FINAL REPORT

SURVEY OF CANADIAN FACULTIES OF EDUCATION

Submitted to:

SNAB Working Group on Professional Development

Prepared by:

Centre for the Study of Computers in Education, York University

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March 10, 1999

INTRODUCTION

Background

At its meeting on November 26-27, 1998, the School Net National Advisory Board (SNAB) established a working group structure whose role is to bring forward strategies and recommendations in response to the multi-dimensional challenges of integrating information and communication technology (ICT) into all Canadian schools. At this time, the Working Group on Professional Development, co-chaired by Stan Shapson and Gerald McConaghy was established. As part of the mandate of this Working Group, it was decided to conduct a survey of faculties of education. In preparation for this study, a request was made at the November 28, 1998 meeting in Ottawa of CADE/AFDEC, the English and French National Associations of Deans of Education, to identify a faculty member at their institution to serve as the contact person/information source for the SNAB Working Group. The Centre for the Study of Computers in Education (CSCE) at York University assumed responsibility for the study. Given the short timelines and to maintain arms-length as the Faculty of Education at York University was to be included in the survey, the CSCE selected researchers at the Education Quality and Accountability Office (EQAO) of Ontario to conduct the survey.

Purposes of the Survey

The general purpose of the survey was to identify exemplary practices and models of the use of ICT, including on-line delivery of courses, and to identify barriers and gaps that faculties of education face in developing programs to help pre-service and in-service teachers integrate ICT into teaching and learning. It was expected that the SNAB Working Group would use the results of this survey to help generate recommendations on how the School Net program could be improved and how it could partner with the relevant stakeholders to meet perceived needs.

METHODOLOGY

The sample of faculties of education to be involved in the survey was identified through a straightforward and efficient process. Of the approximately 35 Canadian faculties of education, a total of 21 English and French language faculties whose deans were represented at the November 28th CADE/AFDEC National Meeting in Ottawa agreed to participate. Because of the short time lines, none of the remaining Faculties (n=14) were contacted to participate in the study.

The Working Objectives of the SNAB Working Group on Professional Development served as the Terms of Reference for this project and provided the underlying principles for the survey.

The research staff drafted survey questions related to the topics listed in the Terms of Reference. Revisions to the draft survey questions were made in consultation with the CSCE and Stan Shapson, Co-Chair of the SNAB Working Group on Professional Development of Educators and Past President of the Canadian Association of Deans of Education (CADE). (The Terms of Reference and the survey can be found in Appendices B and C respectively.)

The research staff was provided with the list of contact people, covering all of the 21 selected faculties of education who could respond to the survey from the point of view of their corresponding faculties. A letter cosigned by Elise Boisjoly, Executive Director, School Net Program, and Stan Shapson was faxed to each faculty contact person prior to the commencement of the survey. The letter introduced the study and members of the research team that would be telephoning faculty contacts. Prior to telephone contact, the research team e-mailed or faxed copies of the survey questions to faculty contacts to allow them to become acquainted with the topic and issues involved.

The survey was conducted by telephone during February 1999. The interviews lasted approximately 20 to 30 minutes each. Of the 21 Faculties represented at the CADE/AFDEC meetings, 18 participated in the survey. For a variety of reasons, the remaining three Faculties did not respond despite numerous telephone callbacks and e-mail messages initiated by the research team. (Refer to Appendix A for a list of faculties that participated in the survey.)

Although the faculties of education involved in this study were not randomly selected, there was good geographic and linguistic representation from across Canada: participating faculties represented seven provinces from all regions of Canada; and three Francophone institutions were included.

The data from the survey were summarized across all participating faculties of education and breakdowns by level (*i.e.*, pre-service, in-service, graduate) were done where appropriate.

FINDINGS

The following findings, organized by survey question, summarize the information gathered by the School Net telephone survey.

Q.1 Is there a formal policy on the use of ICT in teacher education?

9 faculties responded Yes; 9 responded No.

Half the universities report having a formal policy. However, many of those who said they have a formal policy said they do so "in a sense." Only four universities report a definite yes (these are the University of Western Ontario, University of Ottawa, McGill University, and University of Toronto (OISE/UT)).

The University of Western Ontario policy reads: "to determine expectations and recommendations aimed at faculty members on use of ICT; to help students by having a university program on hardware acquisition; to promote cross-curriculum projects." The educational policy at OISE/UT is to integrate ICT education in all courses. Rather than offering a single specialty course, it is encouraged that all instructors develop connections between their courses and the effective uses of educational technology. At the University of Ottawa the policy is in general to move toward the use of ICT in both course content and structure. At McGill University the policy reads: "In attempting to fulfill its mission, the Faculty will endeavor to use, whenever appropriate and possible, information technology to enable and support its teaching, research and service activation." (Note that copies of the policy statements were requested from faculties, however none were received by the time of submission of this report.)

