LearnCanada Instructional Design

Final Report
September 15, 2002

Prepared by
Karen Andrews
karen.andrews@fiberone.net

www.learncanada.ca

Table of Contents

1.0 Introduction to Final Report

This document is the final report of the Instructional Design (ID) Component within the LearnCanada project. This report is an overview of Instructional Design Activitites from September 2000 to June 2002. Detailed information pertaining to each quarter has been documented within quarterly ID reports.

The objective of this document is to provide both formal and informal summation regarding:

- The Instructional Design Objectives
- How the objectives were met
- Challenges and Lessons Learned
- Recommendations for the future

Information provided in this report is taken from quarterly ID reports, event reports, School Board reports, ID surveys and informal dialog with Instructional Design Team Members. Formal research and evaluation of the LearnCanada project, including the Instructional Design Component, was documented by Dr. Marion Barfurth in a separate report.

2.0 Instructional Design Objectives

The three objectives for the Instructional Design (ID) component of LearnCanada involved the acquisition of specific professional skills and the evaluation of supporting technologies. The ID objectives:

Objective 1:

Through participating in the LearnCanada project, the teachers will acquire skills and methodology for using project based learning (PBL) as a teaching strategy in their practice.

Objective 2:

Within the LearnCanada project the teachers will adopt a collaborative approach to professional development

Objective 3:

The LearnCanada teachers will evaluate the broadband network and software tools as a medium for collaborative professional development.

3.0 Meeting the Instructional Design Objectives

The three objectives for the Instructional Design (ID) component were met through collaboration by the six participating school board members of the ID team. Each objective, the tasks associated with accomplishing the objective, and evaluation criterion are outlined in this section.

3.1 Meeting Objective 1

Objective 1: Through participating in the LearnCanada project, the teachers will acquire skills and methodology for using project based learning as a teaching strategy in their practice.

As a result of participation in the project, Instructional Design team members acquired skills and methodology for PBL through the exchange of information and ideas with peers and experts in the LearnCanada community as well as through the creation and implementation of PBL projects in their classrooms. The acquisition of PBL skills was demonstrated through presentation of final products and events and documented in feedback surveys.

3.1.1 By collaborating with peers and experts (TeleMentors), ID members developed skills relating to the creation, implementation and evaluation of Project-Based Learning.

Below are some examples of skill building activities and events:

3.1.1.1 December 14, 2000 event "Rubrics for Teacher and Student Behavior," session coordinated by OCDSB. Teachers discussed issues and came to consensus about what project based learning looks like. Teachers collaborated on the development of a joint evaluation rubric for teachers and students.

3.1.1.2 February 8, 2001 event "Student Evaluation Rubrics on Cross Curricular Projects Involving Water". Event hosted by AEDSB. Teachers collaborated on the development of evaluation rubrics for working on projects relating to water.

3.1.1.3 February 22, 2001 event "Capture and Annotation of Video Clips." Hosted by Martin Brooks from the NRC and OCDSB. Teachers created a list of elements of project based

learning that they would capture by the use of video cameras and demonstrate different aspects of project based learning to the other teachers in the project.

3.1.1.4 Teaching for Tomorrow – with TeleMentor Dr. David Blades, University of Alberta (October 30, 2000) Dr. Blades discussed future issues that our students (and society) will face. He presented ideas for collaboration and possible project work (horizon technologies and/or teaching ethical issues). He would like to see teachers encourage more social action by students.

3.1.1.5 The Nuts and Bolts of Project Based Learning – with TeleMentor Sid Shurgman (November 30th, 2000). This session provided practical advice on the different elements of project based learning. We examined issues such as, motivating students, getting them started – PBL structure – how much? maintenance, outcomes and evaluation.

