No feedback on this issue. 	<ul style="list-style-type: none"> ▪ No feedback on this issue.

Exhibit 3.1: Need for the Program (continued)

Organization or Group	Feedback from Organizations and Groups by Issue Area To what extent is there a need for the program?			
	Need to invest in the Learnware Program	Relation to Connecting Canadians Agenda	Policy context and industry needs	Learnware Program contribution to industry needs
Successful applicants who withdrew from the Program	<ul style="list-style-type: none"> There is a continuing need to invest in a program like Learnware. At least one applicant who withdrew from the Program is interested in the "Learning" Program of CANARIE. They consider this program to be more appealing for their work in e-learning. 	<ul style="list-style-type: none"> This seems less relevant today than it was three years ago. Context should be related more to Canadian skills competitiveness, and linked to productivity and applications relevant to the knowledge-based economy. 	<ul style="list-style-type: none"> No feedback on this issue. 	<ul style="list-style-type: none"> No feedback on this issue.
Associations	<ul style="list-style-type: none"> Knowledge and skills are key determinants of sustained economic growth. There is a need to invest in programs such as the Learnware Program to create new and innovative ways to improve Canadians' knowledge and skills. Many recent studies have shown that there is a large gap between the knowledge and skills we have, compared to those we need—this accounts for some of the productivity issues we face in Canada. 	<ul style="list-style-type: none"> Need to be clear about connecting whom to whom, or what to what. A program such as Learnware needs to define its focus—as, for example, connecting Canadians to college and university courses on-line. Or, alternatively, connecting Canadians for lifetime learning, specifically to update and maintain their relevant skill sets and to improve productivity. 	<ul style="list-style-type: none"> Competition from US and Europe is a big challenge—even more than before. Some organizations in these markets have matured and captured market share faster than Canadian organizations. Need Canadian national policy on e-learning, and forum for coordinating diverse program initiatives. 	<ul style="list-style-type: none"> No feedback on this issue.
Selection Committee members	<ul style="list-style-type: none"> Funding is essential for the multimedia learning industry to develop successfully in Canada. However, multiple sources of funding are required, not just from programs such as Learnware, or just from Industry Canada. 	<ul style="list-style-type: none"> The relation to Connecting Canadians was an appropriate context for the program, but the connectivity credits requirement was hard to assess and did not provide real opportunities to connect Canadians. One Committee member noted that few applicants were compliant with the connectivity requirements. Ultimately, the selection committee was instructed to ignore whether groups qualified under this criterion. 	<ul style="list-style-type: none"> The Program responded to a policy context and industry need at the time it was introduced—namely to help more Canadians of all ages gain access to online learning opportunities, and to help industry to grow in this potentially very lucrative sector. This policy context is essentially unchanged today, but there are new priorities to address—such as productivity and the challenge of developing people's skills by providing new learning opportunities relevant to the knowledge economy. 	<ul style="list-style-type: none"> The contribution of the Learnware Program to the industry would be improved if it were more focused, for example with respect to applications within certain industry sectors where there are skills/knowledge gaps. Right now the Learnware project applications are anecdotal at best, spread out over a variety of sectors and potential users/markets.

Exhibit 3.1: Need for the Program (continued)

Organization or Group	Feedback from Organizations and Groups by Issue Area To what extent is there a need for the program?			
	Need to invest in the Learnware Program	Relation to Connecting Canadians Agenda	Policy context and industry needs	Learnware Program contribution to industry needs
Cable and phone companies	<ul style="list-style-type: none"> ▪ Learnware products are successful in the corporate world because they work to boost the bottom line indirectly, by improving productivity. Investing in a Learnware Program should be tied in with the notion of improving Canadian productivity. This will likely produce a greater buy-in by cable and phone companies, and publishers, if the right formula is devised. 	<ul style="list-style-type: none"> ▪ Never really understood the connection of this program to Connecting Canadians, other than that it provided a means to collect “credits” for matching funds. In the end, the program seems to be more about developing quality online learning applications. The program should address the pedagogical context, and help develop online platforms to proliferate relevant learning opportunities for Canadians. The technology and the “pipeline” is already there—the creative authorship and pedagogical aspects of online learning is what needs support. 	<ul style="list-style-type: none"> ▪ This program was seen as a type of “low interest” loan by the phone and cable companies, providing no real incentive for them to partner with learnware developers. Even BCE, the original proponent for a learnware fund, essentially withdrew from the program, because there were no internal groups within the company willing to commit to a risky innovative initiative. 	<ul style="list-style-type: none"> ▪ No feedback on this issue.
Individuals knowledgeable about other government programs	<ul style="list-style-type: none"> ▪ Need to examine the pay-offs from investments in programs such as Learnware. The business processes and business successes need to be measured carefully. A business model that works needs to be addressed even before grappling with the technology. Technology is a part of the equation, but the key investment decisions should be strategic and market-based. 	<ul style="list-style-type: none"> ▪ No feedback on this issue. 	<ul style="list-style-type: none"> ▪ No feedback on this issue. 	<ul style="list-style-type: none"> ▪ No feedback on this issue.
IHAB and CANARIE	<ul style="list-style-type: none"> ▪ Feedback suggests that there is still a need for a Learnware-type program, with changes and improvements in design and program criteria. 	<ul style="list-style-type: none"> ▪ The context is different today. Agree that connecting Canadians Agenda needs to be updated. Need to reflect more the new framework for achieving excellence. 	<ul style="list-style-type: none"> ▪ Focus should be on the innovation agenda—which includes addressing the skills challenge using innovative knowledge performance products. 	<ul style="list-style-type: none"> ▪ Learnware responded to industry needs, but was too broad in its scope and objectives. Program tries to do too much for too many segments (users and producers) within the learnware industry.

3.2 Design and Delivery

The specific evaluation issues addressed are:

- Program design (see Exhibit 3.2 and below)
- Selection process and criteria (see Exhibit 3.2 and below)
- Contract negotiations and disbursement of funds (see Exhibit 3.2)
- Program management and administration (see Exhibit 3.2 and below).

Exhibit 3.2 provides the findings from the survey and the consultation process on these specific issues. Additional highlights from the survey of program recipients and other research are presented below.

Program design:

- The program design was intended to provide some leverage for recipients to be able to assemble matching funds. However, only 32 percent of recipients feel that their organization's access to other funding sources has improved because of Learnware [Survey Question 8a].

Selection process and criteria:

- 39 percent of the program recipients thought that the business planning requirements were beneficial, while 38 percent thought it had no impact. [Survey Question 21e]

Program management and administration:

- CANARIE Inc. has generally received kudos from the program recipients for the work they have done in the program. 32 percent of program recipients feel that CANARIE has been very effective in delivering the Program, and 42 percent rate CANARIE as somewhat effective [Survey Question 20].
- Generally, the Program reporting requirements are not considered too onerous by program recipients—56 percent consider reporting to neither help nor impede program implementation, and 12.5 percent think that it helps. Only 19 percent felt they were an impediment [Survey Question 21g].

Other findings:

- The costs that CANARIE Inc. have claimed for administering the Learnware Program (as of February 2002) are as follows:

BCE	\$184,640
Non BCE Part 1	\$249,171
Non-BCE Part 2	\$236,415
Total	\$670,226

- As mentioned earlier in Section 2.2 of this report, approximately \$13.3 million has been expended or allocated on Learnware Program projects with signed contracts between CANARIE and recipients. Of this \$13.3 million, \$6.15 million are program contributions and the remainder represents the matching funds component. The proportion of administration costs to program contributions (including matching funds) is 5 percent. This appears to be a reasonable program administrative fee, consistent with the original budget allocation of the program for this purpose.

Exhibit 3.2: Program Design and Delivery

Organization or Group	Feedback from Organizations and Groups by Issue Area To what extent is the Learnware Program structure and delivery appropriate?			
	Program design	Selection process and criteria	Contract negotiations and disbursement of funds	Program management & administration
Successful applicants	<ul style="list-style-type: none"> ▪ The “connectivity” requirements were considered restrictive. They complicated the contract negotiation process. ▪ The business plan requirements in the application process were considered very useful. Successful applicants generally consider this to have been a useful feature of the program, helping them to plan their projects out. ▪ The intellectual property and licensing requirement appears to have not been well understood for some, and this was detrimental to securing sub-agreements as well as licensing the product later. The IP issues was a problem in the contractual process. ▪ Definitions of eligible expenses (direct vs. indirect) were not very clear. 	<ul style="list-style-type: none"> ▪ The process was too slow with a short timeframe for preparing proposals, especially for setting up partnerships and strategic alliances. Favoured those who already had partnerships in place. Smaller firms with potential had a harder time getting their act together, especially in setting up meaningful partnerships. ▪ Selection process was transparent and fair, according to most applicants, but the criteria were considered somewhat complex. ▪ The initial amount of total program funding announced was effectively reduced, causing some applicants to mis-interpret the scope of project applications. 	<ul style="list-style-type: none"> ▪ The contract negotiation process took too long. ▪ Payment of claims was generally very slow. Recently this was improved. Smaller organizations found this situation difficult because of their tight cash flow situation. ▪ Project approvals were late in coming for some applicants, causing them some cash flow and start-up problems. ▪ Some lead-contractors thought it would have been useful if CANARIE could have helped in the initial phases of the contract negotiations in crafting sub-contract agreements. 	<ul style="list-style-type: none"> ▪ More communication with CANARIE and IC would have been useful, particularly in terms of sharing of project experiences between the different participants in the program. ▪ The level of reporting and record keeping required by the program was considered by some to be too much. ▪ CANARIE program managers were very helpful, and provided much advice and one-on-one assistance in overcoming difficulties in understanding program requirements and obligations (e.g., contract requirements and reporting). ▪ The program’s administrative forms and guidelines were clear and straightforward, easy to work with. ▪ Program staff and management were generally highly regarded by successful applicants and were considered easy to work with, flexible with minor changes, and accessible.
Unsuccessful applicants	<ul style="list-style-type: none"> ▪ Program design and requirements seemed complicated and difficult to understand—some of the terminology was unfamiliar and process was lengthy but a good learning experience anyway. ▪ Some requirements were difficult to address in the short preparation time—e.g., setting up partnerships, securing matching funds, and assembling connectivity credits. 	<ul style="list-style-type: none"> ▪ While generally the selection process was considered transparent and fair, some unsuccessful applicants thought they were at a disadvantage in that they were not able to interact sufficiently with the Committee or with CANARIE and Industry Canada officials. ▪ Unsuccessful applicants generally felt that feedback on proposals was exceptionally good, especially in terms of technical issues—but less so in terms of helping out regarding forming partnerships and commercializing learnware products. 	<ul style="list-style-type: none"> ▪ No feedback on this issue. 	<ul style="list-style-type: none"> ▪ An unsuccessful applicant made the following comment: “even though we were not successful, working with CANARIE as the program delivery agent was really good.”

Exhibit 3.2: Program Design and Delivery (continued)

Organization or Group	Feedback from Organizations and Groups by Issue Area To what extent is the Learnware Program structure and delivery appropriate?			
	Program design	Selection process and criteria	Contract negotiations and disbursement of funds	Program management & administration
Successful applicants who withdrew from the Program	<ul style="list-style-type: none"> ▪ The connectivity credits idea was confusing and not useful to the process. This ended up being another reason for pulling out of the program. 	<ul style="list-style-type: none"> ▪ Did not understand the requirements very clearly at the beginning. 	<ul style="list-style-type: none"> ▪ Contract process was too long and caused unnecessary expenses. ▪ Submitting claims was considered frustrating. 	<ul style="list-style-type: none"> ▪ There was a great rapport with CANARIE officials, and in spite of pulling out of the program organizations that withdrew consider the process to have been transparent and fair.
Associations	<ul style="list-style-type: none"> ▪ Risk sharing aspect of the program should be considered more carefully. Private organizations are very conscious of the risks involved in embarking on partnership programs that involve academia and/or non-profit sector—both of whom have a different perspective on risks. 	<ul style="list-style-type: none"> ▪ No feedback on this issue. 	<ul style="list-style-type: none"> ▪ No feedback on this issue. 	<ul style="list-style-type: none"> ▪ No feedback on this issue.
Selection Committee members	<ul style="list-style-type: none"> ▪ The program objectives were seen as too difficult and broad in scope to be achieved in one swoop by such a program as Learnware. There is an ambivalence about the objectives, but there does seem to be some agreement that “public access” is not likely a feature that need be included in this program. Nor is it seen as possible to consolidate the “fragmented” multimedia learning sector by means of this program. ▪ The pertinent program design feature is its stated objective to stimulate growth and development of Canada’s new media learning and Internet applications industries. The related objective of ensuring high quality learnware products and public access applications for Canadians is also pertinent. ▪ The program must now emphasize the quality of education materials and the pedagogical aspects; the technology issues are important but not paramount. Developing and commercializing the creative software solutions is the bigger challenge. 	<ul style="list-style-type: none"> ▪ Selection Committee members generally found the connectivity credits criteria to be difficult and the terminology of the criteria to be vague. This suggests that applicants would have experienced the same difficulties. Terminology such as “learnware”, “public access”, “products”, “funds”, and “connectivity credits” while ostensibly meaningful terms were not self-evident in the program context, and needed clarification. ▪ The issue of determining the business viability of applicants and their projects was a challenge. ▪ Few business plans were properly done. There was little market research information presented to substantiate proposals, and many applicants simply assumed that there would be a market for their proposed learnware products. ▪ An important skill that seemed to be lacking in applications was project management to realize the plan. 	<ul style="list-style-type: none"> ▪ No feedback on this issue. 	<ul style="list-style-type: none"> ▪ No feedback on this issue.

Exhibit 3.2: Program Design and Delivery (continued)

Organization or Group	Feedback from Organizations and Groups by Issue Area To what extent is the Learnware Program structure and delivery appropriate?			
	Program design	Selection process and criteria	Contract negotiations and disbursement of funds	Program management & administration
Cable and phone companies	<ul style="list-style-type: none"> Large carriers and cable companies did not embrace the program, and were not inclined to participate because they generally viewed this program as a "low interest loan", while they bore all the risk on behalf of their sub-contractors/project proponents. 	<ul style="list-style-type: none"> BCE feedback indicated that this process was lengthy, costly, and did not bear the fruits of the labour. No feedback from cable companies on this issue 	<ul style="list-style-type: none"> BCE essentially downplayed its involvement once it became clear that few groups were willing to step up to the plate to bear the risks of developing innovative projects, focused on learnware applications and access opportunities. 	<ul style="list-style-type: none"> BCE considered working with CANARIE Inc. and IC on this program to be very constructive and entirely appropriate. The problems experienced in launching the BCE Fund were more of a BCE issue—they lost the impetus to carry through with their original unsolicited proposal after those who championed it left the company. No feedback from cable companies on this issue.
Individuals knowledgeable about other government programs	<ul style="list-style-type: none"> No feedback on this issue. 	<ul style="list-style-type: none"> No feedback on this issue. 	<ul style="list-style-type: none"> No feedback on this issue. 	<ul style="list-style-type: none"> No feedback on this issue.
IHAB and CANARIE	<ul style="list-style-type: none"> The program scope was too broad. Objectives covered too many diverse elements of government policy. Need to narrow the scope of the program—and target expectations around more specific goals. The program tries to do too much. The program should be SME focused. SMEs should be lead-contractors and marketers of intellectual property. If educational institutions are allowed in the program, insist on cooperation among a number of institutions that must exploit the products developed. Program position on in-kind contributions should be stated clearly upfront in the program guidelines. 	<ul style="list-style-type: none"> Need to remove "public access applications" from the program. Also remove "funds" and "connectivity credits" from the program. Define "Canadian Corporation" as Canadian "controlled" corporation. Should be clear in defining the markets and users of products eligible for funding. For example, for which applications is the funding most needed—for K-12, post-secondary, corporate labour force, adult lifetime learners? 	<ul style="list-style-type: none"> Need to review eligible project scope and size. Minimum limits on project funding may need to be lowered, to allow more projects funded partially or totally. For example, other programs do this (e.g. OLT), thereby broadening their reach and dispersing the risk on investments. Need to revise repayment terms to be more realistic. Current statement is that if program funds 50% of a project, then 50% revenue is reimbursed until contribution is repaid. This is not how the program is actually administered. Sunset on repayment obligations should be retained. 	<ul style="list-style-type: none"> Need to permit "advances" without interest tracking to expedite SME payments. If the program has multiple phases, all phases should be administered under the same Contribution Agreement. Need a communications plan to announce competition winners and projects as they are complete. There are inefficiencies in managing three separate contribution agreements as opposed to one, for a program such as the Learnware Program. For example, there appears to be no good reason why the costing memorandum for Learnware had to be different from the costing memorandum for CANARIE Phase 3 programs.
IC Regional Offices	<ul style="list-style-type: none"> All felt that the program design was too complex and was difficult to explain in its entirety to potential participants and stakeholder partners, from the private, public and non-profit sectors. The regional offices participated in the workshops during the second round, but it might have been useful if they were consulted at the development stage of the program, particularly in terms of promotion and communication. 	<ul style="list-style-type: none"> Would have liked to have heard about the results of the competition on a more personal basis, and perhaps be involved in the award announcements locally/regionally. 	<ul style="list-style-type: none"> No feedback on this issue. 	<ul style="list-style-type: none"> No specific feedback on this issue, although some individuals mentioned that they had heard that CANARIE generally does a good job in delivering its programs.

IV. Results and Lessons Learned

The findings of the evaluation study on the issues related to program results and lessons learned are contained in this section of the report. The results regarding these issues, from the survey, the consultations undertaken, and other background research, are presented in the following sections.

4.1 Results of the Program

The specific evaluation issues addressed are:

- Partnerships (see Exhibit 4.1 and below)
- Participation in the Program (see Exhibit 4.1 and below)
- Growth and development of the Canadian learnware industry (see Exhibit 4.1 and below)
- Access to the Internet and new media learning opportunities for Canadians (see Exhibit 4.1 and below).

Exhibit 4.1 provides the findings from the survey and the consultation process on these specific issues. Additional highlights from the survey of program recipients are presented below.

Partnerships:

- Only 7 percent of program recipients said that their partnerships have resulted in better access to markets [Survey Question 11].
- 69 percent of program participants are sure that the program helped their organization to partner with intended program participants [Survey Question 14], while 0 percent of program recipients would have gone ahead anyway in establishing partnerships without program funding [Survey Question 12].
- Only 19 percent consider that these partnerships were easy to sustain [Survey Question 16b], but 69 percent feel that the partnerships established for the program were beneficial or very beneficial for their organization [Survey Question 16a].

Participation in the Program:

- 79 percent of program recipients consider that the program was able to attract the intended participants, and 21 percent were not sure [Survey Question 15]. However,

most participants seemed unaware of who exactly participated in the program in projects other than their own. In fact, some of their comments suggest that this was a weakness of the program—they feel that it would have been beneficial, for example, to bring all the program participants together in an annual conference to learn from each other.

Growth and development of the Canadian learnware industry:

- None of the program recipients indicated that they would have proceeded with their projects within the same timeframe if they had not received program funding. 37 percent said it would have taken them longer to proceed without funding, and 58 percent said they would not have proceeded at all [Survey Question 9].
- 95 percent said that the impact of the Program was to help their organization to accelerate the development of new media learning and Internet products [Survey Question 10a]; and 88 percent said the Program has helped them increase their capacity in other aspects of their business [Survey Question 10b].

Access to the Internet and new media learning opportunities for Canadians:

- Generally, program recipients felt that the program requirement to improve access to the Internet had a positive impact on improving access mostly for schools, for which 61 percent said “yes”. For libraries the response was “yes” for only 41 percent of recipients, for community access groups 31 percent, and for volunteer organizations 19 percent. [Survey Questions 13a, 13b, 13c, 13d]

Exhibit 4.1: Results of the Program

Organization or Group	Feedback from Organizations and Groups by Issue Area What are the results achieved by the Program?			
	Partnerships	Participation in the program	Growth and development of the Canadian learnware industry	Access to the Internet and new media learning opportunities for Canadians
Successful applicants	<ul style="list-style-type: none"> ▪ There were not as many partnerships forged in projects as originally anticipated. Sustainable partnerships are not necessarily on a learnware industry commercial and supply chain continuum, but more on a functional basis involving the R&D side of the work—i.e., partnerships are not necessarily based on bringing together those with marketing skills with those who have content and learnware technology skills. 	<ul style="list-style-type: none"> ▪ Projects are falling short in terms of original time to market and sales cycles anticipated. Generally successful applicants believe their participation in the program is producing learnware applications with promising potential. 	<ul style="list-style-type: none"> ▪ Ironically, successful firms reach a threshold where they are in a position to set up strategic alliances with big organizations, or are merged/acquired by these organizations, to develop products/applications for them. The patterns of company growth in the Canadian learnware industry, and the impact of a program such as Learnware in this respect, need to be studied and understood when developing government strategies and programs. ▪ The same may not be true of learnware application projects developed within a university context. This too needs to be examined more carefully. 	<ul style="list-style-type: none"> ▪ When you are a small company with one or two products you are more vulnerable in a commercial sense. This is why it is important to have critical mass through a large customer base that has access to the Internet. The program tried to join the two objectives of increasing access while developing the right kind of learnware applications. Building the partnerships around this idea was reasonable, but the larger companies were less interested in this than the small companies. Also it seems educational institutions went their own way.
Unsuccessful applicants	<ul style="list-style-type: none"> ▪ “The partnerships requirement of the program is what did us in.” ▪ “As a small company we needed a bigger partner to support our application.” 	<ul style="list-style-type: none"> ▪ There seems to be a lot of “granterpreneurs” who are skilled at putting applications together from experiences with other program sources (e.g., federal R&D granting Councils). Inexperienced applicants with valid project proposals may not be able to compete adequately with the “granterpreneurs”. 	<ul style="list-style-type: none"> ▪ No feedback on this issue. 	<ul style="list-style-type: none"> ▪ No feedback on this issue.
Successful applicants who withdrew from the Program	<ul style="list-style-type: none"> ▪ Organizations that withdrew were not able to sustain the partnerships set up for the program, consequently they withdrew. ▪ One organization that withdrew misunderstood the partnerships requirements from the beginning—they wanted to use their own resources entirely, contrary to their original proposal. 	<ul style="list-style-type: none"> ▪ One organization withdrew because operating conditions were beyond what they were able to deliver. ▪ Bright side is that in future it will be easier for them to participate in this kind of project/program, since they learned a lot from the experience—were able to break down some institutional barriers and mindsets in the process. 	<ul style="list-style-type: none"> ▪ Two of the organizations that withdrew said they are going ahead with project development with their own resources—using their own discretionary spending and internal budgets. Their e-learning courseware development, however, has slowed down. ▪ Involved with other government programs and will continue to do e-learning professional development for teachers and other users. 	<ul style="list-style-type: none"> ▪ Projects are on hold as a result of pulling out of the program, but they consider the need is still there—and government should address public access related issues, particularly in small and remote regions of the country, and related to “digital divide” concerns.