Q.2 Does the faculty provide teacher professional development and training programs on integrating ICT in curriculum and student learning?

At pre-service level: 4 faculties responded No; 14 faculties responded Yes

At York University and University of New Brunswick, no specific courses are offered, but ICT is integrated into as many courses as possible. At Concordia University and the University of British Columbia, there are no courses offered at the pre-service level. At Brock University, there is teacher training for combined math-science technology and a course for the use of information technology in broad-base technologies. This is mandatory for all students and is 40% on-line. At other universities, a number of courses are offered. Some courses are geared toward the integration of computer technology into learning and teaching; others teach basic ICT skills. For example, at the University of Winnipeg a Web-based on-line course delivery system called UWIN Online has been established. It is based on Simon Fraser's Virtual University and makes it easy for instructors to set up on-line resources for courses. At OISE/UT there are a number of specific computer technology courses, but the faculty is trying to embed ICT education across the curriculum (this is reflected in the policy). The trend here is to shift responsibility of teaching

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basic ICT skills like computer processing, spreadsheets, and databases to non-credit computer workshop courses. However, these basic skills are still being taught by the faculty.

At in-service level: 12 faculties responded Yes; 4 responded No; and 2 do not mention anything

Addu ...unal Qualification and continuing education courses are offered by a number of universities (York, OISE/UT, Brock, Lakehead, Ottawa, and University of Western Ontario) specifically, Computers in the Classroom parts 1, 2, and 3. Other universities offer workshops and seminars or non-credit courses from departments supporting ICT like Education Commons at OISE/UT or Information and Instructional Technology Services at Concordia University. McGill University offers a certificate in Educational Technology through Distance Education, as well as, a site-based course in the use of ICT and its integration into the curriculum. There are no prograns available at Université de Montréal at the in-service level.

At the graduate level: 10 faculties responded Yes; 1 responded No; and 7 do not mention anything

The University of New Brunswick, University of Winnipeg, University of Regina, Queen's University, Concordia, McGill, and University of Ottawa mention no courses offered at the graduate level. Others offer ICT-related courses. There are also on-line discussions available for graduate students. The universities of York, Laval, McGill, Calgary, and Texas are collaboratively offering an on-line graduate course in educational technology.

Q. 3 Examples of best practices in integration of ICT in your faculty

(1) Specific pre-service or graduate level courses that are offered

Many faculties (72%) name specific courses and/or projects as examples of good practice. For example, at York University, Writers in Electronic Residence (WIER) is offered where teachers and pre-service teachers are in contact with professional Canadian authors. At Lakehead University, instructors often incorporate ICT in their teaching (e.g., SPSS in sociology, Logo for windows in math and Statscan in geography). At the Universivy of Ottawa, students are encouraged to reflect on how the use of technology changes how we deal with information. Other examples found at OISE/UT are on-line assignments often completed at all levels (pre-service, in-service and graduate); these include accessing electronic artifacts or creating electronic artifacts (electronic portfolios). There are also on-line student workshops at pre-service level where students work in small groups (communicating electronically) to solve problems and develop electronic resources. Multimedia is examined through the perspective of multiple intelligences and teaching students through multiple modalities. Malaspina University College describes an o erall sense of sequence where all the skills developed throughout the courses are combined. All the skills are used at different times to different degrees so recognizing the sequence of the skills is one of the best practices. McGill University's Summer Institute for Technology in Learning is exemplary because it allows pre-service teachers to connect with in- service teachers, to learn communication tools that allow them to maintain a relationship after the institute and is connected to the practicum.

(2) Computer conferencing

Some faculties (39%) report computer conferencing as one of their best practices. Computer conferencing is integrated into courses and also used outside courses by both faculty and students (at pre-service level). There are faculty discussion groups sometimes jointly with pre-service students. Examples of computer conferencing are: at York University, "Kids from Kanata" is an on-line conference linking First Nations classrooms with mainstream classrooms (pre-service) and large computer conferencing in a school principal qualification course (at the in-service level). Some courses offered at OISE/UT have regular class meetings but then maintain an ongoing discussion in an on-line environment. First Class (FCIS) is used to supplement and enhance conventional face-to-face course work at pre-service level. An on-line forum between in-service and pre-service teachers is offered at Laval University. Ideas are exchanged, methods are developed, and help is provided.