3.1.2 The ID Members indicated (via formal and informal evaluation) that they:

3.1.2.1 Acquired new knowledge about PBL.

3.1.2.2 Were able to demonstrate some PBL methods in their teaching practice.

3.1.2.3 Were able to plan, implement and evaluate a PBL project within their teaching practice.

3.1.3 Instructional Design members are able to demonstrate their PBL skills through:

3.1.3.1 Sharing their knowledge and experiences with other ID team member during online events.

3.1.3.1.1 May 30th LearnCanada Music and Arts Event

This event was the final product for music and arts teachers working collaboratively on PBL projects in the areas of music, multimedia, movement and drama. This artistic showcase featured talented performers from J. Percy Page School (EPS), Earl of March School (OCDSB), Holy Heart of Mary School (AEDSB), and Jyväskylä School in Finland. All six LearnCanada school boards participated and hosted special guests. Composer, Michael Parker introduced Landscapes, this LearnCanada commissioned work was preformed by students at J. Percy Page, Earl of March, and Holy Heart of Mary. The performances were enhanced with multimedia images of each region in the background. Jyväskylä responded with two musical numbers and images of Finland. The event featured dance numbers and improv sessions as well.

3.1.3.1.2 June 13th A Showcase of the LearnCanada Project

In this event, the six LearnCanada school boards from Alberta, Ontario, Québec and Newfoundland provided multimedia presentations highlighting their work and experiences within the Learn Canada Project.

Presentations included:

- Profiles of the LearnCanada schools and Instructional Design team members.
- Pictures or video clips of project-related events
- Interviews with, or quotes from, project teachers and students.
- Teacher and/or student experiences with the project, as well as project-based learning by students
- Samples or video clips of actual student project work, as implemented by participating teachers

After the presentations, the teachers shared some additional thoughts on the project and several ideas for future collaborative projects. The event ended with teachers saying "see you in September" rather than saying "good bye."

3.1.3.2 Sharing video clips of their PBL activities and/or outcomes.

3.1.3.3 Creating, implementing and evaluating a project-based learning project

Examples of PBL Projects completed by ID team members with the use of videoconferencing and shared applications:

1. Music / Arts – On May 30, 2002 LearnCanada Arts teachers demonstrated a wide range of PBL projects in a major event.
2. Law / Social / Civics – The Legal Implications of September 11th – with Justice Minister Dave Hancock
3. Science / Social – Sustainable Transportation
4. Cross-curriculum – Safe and Caring Schools
5. Science / Environ. Studies – Water: Preserving Our Natural Resource
6. Social -Conflict Resolution – Land mines

7. Cross-curriculum – FOCUS on our community
8. Science / Social – Horizon Technologies (Stem Cell Research, Cloning and Artificial Intelligence)
9. Science – Embrace Space Event – everal schools, the CRC and the Canadian Space Agency were involved in this event that focused on the future colonization of Mars.
10. Social – The Kyoto Protocol – with members of government and industry

3.2 Meeting Objective 2

Objective 2: Within the LearnCanada project the teachers will adopt a collaborative approach to professional development.

The LearnCanada teachers demonstrated a collaborative approach to professional development by participating in group reflective practice activities. Reflective practice included activities such as:

- group sharing sessions in which teachers would present their teaching/ evaluation strategies and then reflect on those strategies as a group.
- Virtual classroom visitations where teachers from other sites observed a teacher in practice and could interact with the students as well as the teacher.
- The use of email groups to share information and resources as well as provide support.

Below are more specific examples of collaborative professional development events and activities:

3.2.1 All LearnCanada teachers participated in regularly scheduled large group online PD events, as well as project related collaborative events.

3.2.1.1 May 17th, 2001 Music Teachers Skill Development: "Conducting." Students and teachers worked with expert conductor Ray Baril from Edmonton and Don Buell (and students) from Memorial U in St. Johns. The Sax Quartet from AEDSB preformed the music.

3.2.1.2 May 25th, 2001 Community Focus Project (TDSB, and EPS). Discussion on teaching practices that bring the community into the classroom and allows students to get to know the community.