Exhibit 4.1: Results of the Program (continued)

Organization or Group	Feedback from Organizations and Groups by Issue Area What are the results achieved by the Program?			
	Partnerships	Participation in the program	Growth and development of the Canadian learnware industry	Access to the Internet and new media learning opportunities for Canadians
Associations	<ul style="list-style-type: none"> ▪ Government programs need to be designed around the true dynamics of the industry—with the right understanding of what works, and what does not work. ▪ Partnerships are multi-dimensional and mean different things for different organizations. ▪ A lot of what is happening now involves mergers and acquisitions, as opposed to partnerships. Strategic alliances are being forged with foreign and domestic entities. ▪ If industry participation and partnerships are to be a successful component of the program, industry should be invited at an early stage to help in designing the program. 	<ul style="list-style-type: none"> ▪ Associations could have been used to promote the program, and to help in setting up consortia and/or partnerships that work. ▪ Associations would be pleased to participate in a “needs analysis” of the e-learning/learnware industry. ▪ Need to describe the market – demand and supply side – and draw out the relationships in the supply chain and alliances. Need to chart this out, so that Canadian industry infrastructure is better understood, and more transparent to program and policy developers, and to the industry stakeholders themselves. 	<ul style="list-style-type: none"> ▪ The consequences of not supporting the opportunities to develop the Canadian learnware industry is that more and more Canadian ventures would head South for support, likely through mergers and acquisitions. These would tend to be the best of the Canadian learnware developers. While the program may have helped to slow this process, ironically it may also have the reverse effect in that successful Program recipients may reach a threshold level to be acquirable by larger U.S. or European organizations. 	<ul style="list-style-type: none"> ▪ The advantage that the big American companies have is that they are starting with a large market, and a proven customer base. This should be factored into the program—i.e., how to ensure a broad customer base, to ensure a reasonable expectation for success. For example, companies like SkillSoft, Clarica and McGraw-Hill Lifetime Learning already have a large customer base that they can call up, and for whom they can develop e-learning applications.
Selection Committee members	<ul style="list-style-type: none"> ▪ Few of the applicants in the program seemed able to address the partnership criteria and program requirements adequately. Participation in the program was ultimately not based on partnerships that adequately brought together “content” partners with “marketing” and “technology” partners. ▪ Risk assessment with respect to commercialization of products developed, and partnerships forged, should be more upfront as a criterion for selection. 	<ul style="list-style-type: none"> ▪ Marketing of the program was insufficient. Participation of some of the key players in the industry was not present. For example, carriers, cable companies, and publishers did not participate in a way as originally hoped. ▪ Should consider smaller projects and funding to assist good projects that may not need a million dollars. The high threshold for the projects may have promoted the inflation of some budgets. 	<ul style="list-style-type: none"> ▪ Commercial viability was a fundamental issue in judging proposals. Initially, most proposals were rejected on this basis, since business plans were not well thought through. One Selection Committee member suggested that the program is not likely to achieve its objectives because the recipients generally did not make a good business case for their projects. 	<ul style="list-style-type: none"> ▪ The main challenge on any of the e-learning projects was/is to build up a customer base quickly enough to justify the investment. This is why partnerships are important, to demonstrate that a customer base already exists in the partnership prior to launching the project.

Exhibit 4.1: Results of the Program (continued)

Organization or Group	Feedback from Organizations and Groups by Issue Area What are the results achieved by the Program?			
	Partnerships	Participation in the program	Growth and development of the Canadian learnware industry	Access to the Internet and new media learning opportunities for Canadians
Cable and phone companies	<ul style="list-style-type: none"> Risk assessment in the selection process is an important part of making the right choices—especially if commercialization is to be an ultimate goal. Selection should be partially tuned in to how recipient partners intend to share the risks and whether they have a sustainable proposal for this. For BCE and cable companies, the issue of intellectual property was critical to sort out in any partnership arrangements. 	<ul style="list-style-type: none"> The initial BCE effort was driven by their CEO who had a strong interest in e-learning, primarily to help broaden the customer base of the company. The project, however, was orphaned when the CEO left BCE. 	<ul style="list-style-type: none"> Large private sector companies are wary of government programs, and do not necessarily see that there is a huge opportunity in developing business learning applications through government programs. They prefer to do this on their own, to address their own corporate needs, either for internal training or as a commercially viable product to earn sales revenues. The big opportunity seen by the cable and telephone companies (at present) is to target the home user—the home learning environment. 	<ul style="list-style-type: none"> Cable companies did not get involved in this program because they were more interested in building their customer base through their core services and developing their broadband capabilities, but not in terms of educational and training materials. This is not necessarily a business area that they understood, and were not entirely convinced of the business opportunities and the ROI potential. But now they have some of their own initiatives underway and may be more interested in learnware products and services. One company (Shaw) considers its contribution to be its ability to broadcast the courseware. It acts as a “channel” partner, not a developer.
Individuals knowledgeable about other government programs	<ul style="list-style-type: none"> Educational institutions seem to do their own thing and have their own capabilities for e-learning—they are not necessarily inclined to embark on partnership arrangements from outside their community, unless there is a clear purpose for this. Usually, a member of the academic staff sets up his/her own private firm or consortium, to take advantage of program funding and consequently becomes a “granterpreneur”. 	<ul style="list-style-type: none"> Government could become a purchaser itself of the learnware products produced. By becoming a buyer they can help Canadian business and help create a domestic e-learning market. 	<ul style="list-style-type: none"> This is not just a technology issue, but also a cultural and social issue for Canada. It is very much like the film industry and other cultural products that invade Canada with foreign content. Canada is similarly progressively being challenged by foreign content in the learnware/e-learning space. 	<ul style="list-style-type: none"> The government’s agenda is somewhat fragmented in this respect, in that programs for funding e-learning initiatives are offered from different departments (HRDC, CH, IC, and others), but seemingly with no common federal strategic framework in place. The new “Innovation Agenda” might help address this issue.
IHAB and CANARIE	<ul style="list-style-type: none"> Generally agree that setting up the right kind of partnerships for the program was a major challenge for applicants. 	<ul style="list-style-type: none"> Whether funding should be allowed for course delivery platforms or not should be considered. This could impact on who participates in the program and the types of applications needed. 	<ul style="list-style-type: none"> The Program is contributing but not as significantly as originally anticipated. 	<ul style="list-style-type: none"> Projects are still only just getting to their commercialization phase. The sales cycle is slower than anticipated. May not be for another year before IC sees any payback.
IC Regional Offices	<ul style="list-style-type: none"> The biggest challenge in establishing partnerships was with provincial government and educational institutions. These typically require a lot of time to bring to maturity, and the program simply did not allow enough time (or help) in this process. 	<ul style="list-style-type: none"> Participation in the program, especially by provincial ministries of education and other provincial level government departments, was inadequate—especially in securing matching funds from these and other sources. The program reach as implemented and promoted provided little leverage in terms of financial participation from other donors. 	<ul style="list-style-type: none"> No feedback on this issue. 	<ul style="list-style-type: none"> No feedback on this issue

4.2 Lessons Learned

The specific evaluation issues addressed are:

- Needs of the industry (see Exhibit 4.2 and below)
- Strengths of the program (see Exhibit 4.2)
- Weaknesses of the program (see Exhibit 4.2)
- Program improvements (see Exhibit 4.2 and below)
- Other programs (see Exhibit 4.2 and below).

Exhibit 4.2 provides the findings from the survey consultation process on these specific issues. Findings from other research are presented below.

Needs of the industry:

- One of the important lessons learned from the Learnware Program experience is that the telcos and cable companies were not the right partners to target, to lead learnware development projects. These organizations were more interested in building their customer base, and saw the Program as a potential opportunity to do just that. However, there was little incentive for these organizations to take the risk in venturing into uncharted waters, from their perspective. Their core business is to deliver the pipeline and the broadcast capabilities, to “channel” learnware applications to the users.
- The “integrator model” discussed in Section 3.1 is more likely to be the kind of consortium or partnership arrangement that is successful in the learnware sector, with a potential critical mass and volume of business that leads to viability. This model appears to address the challenge of the industry “fragmentation” issue, and provides a more natural partnership arrangement, where each partner has a clearly defined role to play that is complementary and mutually beneficial. However, there may also be other models that achieve the same purpose.
- Designing a program with a notion of such an “integrator” model is perhaps more likely to succeed than the original partnership notion envisioned by the Learnware Program. However, it is a good idea to consult with industry representatives (perhaps through the associations) about this matter, before introducing another Learnware Program.
- Educational institutions seem to do their own thing and have their own capabilities for developing learnware applications, for their particular learning environments. The most successful and biggest virtual university, delivering online teaching platforms and courseware, is the University of Phoenix Online, with enrollment of 103,000 students. In Canada, Athabasca University is the biggest, with enrollment of 20,000 students. The lesson learned from the Learnware Program is that university-based learnware

development should be dealt with differently with a different program context and design than with learnware projects run in the private sector. The respective players are motivated differently, and their target markets and users are more likely to be different as well. The nature of their partnerships and alliances also tend to be formed with a different dynamic and rationale.

- What are the learnware success cases that can be studied, to learn what is a sustainable business entity (with an ongoing customer base, sales, and profits) in this industry sector? For an answer to this question, Industry Canada needs to examine organizations such as McGraw Hill Lifetime Learning, Saba, Docent, ClicktoLearn, SmartForce, SkillSoft, Centra, to name but a few, to find out what are the commercial success factors, before embarking on a new industry program such as another Learnware Program. Similarly, Canadian learnware firms can also be examined to determine success factors in Canada and to benchmark these against their U.S. counterparts.
- The focus of such a program should be on industry per se, and in keeping with the IC agenda as laid out in its “Achieving Excellence” framework – namely, addressing challenges of the knowledge-based economy in industry sectors.

Program improvements:

- The scope of the Learnware Program was too broad, and this made it difficult to understand what the strategic direction of the program was. For example, the program could have provided more guidance on sector priorities for education applications (e.g., in energy, health, environment, construction), and narrowed the scope down with eligibility criteria for lead contractors from industry only. The message communicated was that applications could be in most any area of educational need. This resulted in project applications that were “all over the map” without being tied to specific strategic directions—such as productivity.
- It would be useful to narrow the scope by earmarking priority sectors, particularly those that might have a skills gap in Canada. This would also help tie the program more closely to the “productivity” issue, and to the new “Innovation Strategy” of the federal government—particularly in the context of Industry Canada’s “Achieving Excellence” framework.
- There is a need to have a national strategy for learnware, that focuses on the economic, social and cultural policy context of e-learning. Such a policy would naturally be interdepartmental, cutting across several different federal departmental mandates. The Learnware Program was working without such a framework, ending up too broad in scope with mixed objectives. Also some of its objectives overlapped with other programs, while remaining outside any overall coordinated government framework for e-learning. While the Learnware Program was consistent with the *Connectivity Agenda* of Industry Canada, it did not really provide a clear overall connection to government policy as it relates to other department programs such as HRDC’s Office of Learning Technologies, or Canadian Heritage’s new media funding programs.

- The program should work with industry associations possibly to foster a national “umbrella” association—i.e., an association of associations, to represent the diverse constituencies of the learnware sector in Canada. A model to examine in this context is BIOTECCanada, a successful national umbrella association in the biotechnology sector with a broad membership base, including private sector and government representation. Already several e-learning types of associations, with relatively large membership bases (1,000 members or more, each), have expressed interest in working with government to contribute to the growth and development of the learnware sector in Canada.⁵ These associations include: RIAN (eLearning) in Quebec, Ontario Society for Training and Development (OSTD) in Ontario, New Media BC and Canadian Association of Distance Learning (CADE) in British Columbia.
- A national learnware sector association can help by working with Industry Canada, and other federal and provincial departments, for example, to:
 - develop a professional certification program for e-learning
 - develop standards for learning platforms
 - design effective practitioner tools and resources
 - host national conferences and symposia
 - represent broad constituencies of e-learning
 - advance a national agenda in the direction set by governments and stakeholders
 - provide a voice for commercial education and training
 - a forum for the collection of data
 - a dissemination channel for research and reports
 - lay the groundwork for setting standards and assuring quality in the industry.

Other programs:

- The following other programs were examined as part of this study:
 - Lifelong Challenge Fund, TVOntario
 - CANARIE Learning Program
 - Canadian Culture Online Funding, Partnerships Fund – Canadian Heritage
 - Canadian Culture Online Funding, New Media Fund – Canadian Heritage
 - Advanced Technologies Program, Commerce Department, U.S.A.
 - Office of Learning Technologies Programs, Human Resources & Development Canada.
- In summary, the lessons learned from these other programs include:
 - need to have some recognition (accreditation/certification) basis attached to courseware proposed, to ensure quality and high standard;
 - should include targeted priority areas (themes) in eligibility criteria – with an open category;

⁵ During interviews with the author of this study.

- include meetings with short-listed applicants in selection process;
 - consider the nature of the partnerships proposed during the selection process;
 - encourage synergy between project participants;
 - selection requirements should include project evaluation plans – i.e., strive to have a strong project evaluation component to each project;
 - include requirement for commercialization and marketing plans as part of the proposal process;
 - applicants need to demonstrate their financial stability;
 - provide a “partnerships handbook” for setting up partnerships and a “business planning guide”.
- Descriptions of the other programs listed above, the challenges they face, and specific lessons learned, are highlighted in the presentation notes provided by the consultant for this evaluation project to the Information Highway Applications Branch, Industry Canada.⁶

⁶ “Evaluation of the SchoolNet Multimedia Learnware and Public Access Applications Program”, presentation to IHAB, Industry Canada, by Hussein Rostum, April 26, 2002.

Exhibit 4.2: Lessons Learned

Organization or Group	Feedback from Organizations and Groups by Issue Area What are the lessons learned and how can the Program be improved?				
	Needs of the industry	Strengths of the program	Weaknesses of the program	Program improvements	Other programs
Successful applicants	<ul style="list-style-type: none"> ▪ Suggestions were made to expand the program and increase the funding because there is a dearth of Canadian undergraduate online offerings in post-secondary education. For a large and dispersed country like Canada, this is considered a necessity. ▪ Suggestions made to provide a certification program to help alleviate the syndrome that many students and professors have about online learning (versus traditional class-room education). This would help improve the brand identity and reputation of institutions and organizations that offer online learning courses. ▪ Ultimately the project applications that will endure and will be successful are those that conform to a standard e-learning platform or are tied in with acceptable standards—accepted by the users and producers of e-learning applications, ensuring a broad customer base. Government support programs need to address this issue. 	<ul style="list-style-type: none"> ▪ The program allows funding for marketing and distribution. Very few programs allow financing of commercial development or facilitate the high cost of going to market. ▪ Providing a focus on small and medium-sized enterprises was needed. ▪ Business planning requirements of the program were useful. The comments and feedback from the Selection Committee on business plans were considered a useful contribution to many of the applicants. ▪ Risk sharing concept underlying the program is innovative and needed. 	<ul style="list-style-type: none"> ▪ Long program gestation period after announcements was considered a weakness. ▪ Reporting was considered to be too much by some, while others seem to have reported too much. ▪ Some felt the application process to be excessive, especially for small organizations that cannot afford the lengthy time involved in the process. ▪ Not enough interaction was thought to have occurred with elementary schools, libraries, and other government agencies (especially at the provincial level), and in remote or small areas of Canada. ▪ Not having reached out more to the provincial ministries of education to somehow be involved in the program was considered by some to be a mistake. ▪ The legal agreements were long and complex, and required companies to re-consider what they were getting in to. While the latter point is a “plus”, nonetheless the process required time and expense not originally anticipated. 	<ul style="list-style-type: none"> ▪ Having opportunities/events (e.g., conferences, workshops) to bring all the project participants in the program together—to compare notes, exchange ideas and network—was suggested as an improvement to the program. This would help ensure synergies between the program recipients. ▪ Suggestions were made that CANARIE could be more pro-active in helping the information flow, and coordinating/facilitating opportunities for marketing and distribution of learnware products. ▪ Some felt that a website where participating organizations could post information on projects, and related marketing events and activities, would help. ▪ Others thought an online industry portal, matching learnware suppliers and distributors, would be a useful program initiative. ▪ Need to pay more attention to the payback scenario underlying the program. This could be problematic in that some projects will not bear fruit as originally anticipated. ▪ Could have built into the payment process an explicit provision for payment advances. This would have alleviated cash flow problems created by the lengthy claims process. ▪ Could improve the reporting process by putting it online, i.e., to submit reports online using a standard input format. 	<ul style="list-style-type: none"> ▪ No feedback on this issue.

Exhibit 4.2: Lessons Learned (continued)

Organization or Group	Feedback from Organizations and Groups by Issue Area What are the lessons learned and how can the Program be improved?				
	Needs of the industry	Strengths of the program	Weaknesses of the program	Program improvements	Other programs
Unsuccessful applicants	<ul style="list-style-type: none"> ▪ Agree that the program is needed. The negative experience will not deter them from subsequent attempts to obtain federal or provincial funding. ▪ The Canadian learnware industry cannot avoid becoming engaged in foreign partnerships and strategic alliances, especially in the U.S. ▪ Government assistance programs should recognize this industry situation. Forging partnerships with foreign organizations opens up global markets to Canadian products. 	<ul style="list-style-type: none"> ▪ No feedback on this issue. 	<ul style="list-style-type: none"> ▪ At least one unsuccessful applicant on the shortlist would have liked the selection process to involve a face-to-face, Q&A, meeting between committee members and applicants. This could have been an option. ▪ The “matching funds” requirement was considered too restrictive for some of the small organizations, which felt they had a lot to offer though they could not match funds—and they proceeded with scaled-down project development. 	<ul style="list-style-type: none"> ▪ Provide a clearer focus in the program requirements, providing guidelines which explain eligible learnware applications. ▪ The program should have allowed foreign partners to be included, so long as the lead contractor is Canadian. The industry is becoming globalized anyway, and having a foreign partner is a plus for a Canadian firm, ensuring a broader market base. This should be factored in the selection process as a benefit, not a negative. 	<ul style="list-style-type: none"> ▪ One organization’s experience has been that it is less of an onerous job to get funding from other programs (e.g., ACOA, OLT) than from the Learnware Program. ▪ CIDA helps companies develop partnerships with organizations in other countries. One Learnware unsuccessful applicant was able to secure CIDA funding for opening up a joint project in Costa Rica, and to develop partners there. This has opened up opportunities for their products in South America.
Successful applicants who withdrew from the Program	<ul style="list-style-type: none"> ▪ What is needed is an understanding of how the learnware sector works. An understanding of the supply chain and integration of the different parties involved is crucial in developing a successful program. 	<ul style="list-style-type: none"> ▪ Risk sharing aspect of the program is a good idea—would commit to similar government program arrangements in the future. This was not the reason for pulling out of the program. 	<ul style="list-style-type: none"> ▪ Contributing matching funds was a challenge. Difficult for small firms to contribute matching funds, so the burden falls on the lead organization, while the smaller firms (sub-contractors) expect to bear no risk—and see the program as a short-term revenue opportunity. 	<ul style="list-style-type: none"> ▪ The question of who bears the risks in the projects should be worked out more carefully. ▪ One organization that withdrew considered the claims process to be a “minefield”. They consider that this is an important aspect to rectify, to improve the program. 	<ul style="list-style-type: none"> ▪ Interested in other CANARIE programs, e.g., Learning Program. This program seems to better address their needs in terms of funding requirements. Smaller size project with less of a requirement for partnering.
Selection Committee members	<ul style="list-style-type: none"> ▪ In Canada, there is a need for an umbrella organization (national association) to work on behalf of other organizations working at local and provincial levels. Also to lobby government for the needs of their member constituencies. 	<ul style="list-style-type: none"> ▪ Delivery of the program using “third-party” like CANARIE Inc. is one of the strengths of the program. ▪ Another strong point was the reliance on outside panel to select projects. 	<ul style="list-style-type: none"> ▪ The return on investment analysis is weak in the program. There is little expectation that payback will happen in any way resembling original intentions. It seems the initiative was not necessarily “programmed” for success in this respect. ▪ The program should have provided more guidance on sector priorities for education applications (e.g., in health, environment). The scope of the program was not narrow enough, and this made it difficult to understand what the direction was. The message communicated was that applications could be in most any area of educational need. This resulted in applications that were all over the map. 	<ul style="list-style-type: none"> ▪ Selection process should start off with a less detailed “expression of interest” as the initial step to reduce the burden on applicants—and to streamline the selection process. Short-listed proponents would be subsequently asked to submit detailed proposals. ▪ There should be a solid business oriented review done in the selection process. Some members of the Selection Committee suggested that the financial analysis of applications and the business review should be done by experts, to determine the projects’ business potential and impact on the industry in Canada, prior to a review by academics and public sector representatives. 	<ul style="list-style-type: none"> ▪ Programs need to encourage global partnerships—while protecting Canadian interests in these partnerships. Learnware did not recognize the significance of this business reality—excluding considerations of partnerships with other companies in other countries.