(3) Resources available

About 33% of the faculties report the availability of resources as one of their best practices. Classrooms are well equipped; hardware is made available to the faculty; computer labs and support technicians are available. Memorial University of Newfoundland mentions the publication of educational journals on the Web for teachers ("School Prospects") as a good resource for in-service educators. An excellent curriculum centre and library provide resources (software) for both pre-service and in-service educators. The University of Western Ontario notes that the Ontario Educational Software Service provides software, licensed for provincial schools, for all faculties of education in Ontario. The Didactèque at the Université de Montréal is a teaching reference library where educational software is available in CD-ROM format for borrowing by teachers.

(4) Application of ICT into delivery of curriculum and practice teaching

A model for taking available software and applying it to the curriculum is another example of good practice mentioned by 28% of the faculties [in other words, taking common applications like word processing and applying it to a curriculum (*e.g.*, MS Works used in languages); also moving beyond learning the technical skills of word processing and using it as a tool for expression in the language arts and creative writing]. At Lakehead University there are instructors who incorporate ICT into their teaching, for example, SPSS programs are incorporated into the Sociology program; Logo for Windows into the Mathematics program; and Statscan database into the Geography program. Another example is the development of curriculum materials using Web pages. McGill University notes the site-based courses offered by the University to schools. Using the specific tools present in the school ensures the sustainability of a learning community.

Q. 4 What skills are developed?

(1) Technical, technological skills
  - Software use: for example, basic literacy; word processing, spreadsheets, statistics (*e.g.*, SPSS); software analysis and interpretation; software evaluation

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- Internet use: Web page development and browsing
- Multimedia: viewing and representing skills to enhance presentations, *e.g.*, Power Point
- Handling graphics

(2) Research skills - using the Internet as a tool for research as well as database use

(3) Communication skills - for example, e-mail, computer conferencing, and newsgroups

(4) Pedagogical skills - the use of tutorials, the application of new teaching techniques and curriculum development with ICT

(5) Synthesis skills - sequencing and combining skills

(6) Problem-solving skills

(7) Team, collaborative skills - learning together

Note that skills (1) to (4) are mentioned by the majority of faculties. All skills are said to be developed at a "somewhat proficient" to "full level of proficiency" (according to the survey scale).

Q. 5 What are the driving forces behind implementing and sustaining these training programs?

Personalities

A number of faculties state the President or Dean (leadership) as a driving force in initiating ideas and driving action. Others note that the students themselves may demand ICT training. Still others express that often it is certain individuals in the faculties that are the driving force. "It may be due to the interest of people on the forefront; it is their individual efforts and enthusiasm that start things moving." Committees or departments such as the Centre for Study of Computers in Education at York University or the Education Commons at OISE/UT support ICT and are a driving force.

Policies

Policies in general, policies aided by provincial or federal grants, policy from the Ontario College of Teachers and the existence of a computer policy committee are also driving forces mentioned.

Events

Grants or investments are another major driving force. Some faculties describe the pressure from school boards that require graduating students be ICT trained. Also general competition, the new economy, an information society and the changing workplace are all driving forces.

Q. 6a What are the major barriers the Faculty is facing in implementing existing or future ICT programs?

(1) Lack of time

Many faculties express the concern that a major barrier in implementing ICT programs is the lack of time, that is, the faculty's lack of time needed to develop ICT expertise. Also, there is no reward structure to otherwise encourage the faculty members to make time. The demands of the new technology versus the teaching load and research are far too great. There is not enough time to create valid courseware. There is not enough time to do the thinking and organizing required to adequately implement ICT programs.

(2) No one is assigned responsibility

Many report no coordinator in charge of ICT; there is a lack of staff who could support the faculty with ICT. The existing organization of the infrastructure (including administrative staff) does not lend support to change and is not designed for that purpose. One respondent noted that without existing support staff, there is too much dependence on certain faculty members for technical support. The faculty members who are innovative with ICT do so by personal interest, but then there is pressure to do more. When there is staff like the Education Commons at OISE/UT, not all problems are addressed. For example, because of the merger between OISE and UT Faculty of Education, the EC (Education Commons) has been required to focus on infrastructure concerns, and they are only able to deal with some program needs to date.

(3) Lack of money/funding

Many expressed a lack of funding due to cutbacks as a major barrier. Money is required to set up equipment, maintain equipment that is up-to-date and expand the infrastructure. Without money there is a lack of capacity to buy relief time to teach and learn ICT. Also, students do not have the resources to have such programs at home.

(4) Lack of hardware/software

Although a few universities reported no significant problems, many others reported a lack of computers and aging computers as a major barrier. The limitations of old technology and no plans to keep computers up-to-date are a problem. Although there are computer labs set up, the labs have computers varying in age and there is a need for labs with more current technology.