3.2.1.3 May 31, 2001 Community Focus Project (TDSB, and EPS). Teachers and small student groups shared their project work and planned for future activities.

3.2.1.4 June 4th, 2001 Our Communities Discussion between OCDSB and EPS. Students and teachers discuss the challenges of teaching and learning within the communities of Kanata, Ont and Mill Woods, Ab.

3.2.1.5 June 7th, 2001 Large group event, hosted by TDSB. "Our Reflections on PBL." Through whole group and break out sessions, teachers shared their experiences and project work within PBL. The teachers developed top ten lists for the challenges and benefits of PBL. ID team members completed an online evaluation survey for the LC project.

3.2.1.6 On April 18th, 2002 The Social Studies/ Environmental Studies team (EPS/OCDSB/KPRDSB/CSCV/AEDSB) held a major event: Understanding The Kyoto Protocol. This event involved several guest experts participating from various LearnCanada schools. The experts included officials from Alberta Environment, Environment Canada and the Federal Department of Natural Resources.

3.2.2 Several Collaborative PBL projects were identified and implemented by diverse teams of teachers from all LearnCanada schools.

3.2.2.1 The ID Team has completed project based learning projects that included collaborative groups with members from different school boards. The PBL projects coupled with teacher perceptions of collaborative work were presented by ID members at the final LearnCanada event.

3.2.3 Teachers had the opportunity to share information, practice and resources with other members through online events.

3.2.4 Teachers had the opportunity to participate in small group online PD sessions.

3.2.5 Secondary tools such as email were also used to facilitate collaboration.

3.2.6 The LearnCanada teachers:

3.2.6.1 participated in large group online events (as indicated in online feedback and by attendance)

3.2.6.2 collaborated on identifying a common theme and PBL project ideas

3.2.6.3 discussed and shared information, practice and resources with other team members through online event and/or secondary tools

3.2.6.4 participated in small group online events

3.3 Meeting Objective 3

Objective 3: The LearnCanada teachers will evaluate the broadband network and software tools as a medium for collaborative professional development.

The Instructional Design team informed the process of broadband tool development.

The ID team provided feedback to the multimedia component with relation to the video annotation server and provided feedback to the infrastructure team regarding the videoconferencing application and associated tools. Feed back was collected through a variety of means including online survey and discussion via videoconference. The list below is a description of the technical evaluation activities and specific examples of events.

3.3.1 The LearnCanada teachers acted as a focus group for the technical evaluation of the broadband medium and supporting tools.

3.3.1.1 February 22, 2001, Teachers received training on how to use the video annotation server and provided feedback to the Multimedia component on the software tools developed for the capture and annotation of video clips. Teachers worked with the developers and provided instant feedback, as well as, completing an online survey, which captured their evaluation and ideas for modification.

3.3.1.2 ISABEL Training and Feedback April11th –Facilitated by Robb Wynn (EPS teacher) and Bobby Ho (Infrastructure component) from the CRC.

3.3.2 LearnCanada teachers provided technical feedback through:

3.3.2.1 large group online sessions with the technical, multimedia and evaluation component members.

3.3.2.2 Formal and informal evaluation tools (online surveys, during online events, through email)

3.3.3 The LearnCanada teachers provided the necessary technical feedback as indicated by the Infrastructure, Multimedia and Evaluation team leads.

3.3.3.1 The ID team members were "driving the process" of creating, modifying and evaluating the supporting technological tools.

4.0 Instructional Design: Milestones and Timeline

The following is a list of completed Instructional Design milestones taken from the LearnCanada contract. The dates are provided to give an approximate timeline of events. Specific dates are provided in Appendix A: ID Task List.