Exhibit 4.2: Lessons Learned (continued)

Organization or Group	Feedback from Organizations and Groups by Issue Area What are the lessons learned and how can the Program be improved?				
	Needs of the industry	Strengths of the program	Weaknesses of the program	Program improvements	Other programs
Associations	<ul style="list-style-type: none"> ▪ Most programs like the Learnware Program take too long to bear fruit. Programs need to be designed to allow “quick-wins” to happen, especially for small organizations that need a kick-start to become commercially successful. The Learnware Program was built on large projects that took too long to develop and market. ▪ It is not just the industry that is fragmented. Government programs/policies are fragmented too. The industry needs a more coordinated approach—there is potential for the new “Innovation Strategy” to address this issue. ▪ The technology is ahead of the market and of relevant educational applications. There is a need to emphasize the pedagogical aspects of e-learning. ▪ The biggest threat is that Canadian successes are bought out by U.S. large firms. 	<ul style="list-style-type: none"> ▪ The risk sharing component of the program is an innovative way to address the issues of funding and development of learnware. 	<ul style="list-style-type: none"> ▪ Government needs to help in developing standards for the industry—or promote the adoption of standards such as SCORM (Shareable Content Object Reference Model—a reference model that defines a web-based learning “content model”). ▪ The Learnware Program did not seem to address substantive issues of standards, quality and relevance of applications. 	<ul style="list-style-type: none"> ▪ Some of the funding should be to help organizations transform their existing paper-based learning courseware to multi-media based learning applications. ▪ The program addressed many different groups within the learnware sector. The needs of each are different, and the dynamics of what they do in terms of learnware development (and how and why they do it) are quite different. This needs to be studied more carefully, to structure any new program around a more accurate understanding of the learnware infrastructure in Canada. ▪ Marketing of e-learning products has to be on the basis of the quality and relevance of the content, not on the innovativeness of the technology. ▪ Be wary of reinventing the wheel – and committing to projects that will be obsolete by the time the products are developed. Need a better focus on the role of government in supporting organizations through other means: e.g., tax breaks, developing standards, ensuring quality of products, and supporting industry growth through associations and partnerships, and developing and sharing information sources. It is possible to provide knowledge support and information sharing, without project-specific funding—although there is still a role for a project-specific funding approach. 	<ul style="list-style-type: none"> ▪ The government needs to introduce a tax rebate program for lifelong learning—similar to precedent set by CH in its Film or Video Production Tax Credit Program (FTC). Also a tax rebate to transform existing paper-based courseware to new media platforms. ▪ Most helpful way for government to help learnware sector is to become a major purchaser of Canadian learnware products (“buy- Canadian” policy to help Canadian producers). ▪ A national e-learning framework that coordinates different program initiatives of government needs to recognize what is needed for success in the industry. Being successful in today’s e-learning industry means increasingly shorter product development and sales cycles. This translates into a bigger need for effective just-in-time, just-as-needed training. In contrast ,Learnware projects seem to involve lengthy product development and sales cycles.

Exhibit 4.2: Lessons Learned (continued)

Organization or Group	Feedback from Organizations and Groups by Issue Area What are the lessons learned and how can the Program be improved?				
	Needs of the industry	Strengths of the program	Weaknesses of the program	Program improvements	Other programs
Cable and phone companies	<ul style="list-style-type: none"> ▪ Primary needs of cable and phone companies were to build their customer base. This is what motivates the cable and phone companies, and hence the access issues are paramount. This is the prism through which they see (or saw) the program. 	<ul style="list-style-type: none"> ▪ The program was inherently on the right track with respect to its objectives of access to the Internet and connectivity agenda. The opportunities were seen by phone and cable companies to be in this component of the program. 	<ul style="list-style-type: none"> ▪ The main weakness, from the perspective of cable and phone companies, is that the burden of risk in the program is not sufficiently attractive to them to get involved in the kind of requirements stipulated (e.g., with respect to partnerships, intellectual property, profit-sharing). 	<ul style="list-style-type: none"> ▪ Risk sharing aspect of program should be worked out more carefully—especially risk sharing among partners. The program is commendable in that it introduces a mechanism of sharing risk between government and recipient organizations, but it is not as clear about how the risk-sharing “formula” works out between recipient partners. 	<ul style="list-style-type: none"> ▪ Need to change strategy of government from project-based support to policies that provide knowledge transfer and learning incentives (e.g., tax policy). ▪ There are two key things that need to happen, as far as cable companies are concerned, and government should help in both of these: accredit the e-learning courseware and develop standards so that there are common learning platforms for content developers to build towards.
Individuals knowledgeable about other government programs	<ul style="list-style-type: none"> ▪ The government needs to launch a campaign to make CEOs and other senior management in private and public sectors aware of the benefits of e-learning. ▪ It is absolutely critical that the government help to harmonize the market by introducing standards and providing a certification program for e-learning applications. This needs to happen if Canadian universities, for example, can compete with their U.S. and European counterparts in the e-learning context. 	<ul style="list-style-type: none"> ▪ No feedback on this issue. 	<ul style="list-style-type: none"> ▪ No feedback on this issue. 	<ul style="list-style-type: none"> ▪ Tie government economic program assistance to an “improving productivity” context. The issues of connectivity are still important, but productivity is now in the forefront. ▪ The payback formula is problematic. CANARIE/IC should not expect much return on investment from the program. One suggestion is to have CANARIE own some of the project assets, and the payback would be calculated in terms of depreciation right-offs. 	<ul style="list-style-type: none"> ▪ Need a multi-level coordinated initiative between IC, HRDC, CH, HC, and other federal departments, to address e-learning from within a coherent national policy framework. ▪ Government should help in developing quality and performance standards for e-learning initiatives, and for development of learning management systems (LMS). Need to look into this to reduce costs of development for e-learning and learnware deployment and commercialization. ▪ Other useful project-based program approaches are the TVO e-learning Lifelong Learning Challenge Fund (currently being evaluated by TVO). Also the New Media Fund of Telefilm Canada and the programs of the Office of Learning Technologies (HRDC).

Exhibit 4.2: Lessons Learned (continued)

Organization or Group	Feedback from Organizations and Groups by Issue Area What are the lessons learned and how can the Program be improved?				
	Needs of the industry	Strengths of the program	Weaknesses of the program	Program improvements	Other programs
IHAB and CANARIE	<ul style="list-style-type: none"> ▪ Whether funding should be allowed for course delivery platforms, or not, should be considered. This could impact on who participates in the program and the types of applications needed. ▪ While the structure of the industry in Canada is “fragmented”, it is not clear that a government program is needed to “consolidate” the industry. Perhaps what is needed is to learn how to address the issues related to fragmentation on an iterative or incremental basis, focused on working with the reality of “fragmentation”. 	<ul style="list-style-type: none"> ▪ The idea that government was investing in learnware projects in a cost-sharing formula, thereby sharing the development risks, is considered to be a strong point of the program. ▪ Most recipients seem to like the delivery mechanism of the program through CANARIE as a “third” party. ▪ Review process was fair and transparent, using a “peer review” approach with representation from learnware sector. 	<ul style="list-style-type: none"> ▪ Program contract negotiation process too lengthy. ▪ Claims process needs to be streamlined. It was frustrating for recipients to wait several months before payments were made—especially for the smaller organizations. ▪ Program criteria need to be revised—e.g., need to get rid of connectivity credits. Focus on private firms as lead contractors. ▪ Business plan and risk assessment in the selection process was weak. 	<ul style="list-style-type: none"> ▪ The financial procedures between Industry Canada and CANARIE should be streamlined in future programs—to alleviate the cash flow issues identified by program participants, with faster turnaround. ▪ Need membership from publishers on the Selection Committee, to reach out to and facilitate participation by this sector; and members or observers from other government programs, to encourage interdepartmental synergies in program delivery. 	<ul style="list-style-type: none"> ▪ Government has had a somewhat fragmented agenda for e-learning, although it is coming together with the Canada’s new “Innovation Strategy” – including the “Knowledge Matters” initiative of HRDC and “Achieving Excellence” of IC.
IC Regional Offices	<ul style="list-style-type: none"> ▪ The successful business model is to create larger companies who will be integrators of e-learning technology and content. 	<ul style="list-style-type: none"> ▪ No feedback on this issue. 	<ul style="list-style-type: none"> ▪ If IC regional offices had been involved in the process earlier, they feel they could have helped in bringing on board (for example) the provincial ministries of education—to contribute funds and/or provide content and networking and sales opportunities. 	<ul style="list-style-type: none"> ▪ Need a more coordinated program promotion plan that involves the regional offices at an early stage. 	<ul style="list-style-type: none"> ▪ No feedback on this issue.

V. Conclusions and Recommendations

5.1 Need for the Program

- There is a consensus that federal government support for developing e-learning solutions is as timely today as it was when the Learnware Program was originally introduced. However, the focus has shifted from the *Connectivity Agenda* to improving productivity and “achieving excellence” in the new knowledge-based economy.
- New funding should be focused on achieving commercial development of e-learning solutions and learning platforms. The challenge is to discover the best practices and the appropriate business models that work, to build a program around sustainable partnerships and consortia that address the issues of industry growth and consolidation of supply and demand.

5.2 Program Design and Delivery

- The scope and objectives of the Learnware Program were too broad, covering too many potential eligible applicants and applications with different social and economic policy contexts and motivation.
- The connectivity credit requirements of the program were too confusing and ended up being less effective than intended. As one program recipient put it—“it became a paper exercise.”
- Targeting the telcos and cable companies as lead contractors was a failed strategy. The interest of these organizations was primarily in increasing their customer base for their core business. How the Learnware Program would do this for them was unclear, and too risky for the matching investment that they would be required to commit to. Consequently, they backed out of the program.
- The selection process was fair and transparent, but the business plans submitted by applicants were generally weak. The Selection Committee had difficulties in assessing the adequacy of business plans and commercialization potential.
- The program delivery model through CANARIE Inc. is considered successful, providing value for money.
- Program reach fell short in terms of bringing on other sources of funding (e.g., from provincial government departments), and in attracting applicants from the volunteer and non-profit sectors, and libraries and K-12 school boards. The matching funds and

minimum funding requirements may have hindered smaller organizations, and smaller-scoped projects, from applying.

- The claims process was problematic in that payments to program recipients took too long by normal standards—sometimes three months or longer. Although, during the latter stages of the program, over the past year, this process has now become more streamlined.
- More communication with CANARIE and IC would have been useful, particularly in setting up opportunities for program recipients from different projects to come together, to interact and to learn from each other’s experiences (e.g., in symposia, workshops, conferences).

5.3 Achievement of Results

- Industry is still fragmented. The issue of “consolidating” supply and demand is still prevalent. Creative solutions are required to address this issue – not necessarily to reduce fragmentation, but to understand how to manage it and work with it as a reality.
- There is a need to consult with industry, perhaps through existing regional associations that have e-learning as a strategic priority and as a focus of their activities, to identify the industry’s specific needs and to map out the industry infrastructure—with clarity about the relationships between suppliers and users, and supply chain dynamics. During the consultations for this study, associations have already expressed an interest in cooperating with Industry Canada to undertake a needs assessment study of the learnware sector.
- Competition from U.S. and European firms is a big challenge—even more than before, when the Learnware Program was first introduced. Some organizations in these markets have matured and captured market share faster than Canadian organizations. A strategic benchmarking study is needed to assess the competitive differences between Canadian, U.S. and European organizations.
- There is a need to develop a Canadian national e-learning policy framework and forum for coordinating the diverse federal government programs, to improve effectiveness in government support and to avoid duplication.
- The need to improve marketing skills and distribution channels is still a priority, in that developers and suppliers of learnware products generally lack these attributes. While the Learnware Program has contributed to improving skills and building capacity, the limited number of projects, and the slow sales cycle of these projects, suggests that the Program results are not adequate to address the full scope of this issue at the national level.

- There is some indication that the program helped in facilitating partnerships, but not to the full extent originally anticipated. The partnerships forged as a result of the Program signify only a limited success in bringing together “content” partners with “marketing” and “technology” partners.
- Only 7 percent of program recipients said that their partnership arrangements led to better access to markets and to potential users of their learnware products.
- None of the program recipients felt that they would have proceeded with their projects within the same timeframe, if they had not received Learnware funding. As such, the Program has had an incremental effect, stimulating the development of learnware products, albeit within the limits of the eleven projects funded.
- The Learnware projects funded are falling short in terms of time to market and reasonable sales cycles anticipated. But, generally, program recipients believe their participation in the Program is producing learnware applications with promising commercial potential.
- Projects are still just getting close to their commercialization phases. It may not be for another year before Industry Canada sees any payback. At the time of writing the evaluation report, only two projects had been close to commercializing and making profits.

5.4 Program Options and Lessons Learned

- The program was inherently on the right track with respect to its objective of improving access to the Internet and the *Connectivity Agenda*. The opportunities were seen by the phone and cable companies to be in this component of the program. However, connectivity and access are being achieved more effectively through other program initiatives—the Learnware Program may not have been an effective way to address these strategic directions in the first place.
- The Learnware Program is commendable in that it introduced a mechanism of sharing risk between government and recipient organizations, but the program is not as clear about how risk-sharing between recipient partners is to take place. This is an important factor to consider in the program design and criteria, if the benefits of developing sustained partnerships are to be realized. For example, during the project evaluation stage, questions should be addressed relating to whether the partners have adequately defined their respective roles and responsibilities, the nature of their commitments to each other and to the project, the motivations of the partners (are they compatible?), the extent of their respective contributions, and the legal/contractual arrangements between the partners.
- Useful program models to emulate include the TVOntario Lifelong Learning Challenge Fund (currently being evaluated by TVOntario); the New Media Fund of Telefilm

Canada; and the programs of the Office of Learning Technologies (HRDC). These programs have somewhat different design and delivery aspects than those of the Learnware Program—namely, they have: narrower scopes and objectives; tighter eligibility criteria for projects and applicants; a range of projects, between them, from small, medium to large funding; simpler concepts for eligible matching funds; more streamlined contract negotiation and contract closure procedures and requirements; and communications and events for building synergy between program recipients.

- In all the aforementioned elements, the TVO Lifelong Learning Challenge Fund seems to have worked well, but a program and project evaluation study of this Fund is pending from TVOntario to better assess this matter.
- Several individuals consulted in the learnware industry sector have suggested that IC should create a network portal for exchanging industry and program information—to foster e-learning best practices, stimulate networking opportunities, and support standards and quality development, and other related points of interest, for the learnware sector as a whole. Specific models to review for this are: the initiative known as “LearnAlberta.ca” (a learning repository project under development) and the “Health Infoway” portal developed by Health Canada.
- It was suggested by learning industry representatives that government should help in developing quality and performance standards for e-learning solutions, and for development of online learning environments and management systems (learning platforms). There is a need to look into learning management systems and platforms, to determine how this potentially reduces costs of development for learnware deployment and commercialization.

5.56 Recommendations

Program need:

1. Introduce a new learnware program with significant program design changes to address the lessons learned—specifically as laid out in the other recommendations listed below.

Program design and delivery:

2. Remove the following components from the program: “connectivity credits” as a program requirement, the “Funds” approach as a program delivery mechanism, and “access” as an objective of the program.

3. Retain the “growth and development of industry” objective, but link this to productivity improvement as a strategic direction, and to the “Achieving Excellence” agenda of Industry Canada. Also retain the objective of addressing issues related to industry structure, but first undertake a study to better map out this structure (see related recommendations # 15 and # 16 below).
4. Target industry, including SMEs, as lead eligible recipients and lead contractors in the program—with partnerships and sub-contractors from other target groups (e.g., educational institutions).
5. Permit advances without interest tracking to expedite payments to project claimants, or ensure streamlined claims administration based on acceptable standards of turnaround time.
6. Develop a communications plan to announce winners and projects as they are completed—include role of IC Regional Offices in the plan. Regional Offices should also be involved at the front end, during the design phase of the program, to help promote the program to the appropriate constituencies.
7. Provide funding in the program to hold regular (e.g., bi-annual conferences) to bring program recipients together, to interact and share experiences.
8. Risk assessment in the selection process is an important part of making the right choices—especially if commercialization is to be an ultimate goal. Selection should be partially tuned in to how recipient partners intend to share the risks and whether they have a sustainable proposal for this—i.e., to keep the partnerships together throughout the project, and potentially thereafter.
9. To what extent funding should be allowed for development of course delivery platforms, and flexible (modular) online learning environments, should be considered in consultation with industry. This could impact on who participates in the program and the types of applications needed, and funded.
10. The program should focus exclusively on industry-led contractors—or Industry Canada should develop separate program components, designed and customized differently for an industry lead, an educational institution lead, and/or other target group lead. There are different dynamics, operational considerations, and motivations involved, depending on who leads the project—and in each case this requires program design refinements.
11. Continue to deliver learnware programs through CANARIE, but the financial procedures between Industry Canada and CANARIE should be streamlined in future programs—to alleviate the cash flow issues identified by program participants, with faster turnaround.

12. There is a need to include publishers on the Selection Committee, to reach out to and facilitate participation by this sector; and members or observers from other government programs, to encourage interdepartmental synergies in program design and delivery.

Policy:

13. The government can help support industry growth by itself becoming a purchaser of the learnware products produced in Canada. A “buy-Canadian” approach, from Canadian suppliers, could be made explicit for government e-learning procurements.
14. There is a need to develop a multi-level coordinated initiative between Industry Canada, Human Resources and Development Canada, Canadian Heritage, Health Canada and other federal departments, to address e-learning from within a coherent national policy framework—particularly as it impacts on the corporate, non-profit, and academic communities, and the general public.
15. Industry Canada should undertake an industry needs study, in collaboration with e-learning associations, to map out the current demographics of the industry in Canada, and the competitive challenges, opportunities and threats—and to identify how the e-learning business infrastructure best works, in terms of streamlined supply chain relationships, partnerships, and strategic alliances.
16. Industry Canada should also undertake a strategic benchmarking study to identify best practices and competitive challenges between U.S. and European based e-learning suppliers and Canadian suppliers. Particular attention should be placed on studying the best practices and the dynamics of moving learnware products from the R&D stage to successful commercialization.

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- Selected private organization websites and associations consulted for this study:
 - Acerra: www.acerca.ca
 - ALIANT: www.aliant.ca
 - Alliance numeriQC: www.numeriqc.ca
 - Blackboard: www.blackboard.com
 - Brainium: www.brainium.com
 - Canadian Association of Distance Education (CADE): www.cade.ca.
 - Centra: www.centra.com
 - Cisco: www.cisco.com
 - Click2Learn: www.click2learn.com
 - Digital Think: www.digitalthink.com
 - Docent: www.docent.com
 - Harvard Business School: www.hbsp.harvard.edu
 - IBM Pacific Development Centre: www.can.ibm.com
 - Ingenia Training: www.ingenia-training.com
 - Ingenuity Works: www.ingenuityworks.com
 - LearnSoft: www.learnsoft.ca
 - McGraw Hill Lifetime Learning: www.mhlifetimelearning.com
 - NETg: www.netg.com
 - NewMediaBC: www.newmediabc.com.
 - Ontario Society for Training and Development (OSTD): www.ostd.ca.
 - Open Learning Agency: www.ola.ca
 - Saba: www.saba.com
 - SkillSoft: www.skillssoft.com
 - SmartForce: www.smartforce.com
 - TechBC Corp.: www.techbc.com
 - TecSult Eduplus: www.tecsult-eduplus.com
 - Telus: www.telus.com
 - UBC Continuing Studies: www.tech.ubc.ca
 - WebCT: www.webct.com

- Selected government programs and related websites consulted for this study:
 - Advanced Technology Program: www.atp.nist.gov.
 - Canadian Culture Online Funding Programs: www.pch.gc.ca.
 - Canadian Film or Video Production Tax Credit Program: www.pch.gc.ca or www.ccr-aadrc.gc.ca.
 - Canadian Television Fund: www.canadianheritage.gc.ca.
 - Canadian Audio-Visual Certification Office (CAVCO): www.pch.gc.ca or www.ccr-aadrc.gc.ca.
 - Lifelong Learning Plan (LLP), Canada Customs and Revenue Canada: www.ccr.gc.ca.
 - Multimedia Fund, Telefilm Canada: www.telefilm.gc.ca.
 - Office of Learning Technologies: <http://olt-bta.hrdc-drhc.gc.ca>.
 - SchoolNet Learnware Program: www.canarie.ca.
 - The Learning Program: www.canarie.ca.
 - TVO Lifelong Learning Challenge Fund: www.tvontario.org.

Appendix B: List of Individuals Consulted

INTERVIEWEES

Consultation through face-to-face and telephone interviews were conducted from November 2001 through March 2002. Successful project applicants were also surveyed separately—with 19 project lead contractors and sub-contractors providing detailed survey responses.

The following is a list of persons consulted who were interviewed face-to-face and by telephone.

A. CANARIE Inc.

Doug Hull
Senior Director, Public Access/Learning Networks
CANARIE Inc.

Rafiq Khan
Senior Director, Strategic Development
CANARIE Inc.

Gianvito Panico
Project Analyst
CANARIE Inc.

James Rossiter
Director, Learning Program
CANARIE Inc.

David Sutherland
Director, Community Programs
CANARIE Inc.

B. Industry Canada

Yuri Daschko
Director, Multimedia Learning Group
Industry Canada

Raymond LePage
Manager, E-Business Development
Industry Canada

Susan Mongrain
Project Officer, Multimedia Learning Group
Industry Canada

Michael Nadler
Director, SkillNet
Industry Canada

C. Unsuccessful Applicants

Barry Bisson
President, Skills for You
Fredericton, New Brunswick

Stephen P. Murray
Island Tel
Prince Edward Island

Mark Roseman
TeamWave Software Ltd.
Calgary, Alberta

David Vogt
VP Business Development, Brainium Technologies Inc
British Columbia

Art Willer
President, Bytes of Learning Incorporated
Markham, Ontario

D. Approved Organizations that Withdrew

Bill Fricker
Coordinator Technology and Curriculum Innovation
The Northern Alberta Institute of Technology (NAIT)
Edmonton, Alberta

Anne Marie Vaughan
School of Continuing Education
Memorial University
St. John's, Newfoundland

E. Selection Committee Members

Adam Froman
President and CEO, Delvinia Inc.
Toronto, Ontario

Kenn Webb
Vice-President, Academic
Red River College
Winnipeg, Manitoba

F. Industry Canada Regional Representatives

Valerie Bachynsky
Trade Commissioner, International Trade
Industry Canada
Halifax, Nova Scotia

David Dallimore
Director, Information Highway Applications
Ontario Regional Office, Industry Canada
Toronto, Ontario

Rick Gensiorek
Director, Regional Information Highway Branch
Prairie and Northern Region, Industry Canada
Winnipeg, Manitoba

Deb Hogg
Regional Coordinator, Management Strategies
Industry Canada
Saskatoon, Saskatchewan

John Lorenz
Senior Officer, Information Technology Industry
Industry Canada
Vancouver, British Columbia

G. Cable and Phone Companies

Alex Park
Shaw Communications Inc.
Calgary, Alberta

Haig Baronikian
Director (former) Corporate Strategy and External R&D
Bell Canada/BCE
Toronto, Ontario

H. Associations

Louis Garceau
Co-President of RIAN eLearning
and Principal Director of Tecstart Eduplus
Montreal, Quebec

Lyn Johnston
Executive Director
Ontario Society for Training and Development (OSTD)
Toronto, Ontario

James Bizzocchi
President
Canadian Association of Distance Education
Burnaby, British Columbia

Paul Stacey
New Media BC
Director, Corporate Education
Technical University of British Columbia

Lynda Trommellen
Director - Board Member
Ontario Society for Training and Development (OSTD)
Kingston, Ontario

J. Other Government Programs

Blair Dimock
Managing Director, New Media
Ontario Educational Communications Authority (TVOntario)
Toronto, Ontario

Tara Rajan
Director of Research at Canadian Television Fund (CTF)
Formerly with Telefilm Canada and
Formerly with Canadian Heritage (CH)

Rob Mastin
Manager, Program Development
Office of Learning Technologies
Human Resources and Development Canada

Alex Roussakis
Knowledge Transfer Coordinator
Office of Learning Technologies
Human Resources and Development Canada

Keith Clarkson
Senior Multimedia Investment Analyst
Telefilm Canada, Multimedia Fund
Toronto, Ontario

K. Successful Project Applicants

Christian Gauthier
President, Nuratek Inc.
Moncton, New Brunswick

Gary Gumley
President and CEO, Ingenuity Works Inc.
Burnaby, British Columbia

Jim Rapino
President, VuBiz
Mississauga, Ontario

George Patrick Savaria
Technologies Cogigraph Inc.
Montreal, Quebec

SURVEY RESPONDENTS

The following is a list of persons who responded to the evaluation survey questionnaire.

Norah Andrew
University College of the Fraser Valley
Abbotsford, British Columbia

Kate Barnes
Vital Knowledge Software Inc.
Fredericton, New Brunswick

J.F. Blanchette
Canadian Museum of Civilization
Ottawa, Ontario

Blake Cowan and Robert Doyle
Ingenuity Works Inc.
Burnaby, British Columbia

John Dickenson
HR MacMillan Space Centre
Vancouver, British Columbia

Mark Dilsner
Inroad Solutions
Saskatoon, Saskatchewan

Christian Gauthier
Nuratek Inc.
Moncton, New Brunswick

Gary Gumley
Ingenuity Works Inc.
Burnaby, British Columbia

Bruce Hobin
University of Saskatchewan
Saskatoon, Saskatchewan

Leif Kaldor
Tyndal Stone Media Inc.
Regina, Saskatchewan

Enid McCauley
Open Learning Agency
Burnaby, British Columbia

David Miller
School District 69
Parksville, British Columbia

Michael Quinn
Logo Computer Systems Inc.
Montreal, Quebec

Jim Rapino
Vubiz.com Ltd.
Mississauga, Ontario

Doug Sage
Royal BC Museum
Victoria, British Columbia

George Patrick Savaria
Technologies Cogigraph Inc.
Montreal, Quebec

Keith Sheppard
Collaborative Network Technologies Inc.
St. John's Newfoundland

David Vogt
Brainium Technologies Inc
British Columbia

Joe Wiseman
INNOVA Multimedia Ltd.
Stephenville, Newfoundland

Appendix C: Survey Questionnaire

SURVEY QUESTIONNAIRE FOR AN EVALUATION OF THE SCHOOLNET MULTIMEDIA LEARNWARE AND PUBLIC ACCESS APPLICATIONS PROGRAM

The Department of Industry Canada is sponsoring an evaluation of the SchoolNet Multimedia Learnware and Public Access Applications Program ("Learnware Program", for short). Your assistance in responding to this questionnaire is important to the policy, program design and administrative teams of Industry Canada and CANARIE Inc. The results of the survey will be used specifically to improve the design and delivery of the Learnware Program and potentially other information highway applications programs. The findings and conclusions of the evaluation will be made more valuable by your candid observations and assessments.

Your responses to the questions in this questionnaire will be kept confidential and will not be attributed to you or your organization. The findings of the survey will be presented as lessons learned and as assessments of program progress and performance. Your participation is voluntary.

When you have completed the questionnaire, please e-mail it back to rostum@bytownconsulting.com. If you have any questions, suggestions, comments, please e-mail or call Hussein Rostum, Bytown Consulting: (613) 749-8629. The deadline date for returning the completed questionnaire is November 28, 2001.

Your name:	<i>type here</i>
Job title:	<i>type here</i>
E-mail address:	<i>type here</i>
Organization:	<i>type here</i>
Mailing address:	<i>type here</i>
Office phone #:	<i>type here</i>
Fax #:	<i>type here</i>

Please mark the relevant boxes [] clearly with an "X" and complete your answers in the blank areas associated with each question.

1. Indicate the type of organization you work in.

- Private sector
Indicate specific industry (e.g., high tech, communications, tourism) *type here*
- Government
 - Federal
 - Provincial
 - Municipal
- Educational institution
 - University
 - Technical or other post-secondary college/institution (e.g., CEGEP)
 - Secondary or primary school
- Library
- Community group/organization
- Other (e.g., school board), specify *type here*

2. Is your organization a

- Non-profit organization
- For-profit organization
- Other (specify) type here

3. Is your organization a recipient of funds directly or indirectly from the Learnware Program?

- "Directly", means receiving Learnware Program funds as a prime contractor (e.g., Bell Canada)
- "Indirectly", means a sub-contractor or partner with a prime contractor

4. (a) What is the total amount of funding that your organization has received and/or anticipates receiving from the Learnware Program (i.e., through CANARIE Inc. and Industry Canada)?

➤ Funding received to date	\$ _____
➤ Funding anticipate receiving in total	\$ _____
➤ Total funding	\$ _____

(b) What percent of this funding is for your own organization's initiative to develop learnware products/applications?

percent

(c) What percent of this funding is for sub-contractors or for your partners involved in learnware product/application development initiatives?

percent

5. What are the estimated numbers of full-time and part-time jobs created in your organization that can be directly attributed to the support provided by the Learnware Program?

Full-time Part-time

Comment type here

6. Please provide a brief and up-to-date description (a short sentence) for each learnware product/application your organization has developed or is developing under the Learnware Program funding agreement.

Learnware product/application	Description	Date released to market or made available to end-users
	Indicate whether the product/application is: (1) an industry application; (2) a public access application; or a (3) learnware content and related software application.	(If product/application is still being developed, indicate anticipated date of release.)
1. <u>type here</u>	<u>type here</u>	<input type="checkbox"/>
2. <u>type here</u>	<u>type here</u>	<input type="checkbox"/>
3. <u>type here</u>	<u>type here</u>	<input type="checkbox"/>
4. <u>type here</u>	<u>type here</u>	<input type="checkbox"/>

7. What are the total sales revenues realized and/or forecasted for your company from the learnware products/applications described in Question 6? Please also indicate the percent of sales revenues from domestic and international markets.

SALES REVENUES	REVENUES \$	Percent From Canadian Domestic Sales %	Percent From International Sales %
(a) REALIZED sales revenues to date	\$ []	[]%	[]%
(b) FORECAST sales revenues			
Year 1 (2001)	\$ []	[]%	[]%
Year 2 (2002)	\$ []	[]%	[]%
Year 3 (2003)	\$ []	[]%	[]%
Year 4 (2004)	\$ []	[]%	[]%
Year 5 (2005)	\$ []	[]%	[]%
TOTAL	\$ []	[]%	[]%

8. (a) Has the Learnware Program improved your organization's access to other funding sources for the purpose of developing learnware products/applications?

- Yes, significant improvement
- Yes, some improvement
- Too early to say
- No improvement
- Don't know, or not applicable to our organization

Comment type here

(b) If "Yes ..." , what were (are) these other sources of funding (for example: banks, other federal or provincial government programs, other public or private financing institutions)?

Specify type here

9. Would your organization have developed the same or similar learnware products/applications if you had not received Learnware Program funding?

- Yes, we would have proceeded even without the Program funding within the same time frame
- Yes, but it would have taken us longer to proceed without Program funding
- No, we would not have proceeded at all without the Program funding
- Don't know or not sure whether my organization would have proceeded

Comment type here

10. (a) Has the Learnware Program helped your organization to accelerate the development of new media learning and Internet products and related applications?

- Yes, to a very significant extent
- Yes, to some extent
- No
- Don't know

Comment type here

(b) Has the Program increased your capacity in other aspects of your business, for future plans?

- Yes No

If "Yes", briefly describe in what way type here

11. Did you establish a working relationship with your connectivity credit partner(s) and did it result in better access to markets?

- Yes, established working relationship with connectivity credit partner(s) and it has resulted in better access to markets
- Yes, established working relationship but it has not yet resulted in better access to markets
- No, have not established a working relationship with connectivity credit partner(s)
- Don't know

Comment type here

12. Would your organization have partnered or sub-contracted with your current learnware partners/sub-contractors, involved with you in Learnware Program projects, if you had not received Program funding?

- Yes, we would have gone ahead anyway with or without Program funding
- Yes, but it would have taken us longer to proceed with these partners/sub-contractors
- No, we would not have proceeded at all without the Program funding
- Don't know or not sure whether my organization would have proceeded

Comment type here

13. Would you say that the Learnware Program requirement that fund partners be required to improve access to the Internet for schools, libraries, communities, or volunteer organizations, at a value of at least five times the amount of Industry Canada's investment in a joint fund, improved access for the noted entities? [This improved access can take the form of financial contributions or of cost reductions on equipment or services.] (Mark appropriate boxes.)

	Yes, definitely	Yes, somewhat	No	Don't know or not sure
Schools	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Libraries	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Community access groups	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Volunteer organizations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Comment type here

14. Has the Learnware Program helped your organization partner with the intended program participants? [*“Intended program participants” include large carriers and publishers of learnware products, educational institutions, community access groups, libraries, and small or medium-sized enterprises involved in content development.*]

- Yes, definitely
- Yes, to some extent
- No
- Don't know or not sure

Please specify which of the listed “intended program participants” you are currently partnered with type here

15. Overall, to the best of your knowledge, would you say that the Learnware Program has succeeded in getting intended program participants to participate in the program? [*“Intended program participants” include large carriers and publishers of learnware products, educational institutions, community access groups, small or medium-sized enterprises involved in content development, libraries.*]

- Yes, definitely
- Yes, to some extent
- No
- Don't know or not sure

If your answer is “Yes, to some extent” or “No”, who would you suggest that the program should reach out to in the future, in addition to the current participants in the program?

Suggestions type here

16. (a) Have the partnerships you developed under this Program with large and/or small/medium-sized enterprises been beneficial for your organization?

- Yes, very beneficial
- Beneficial
- Too early to say or no impact
- Not beneficial

If beneficial, please briefly indicate what the benefits were type here

If not beneficial, please comment type here

(b) Have these partnerships been easy or difficult to sustain?

- Easy to sustain
- Too early to say
- Difficult to sustain

Comment type here

17. (a) Would you say that the Learnware Program has helped address the problem of industry fragmentation by helping to consolidate supply and demand within Canada's new media learning sector?

- Yes, helped significantly
- Yes, helped somewhat
- Too early to say

- No help
- Don't know or not sure about this

Comment type here

(b) Would you say that the Learnware Program has helped address the gap in distribution channels for learnware products/applications in Canada?

- Yes, helped significantly
- Yes, helped somewhat
- Too early to say
- No help
- Don't know or not sure about this

Comment type here

18. (a) Based on your experience with the Learnware Program, would you say there is a continued need for the federal government to invest in this Program?

- Yes, at an increased level of investment in this Program
- Yes, at the same level of investment
- Yes, at a reduced level of investment
- No, there is no need to continue investing in this Program
- Don't know or not sure

Comment type here

(b) Should the federal government continue to invest in funding Multimedia learnware products, through other programs?

- Yes
- No
- Don't know or not sure

Comment type here

(c) Where should government support be directed?

- Pre-commercial development (applied research)
- Commercial development
- Other (specify): type here

Comment type here

19. Looking into the future, over the next two to five years, do you anticipate that the Learnware Program will have had an impact in helping create a stable learnware industry in Canada? [*“Stable industry” here means characterized by a moderate to high demand for learnware products/applications, and by a committed and sustainable cadre of product/application developers and distributors (e.g., in small or medium-sized enterprises and/or large organizations).*]

- Yes, very significant impact
- Yes, some impact
- No impact
- Don't know or not sure about this

Comment type here

20. How would you rate CANARIE Inc.’s delivery of the Learnware Program?

- CANARIE Inc. has been very effective in delivering the Learnware Program
- CANARIE Inc. has been somewhat effective in delivering the Learnware Program
- CANARIE Inc. has not been effective in delivering the Learnware Program
- Don't know

Comment type here

21. The following set of questions relate to program selection criteria and delivery processes.

(a) According to the Program’s criteria for funds, Industry Canada’s joint fund investments must be exceeded or matched by the partners. Is this a fair and equitable funding criterion?

Please comment type here

(b) How clear to you were (are) the Program’s “Connecting Canadians Agenda” requirements?

- Very clear—they were (are) easy to understand
- Clear, but with some elaborations required
- Not clear, not easy to understand

Comment type here

(c) Is the Program requirement for support of the Canadian government’s “Connecting Canadians Agenda” appropriate or inappropriate?

- Appropriate, with no changes needed
- Appropriate, but with some changes needed
- Not appropriate
- Don't know

Comment (e.g., if you think some changes are required, please elaborate) type here

(d) Please indicate whether the timelines for the Program application and selection process were appropriate or inappropriate for your organization?

Application process type here

Selection process type here

(e) Was the business plan development process, as required by the Program, beneficial?

- Yes, very beneficial
- Beneficial
- No impact
- Not beneficial

If beneficial, please briefly indicate what the benefits were type here

(f) Did the application and selection processes help or impede some organizations from jointly participating with you in this program?

Application process

- Helped
- Neither helped nor impeded
- Impeded
- Don't know

Selection process

- Helped
- Neither helped nor impeded
- Impeded
- Don't know

Comment type here

(g) Do the reporting requirements help or impede the implementation of the Program?

- Help
- Neither help nor impede
- Impede
- Don't know

Comment type here

22. Overall, has the Learnware Program met your expectations?

- Yes, definitely
- Yes, somewhat
- No
- Don't know

Comment type here

23. (a) What can the Learnware Program provide in future, to address your organization's needs with respect to developing and distributing learnware products/applications? [For example: assistance in developing learnware partnership arrangements, advice on product development, information on market access and distribution mechanisms. Please don't limit your answer to these examples.]

type here

(b) If there was one thing you could change to improve the Learnware Program what would this be?

type here

When you have completed the questionnaire, please e-mail it back to rostum@bytowntownconsulting.com. If you have any questions, suggestions, comments, please e-mail or call Hussein Rostum, Bytown Consulting: (613) 749-8629.
Deadline date for returning the completed questionnaire is November 28, 2001.

**Thank you for participating in this evaluation
of the Learnware Program.**

Appendix D: Survey Results—Statistical Tables

Question 8a

Has the Learnware Program improved your organization's access to other funding sources for the purpose of developing learnware products/applications?

Response Category	Response Value	Percent	Number
Yes, significant improvement	1	10.5	2
Yes, some improvement	2	21.1	4
Too early to say	3	31.6	6
No improvement	4	26.3	5
Don't know, or not applicable to our organization	5	10.5	2
	Total	100	19

Question 9

Would your organization have developed the same or similar learnware products/applications if you had not received Learnware Program funding?

Response Category	Response Value	Percent	Number
Yes, we would have proceeded even without the Program funding within the same time frame	1	0.0	0
Yes, but it would have taken us longer to proceed without Program funding	2	36.8	7
No, we would not have proceeded at all without the Program funding	3	57.9	11
Don't know or not sure whether my organization would have proceeded	4	5.3	1
	Total	100	19

Question 10a

Has the Learnware Program helped your organization to accelerate the development of new media learning and Internet products and related applications?

Response Category	Response Value	Percent	Number
Yes, to a very significant extent	1	57.9	11
Yes, to some extent	2	36.8	7
No	3	5.3	1
Don't know	4	0.0	0
	Total	100	19

Question 10b

Has the Program increased your capacity in other aspects of your business, for future plans?

Response Category	Response Value	Percent	Number
Yes	1	87.5	14
No	2	12.5	2
	Total	100	16

Question 11

Did you establish a working relationship with your connectivity credit partner(s) and did it result in better access to markets?

Response Category	Response Value	Percent	Number
Yes, established working relationship with connectivity credit partner(s) and it has resulted in better access to markets	1	6.7	1
Yes, established working relationship but it has not yet resulted in better access to markets	2	53.3	8
No, have not established a working relationship with connectivity credit partner(s)	3	40.0	6
Don't know	4	0.0	0
	Total	100	15

Question 12

Would your organization have partnered or sub-contracted with your current learnware partners/sub-contractors, involved with you in Learnware Program projects, if you had not received Program funding?

Response Category	Response Value	Percent	Number
Yes, we would have gone ahead anyway with or without Program funding	1	0.0	0
Yes, but it would have taken us longer to proceed with these partners/sub-contractors	2	36.8	7
No, we would not have proceeded at all without the Program funding	3	47.4	9
Don't know or not sure whether my organization would have proceeded	4	15.8	3
	Total	100	19

Question 13a

Would you say that the Learnware Program requirement that fund partners be required to improve access to the Internet for schools, libraries, communities, or volunteer organizations, at a value of at least five times the amount of Industry Canada's investment in a joint fund, improved access for the noted entities?

Schools	Response Value	Percent	Number
Yes, definitely	1	38.9	7
Yes, somewhat	2	22.2	4
No	3	5.6	1
Don't know or not sure	4	33.3	6
	Total	100	18

Question 13b

Would you say that the Learnware Program requirement that fund partners be required to improve access to the Internet for schools, libraries, communities, or volunteer organizations, at a value of at least five times the amount of Industry Canada's investment in a joint fund, improved access for the noted entities?

Libraries	Response Value	Percent	Number
Yes, definitely	1	17.6	3
Yes, somewhat	2	23.5	4
No	3	17.6	3
Don't know or not sure	4	41.2	7
	Total	100	17

Question 13c

Would you say that the Learnware Program requirement that fund partners be required to improve access to the Internet for schools, libraries, communities, or volunteer organizations, at a value of at least five times the amount of Industry Canada's investment in a joint fund, improved access for the noted entities?

Community access groups	Response Value	Percent	Number
Yes, definitely	1	12.5	2
Yes, somewhat	2	18.8	3
No	3	18.8	3
Don't know or not sure	4	50.0	8
	Total	100	16

Question 13d

Would you say that the Learnware Program requirement that fund partners be required to improve access to the Internet for schools, libraries, communities, or volunteer organizations, at a value of at least five times the amount of Industry Canada's investment in a joint fund, improved access for the noted entities?

Volunteer organizations	Response Value	Percent	Number
Yes, definitely	1	12.5	2
Yes, somewhat	2	6.3	1
No	3	25.0	4
Don't know or not sure	4	56.3	9
	Total	100	16

Question 14

Has the Learnware Program helped your organization partner with the intended program participants?

Response Category	Response Value	Percent	Number
Yes, definitely	1	31.3	5
Yes, to some extent	2	37.5	6
No	3	6.3	1
Don't know or not sure	4	25.0	4
	Total	100	16

Question 15

Overall, to the best of your knowledge, would you say that the Learnware Program has succeeded in getting intended program participants to participate in the program?

Response Category	Response Value	Percent	Number
Yes, definitely	1	52.6	10
Yes, to some extent	2	26.3	5
No	3	0.0	0
Don't know or not sure	4	21.1	4
	Total	100	19

Question 16a

Have the partnerships you developed under this Program with large and/or small/medium-sized enterprises been beneficial for your organization?