Phase I - Requirements Definition
September 4, 2000 – January 30, 2001

1. Teacher team selections, orientation and team building sessions
2. Professional development training session(s) on Project Based Learning (PBL)
3. Collection and assessment of supporting professional development resources
4. Identification of PBL projects

Phase II - Development
September 15, 2000 – June 15, 2002

1. Support software development team in defining software requirements
2. Assessment of existing professional development multimedia content
3. Development of PBL resources
4. Support external evaluator in data collection for program evaluation

Phase III – Deployment and Evaluation
October 15, 2001 – September 15, 2002

1. Provide feedback to Infrastructure and Software /Multimedia teams on field trials
2. Implementation of PBL projects
3. Presentation at PD days
4. Participate and contribute to national and international broadband K-12 professional development conferences
5. Write final report and present at national and/or international conference

5.0 Challenges and Lessons Learned

5.1 Levels of Participation

The Busy Curriculum:

Teachers are busy. They face a full curriculum, full classrooms and days and nights full of marking, committees and meetings. Under these circumstances there is no room for research and development projects, and no time for sustained professional development. The only solution is to provide time.

There has been a varying level of teacher participation both within and between the sites/school boards. The difference is due to the variance in teacher time allocations to the project. For example, the following situations exist within the project:

- Slightly reduced workload for all site teachers as well as supply teacher coverage for large events (reduced workload: a teacher that would normally teach 7 out of 8 periods per day would be reduced to teaching 6 out of 8 periods and therefore they would have one period devoted to the project. Supply coverage: a replacement teacher is called in to cover classes so that the project teacher can attend an event. Supply coverage results in more work as the teacher has to prepare lesson plans and materials for the supply teacher.
- Larger reduced workload for one or two lead teachers (with supply teacher coverage) and only event supply coverage for other site teachers.
- Supply coverage (for events) only for site teachers.
- Teachers volunteer their participation (no coverage).

This variance effects project administration as well. It is difficult to request information (progress reports, feedback surveys, evaluation) and participation from team members that have no time allocation associated directly to the project. Naturally, the teachers that were given a reduced workload were able to participate more, and contributed more, within the project. The teachers without reduced workload expressed time concerns throughout the project.

Teacher / Administration Shortages:

Some participating school boards indicated that it is becoming very difficult to get classroom coverage because there is a shortage of substitute (supply) teachers in some areas. Often there is a shortage of administrators as well, so it is difficult to get the classes covered and it's difficult to find supply teachers.

Facing circumstances beyond our control

Some ID team members were caught in a politically difficult situation relating to labor actions or conditions within their province. When possible, these members continued to participate in the LearnCanada project voluntarily. Labor action impacts the ability of teachers/school boards to participate in the project.

Time is a commodity for teachers. If you want participation you have to create time.

5.2 Project / People Coordination

Connecting geographically distributed team members that have varying time zones and schedules, has remained a challenge throughout the project. Project teachers express enthusiastic interest in collaborative project work. As expected, it is a challenge to coordinate schedules, time zones and technological support/access. Some teachers have managed to overcome this challenge by planning brief point-to-point sessions within their day or by forming a project team with one member in charge of communication.

The following quote is an example of one teacher's attempt at coordination.

> *Continued planning regular meeting times with our site teachers albeit several such meetings were postponed due to weather and the January exam schedule. It's hard to coordinate our people, never mind people from other schools, however, we'll keep at it.*

Collaborative projects require a high degree of initiative on the part of the participants.

5.3 Technology Issues

Videoconferencing Technology:

Overall, the videoconferencing technology/use showed remarkable improvement from the beginning to the end of the project. In the beginning, we spent a great deal of time assuring that we could be heard and seen by all sites – in the end this was a natural assumption. It is apparent that meaningful collaboration between ID team members is hampered when the flow of conversation is interrupted with microphone use issues, signal break up and/or poor sound. Both the videoconferencing software, and our skills in using it, improved throughout the life of the project.

Collaboration tools:

ID team members indicated a strong need for the development or improvement of collaboration tools. Tools such as a shared text feature for the creation of documents during online events, a collaborative website with functions similar to egroups, and the ability to access a wide variety of resources. One teacher wrote (by email):

> *I had hoped that by now [September 2001] we would have access to more tools and resources. I thought we would have access to a portal of resources that we could share and discuss. I'm having difficulty just sharing the whiteboard or PowerPoint presentations with other teachers. We need some collaboration tools.*

Network Connection:

We celebrated the fact that all 6 school board sites were able to connect to the Ca*Net Network. Connecting to this network is a major barrier for schools/school boards for a variety of factors including complex arrangements (provincially and nationally) between telecommunications companies/ Internet service providers and advanced network operators, high costs and lack of information/training/ support. Schools/ school boards do not have the funding structure to accommodate the high cost of connecting to the CA*Net Network. In addition, it seemed that there was a varied level of consistency regarding the CA*Net3 network during certain months. In this project, these factors were dealt with by the school boards and the Infrastructure Component. School boards were able to connect due to support from their network service providers and Provincial advanced network operators.

Video Annotation Server:

The video annotation server (VAS) did not achieve a high level of use by the LearnCanada teachers. The tools were not available until later in the project, access to video capture/editing equipment and training was an issue at some sites and the rate of download was poor (in the beginning). Even with improved download speeds, it was difficult to get the teachers to invest the time to "re-visit" the technology.

The teachers indicated many challenges associated with the technology (both the video conferencing and the video annotation serving). Working with pre-market video conferencing software requires constant upgrades, testing, debugging.

Here is a quote from one school board administrator:

> *Our board is still struggling with connectivity and setup issues. Significant hardware compatibility issues have arisen. This technology is not plug-and-play.*

New technologies require a high level of technical support, time and perseverance.

5.4 Language Barriers

As a bilingual nation it would be ideal if everyone could understand both languages. This is not the case. Our French teachers prefer to converse (and send their reports) in French and the English teachers prefer English. We overcame this barrier by some degree through a combination of events in both languages –although there was more English than French. The bilingual teachers were very helpful and understanding.

A national project in a bilingual nation demands consideration of both languages.

5.5 Intellectual property and privacy

Two "other" issues arose within the project. The issues were:

Use / editing of video clips and materials

Teachers collected video clips of them in practice and then sent those clips to a partner organization for posting onto the video annotation server. Complaints occurred when the teachers were not listed as the creator of the video (no credit given) and the name that was listed belonged to the organization responsible for posting. The obvious lesson here is that care must be taken to credit the appropriate person –in this case the video creator. In addition, each participant should provide signed release indicating consent for use by second parties (the nature of the use must be specified).

Observing teacher interaction

Communications technologies make virtual classroom visitations possible. Teachers often observed other teachers in practice and held "private" videoconferences. With partner school boards and organizations on the same network – and technical partners directly monitoring the network – participants need to be aware of the fact that others may be watching and/or recording their activities. Likewise, partner organizations need to disclose and obtain consent for any observational activities (and the purpose). This should be part of the release form as indicated above.

Participants in a research and development project should provide informed consent for the use of their intellectual property and for the observation /recording of their activities.

6.0 Recommendations for the future

The recommendations below represent the thoughts of the Instructional Design Lead (Karen Andrews) and are a result of feedback documents, direct observation and interaction with the member of the Instructional Design Team. The teacher's overall evaluation of the LearnCanada project is documented in the LearnCanada Final Summative Evaluation Report by Marion Barfurth Ph.D.

Some of the recommendations were discussed in the preceding section under Challenges and Lessons Learned. To re-cap, the recommendations resulting from lessons learned, include:

1. Time is a commodity for teachers. If you want participation you have to create time.

2. New technologies require a high level of technical support, time and perseverance.

3. A national project in a bilingual nation demands consideration of both languages.

4. Participants in a research and development project should provide informed consent for the use of their intellectual property and for the observation/ recording of their activities.