Response Category	Response Value	Percent	Number
Yes, very beneficial	1	43.8	7
Beneficial	2	25.0	4
Too early to say or no impact	3	31.3	5
Not beneficial	4	0.0	0
	Total	100	16

Question 16b

Have these partnerships been easy or difficult to sustain?

Response Category	Response Value	Percent	Number
Easy to sustain	1	18.8	3
Too early to say	2	50.0	8
Difficult to sustain	3	31.3	5
	Total	100	16

Question 17a

Would you say that the Learnware Program has helped address the problem of industry fragmentation by helping to consolidate supply and demand within Canada's new media learning sector?

Response Category	Response Value	Percent	Number
Yes, helped significantly	1	10.5	2
Yes, helped somewhat	2	47.4	9
Too early to say	3	21.1	4
No help	4	5.3	1
Don't know or not sure about this	5	15.8	3
	Total	100	19

Question 17b

Would you say that the Learnware Program has helped address the gap in distribution channels for learnware products/applications in Canada?

Response Category	Response Value	Percent	Number
Yes, helped significantly	1	5.3	1
Yes, helped somewhat	2	42.1	8
Too early to say	3	36.8	7
No help	4	0.0	0
Don't know or not sure about this	5	15.8	3
	Total	100	19

Question 18a

Based on your experience with the Learnware Program, would you say there is a continued need for the federal government to invest in this Program?

Response Category	Response Value	Percent	Number
Yes, at an increased level of investment in this Program	1	63.2	12
Yes, at the same level of investment	2	21.1	4
Yes, at a reduced level of investment	3	0.0	0
No, there is no need to continue investing in this Program	4	0.0	0
Don't know or not sure	5	15.8	3
	Total	100	19

Question 18b

Should the federal government continue to invest in funding Multimedia learnware products, through other programs?

Response Category	Response Value	Percent	Number
Yes	1	81.3	13
No	2	0.0	0
Not sure	3	18.8	3
	Total	100	16

Question 18c

Where should government support be directed?

Response Category	Response Value	Percent	Number
Pre-commercial development (applied research)	1	15.8	3
Commercial development	2	57.9	11
Other	3	31.6	6
	Total	100	19

Question 19

Looking into the future, over the next two to five years, do you anticipate that the Learnware Program will have had an impact in helping create a stable learnware industry in Canada?

Response Category	Response Value	Percent	Number
Yes, very significant impact	1	52.6	10
Yes, some impact	2	36.8	7
No impact	3	0.0	0
Don't know or not sure about this	4	10.5	2
	Total	100	19

Question 20

How would you rate CANARIE Inc.'s delivery of the Learnware Program?

Response Category	Response Value	Percent	Number
CANARIE Inc. has been very effective in delivering the Learnware Program	1	31.6	6
CANARIE Inc. has been somewhat effective in delivering the Learnware Program	2	42.1	8
CANARIE Inc. has not been effective in delivering the Learnware Program	3	5.3	1
Don't know	4	21.1	4
	Total	100	19

Question 21b

How clear to you were (are) the Program's "Connecting Canadians Agenda" requirements?

Response Category	Response Value	Percent	Number
Very clear—they were (are) easy to understand	1	31.3	5
Clear, but with some elaborations required	2	43.8	7
Not clear, not easy to understand	3	25.0	4
	Total	100	16

Question 21c

Is the Program requirement for support of the Canadian government's "Connecting Canadians Agenda" appropriate or inappropriate?

Response Category	Response Value	Percent	Number
Appropriate, with no changes needed	1	21.1	4
Appropriate, but with some changes needed	2	26.3	5
Not appropriate	3	15.8	3
Don't know	4	21.1	4
	Total	100	19

Question 21e

Was the business plan development process, as required by the Program, beneficial?

Response Category	Response Value	Percent	Number
Yes, very beneficial	1	25.0	4
Beneficial	2	18.8	3
No impact	3	37.5	6
Not beneficial	4	18.8	3
	Total	100	16

Question 21f(i)

Did the application and selection processes help or impede some organizations from jointly participating with you in this program?

Application Process	Response Value	Percent	Number
Helped	1	6.3	1
Neither helped nor impeded	2	43.8	7
Impeded	3	18.8	3
Don't know	4	31.3	5
	Total	100	16

Question 21f(ii)

Did the application and selection processes help or impede some organizations from jointly participating with you in this program?

Selection Process	Response Value	Percent	Number
Helped	1	0.0	0
Neither helped nor impeded	2	50.0	7
Impeded	3	14.3	2
Don't know	4	35.7	5
	Total	100	14

Question 21g

Do the reporting requirements help or impede the implementation of the Program?

Response Category	Response Value	Percent	Number
Help	1	12.5	2
Neither help nor impede	2	56.3	9
Impede	3	18.8	3
Don't know	4	12.5	2
	Total	100	16

Question 22

Overall, has the Learnware Program met your expectations?

Response Category	Response Value	Percent	Number
Yes, definitely	1	26.7	4
Yes, somewhat	2	66.7	10
No	3	0.0	0
Don't know	4	6.7	1
	Total	100	15

Appendix E: Survey Results—Comments

Survey overview

- Out of a possible 23 survey respondents, 19 responses were received, achieving an overall survey response rate of 83 percent.
- Thirteen “for-profit” organizations and six “non-profit” organizations responded to the survey.
- Eleven respondents indicated that they are predominantly “private sector” organizations; two indicated that they are “government” related; four are predominantly “educational” organizations; and one indicated it is a “community group”.
- Ten of the respondents indicated that they were prime contractors, and nine indicated they were funded by Learnware “indirectly” as sub-contractors.
- The total Learnware funding reported in projects represented by the survey respondents add up to just over \$12 million.
- Some of the respondents’ comments provided below were slightly edited, but only for spelling, punctuation and grammatical errors, to make the text more easily readable.
- **NOTA BENE:** For each response listed below, a respondent organization number is indicated, and descriptors of the organization are provided in brackets.

Job creation

- The Learnware program has had a significant positive impact on Ingenuity Work’s ability to attract and hire key staff to develop our Internet Portal: the Learning Window. In addition it has helped us create working relationships with key Canadian strategic content partners like Canadian Museum of Civilization, Royal BC Museum and the Pacific Space Centre. **[15] [private org.; for profit; lead contractor]**
- It is hard to quantify the funds in terms of positions, since much of the funding was to cover releases for faculty to develop courses, as opposed to hiring a specific number of faculty. **[14] [educational institution; non-profit; lead contractor]**
- Jobs were created during the development phase – not ongoing full-time positions. **[3] [private org.; for profit; sub-contractor]**

Access to other funding sources

- We don’t know what effect the program has had on access to other funding, as we have not applied for other funding. **[14] [educational institution; non-profit; lead contractor]**
- There has been little opportunity to raise additional non-government funding given the state of the high tech venture capital market over the recent past years. Everyone is waiting for us to make a breakthrough sale and then funding will probably become more accessible. **[17] [private org.; for profit; lead contractor]**

- We were able to raise funding from the TELUS New Media fund for our project as a result of the Learnware fund. **[17] [private org.; for profit; lead contractor]**
- We are a content provider to the main contractor Ingenuity Works, Inc. We are still awaiting the outcomes of the Learning Window Program and have not yet applied for any further funding for learnware products or applications. However, we now have significant new skills and capabilities which can be targeted in this area if a future product is developed. **[7] [community group; non-profit; sub-contractor]**
- As a sub-partner in the Learnware project, the main project management (Ingenuity Works) failed to launch the larger project, Learning Window, nor did they market the product. Our commitment was to offer our component free of charge to the Learning Window. We are attempting to negotiate a further agreement, but can't estimate revenues at this time. **[5] [educational institution; non-profit; sub-contractor]**
- No sales revenues yet but we have been successful in winning an RFP process in British Columbia that could result in a multi-year, multi-million dollar contract to deliver our product to all BC schools. We should secure that contract this fall. **[17] [private org.; for profit; lead contractor]**
- TELEFILM has been encouraged by our success with the BC Ministry of Education, and as a result of this, and other initiatives that we have successfully undertaken with them, they have helped fund the start of the build out to the e-commerce portion of the Learning Window. **[15] [private org.; for profit; lead contractor]**
- Learnware's 180 billing/payment cycle has made project bridge financing and working with traditional financing agencies very difficult. However, we have had some success with private sector funding, and equity investments. **[10] [private org.; for profit; lead contractor]**
- We have had participation of \$300,000 from Bell Canada, and participation from TL-NCE. **[19] [private org.; for profit; sub-contractor]**

What would have happened without Learnware Program funding?

- We spent 18 months with Ernst and Young Venture Capital group trying to fund our development initiative without success. The Learnware initiative was ESSENTIAL to our success in development of this product. **[15] [private org.; for profit; lead contractor]**
- This funding was instrumental in financing the project. **[10] [private org.; for profit; lead contractor]**
- It is too expensive to develop an entire learning program or degree on line without external funding. **[14] [educational institution; non profit; lead contractor]**
- We would not have been able to fund the partner organizations and that would have made the project less viable and less of interest to our potential customers. We would have attempted to develop the learning window without Learnware funding, but without it we would not have been able to attract the interest of TELUS and IBM in our initiative. **[14] [educational institution; non-profit; lead contractor]**

Impact of Learnware on accelerating development of new media learning and Internet products and related applications

- Without this funding the R&D department at OLA would have been significantly reduced. This funding has enabled us to move the Agency ahead in terms of media and Internet development of programs. **[5] [educational institution; non-profit; sub-contractor]**
- We have developed new skills within our staff, a result of which is the capacity to move further into the field of new media learning. We have several corporate sponsorship requests outstanding which, if granted, will fund the development of these products. **[7] [community group; non-profit; sub-contractor]**
- In regards to this project, there has been an impact in that it would not have happened.**[10] [private org.; for profit; lead contractor]**
- The Learnware Program has allowed us to develop learning materials in English, French and Spanish—focused on Small and Medium Sized Businesses (SMEs). **[18] [private org.; for profit; lead contractor]**
- The Learnware Program allowed us to strike up excellent strategic partnerships.**[15] [private org.; for profit; lead contractor]**
- Our product is a learning management platform appropriate for the SME market.**[18] [private org.; for profit; lead contractor]**
- Learnware has provided the funding to move into the market sooner than if funded through private investments.**[18] [private org.; for profit; lead contractor]**
- It is difficult to answer this question mainly because many of us are unaware of what other projects were funded. **[17] [private org.; for profit; lead contractor]**
- It was only after many months that I realized that xxxx and xxxx had been funded and that was by accident. This lack of communication was potentially embarrassing to us as we were embarking on a project similar to theirs that could have been seen as inappropriate. More communication from Industry Canada and Canarie about the successful candidates and their projects would no doubt have resulted in more effective co-operation and a better ability to answer this question. **[17] [private org.; for profit; lead contractor]**
- The Learnware program is fundamentally responsible for enabling our company to transition from an educational CD-ROM development and distribution company to an Internet development and distribution company. Without this funding our company would not have survived this transition period. **[17] private org.; for profit; lead contractor]**

Impact on capacity

- Allows us to do other courses benefiting from the experience we gained through the Learnware Program. **[1] [educational institution; charitable; lead contractor]**
- Impact on capacity includes many aspects: (1) a broader network of contacts, partners and experts with which to solve problems; (2) a deeper, broader understanding of the full range of technologies available for eLearning, and of Canadian leaders in each field; and (3) a general, tangible momentum in Canadian

eLearning which positions our technologies with far greater credibility outside of Canada. **[3] [private org.; for profit; sub-contractor]**

- We will use the digitised images, that resulted from our Learnware project, in our own work. **[4] [government; non-profit; lead contractor]**
- Based on the very positive reception of the Learning Lab among educators nationally, the Agency is establishing an online teacher education program. We are also developing relationships with Alberta and Ontario organizations responsible for training teachers in IT with the notion of partnerships around implementation of the Learning Lab. **[5] [educational institution; non-profit; sub-contractor]**
- We have fostered a relationship with partner company ColabNet and are moving forward with concept development for international markets. **[6] [private org.; for profit; lead contractor]**
- We now have a clearer understanding of the media, its strengths and limitations, and are better able to accommodate it in our future program planning. **[7] [charity group; non-profit; sub-contractor]**
- Our involvement with the Learning Window has been a good marketing tool. **[8] [private org.; for profit; sub-contractor]**
- Learnware Program has provided the opportunity to utilize some new technologies in the Java Environment. **[9] [private org.; for profit; sub-contractor]**
- Inroad Solutions can now develop e-learning program in half the time frame previously required. This provides a significant opportunity for Inroad Solutions. **[11] private org.; for profit; sub-contractor]**
- The program helped our ability to evaluate production of learnware from our collections and possibilities for future development. **[13] [government; for profit; sub-contractor]**
- The program allowed us to fine tune our business direction/orientation. **[19] private org.; for profit; sub-contractor]**
- The Learning Window Portal has been proposed to Ronald McDonald Charity House as the Portal for an International Child Safety Portal site. **[15] [private org.; for profit; lead contractor]**

Working relationships with connectivity credit partner(s) and access to markets

- BC Ministry of Education was our connectivity partner and has been supportive. This aspect of the program was not all that clear to parties involved. **[15] [private org.; for profit; lead contractor]**
- Helped us develop a working relationship with the consortium members. **[2] [educational institution; non profit; sub-contractor]**
- The Connectivity Credit Partner is not a major aspect to our long-term vision. The programs currently require a connectivity partner, which in my opinion can eliminate many potential candidates for funding (some companies may not be well connected to the educational or telecommunications industries). **[11] [private org.; for profit; sub-contractor]**

- This relationship was held closely (and not shared) by our project prime. It would have been useful if there were strong incentives for consortium participants to interact more productively. **[3] [private org.; for profit; sub-contractor]**
- Unfortunately, the main project management organization, Ingenuity Works, refused to let the project partners meet or discuss the project. They also changed part of our deliverables set, which was *to focus on* providing instruction for teachers on the work of the other partners. We didn't get a chance to meet with them. **[5] educational institution; non profit; sub-contractor]**
- Does not apply to us. **[14] [educational institution; non-profit; lead contractor]**

Impact of Learnware on partnerships and sub-contractor relationships

- We had some relationships established previously, but this Program facilitated a fast ramp up of our strategic working relationships. **[15] private org.; for profit; lead contractor]**
- Even with funding, we would not work with xxxx again. We would definitely submit further proposals with other partners, however. **[5] [educational institution; non-profit; sub-contractor]**
- It's better to sub-contract to industry experts than trying to accomplish everything in-house. The more partners you can have in a project the better it is in the end. **[16] [private org.; for profit; lead contractor]**

Learnware requirement that fund partners be required to improve access to the Internet for schools, libraries, communities, or volunteer organizations, at a value of at least five times the amount of Industry Canada's investment in a joint fund – impacts on improved access

- Let the value of the content created facilitate the desired connectivity. It is too hard to make the link direct enough to equate [estimate] any value for the sector. **[15] [private org.; for profit; lead contractor]**
- I think the question for British Columbia is not access to the Internet, which our provincial learning network strategy has done a good job of establishing, but whether the tools and content developed increased participation in meaningful ways. I think it has. **[6] [educational institution; non-profit; sub-contractor]**
- Improving access for schools and libraries is the main focus area that I think is important. Although, it should be determined if the focus for funding programs is creating technology/software/content that has a large market potential vs. improving access for schools, etc. **[11] [private org.; for profit; sub-contractor]**
- Can't really quantify the value – I would estimate that it is five times the investment, at this time. **[14] [educational institution; non profit; lead contractor]**

Which of intended program participants have been reached?

- Educational institutions. [1] [educational institution; charitable; lead contractor]
- School boards and schools are actively involved in the program from across Canada. The credit program, when it is developed, will be more attractive to post-secondary institutions. There has been considerable interest in localizing the content in Alberta and Ontario. [5] [educational institution; non-profit; sub-contractor]
- LearningStation.com, Dept. of Education—NF and Labrador. [6] [private org.; for profit; lead contractor]
- University of Saskatchewan, SaskTel. [11] [private org.; for profit; sub-contractor]
- We have partnered with other public post-secondary institutions in delivery of an online “associate of arts” two-year degree program. [14] [educational institution; non-profit; lead contractor]
- We have brought together several participants that never would have otherwise done so. [10] [private org.; for profit; lead-contractor]

Who would you suggest that the program should reach out to in the future, in addition to the current participants in the program?

- Until there is a product in place, difficult to make any suggestions. [1] [educational institution; charitable; lead contractor]
- I think it is very early in the 5-year span of the program to make this assessment. Tools and content developed in the first year need to be pilot tested, revised and improved. Industry Canada should ensure that the major project organizations fulfil their commitment to market the programs developed. [5] [educational institution; non-profit; sub-contractor]
- We would like to see closer contacts developed between the partners, so that future partners can be more easily identified. [7] [community group; non-profit; sub-contractor]
- Post secondary institutions and or software developers, and/or knowledgeable consultants to develop on line courses and programs to increase access and flexibility for students, to increase post-secondary access and participation overall. [14] [educational institution; non-profit; lead contractor]
- The program needs to become more flexible in order to permit small business in Canada to utilize the funding and continue to operate. [17] [private org.; for profit; lead contractor]

Partnerships with SMEs

Benefits

- TELUS has facilitated access to market for the Learning Window Family product (<http://www.discoverlearning.com/lwf>). This provides access to 60 million page views and millions of unique

visitors per month. In addition TELUS has been the lead on the BC Ministry of Education Portal project. **[15] [private org.; for profit; lead contractor]**

- In addition the Learning Window development has led to a strategic partnership with IBM Canada as a direct result of the Learnware Program. **[15] [private org.; for profit; lead contractor]**
- The program has allowed us to develop a strategic operation for further online courses. **[1] [educational institution; charitable; lead contractor]**
- We learned an enormous amount about how software is developed, and would continue to work with outside organizations on this kind of work. **[5] [educational institution; non-profit; sub-contractor]**
- We are continuing our partnership with ColabNet, a java development company. We are in the process of incorporating a jointly owned, new company: LessonWorks Inc. **[6] [private org.; for profit; lead contractor]**
- We have built a long- term business relationship with the prime contractor. **[9] [private org.; for profit; sub-contractor]**
- It has helped us understand the market and the strategies put in place by the industry, to have access to it. **[13] [government; for profit; sub-contractor]**
- As indicated earlier, we have been able to partner with TELUS and IBM to gain significant market and technical benefit for the development of our product. **[17] [private org. for profit; lead contractor]**
- Contact with TELUS and IBM as well as credibility with partner organisations gave us additional opportunities to impact the development of our product. **[17] [private org.; for profit; lead contractor]**

Drawbacks

- The BCGEU grievance has made it very difficult for us to work with the outside contractors. **[5] [educational institution; non-profit; sub-contractor]**

Have these partnerships been easy or difficult to sustain?

- Big organisations require a constant management process and an ongoing focus. **[15] [private org.; for profit; lead contractor]**
- Have to wait for course to be operational before commenting. **[1] [educational institution; charitable; lead contractor]**
- The cash flow from Learnware has helped foster the partnership. **[6] [private org.; for profit; lead contractor]**

Industry fragmentation

- When we finalize the contract with the BC Ministry of Education we would answer this more positively- so it is still early to tell. **[15] [private org.; for profit; lead contractor]**

- Supported a major partner already established and helped to maintain its presence in new area of public/school access. **[13] [government; for profit; sub-contractor]**
- This is one of the areas that there could be great additional benefit stemming from the Learnware fund. There was very little information about other projects that was disseminated and even though Industry Canada did not want to announce the funding until the contract was signed, there was never any formal announcement of our funding or other funding for that matter and therefore marketing leverage was lost. Industry Canada should work diligently to leverage the Learnware developments by providing all of the Learnware partners with access to marketing funding and direction that will enable us to attend industry specific trade shows around the world. **[17] [private org.; for profit; lead contractor]**
- A co-ordinated effort led by Industry Canada giving international exposure to our products would do a tremendous amount to assist in the eventual sale of the products. **[17] [private org.; for profit; lead contractor]**
- I am aware that a large amount of the original funding for Learnware was never allocated to projects, especially the BELL fund. A few million dollars of this funding spent over a couple of years would have assisted many small educational businesses to penetrate the world market. **[17] private org.; for profit; lead contractor]**
- The industry is less stable at this time strictly due to the severe downturn in the high tech industry. However everyone firmly believes that digital material for learning will continue to flourish as this cycle expires. There is huge worldwide demand for learning material delivered over the Internet and continued government funding will insure that the Canadian industry is ready for the next up swing. **[17] [private org.; for profit; lead contractor]**
- I don't really know, as I am not really aware of the other Learnware projects. **[17] [private org.; for profit; lead contractor]**

Gap in distribution channels

- Maybe the TELEFILM e-commerce project, when fully realized, will help address this question. **[15] [private org.; for profit; lead contractor]**
- We are not aware exactly when the Learning Window product will go to market so we are unable to comment. **[7] [community group; non-profit; sub-contractor]**
- The creation of new resources has also created new distribution channels, in a variety of areas. The best way to open a door is to have something to sell. **[10] [private org.; for profit; lead contractor]**
- The gap can't be addressed unless the government creates a program similar to the Tourism Canada program that works in a public/private environment to effectively coordinate international awareness of products developed in Canada. This activity could also assist in making Canadians aware of the various initiatives being created. **[17] [private org.; for profit; lead contractor]**

Continued need for program

- Yes there is a continued need for the program. The program has had an extremely positive effect on our company and our ability to compete directly with US based competitors. For example- the BC Portal RFP saw 22 respondents including the incumbent Texas-based EDS, who manage the BC Provincial Learning Network. A great degree of our consortium's success was our ability to demonstrate the Learning Window framework and Canadian content of our Learnware partners, correlated to BC curriculum. **[15] [private org.; for profit; lead contractor]**
- Not if the level of reporting and record keeping is required. **[1] [educational institution; charitable; lead contractor]**
- This program is absolutely essential if we are to move ahead in new media development. In BC for certain, there is no outside funding for this kind of work. **[5] [educational institution; non-profit; sub-contractor]**
- Great program, but the cash flow issues have to be looked at. They made a wonderful program into a nightmare. Perhaps a mechanism outside of CANARIE that could provide advances upon sending in claims, or based on milestones and then reviewed by the actual costs. **[10] [private org.; for profit; lead contractor]**
- To make it viable, institutions must be able to have a larger percentage of their development costs covered, and the requirements need to be more flexible to encourage development. **[14] [educational institution; non-profit; lead contractor]**
- Outstanding program, it is needed. **[18] [private org.; for profit; lead contractor]**
- The government must continue to invest in this program but it **MUST** commit to spend what it announces it will spend, and follow the parameters of the program as laid out in the initial program information. **[17] [private org.; for profit; lead contractor]**

Need for government funding of multimedia learnware products through other programs

- It is important that there are a variety of funding opportunities, at different levels, targeting different audiences or content types. **[5] [educational institution; non-profit; sub-contractor]**
- There is a need to focus on assistance for content development – where an institution can apply only if partnered with a private or public corporation (i.e., stimulate educational/government/business partnerships). **[11] [private org.; for profit; sub-contractor]**
- TELEFILM is trying to initiate a potentially strong program to create and market content. There is a need for this kind of assistance. **[15] [private org.; for profit; lead contractor]**

Where should government support be directed?

- There are multiple sources of funding for university and pre-commercial development. Very few programs focus on commercial development or facilitate the high cost of reaching the market. Funding these last two

make sense, given that the potential recovery of investments is much higher. **[15] [private org.; for profit; lead contractor]**

- Additional support of the same kind [Learnware Program]. **[11] [private org.; for profit; sub-contractor]**
- Support to small businesses dedicated to research. **[19] [private org.; for profit; sub-contractor]**
- Marketing and sales help. **[12] [private org.; for profit; lead contractor]**
- All areas, including cultural and educational. **[13] [government; for profit; sub-contractor]**
- Course development and delivery. **[14] [educational institution; non profit; lead contractor]**

Anticipated impact of Learnware Program over the next two to five years

- If the Federal Government decides to fund this Program consistently over the next 5 years it will have the effect of building on the foundation created in this initial Program. **[15] private org.; for profit; lead contractor]**
- This is a key industry for Canada as we diminish our resource base. Without these kinds of programs, we lack the ability to develop the skills in our young people. **[5] [educational institution; non profit; sub-contractor]**
- This program has created some significant products for the international marketplace. The expertise this has created, as well as the additional revenue streams, will do a lot of good for the industry over the next few years. It is a struggling new industry with huge potential, and being able to produce these products has given the industry a boost that should be sustained. **[10] [private org.; for profit; lead contractor]**
- The impact is in the additional skills acquired by the core faculty who learned how to develop on line courses, and by the ability to use those courses to reach out to students who would otherwise not have been able to take those courses. **[14] [educational institution; non-profit; lead contractor]**
- There will be an impact if the program continues to put funds into projects. **[18] [private org.; for profit; lead contractor]**
- If Industry Canada continues to support the development of Learnware products and begins a co-ordinated effort to help to market the resulting product internationally, then we will have a stable and highly profitable Learnware industry in Canada. **[17] [private org.; for profit; lead contractor]**

Role of CANARIE Inc. in the delivery of the Learnware Program

- CANARIE and David Sutherland in particular have been exceedingly professional and diligent in all our working relationships. David Sutherland has even come and visited our operation which is much appreciated. David has always shown keen interest in our projects and had great suggestions in terms of providing connections. **[15] [private org.; for profit; lead contractor]**

- Especially for SME's the long time between funding a claim and receipt of funds is difficult from a cash management perspective – this delay may be related to the dual approval required by Industry Canada and CANARIE. **[15] [private org.; for profit; lead contractor]**
- As a sub-partner in this project, it is difficult to make comments about Canarie and the program, working in a very poorly run larger project. **[5] [educational institution; non-profit; sub-contractor]**
- Because our contract is with Ingenuity Works our contacts with Canarie have been very limited. It would have been helpful to us if Canarie had played a bigger role in helping to define to project parameters. **[7] [community group; non profit; sub-contractor]**
- The process for this program was extremely frustrating in that the rules changed seemingly every quarter. No advances, cheques late, and never knowing what the rules really are, or were going to be, is tremendously hard on SME's who live and die by the cash flow on large projects such as this. **[10] [private org.; for profit; lead contractor]**
- A change in the rules that is not communicated could sink a small company relying on funds that do not arrive as expected. Also, the 90 days of billing, and then a further 90 days for payment is way too difficult for SME's, especially those who are growing, and using this program to move up to another level. **[10] [private org.; for profit; lead contractor]**
- Canarie has been helpful within the given restrictive parameters of the program's requirements. **[14] educational institution; non-profit; lead contractor]**

Program's criteria for funding [Industry Canada's joint fund investments must be exceeded or matched by the partners] [Is this a fair and equitable funding criterion?]

- David Sutherland and Gianvito Panico went beyond their call of duties to help our project in respect to many additional marketing ideas and networking potential. Good people to work with! **[16] [private org.; for profit; lead contractor]**
- Canarie's role in the program is satisfactory – we have had no problems. **[18] [private, for profit; lead contractor]**
- Canarie's hands were often tied to Industry Canada and the continuing approval process that had to carry on. **[17] [private org.; for profit;lead contractor]**
- Canarie's diligence is sophisticated and thorough. To have Industry Canada re-examine all the submissions prior to funds being released was extremely detrimental to effective cash management. We were kept waiting as much as six months from the time of expenditure of money to recover the matching funds from Learnware. Our company had to commit to spend the money up front and then apply for the matching funds every quarter. Funds under this mechanism should be made available within thirty days of the quarter end submission. There is ample time to review previous submissions under the contract and withhold payment the next quarter. Our credibility with our financing partners has been stretched significantly every quarter because of the up to 85 days delay in receiving funds. **[17] [private org.; for profit; lead contractor]**

- David Sutherland has been excellent to work with, as has the entire Canarie organization. **[17] [private org.; for profit; lead contractor]**
- While it is tough, it is fair and tends to weed out the spurious submissions, and probably leads to stronger results. **[15] [private org.; for profit; lead contractor]**
- No, requires too much in-kind contribution from partners. Give it more as a grant. **[1] [educational institution; charitable; lead contractor]**
- The requirement excludes small innovative companies that need support while favouring large companies and public sector institutions that put forward matching dollars that they would be spending anyway. **[2] [educational institution; non-profit; sub-contractor]**
- I don't know; I don't have a better one to offer. **[3] [private org.; for profit; sub-contractor]**
- It's fair. **[4] [government; non-profit; lead contractor]**
- It may be fair, but it is very difficult for a public education institution to maintain. **[5] [educational institution; non profit; sub-contractor]**
- Yes. It is important for the partners to be stable. A 50% investment helps screen out those who can't sustain the initiatives. **[6] [private org.; for profit; lead contractor]**
- That makes sense, and is consistent with other funding systems. **[10] private org.; for profit; lead contractor]**
- Yes, although Industry Canada should allow a portion of previous R&D expenditures as an eligible contribution. **[11] [private org.; for profit; sub-contractor]**
- Fair. **[12] [private org.; for profit; lead contractor]**
- Yes, ensures contribution and quality of delivery of good products. **[13] [government; for profit; sub-contractor]**
- It is not fair and equitable for all businesses. All is linked to the scope of the risk. I believe that the greater the risk, the less should the demand on businesses be for consistency [with this requirement]. **[19] [private org.; for profit; sub-contractor]**

Clarity of Program's "Connecting Canadians Agenda" requirements

- Most developers are not familiar with these initiatives and terminology. **[6] [private org.; for profit; lead contractor]**

Are the requirements for support of the Canadian government's "Connecting Canadians Agenda" appropriate or inappropriate?

- I do not believe the 'connectivity credit' process actually yielded results and really just ended up being a time consuming hurdle to clear. [15] [private org.; for profit; lead contractor]
- There are some very clear trends in this during the last couple of years that need to be recognized. [3] [private org.; for profit; sub-contractor]
- More research within the Industry is required (for example, what is the industry supplying and what are consumers demanding?). [11] [private org.; for profit; sub-contractor]
- More funding for cultural and educational projects are needed. [13] [government; for profit; sib-contractor]
- These requirements are too restrictive. [14] [educational institution; non-profit; lead contractor]
- Funding is most useful when it is readily accessible, and not overly rule bound by requirements. [14] [educational institution; non-profit; lead contractor]
- Really cannot elaborate on this but status quo is somewhat problematic. [1] [educational institution; charitable; lead contractor]

Program application and selection processes

Application process

- Took a lot of preparation and our partners and IW went through a bit of a learning curve. [15] [private org.; for profit; lead contractor]
- We understand it better now that we've been through it. [15] [private org.; for profit; lead contractor]
- Appropriate process. [1] [educational institution; charitable; lead contractor]
- Too slow getting notification of decisions. [4] [government; non-profit; lead contractor]
- This was very clear and appropriate for us. [5] [educational institution; non-profit; sub-contractor]
- Reasonable. [6] [private org.; for profit; lead contractor]
- It's OK. [7] [community group; non-profit; sub-contractor]
- The overall process for all these types of programs needs to be compressed, as the nature of business today is such that the market window for a product or technology may be relatively short. [9] [private org.; for profit; sub-contractor]
- Appropriate. [10] [private org.; for profit; lead contractor]
- Appropriate. [12] [private org.; for profit; lead contractor]
- Seemed fine. [13] [government; for profit; sub-contractor]

- Difficult. **[14] [educational institution; non-profit; lead contractor]**
- Reasonable. **[19] [private org.; for profit; sub-contractor]**
- The initial program outline and the amount of funding announced were reduced after the first submission deadline passed. This made our application look ridiculous [in terms of the scope and amount of our submission]. The original parameter was that funding up to 10 million for any one project would be considered. We applied for 5 million in funding in co-operation with TELUS. The first stage funding was subsequently reduced to a total of 8 million dollars overall for all applicants—this made our application appear greedy and inappropriate. We followed the guidelines and then got “shut out” of the process because the “consortium” approach was not fundable when the amount of money was reduced. Subsequently we applied for 3 million and were successful in the second round, but we lost six months of valuable development time because our matching funding was held back until we had the commitment from Canarie. **[17] [private org.; for profit; lead contractor]**

Selection process

- In particular for SME's the shorter the selection process the better. It is very difficult to hold a group together when priorities start to shift, which can happen very quickly in the business environment. **[15] [private org.; for profit; lead contractor]**
- Appropriate. **[1] [educational institution; charitable; lead contractor]**
- The selection seems to focus on Eastern Canada; it would be good to have at least one project per province/territory. **[5] [educational institution; non-profit; sub-contractor]**
- Reasonable. **[6] [private org.; for profit; lead contractor]**
- OK. **[7] [community group; non-profit; sub-contractor]**
- Appropriate. **[10] [private org.; for profit; lead contractor]**
- Appropriate. **[12] [private org.; for profit; lead contractor]**
- Approval came much too late and created difficulty in setting up the project and to give it immediate priority. **[13] [government; for profit; sub-contractor]**
- Process could be made more transparent. **[14] [educational institution; non-profit; lead contractor]**
- Since I don't know who all the participants are, I cannot answer this question. I do know that there was a tremendous amount of scepticism about the program and that many small companies chose not to apply for funding because of what they had heard about the process. **[17] [private org.; for profit; lead contractor]**
- At first the rules seemed arbitrary and confusing. After working with the program we now understand the checks and balances more clearly. **[17] [private org.; for profit; lead contractor]**

Business plan development process

Benefits

- It forced us to think through our business case for the partners working together. [15] [private org.; for profit; lead contractor]
- Getting to cost out all of the anticipated costs was a useful exercise. [1] [educational institution; charitable; lead contractor]
- In the first round of proposals, we submitted our own proposal. We complete many business plans and so this process is quite normal for us. In the second round of proposals, we submitted our proposal through another organization and so we did not have input into the business plan. [5] [educational institution; non-profit; sub-contractor]
- It forced our partners to focus on the project and clearly define respective roles. [6] [private org.; for profit; lead contractor]
- Any company that is expected to take a product to market should complete a business plan. (But what is the main focus—technology commercialisation or improving access? A business plan would be different for improving access versus commercialisation.) [11] [private org.; for profit; sub-contractor]
- The requirements for the business plan force the developer to clarify project expectations in light of potential costs and revenues, to ensure the project is viable and has a market. [14] [educational institution; non-profit; lead contractor]

Drawbacks

- I may be wrong, but I don't think "business" was actually a great consideration in this process – it seemed to have been a rubber stamp based on a project having the "right" partners rather than anything to do with original or sound business propositions. My only suggestion would be to have a second, or integrated, round of evaluation involving much stronger VC or independent/objective enterprise assessment. [3] [private org.; for profit; sub-contractor]
- The bureaucracy involved in the process was so bad it is almost not worth applying. [4] [government; non-profit; lead contractor]

Impact of application and selection processes on organizations jointly participating in the Program

- Too restrictive. [14] [educational institution; non-profit; lead contractor]
- The decision to fund came at a very late date. [13] [government; for profit; sub-contractor]
- The program could be improved in terms of reaching out to the intended industry participants. There could be more sharing of information. [18] [private org.; for profit; lead contractor]

- The requirement to match funds is very difficult to meet and creates enormous pressure on SME's like ours to participate in the Program. **[19] [private org.; for profit; sub-contractor]**

Reporting requirements of the Program [help or impede?]

- Too much resources have been dedicated to reporting. **[1] [educational institution; charitable; lead contractor]**
- Too much bureaucracy. **[4] [government; non-profit; lead contractor]**
- The overhead on a smaller SME like Ingenuity Works has been substantial. We have had 12 partners to deal with and some are very time intensive, which is not directly attributable to the project. **[15] [private org.; for profit; lead contractor]**
- It has to be done. There was a several quarter learning curve. **[10] [private org.; for profit; lead contractor]**
- Had the reporting processes been explained properly at the beginning it would have reduced confusion. **[10] [private org.; for profit; leading contractor]**
- Implementation and related reporting was difficult because of late decision to fund. **[13] [government; for profit; sub-contractor]**
- Too restrictive. **[14] [educational institution; non-profit; lead contractor]**
- Nuratek has a variety of online sources which can enable reporting, monitoring and cross-referencing. Our system would greatly benefit both Industry Canada and Canarie in the evaluation and on-going processes. **[16] [private org.; for profit; lead contractor]**
- The reporting and monitoring process is appropriate. **[18] [private org.; for profit; lead contractor]**
- Reporting mechanisms are burdensome and could have been simplified somewhat, if more time had been spent in direct contact with us and our partners. Canarie should be more proactive in consortium type relationships in delivering the message. **[17] [private org.; for profit; lead contractor]**
- The current system reduces efficiencies by spending too much time reporting and not enough working on the project. **[1] [educational institution; charitable group; lead contractor]**

Overall assessment of Program [has it met expectations?]

- The Learnware Program has been an ESSENTIAL leg up for Ingenuity Works in terms of creating an internationally competitive Vertical Portal for education. **[15] [private org.; for profit; lead contractor]**
- I would not recommend we participate again. **[4] [government; non-profit; lead contractor]**
- We are developing international relationships as a result of this program. **[6] [private org.; for profit; lead contractor]**

- As the Learning Window project has not yet been marketed we cannot yet say if it will meet our expectations. We are hoping for a commercially successful product that would provide for ongoing contributions and updates from our organization, and a revenue stream to support that work. **[7] [community group; non-profit; sub-contractor]**
- Overall it has been good, but the main thing is the cash flow problem it creates, and the confusion on the exact parameters of the reporting process and payments. **[10] [private org.; for profit; lead contractor]**
- One element that was brilliant was the inclusion of marketing costs while in production. This allows for laying the groundwork for the project, and a healthy market presence prior to releasing new products. In this, it showed great foresight and is to be applauded. **[10] [private org.; for profit; lead contractor]**
- Overall assessment is good, except for payments, none of which have been received. **[13] [government; for profit; sub-contractor]**
- Generally we have had a good experience with the program and the administrators of the program. **[18] [private org.; for profit; lead contractor]**
- The demands of the application process are excessive and few “small businesses” have the where with all to meet the rigours of the process, especially when the parameters change during the application process as they did for us. We developed a consortium approach and it would have been appropriate to have Canarie assist us more with the due diligence process with our partners as the process unfolded. In addition it would have been helpful if Canarie could have worked with us to craft the sub-contract agreements that we had to put in place. There was relatively little time to carefully consider the ramifications of all of our partner contracts when the terms of our own contract with Canarie were not clearly established. **[17] [private org.; for profit; lead contractor]**
- This was particularly problematic in the area of ownership of Intellectual Property. The lifeblood of most Learnware companies is the Intellectual property that they develop. To have the government own or have a proprietary interest over the IP is very detrimental to securing sub agreements as well as licensing the product later. The whole IP issue was a major problem in the contractual process and gave us limited time to concentrate on making the contracts effective tools in building the end product. The rigours of the reporting process also made the contracts difficult to finalize. **[17] [private org.; for profit; lead contractor]**

Suggested improvements to the Program

- There could be decent synergies between unrelated Learnware partners. David Sutherland was suggesting at some point a joint session of all the lead learnware projects to exchange information and see what synergies develop. This seems like a good improvement. **[15] [private org.; for profit; lead contractor]**
- We have suggested to CANARIE and Industry Canada that we could make more connectivity headway if we were creative in our Public/Private Partnership structure, For example – Industry Canada/CANARIE could partner with Ingenuity Works and offer the Learning Window framework and content to Canadian Ministries of Education (MOE's) on a no charge basis on the proviso that the MOE's invest X\$'s in content development – to be shared across the country. Content being offered across the Internet drives connectivity at schools, community centres, libraries and homes. We have had preliminary discussions with a number of MOE's and think there is some potential to build on what we are doing with BC. **[15] [private org.; for profit; lead contractor]**

- Improvements include: More opportunities to participate in the West. More information on distribution and marketing mechanisms. An organization to review products and help market them. **[5] [educational institution; non-profit; sub-contractor]**
- The main problem for rural IT companies is access to capital. Learnware has helped fill that void and can/should continue to do so. **[6] [private org.; for profit; lead contractor]**
- Particularly help in linking us with commercial partners for future product development. In particular we are looking for public/private partnerships in new product development. **[7] community group; non-profit; sub-contractor]**
- Keep the program going, look at more projects of a smaller nature. **[10] [private org.; for profit; lead contractor]**
- The marketing component was a great help for the industry and companies, a specific “learning” marketing fund that covers half of costs in marketing to the educational marketplace would see a significant boost in the growth of Canadian SMEs and also in the presence of Canada in the international marketplace. **[10] [private org.; for profit; lead contractor]**
- A web site where organizations can post information on possible projects and corporations can apply to partner. **[11] [private org.; for profit; sub-contractor]**
- Marketing and sales assistance. **[12] private org.; for profit; lead contractor]**
- The best assistance would be to more fully fund the process, relax requirements about partnering with SMEs, and allow more contributions in kind. If our experience is any guide, it is possible to do that [relax requirements/increase flexibility] and get out a needed and useful product – in our case a series of post-secondary courses. There is no doubt that many potential students are unable to take advantage of post-secondary education because they are place bound or are time bound due to location, jobs, family and other responsibilities. **[14] [educational institution; non-profit; lead contractor]**
- An area Learnware might enter is establishing online support centres around the country. These could take advantage of existing educational sites, and in remote or very small areas. Other agencies could be pressed into use for this at very little cost. Libraries, elementary schools, government agencies, etc., are all possible sites. These would provide many support services, (irrespective of which institution actually provides the instruction) – training in using computers, technical support, and where necessary, access to a computer. **[14] [educational institution; non-profit; lead contractor]**
- The networking environment is probably the most important aspect of all in our situation. Since we need direct sales, the more distribution channels we have in place the better—this can be on the long run. **[16] [private org.; for profit; lead contractor]**
- An on-line industry portal for the industry—matching learnware suppliers and distributors. Nuratek can even implement this solution since it falls under its realm of expertise (www.nuratek.com). **[16] [private org.; for profit; lead contractor]**
- Cash flow to the participants could be improved. **[18] [private org.; for profit; lead contractor]**
- The program could provide more networking opportunities and sharing of information about funded projects, their experiences, etc. **[18] [private, for profit; lead contractor]**

- It would be preferable to have less administrative procedures in regard to projects. As well, lighten burden on small businesses by using a 100 percent refundable loan mechanism, only after 2 years of revenues. **[19] [private org.; for profit; sub-contractor]**

What one aspect about the Program is most important to change?