In addition to the points above, there are specific recommendations relating to the importance of the human beings within technology-mediated projects. While the technology facilitated collaboration (at high speeds over broad areas) it was also a source of frustration – more criticized then praised by our ID team members. The point is that these teachers were not in the LearnCanada project for the technology.

5. It's about people, not the technology

The main reason the teachers became involved in LearnCanada, the reason they stayed involved and the main reason they want to continue with this type of project is the connection to other people. It was fascinating to observe the creation of bonds between teachers from different schools/boards/ provinces and cultures. The teachers expressed a feeling of "renewal" when they had the opportunity to share their practice and their classroom with another teacher or group of teachers. The excitement was obvious in observations and in correspondence such as the email below.

Karen, just wanted to send you a quick note. I'm meeting with [teacher from another Province] *during my second class* [using videoconferencing]. *We have our students working on a joint project and the collaboration is excellent. Maybe you can join in (?) This is something we should get other teachers involved in.*

In future projects, I would place more emphasis on supporting the human connections. **The support would include the use of collaboration tools and providing teacher teams with access to other teachers, resources and post-secondary research and expertise.**

The emphasis must be on supporting the human connections.

6. The right people

It is the people that make or break any project. **Our teacher champions made the LearnCanada project a success.** While it is important (for research and evaluation) to have a cross-section of participants, it is critical to have a number of confident teachers that can share best practice. The qualities of a good project teacher include:

- Patience and perseverance
- Open-mindedness and a willingness to try new things (risk taker)
- Dedicated to the success of the project
- Able to devote time and energy to project work
- Willing to shape and inform the process (i.e. not expecting everything to be scripted for them)
- Able to take initiative
- A strong interest in collaboration
- Willing to share their practice
- A sense of humor (helps)

Future project advice: Take every opportunity to leverage champion teachers.

7.0 The last word: Building New Models for Teacher Professional Development

LearnCanada is a start. The project is the first cross-district, cross-province teacher professional development program using broadband communications technologies.

When I think about where we started – struggling with questions like:

- What professional development topic should we pick that would be research-based and meaningful for all of these diverse teachers?
- How will we provide training?
- How and when will we work together?
- What technological tools do we need?

– I come to the conclusion that as a team we made great progress.

By the end of the project all of our teachers were able to implement and evaluate project-based learning as a teaching method in their classroom, all of our teachers collaborated with peers and reflected on best teaching practices and every member of the Instructional Design Team participated in the design, use and evaluation of new technologies. We also laughed together, grumbled together and became a supportive educational community.

We accomplished professional development and the teachers (for the most part) never left their schools – some stayed right in their classroom. Additionally, the teachers could access support right in their classrooms by videoconferencing with a peer or mentor. This is a new model for teacher professional development.

The current "state-of-the-art" for teacher PD is the one day workshop or conference. These forms of PD can be successful, however, they remove the teacher from the classroom and are not always a perfect fit in terms of the type of PD the teacher needs. Workshops rarely have ongoing classroom support.

Research tells us that quality professional development models directly link the teacher learning to what the students are learning. The professional development activity must be directly relevant to the classroom. In LearnCanada we linked the professional development directly to (and in) the classroom. But, educators are so used to the current models of PD that activities directly relevant to the classroom are sometimes not recognized as meaningful professional development.

A visiting administrator with a few teachers observed a LearnCanada PD session (videoconference) from one of the school sites. Their comments reflect the current thinking about teacher PD:

> *It's great to see teachers sharing what they are doing in the classroom with other teachers. They look like they are enjoying the interaction. But, I don't see this as teacher professional development; it's more of a teacher support group.*

Our Instructional Design team collaboratively learned how to teach using project-based learning. The learning was supported and shared throughout the project. The learning was implemented within the classroom. These are qualities of good professional development.

As an educational community, we need to develop, evaluate and share new research-based models for effective teacher professional development. Furthermore, the developments in communications technologies provide great hope and opportunities for the research and development of these new professional development models. LearnCanada was a good start.