- Increase the ability of Ministry's of Education to access funds, encouraging them to partner with Canadian SME content creators rather than create or develop more portals. **[15] [private org.; for profit; lead contractor]**
- Make payments more quickly. Takes too long to get paid after a reporting period. Private companies cannot float these expenses and neither can the universities. **[1] [educational, charitable; lead contractor]**
- Probably need much stronger attention to the payback scenarios of the funding – I believe most participants are not taking this seriously as a part of their planning and implementation. **[3] [private org.; for profit; sub-contractor]**
- More funding, and more projects of perhaps less complexity in terms of partnership requirements. **[5] [educational institution; non-profit; sub-contractor]**
- More timely payment of outstanding invoices. We entered into the program in good faith, and devoted considerable staff time, money and effort to the program. As a not-for-profit partner contributing 50% of the costs, we expect and need timely payments. We still have not yet been paid for invoices outstanding since 2000. **[7] [community group; non-profit; sub-contractor]**
- Provide quarterly advances based upon milestones and then reviewed by the cost reports. **[10] [private org.; for profit; lead contractor]**
- Change the connectivity credit requirements. I don't understand the rationale behind a paper allocation of connectivity credits. A successful candidate should be approved by the merits of the application and potential to meet the stated objectives. **[11] [private org.; for profit; sub-contractor]**
- It's the marketing and sales help that is key. **[12] [private org.; for profit; lead contractor]**
- Ensure that the decision to fund comes early, and accelerate the payment process. **[13] [government; for profit; sub-contractor]**
- Expand the program and increase funding. A recent informal survey brought home the dearth of undergraduate offerings in Canadian post-secondary education. A country like ours, thinly populated and with many remote locations, needs to increase online offerings to an even larger proportion than other, more densely populated countries. **[14] [educational institution; non-profit; lead contractor]**
- Be patient. **[16] [private org.; for profit; lead contractor]**
- The program is not providing contacts and networking – this needs to be improved. **[18] [private org.; for profit; lead contractor]**

- The time between making the expenditure and receiving funding could be up to six months – for a small firm that time period is too long. Should be shortened by giving an advance. **[18] private org.; for profit; lead contractor]**
- The main thing is to provide faster turnaround on funding, and more networking between funded projects. **[18] [private org.; for profit; lead contractor]**
- The financial communication between Industry Canada and Canarie must be revised in order to minimise the claims process. **[16] [private; for profit; lead contractor]**

Appendix F: Interview Questions

Questions for Industry Canada and CANARIE Inc.

- Why was there a need for the program? Is there a continuing need? Has the need changed?
- Were the objectives of the program relevant? Are they still relevant? [Probe against each of five objectives of the program: consolidating supply/demand; improving learning and public access opportunities; populating information highway with high quality learnware and public access applications; stimulating growth and development of industry; improving access for schools, libraries, community and volunteer groups.]
- Is the program likely to achieve its objectives?
- To what extent did expected applicants apply/not apply? Why or why not?
- How clear were the program criteria to the applicants? To the selection committee?
- How well-suited were these criteria to addressing the program's objectives?
- What are your views about the program application and selection process?
- How effective has CANARIE Inc. been in delivering the program?
- To what extent has the program had [or expected to have] an impact on the learnware sector? [Probe for successes in project outcomes and results to date (or expected)—to the extent these are known.]
- What would you change about the program in future [if the program was renewed or if a similar program was introduced by the government]?
- [If not already covered in previous questions, probe for any “lessons learned” with respect to program design and “lessons learned” with respect to program delivery.]
- Do you have any other observations/comments about the program that need to be highlighted in the evaluation?

Questions for Selection Committee Members

- How clear were the program criteria to the applicants? To the selection committee?
- How well-suited were these criteria to addressing the program's objectives?
- To what extent did expected applicants apply/not apply? Why or why not?
- How would you characterize the quality of the proposals submitted—generally in terms of establishing viable business cases, identifying potential or real markets, and the merits of the learnware application projects proposed?

- What would you change about the program in future [if the program was renewed or if a similar program was introduced by the government]?
- [If not already covered in previous questions, probe for any “lessons learned” with respect to program design and selection process.]
- Do you have any other observations/comments about the program that need to be highlighted in the evaluation?

Questions for Unsuccessful Applicants

- To what extent was the program application and selection process clear [or confusing] and easy [or difficult] to work with?
- Was this process transparent, fair, effective? Were you satisfied with the selection committee and program administrators’ responses to your proposal [particularly with respect to explaining the reasons why your proposal was not successful]?
- Did you go ahead anyway with your proposed learnware applications project?
- If not, why not?
- If so:
 - Did you set up partnerships for developing your learnware applications/products? Were (are) these partnerships necessary? Are they effective? Who are the partners?
 - Please describe the process for getting the partners together to get the application in? [include the process of ramping-up from application, to fund approval, to project start-up]
 - Were you able to get funding for your project from other sources? If so, what are these other sources?
 - How successful have you been to date in the development and commercialization of your learnware products/applications?
- Do you have any observations or recommendations for improving the Learnware program [or for similar programs in the future]? [Probe for comments about program objectives, design and selection criteria and process.]

Questions for Firms that Did Not Apply

- [To the extent that you are familiar with the Learnware program,] please indicate the reason(s) why you did not apply for funding from this program?
- Did you go ahead with developing and commercializing learnware applications anyway?
- If so:
 - Did you set up partnerships for developing your learnware applications/ products? Were (are) these partnerships necessary? Are they effective? Who are the partners?

- Please describe the process for getting the partners together to get the application in? [include the process of ramping-up from application, to fund approval, to project start-up]
- Were you able to get funding for your project from other sources? If so, what are these other sources?
- How successful have you been to date in the development and commercialization of your learnware products/applications?
- What could have been done differently in the Learnware program that would have led to you applying for funding from this program?

Questions for Firms that Pulled Out

- What are the factors/circumstances that led to your organization pulling out of your involvement in this program?
- Did you go ahead anyway with your learnware applications project?
- If not, why not?
- If so:
 - Did you set up partnerships for developing your learnware applications/products? Were these partnerships necessary? Are they effective? Who are the partners?
 - Please describe the process for getting the partners together to get the application in? [include the process of ramping-up from application, to fund approval, to project start-up]
 - Were you able to get funding for your project from other sources? [If so, what are these other sources?]
 - How successful have you been to date in the development and commercialization of your learnware products/applications?
- Do you have any observations or recommendations for improving the Learnware program [or for similar programs in the future]? [Probe for comments about program objectives, design and selection criteria, and delivery process.]

Questions for Industry Canada Regional Offices

- What is [was] the Regional Offices's [your] involvement in the Learnware program?
- Did Head Office [IHAB in Ottawa] and CANARIE Inc. effectively work with Regional Offices to promote and generate interest in the program?
- What improvements would you suggest for similar, future outreach initiatives? [What is the best way to reach and inform the organizations of this program?]

- Do you have any other observations/comments about the program that need to be highlighted in the evaluation?

Questions for Industry Associations

- Industry associations were asked about the rationale and need for government programs such as Learnware, to help stimulate growth and development of the industry. Is this program responsive to the needs of the organizations? What needs are not being met? What are the needs of organizations regarding joint funding partnerships?
- Associations were also asked about their views on what works and what does not work in such programs [or similar initiatives] – and [to the extent that they know about the Learnware program] they were asked for their observations on how to improve the Learnware program model.
- In addition, they were asked to briefly describe the structure of the learnware industry sector as they see it, and to help identify the key players. In particular, to help delineate the contributions to the industry of SME's, publishers/carriers, educational institutions, volunteer and community groups, and others.
- The implications of the segmentation [or “fragmentation”] of this sector were also discussed in terms of the effects on business viability, and on potential successes in domestic and international markets.

Appendix G: Interviewee Comments

A. Need for Government Support for E-Learning Initiatives

- Need a national policy on e-learning. Different departments are doing similar/different initiatives. Only at federal level can industry and social policies intercross and coordinate the various e-learning initiatives of federal and provincial governments.
- Scope of the program and objectives—The objectives of the Learnware program are too broad – other programs have clearer focus. Industry is not necessarily working on basis of partnerships right now – except to get government \$'s. Mergers and acquisitions seem to be the thing that is happening now, rather than partnerships.
- Educational institutions seem to do their own thing and have their own capabilities—less inclined to partner with SMEs or other players.
- Some larger firms are emerging in business and with a supply chain/integrator mode with clearly defined strategic alliances. Need to address this question and identify the supply chain/integrator business model that has emerged since the program was first introduced. (Examples of this are in the big organizations such as McGraw-Hill, Docent, SABA, ClicktoLearn).
- Strategic alliances in this business are drawn as follows: an “integrator” large firm (e.g., McGraw Hill Lifetime Learning) forms strategic alliances with (i) content partners (e.g., Harvard Business School, Corpedia); (ii) technology partners (e.g., Docent, Saba); (iii) channel partners (e.g., TrainSeek.com); and (iv) associations (e.g., ASTD American Society for Training and Development).
- The “content partners” provide expertise in a variety of content areas, delivering subject matter experts who develop cutting-edge curriculums based on current business and industry trends and standards. The “technology partners” provide learning management systems and other technology related products and services to compliment the Internet-delivered learning content. The “channel partners” provide alternative and additional sales and marketing opportunities. Associations help raise the standards of the training market. Associations also create an open forum by which everyone learns more about building better products, technology and services. Associations help keep the eyes and ears of the e-learning community open to opportunities domestically and internationally, and keep them in touch with the needs of customers and colleagues.

B. Options for Government to Help the Development of E-learning in Canada

- Funding for content transformation from a paper-base to multi-media based learning applications.
- Grouping by sector: earmark assistance for e-learning by sector—designate certain sectors for project applications, e.g., as HRDC does with its sector councils.
- Tie government economic program assistance to an improving productivity framework in Canada. The issues of connectivity are not as urgent as they were three years ago, but productivity is.
- The government needs to launch a campaign to make CEOs and other senior management in private and public sectors aware of the benefits of e-learning. This is something that requires a multi-level initiative, involving Industry Canada, HRDC, CH, and other government departments. Awareness of CEO's and senior management is vital to the growth of e-learning. Need an awareness strategy.
- The government needs to introduce a tax rebate for users of e-learning (e.g., certificated system as in Scotland). Or tax credit system similar to precedent set by Canadian Heritage in its Film or Video Production Tax Credit Program (FTC).

- When a company produces one or two e-learning applications, it is not viable or does not have longevity unless it diversifies and builds a critical mass of products and applications. Developing content on-line is expensive (rule of thumb: \$20K per online hour of e-learning material). Payback on one product is not likely to be enough. Need a suite of products.
- We have an anglo-francophone market and this should work to our advantage, so we need government to help open markets in French speaking-countries as well as English.
- In Canada, the structure of the industry is too fragmented – there are too many small outfits to compete with the big foreign organizations, such as SmartForce, Saba, Docent, IBM, ClicktoLearn, Clarica and so on.
- Canadian companies are at a very high risk at the moment because of these big companies, who are making inroads into Canada.
- This is not just a technology issue, but a cultural issue for Canada as well. It is very much like the film industry and other cultural products that invade Canada with foreign content. Canada is similarly progressively being challenged by foreign content in the e-learning space.
- More and more, the name of the game is mergers and acquisitions (as opposed to partnerships). Foreign companies are increasingly buying out successful Canadian outfits. This is an urgent matter for Canada. There are few great commercial successes in Canada. Tecstart Eduplus, for example, is one of the bigger Canadian firms, and it has \$26 million in sales annually. This is a modest amount compared to the big American companies, and compared to the vast global potential of the e-learning business.
- Government needs to help in developing standards for the industry – or promoting the adoption of appropriate standards such as SCORM (Sharable Content Object Reference Model – a reference model that defines a Web-based learning "content model").
- The successful business model – create larger companies who will be integrators of e-learning technology and content.
- Return on investment is crucial to identify in government program support, such as that of the Learnware Program.
- Change strategy of government from project-based support to policies that provide knowledge transfer and development of learning management systems :LMS (develop platforms and adopt standards). Need to deploy these to reduce costs of development for the e-learning integrators.
- Cannot commercialize successfully without standards. Government should help in establishing quality and performance standards, as well technology standards.
- Canadian governments must be supported to develop strategic alliances that incorporate the following components: technology alliances, content alliances, channel alliances, and associations.
- In 2002, companies now need to be as big as McGraw-Hill or SmartForce to compete in the world e-learning market. The government programs should be geared to creating/supporting the development of integrator firms that put the necessary alliances/partnerships together to compete with the emerging big players.
- Most important way that government can help is by becoming a major purchaser of e-learning products produced in Canada. Government is a big and growing user of e-learning. The Government on-Line initiative should have a "buy-Canadian" perspective. A national e-learning policy could stipulate a buy-Canadian-first approach to help Canadian producers.
- An example of this is the Alberta government recent request for proposal (competition underway) for a \$35 million contract to supply the government with e-learning applications across the provincial government departments.

- Another option is to provide a tax rebate for organizations transforming paper-based educational materials to new media platforms.
- Some examples of threats – Hydro-Quebec purchased a training package from Docent and from Saba. Canadian firms were deemed to be too small to service Hydro-Quebec. Large Canadian purchasers of e-learning applications do not entrust smaller Canadian e-learning firms with the larger contracts. To be successful, Canadian private e-learning firms need to be able to compete for large contracts with corporate users.
- Examples of market potential in Canada for Canadian firms is the banking and financial system, organizations such as Petro-Canada, Air Canada, and so on. Provincial and federal government departments are also increasingly going to become big users/buyers of e-learning materials.
- Frustrations among small groups and non-profit groups that are not large enough and do not have the funding to take advantage of e-learning opportunities – to develop appropriate applications for their constituencies. Government needs to consider how to support the not for profit sector effectively to access e-learning opportunities.
- While IC, HRDC and CH are doing as good a job as can be. They need to coordinate and develop a national policy for e-learning.
- Not sufficient to leave this to individual departments. No one department can speak for Canada as a whole.
- Many things are at stake here – economic, social and cultural policy considerations
- Provincial approaches are fragmented. Not only the industry is fragmented, but government policy is fragmented as well.
- Need to describe the market -- who are the venture capitalists in this sector, who are the lawyers, who are the accountants, who are the manufacturers. – demand and supply side. Supply chain relationships and alliances. Need to chart this out, so that the Canadian industry infrastructure is better understood, and more transparent.
- Do it nationally. Need a baseline study for this.
- Government needs to lead this process. Some associations have expressed interest in such a study. To understand the e-learning industry in Canada, and to identify the specific needs.
- Government needs to be part of e-learning knowledge base – promoting by using across all departments and ministries (federal and provincial).
- Government has a fragmented agenda right now.
- Some SME and big companies are in the e-learning space – but vast majority of businesses are outside of this space.
- Government could be a user. By becoming a buyer they can help Canadian business and help create an e-learning market in Canada.
- Types of e-learning users – schools, universities, government departments, and corporate users.
- Types of e-learning products – off the shelf; custom-built; hybrid systems.
- Canada is already a world leader – in terms of talent and potential of e-learning development.
- We have a window of opportunity that is fast slipping away to foreign competition.
- We have a need for distance learning given our geography.
- What about DFAIT? – they need to weigh into this, to help Canadian e-learning companies expand into foreign markets.

- CANARIE is doing a fantastic job, but more is needed.

C. Associations

- In Canada, there is a need for an umbrella organization (national association) to work on behalf of other organizations working at local and provincial levels. Also to lobby government for the needs of their member constituencies.
- An example of this in another sector is biotechnology – as for example, BIOTECanada, based in Ottawa, which represents other biotechnology associations (mainly regional/provincial associations). BIOTECanada is a broad national association representing companies and research organizations involved in all aspects of biotechnology in Canada, including healthcare and agri-food. It aims to provide a unified voice fostering an environment that responds to the needs of the biotechnology industry and research community in Canada. BIOTECanada's membership consists of 85 percent of the domestic biotechnology community, spanning industry, regional and provincial biotechnology associations, academia and the research community.
- The approach for a national e-learning association could be similar. To approach all major stakeholder associations to form a consortium of associations regarding e-learning. Make it very inclusive and then let them communicate back to their membership. There are many different perspectives of learnware and many stakeholders from educators, to multimedia developers, to book publishers, to corporate trainers. Trying to get one association to represent all of their interests, at the different levels in Canada (provincial/federal) would be difficult, unless it was in the form of an umbrella organization. Examples of provincial associations that currently are having a successful run with a sizable membership-base are Ontario Society for Training and Development, RIAN E-Learning in Quebec, New Media BC, and Canadian Association of Distance Education.
- The federal government could then work with these associations to address issues of standards, quality, marketing and distribution and other related matters of e-learning.
- Associations consulted believe that a successful member base is possible.
- Need to scale up to an association that is national in scope.
- Government could support initially such an organization.
- Also need to take account of the non-profit sector and its needs. Need to tie this with social policy, and here is where the government can provide leadership. A good example of this is the Health Infoway set up by Health Canada. There are good lessons learned from how the Health Infoway has been set up to support health policy, and the health industry in Canada.
- A national association can help in:
 - Developing a professional certification program for e-learning.
 - Developing standards for learning platforms.
 - Designing effective practitioner tools and resources.
 - Hosting national conferences and symposia .
 - Representing broad constituencies of e-learning.
 - Advancing a national agenda in the direction set by governments and stakeholders.
 - Providing a voice for commercial education and training.
 - A forum for the collection of data.
 - A dissemination channel for research and reports.
 - Lay the groundwork for setting standards and assuring quality in the industry.

D. Comments on Program Issues

Need for Program

- There still is a need for the program. We were glad to have the opportunity to bid, but would think twice about applying again—especially in terms of getting a more clear direction in the program requirements and long-term commitments. Industry Canada needs to know what they are looking for upfront—they seemed to make it up as they went, introducing new definitions/explanations of program criteria as the questions were asked. Nonetheless, it is important to have this kind of program in place (with improvements).
- We think there is a public responsibility to help the industry in Canada to take advantage of the opportunities available for e-learning technology and applications development. There is a public responsibility, particularly for regional users and development of e-learning opportunities.
- The program must emphasize the quality of education material, not just the technology.
- The landscape has changed dramatically from the time when the program was introduced. There are more big players now, and it is even more difficult for the SMEs to make a go of it on their own. However, opportunities for innovative applications are still in place. On the other hand, the telecoms and cable companies may now be interested in entering the e-learning space, either in partnership with others or on their own. As big players, the publishers (e.g., McGraw-Hill) are more inclined to be in that business.

Application Process

- As a second-round applicant, it would have been better to have had the opportunity to have a face-to-face interaction with the selection committee—for example, to make a 20-30 minute presentation about the project and then to have a questions and answers period with the committee. This might have helped clear up some of the ambiguities in the process, especially during the second-round part of the competition.
- It seems that having “access” to the selection committee might have proven to be a benefit in getting projects accepted.
- Nonetheless, comments made by the committee about our application were well thought out. We thought that CANARIE was particularly good at conveying the comments made by the committee.
- While the Committee was made up of a good mix of experts, it is nonetheless pretty difficult to put together a group of experts who can judge the merits of an application from a business standpoint, especially to address the wide-ranging set of issues dealt with in a program with such a broad scope as the Learnware program.
- We really didn’t understand what we were getting into, at the initial stages of our application. Once we went through the first round, we realized that we would be bankrupting ourselves to carry through the work. The long lead team involved in project development required a more solid financial plan (with other sources of funding). It was difficult to get this kind of assurance from other backers. So we realized that our working capital was going to get tied up in one project for a long time.

Program Criteria

- The program criteria requirements were not communicated to applicants as well as they could have been.
- Not everyone was aware of the subsequent requirements for agreement with CANARIE/Industry Canada because terminology was vague – particularly in terms of the financial requirements.

- Connectivity credits were more of a paper exercise than a real opportunity to connect Canadians.
- The first round process was overly complicated. It would have been better to have had an initial expression of interest that was simpler and shorter, and then given more time to set up the partnerships.
- Our experience has been that it is easier to get funding from ACOA for projects.
- It would help if there was more clarity about cross-program funding (stacking) in the program criteria, to enable SME's to go it alone, without partnerships with the big players (i.e., funding from them).
- The program should have provided more guidance on sector priorities for education applications (e.g., in health, environment). The scope of the program was not narrow enough, and this made it difficult to understand what the direction was. The message communicated was that applications could be in most any area of educational need. This resulted in applications that were all over the map.

Payback

- This was a tough requirement to sell to the partnership in our application process.
- CANARIE should not be expecting much of a payback on profits. What CANARIE could do is look into how it could be considered a depreciated expense—e.g., after second or third year of the investment. If CANARIE owned some of the related project assets, the payback would be in right-offs in the form of depreciation. Perhaps it would be useful to get some expert accounting advice, in developing payback formulas such as that introduced by Learnware.

Feedback

- There was good feedback after the first phase evaluation of applications.
- Feedback was considered to be exceptionally good – even if it was to indicate why the application was not successful.
- Generally, the feedback and guidance seemed to be more on the technical side of the proposal, and less on the business side.
- Would have appreciated more feedback on setting up partnerships, and the economic/business side of the learning project.
- It was not clear to us the extent of the requirement for partnerships in the proposal stage. We were surprised at the strength of this requirement when we got feedback to our proposal.

Working with CANARIE Inc.

- The experience with CANARIE was very good. The personnel there were very helpful, and when we met them in person it was even better.
- We tried to get something going with the BCE Fund part of the program, but we ended doing three business plans and still didn't get anywhere. I don't think Bell was as interested as initially expected.
- Even though we were not successful, as a program delivery agent working with CANARIE Inc. was really good.

Partnerships

- Really needed a bigger partner as part of our application – this is what did us in, but I understand that subsequently, partnerships were not as a big a part of some of the successful projects after all.

- The “partnerships” were only forged to get the program funding – they were not natural business partnerships. There seems to be a lot of “granterpreneurs” seeking federal funding for research and development – and the partnerships end up being set up by these “granterpreneurs” to secure the funding.
- The emphasis seems to have been on the technology (connectivity) side and less on the pedagogical aspects of e-learning.
- Time was the main challenge in getting an appropriate partnership together to address some of the program requirements. Unless you had the partnership relationships already in place, you could not get the right partners together. It takes a long time to forge the right kind of partnership for the learnware projects contemplated for the program. It was difficult for those applicants who did not have partnerships relationships already ready-made.
- We tried to get Aliant Inc. involved in our application for a project with SchoolNet Learnware, but they did not accept it because they did not consider the process and results to be commercially of interest to them. They preferred to tap into the process through the BCE Fund, in some way, if that were to go ahead. Bell has 45 percent ownership of Aliant!
- Having funding from the federal government does provide leverage for small firms to establish partnerships with the larger firms. But it doesn't work the other way round. CANARIE/Industry Canada programs such as the SchoolNet Learnware program is an opportunity for SME's to champion an initiative which helps them connect with larger organizations.
- The problem for getting matching funds in smaller regions (such as Atlantic Canada) is that these funds are not available. It is harder to get venture capital or 50/50 matching funds for programs such as Learnware in Atlantic Canada, than in Ontario, Quebec or British Columbia. This kind of criteria in programs works against firms in Atlantic Canada.
- Usually when your setting up partnership, it helps to be working with a program that is very focused on what the requirements are. It makes it difficult to set up the partnership if the program is vague or unfocused – especially if shared funding is required.
- The big investors walk away from this kind of program, because they measure the research against their big picture requirements, and specifically require a more certain return on investment prospect.
- There is a common belief that big companies are good at distribution of products. This is not necessarily true, sometimes the small firms are better. The requirements for partnerships in the program was misinformed, in that the big players did not bring to the table the kind of expertise that was expected of them. Hence, the partnerships were hard to establish, or were ultimately not successful.
- The biggest challenge in establishing partnerships was those with the provincial government and educational institutions. These typically require a lot of time to bring to maturity, and the program simply did not allow enough time (or help) in this process.
- The problem was that the rules about the funding were not clear from the start of the process. For our project to work we would have needed advance funding from our partners, to cover the cash flow – and this made it harder to secure partnerships.
- Large private sector companies are wary of government programs, and don't necessarily see that there is a huge opportunity in developing business learning applications through government programs. They prefer to do this on their own, to address their own corporate needs, either for internal training or as a commercially viable product to earn sales revenues.

Business Planning

- The business planning process was useful. What we learned from this has been useful for other projects.

- Overall, this was a good experience. The experience has served us well in subsequent proposal to other programs, e.g., ACOA and the Learning Program (CANARIE).
- Figuring out the market requirements was the most difficult part of the application. I think now one really knows the potential, including the selection committee members.
- The committee should also judge based on the track record of the applicants in the business market. However, this makes it difficult for new comers to take advantage of the program.
- The main challenge on any of the e-learning projects was/is to build up a customer base quickly enough to justify the investment. This is why partnerships are important, to demonstrate that a customer base already exists in the partnership prior to launching the project.
- The advantage that the big American companies have is that they are starting with a large market, and a proven customer base. This should be factored in to the program—i.e., how to ensure a broad customer base, to ensure a reasonable expectation for success. For example, companies like SkillSoft and Clarica already have a large customer base that they can call up, and develop e-learning applications for.
- Sometimes critical mass is the assurance of business planning success. What I mean by this is that you don't get burnt if you have a good product portfolio with diverse applications for different market segments. When you are a small company with one product, you are more vulnerable. The Learnware program should help SME's to diversify their product portfolio, to reach diverse markets. For example, French/English/Spanish markets (in our case). While the program did not target any language or culture-specific applications, it might have been useful to do so. This helps the applicant niche out the relevant market applications.

Large Organizations

- When Bell Canada made an internal call for Learnware projects, there were few proposals. Out of about seven, only two proposals were eventually approved for Learnware funding. Their feeling was that Bell/BCE were bearing all the risk. They felt that the Learnware funding was a low interest loan and this was not a big incentive to put their projects on the table.
- Liability issues need to be worked out at an earlier stage.
- BCE subsidiaries were looking to have some of the funds allocated to them.
- Bell BCE felt they would carry the risks, and the subsidiaries would benefit .
- Terms used were not thought out enough by IC and Bell/BCE to make it work.
- While the process was all carried out in good faith – Bell/BCE eventually sought to cut its exposure to this program. There were too many risks that they were not prepared to engage in.
- The initial effort was driven by the CEO who had a strong interest in the e-learning field. Bell was interested in getting involved in this field, to broaden customer base. The project was orphaned when the CEO left BCE.
- For BCE the issue of IP was critical.
- There was too much time spent in setting up the agreement and in pursuing projects. There were two committees – a Formal Steering Committee and a Sub-committee selection committee. A lot of effort was put into the process, but the result was that only one project has been funded.
- The experience generally was not positive for BCE because it took up too much staff time, and there was not a clear picture of how it would benefit the bottom line. ROI was not clear in the projects put forth.
- It was a challenge to select winning projects, because it is difficult to decide a priori who will succeed
- Cable companies did not get involved in this process because they were more interested in building their customer base through their core services and developing their broadband capabilities, but not in terms of

educational and training materials. This is not necessarily a business area that they understood, and were not entirely convinced of the business opportunities and the ROI potential.

- Their preoccupation at the time was to gain subscribers and grow their customer base.
- They were a bit more cautious in their approach. There were other priorities three years ago. But now they have some initiatives underway and might be more interested in e-learning services.
- For example, Shaw has a pilot project underway with the University of Calgary. This involves an online training program using Microsoft multimedia solutions using the Office suite of products. It involves private funding. The significant reason why Shaw considered this to be worthy of getting involved in is that it is tied with a post-secondary certification program of University of Calgary. They consider it to be very important that the program results in a recognized certification from an accredited educational institution. This is very important for Shaw to provide the distribution channel and to broadcast this course offering.
- What Shaw considers to be its contribution – is the ability to broadcast the course. It acts as a “channel” partner.
- They agreed to provide the video-streaming and server requirements for the application course. Shaw is interested in this from the technical R&D component in terms of the transmission and broadcast. It is not involved in the content side of the project. Interested in increasing its networking and traffic potential.
- Sees e-learning potential as a big opportunity – targeting the home user – the home learning environment. They believe that the change of priorities by big corporate entities to shift the burden of training onto the worker – the use of online learning options is increasing – especially on the workers own timing – rather than in the workplace. Delivery of courses will be to the home. Hence important for cable companies to be involved in this as a channel to broadcast e-learning services..
- There are two key things that need to happen, as far as the cable companies are concerned, and government should help in this. Accredite the courseware and develop standards so that there are common learning platforms for content developers to build towards.
- Educational institutions need to lower their turf wars. How to sort out the turf issues is perhaps a role for government. Cable companies will establish themselves in this business through strategic alliances. But agree that the “integration” model is the way to go. However, who will be the “integrators”?
- Absolutely critical to get a harmonized market in place. Standards are a part of this.
- Established and well-recognized Canadian educational institutions need to back the initiatives. Can Canadian universities compete internationally? For example, the user can get the training easily on line from well-known institutions in the U.S., or the U.K.

Sharing the Risk

- We have to commend the innovative thinking in the Learnware program, i.e., in sharing the risk of developing the learnware applications. It is entirely appropriate to expect a return on the federal funding dollars if the projects are successful commercially, while at the same time bearing the cost of failure. The details of this, however, needs to be thought out more carefully, particularly in terms of assessing the return on investment

Quality

- The school system is having trouble maintaining the quality of education in the schoolhouse. There is a public responsibility to ensure that programs such as Learnware take into account the social policy aspects of e-learning, in addition to economic policy considerations.

- All the Internet service providers see content as the key in all the e-learning projects. The business model (return on investment) depends primarily on the quality and relevance of content. The e-learning technology is taken as a given. The marketing of the applications has to be on the basis of content, not on the innovativeness of the technology.
- If all we are doing is putting courses on the Internet, it becomes a question of volume and not quality. Programs such as Learnware have to build into their selection criteria the pedagogical merits of the applications, in addition to the technological aspects.

Unsuccessful Applicants

- Went forward with our project anyway but with foreign partners. Canadian partners dissolved. Canadian markets are not big enough for the applications we were proposing. The program should have allowed foreign partnerships to be eligible, as long, as the Canadian firm was the prime in the project.
- We're pursuing work with CIDA and we are now selling products in the U.S. and elsewhere, including South America. We have a joint project with Costa Rica—CIDA helped in this to fund the Costa Rica partners and to find potential market opportunities in South America.
- We've subsequently established some partnerships with U.S. firms. If this was a real option in the Learnware application (i.e., foreign partnerships, which are an advantage for our firm) we would have been in a more favourable position in our application.
- As a follow-up to our experience in applying with the Learnware program, we now have a joint-venture with the University of Massachusetts, and we have some possibilities of teaming up with Aliant. We're also teaming up with a company in Denmark to develop a program called Idea Pilot, which will also be used in our work with Aliant.

Industry Canada Regions

- Managers of Industry Canada programs in Ottawa need to think about how the regional offices can help enhance the program delivery process. In the case of the Learnware Program, they did not consult with regions during the program development phase. They generally dealt with constituencies directly. They should have built into the process a regional promotional strategy, and involved the regional office at an early stage. That is what the regional offices are there for, to help in promoting the programs and to help in getting the right players involved.
- There was no or little follow-up with regions after the initial workshops and road tour.
- The program was not well promoted because it did not use the regions effectively.
- Some of this is highlighted in the Holman report, but specifically with reference to Learnware. This is all part of a general issue that is not necessarily just a Learnware question.
- The process was improvised and haphazard.
- The feedback that regional staff got from clients and potential clients was not generally positive.
- Communications were difficult. The program had already been developed before the regional offices heard about it. The promotional aspects were poorly conceived. Regional offices could have helped in applications process, for example, in the partner-building process. However, this is not necessarily unique to the Learnware program. It is part of a more general situation within Industry Canada vis a vis the regional offices (Holman report).

- Regions have a local knowledge of players. Should take advantage of this in developing these programs. Need to consult ahead of time, and engage the regions in the process of developing the promotional strategies.
- Regional offices have expertise in terms of local industries and relationships between organizations. Could have helped in facilitating partnerships.
- Outreach strategy not coordinated properly with regional offices.
- Regional offices have the provincial contacts – could have helped in getting provincial government departments involved, but needed more lead time in preparing strategy.
- With some lead time, regions could have got more SMEs involved in the process, and got the IHAB (of NRC program) representatives to help out applicants in forging partnerships and consortia, and to take advantage of other sources of funding for the matching funds requirement.

Companies That Withdrew After Their Projects Were Approved

- Withdrew because operating conditions were beyond what they were able to deliver.
- Wanted to use their own resources but had to establish partnerships.
- Did not understand the requirements very clearly at the beginning.
- The claims process was a minefield. Did not realize that CANARIE really meant what they said when they said they required use of outside sources in the project.
- Submitting claims was a frustrating process.
- Nonetheless the organizations that withdrew say they are going ahead with project development with their own resources. Using their own budget and discretionary spending, but their e-learning courseware development has slowed down.
- There was a great rapport with CANARIE officials, and in spite of pulling out of the program, the process was still transparent and fair.
- The program was confusing with the connectivity credits matter. This seems to be a paper exercise and was not very useful. This was one of the reasons for pulling out.
- Risk sharing aspect of the program was a good idea – would commit to similar arrangement in the future. This was not the reason for pulling out.
- Two small companies in Newfoundland joined with Memorial University, but one of these partners was not able to follow through with the process as originally planned. Lead person left and so the project fell through.
- Contributing matching funds was a challenge. Difficult for small firms to contribute matching funds, so the burden falls on the lead organization, while the smaller firms (sub-contractors) expect to bear no risk, and see this as a short-term revenue opportunity.
- The Memorial University Learnware project proponents had a significant challenge to get the university administration to approve their project agreement for the Learnware program. However, they managed to get it through and have a signed agreement with CANARIE. This kind of agreement was a first for their university.
- However, eventually the project team figured that the risk involved in their project was not worth it, since one of their partnerships was not working out very well. The questions of who bears the risk in the partnership was not clear – risk was not appropriately, or evenly, distributed. The subcontractors were not expecting to take on any of the development risk. So the university decided to pull out of the project.

- The bright side is that in future it will be easier for them to participate in this kind of project/program. They learned a lot from the experience. They still want to do this kind of work. The project is on hold, but they still intend to carry it out.
- They were able to break down some bureaucratic barriers within their own institution to get this project approved.
- They are also involved in the Learning Program of CANARIE, and will continue to do e-learning professional development for teachers. Also doing some health-related work, e.g., courseware for nursing as part of a project with Health Canada. Have not yet proceeded with this but it is in development.
- Also have an application in the oil and gas industry for off-shore gas e-learning application -- and intend to export this product.

Future Prospects

- The market for e-learning is still pretty hot, and in many ways the program is more timely now than it was three years ago.
- There is a real need for innovative thinking in the e-learning space, but need to understand how the market works.
- There are great opportunities for the next generation of learning products, particularly in setting up educational e-learning platforms.
- The technology is ahead of the market and of relevant educational applications. There is a need to emphasize the pedagogical aspects of e-learning.
- The greatest threat right now is that most Canadian big players are (or could be) bought out by U.S. firms.
- Programs such as Learnware have to be wary of the “granterpreneurs” who are very good at getting federal funding (R&D) but may not be as savvy business people.
- On the other hand, some business-savvy people are not as good at preparing project applications. This is what the application process needs to recognize, to ensure that the work that gets approved provides useful, commercial results.
- It is an advantage to come to the table with foreign partnerships, especially in this globalized field of e-learning where many of the big players are U.S.-based (e.g., McGraw-Hill, Saba, Docent, SmartForce, ClicktoLearn). Programs such as Learnware need to recognize this fact. Foreign partnerships are good for the Canadian industry.
- There are unbelievable opportunities to make the educational experience better through e-learning in Canada.
- Canada is a technology-intensive country, and we should continue to build on our expertise. To take advantage the government needs to help companies market their technology. The Learnware program was not focused on marketing, as such.
- Programs need to encourage global partnerships – while protecting Canadian interests in these partnerships. Learnware did not recognize the significance of this business as a global business—excluding considerations of partnerships with other companies in other countries.
- The cash flow questions about the program need to be addressed up front. In other words, make sure that the program is able to provide advances up front, and/or have a fast turnaround on the reimbursement of expenses (e.g., cut it down to one-month turnaround, or less).

- Being successful in today's market means increasingly shorter product development and sales cycles. That translates into a bigger need for effective just-in-time, just-as-needed training. This market is exploding. Generally, the estimates are that it is more than doubling every year.

Lessons Learned: How Can the Program be Improved?

- Be wary of reinventing the wheel – and committing to project applications that will be obsolete by the time the products are developed. Need a better focus on the role of government in supporting organizations through other means: e.g., tax breaks, developing standards, ensuring quality of products, and supporting industry growth through associations and partnerships, and developing and sharing information sources. It is possible to provide knowledge support and information sharing, without project-specific funding, but there is still a role for a project-specific funding approach.
- Government needs to help in the area of setting standards for the industry.
- Create a network -- portal for exchange of information. Good example of this is the Health Infoway portal of Health Canada.
- Suggestions for changes—program criteria:
 - The program should be SME development focused. SME should be lead and marketer of intellectual property. This may limit institutional involvement. If educational institutions are allowed, insist on cooperation among a number of institutions who must exploit the products developed.
 - Remove “Public Access Applications”, “Funds” and “Connectivity Credits” from program.
 - Define “Canadian Corporation” as Canadian controlled corporation.
 - SME definition (150 employees max).
 - Be clear if focus is on k12 exclusively. Include post secondary? Include adult learners? Is target market for product individuals? Institutions?
 - CANARIE's Phase III Contribution Agreement limits subcontracts and consulting fees to \$100K per project. Do we want a similar limit?
 - Revise repayment terms to be realistic. Current statement is that if we fund 50% of a project, then we want 50% of revenue until contribution is repaid. This is not how we administer the program.
 - Retain sunset on repayment obligation.
 - State our position on in-kind contributions up front.
 - No funding for course delivery platforms. Applicants must state which platform they intend to use if applicable.
- Suggestions for changes—selection committee and selection process:
 - Membership from educational sector, publishing (?), observers from other funding programs to reduce overlap?
 - Competition based or continuous intake? Both?
 - We requested a fairly detailed proposal last time. We should consider moving to a less detailed “expression of interest” as the initial step to reduce burden on applicant.
- Suggestions for changes—program delivery and administration:
 - “Costing Memorandum” to be the same as CANARIE Phase III document.

- Permit “advances” without interest tracking to expedite SME payments provided carry over from quarter to quarter is less than an agreed amount.
- If program has multiple phases, all phases should be administered under the same Contribution Agreement.
- Develop a comprehensive plan to promote the program.
- Develop a communications plan to announce the competition winners and the projects as they are complete.

Intellectual Property

- There are mixed opinions about this. Working with a program like CANARIE’s Learnware protects the smaller players in terms of IP, because an agreement is struck which recognizes the respective roles of the partnership. But this also makes it more difficult to forge these agreements.
- Some respondents considered that IP was not a serious issue, but these were mostly from projects that did not have any partnership arrangements, or in which the partnership had already been well established before Learnware.

Alternative Program Approaches

- The Learning program of CANARIE is more appropriate and timely because it emphasizes the pedagogical aspects of e-learning as well as the technological opportunities.
- The program should have provided more guidance on sector priorities for education applications (e.g., in health, environment). The scope of the program was not narrow enough, and this made it difficult to understand what the direction was. The message communicated was that applications could be in most any area of educational need. This resulted in applications that were all over the map.
- The NRC model is good. NRC assigns a person to work with you. To help the organization in areas where they don’t have expertise. Or they find who might be able to help, and sometimes help in forging the partnership. It is more proactive, and helps the SMEs in particular. Why not forge a process whereby CANARIE can work with organizations like NRC to help program recipients (especially SMEs) to develop their projects. This is a team approach by which everyone benefits.
- Need to have a National E-learning Strategy, that focuses on both the economic and social policy aspects of e-learning. The Learnware program was working without such a framework, and hence ended up being too broad in scope, with mixed objectives. Also some of its objectives overlap with other programs, but outside any overall government framework. While the Learnware program was consistent with the Connectivity Agenda of Industry Canada, it did not really provide a clear overall connection to government policy as it relates to other department programs such as HRDC’s Office of Learning Technologies, or Canadian Heritage new media funding programs.
- Experience of TVO E-learning Lifelong Learning Challenge Fund.
- New Media Fund of Telefilm Canada.
- Office of Learning Technologies programs.
- Ultimately the projects that will be successful are those that produce an e-learning platform or are tied in with acceptable standards—accepted by the users and producers of e-learning applications.
- Partnerships – what works? – need to look at companies such as McGraw Hill, Saba, Docent, ClicktoLearn, SmartForce, SkillSoft, Centra, to see what is working for them.

Selection Committee Comments

- Generally, the proposals were not that good.
- Major difficulty in assessing the business model, risk assessment and return on investment. Generally, business plans were not well prepared.
- Partnerships were not well thought out.
- It was frustrating reading the proposals, very few of them were of acceptable quality.
- At the time, there was a bit of naivety in the process – on all sides.
- Global opportunities were not well understood.
- Academics figured this was another handout – like the research council programs.
- There was very little market research supporting the proposals.
- They get an A for effort, but C for results.
- Criteria for the program was not clear.
- New media content is a high risk area at the moment. A lot of competition and unclear returns. Program should recognize this. Who bears the risk? The program is intended to help share some of the risk, and it has done so.
- The proposals didn't demonstrate that proponents have much of an understanding of the competitive context of e-learning business. Government could help in providing information on the industry, to help business be more aware of challenges, risks, and opportunities.
- Criteria for evaluation – panel was not always consistent in their understanding of criteria.
- The two-stage selection process was good but the timelines were tight, especially between the two stages.
- Selection process should be more interactive, especially with those who made it past the first phase.

Other Observations

- Future: Currently, many Canadians are frustrated by the duplication demanded by the formal education system and the lack of recognition of credentials earned, especially those from abroad.
- Venture capital firms still shy away from the e-learning business. The business is not mature enough for them.
- Need certification of e-learning curriculums for credit.
- The technical environment has improved and is better understood now. But the pedagogical side of the e-learning product needs to catch up.
- There is a need to help those new to e-learning to understand the value of the tool and when it is or is not appropriate. Government programs should emphasize the awareness and knowledge building potential of e-learning, and build this into the program criteria. This is the best way to help market the product, and provides a role for government.
- Government should help develop guidelines to evaluate e-learning consistently across the industry in terms of outcomes.
- Sharing knowledge – e.g., through a federal site on e-learning initiatives, potential grants, partnerships, best practices, etc.

- The non-profit sector in particular often cannot afford the high costs of e-learning and their budgets do not allow for "regional" or joint projects if they attempt to collaborate with others to share costs (it is a bigger issue at the provincial level than federal).
- Working with groups like OSTD, CADE, New Media BC, and RIAN to help collaborative partnerships and sharing e-learning expertise, resources and learning platforms and software might be an interesting/useful opportunity.
- Government policies are fragmented. Need to coordinate more.
- Need to develop methods to track results – tracking performance measures of online courses.
- Need to examine the business process, along with the business model that underpins the e-learning organizations. This needs to be done before grappling with the technology. Technology is a part of the equation, but the key decisions are strategic-and too weighty to be left to the technologists alone. The risk is great: there is nothing inevitable about the pay-off from investing in e-learning development initiatives.
- TVO's Lifelong Learning Challenge Fund Program. There is much to learn from this program's experience in delivering e-learning project funding to Ontario organizations.
- Telefilm and Canadian Heritage programs for new media funding are also useful to compare.
- Compare notes with the Office of Learning Technologies experience and programs.
- Compare notes with the Learning Program of CANARIE.
- Health Infoway with grants to assist developing a Canada-wide network.
- Need e-learning Internet site to provide resources available, links, etc., similar to Health Canada and Canada Health network but with T&D focus.
- State of the industry reports needed (e.g., similar to those of Telehealth and others).
- Look at potential to work with associations such as OSTD with its 1,700 member base – a healthy mix of manufacturers, educators, etc.
- Ensure that the program is tied in with certification requirements – in projects.