(5) Attitude from some faculty

A general lack of necessary skills, expertise, and motivation on the part of faculty members was also reported as a major barrier.

Q. 6b Possible solutions for existing or future programs?

(1) More staff, personnel

Hiring staff with the responsibility for motivating the faculty to use ICT and helping them in the development of ICT courses that will interest and motivate was given as one solution. The new staff should have a background in education and be technically oriented. Off-loading basic ICT skills to departments that support ICT, like the Education Commons at OISE/UT, is another possible solution. This way, faculty can integrate educational technology in their classrooms and not worry about teaching students the skills. Taking the time to stay focused and be organized by perhaps having a person responsible for this was suggested.

(2) Leadership

Administrators should become aware of the importance of computers and providing necessary budgets. There should be a concerted effort among faculties of education and federal and provincial governments to develop ICT funding programs, policies, and practice.

(3) Money

A large number of faculties report more money and funding as a solution. The funding should be continuous, not a lump sum, where one receives much of it at the beginning, then there is no money left to maintain equipment or expand.

(4) Partnership

Another solution is partnerships with industry and business, e.g., Microsoft, as well as with schools and school boards. York University has a partnership with The Learning Company School Canada to provide software for a preview centre.

(5) Research

Some faculties note that there should be research that demonstrates the value of ICT. This can be used to convince those who are closed-minded. There is a need to develop real successes and publicize them. People need to hear about the good results.

(6) Policy

A more formal policy statement addressing the integration of ICT into teaching and learning is required. There should also be a policy or plan to keep computers up-to-date. In addition, a policy should be developed to address a common vision for the context of learning. Perhaps a dialogue (conference) could be held, or a formal, national forum on ICT should be established/held.

(7) Workshops

Another solution offered was the creation of workshops where there is an exchange of ideas at faculty level and at the teacher's association levels related to pedagogical issues associated with ICT.

Q. 7 What are the gaps?

Infrastructure (hardware, software, maintenance and replacement)

Some colleges and universities report no significant problem here. Others voice a concern about maintaining aging computers and ensuring that there are well-equipped classrooms with equipment such as computer projection to conduct classes.

Technical Support & Training

Many respondents voiced concerns about under-staffing or obtaining support staff for ICT concerns. A few suggest that support staff should have a background in education to meet the faculty's needs. Training of faculty members sometimes becomes a problem because of lack of time. There is a gap in the professional development of teacher educators and other faculty members connecting them with schools and work places.

Policies

A number of faculties report that there is a need for clearer policy statements. There is also a gap between policy and practice. This needs to be addressed.

Partnerships (both public and private sector)

Partnerships with corporations and industry (*e.g.,* Microsoft, Industry Canada, government, and colleges) must be further developed. Two examples cited were Brock University's partnership with the Office of Learning Technologies in Ottawa and York's previous partnerships with IBM Canada and Apple and present partnership with The Learning Company School Canada . Other faculties also report positive relationships with school boards, industries, and business.

Q. 8 Suggestions to overcome barriers and gaps?

Funding

Government funding programs are needed that encourage partnerships and programs that are self-sustaining. Incentives and an investment plans are also needed.

Development of a National Policy

Development of a national policy related to the direction of ICT is needed. In order to accomplish this, one needs to know what is happening in the field. It is therefore suggested that the techniques, infrastructure, and future directions of ICT in the field need to be more closely examined. Possible follow-up might be for Industry Canada to meet with the national associations of deans of education (CADE and AFDEC) to explore priorities and how this may be accomplished.

Personnel/staff

Administrative and technical support staff are needed to address ICT issues.

Resources

Financial resources are needed to support technical staff, as well as hardware and software needs. Also, a plan to keep computers up-to-date is required.

National forum

Bishop's University suggests the creation of a national forum to meet and exchange ideas was put forward as a suggestion. This could be a national body to help reduce redundancy and create a comprehensive technology initiative with a national perspective. The presence of federal and/or provincial governments in such a national body was suggested as a possibility.

Time

It is suggested that time will change the culture; reality will create change. ICT must be understood to be a valuable tool, not a threat to the teaching profession, no matter what the level.

Professional Development

It is suggested that professional development for faculty members connecting them with schools and developing learning communities be addressed.

Q. 9a Does your Faculty carry out research on integration of ICT with curriculum and teaching?

Research is alive and well. Thirteen faculties report they are conducting research on the integration of ICT with curriculum and teaching.

Q. 9b Describe the research briefly.

There is a wide range of research being conducted in the faculties surveyed. Several faculties (*e.g.*, OISE/UT, York, Memorial, Laval, British Columbia) have researchers participating in the

TeleLearning Network of Centres of Excellence based at Simon Fraser University. Much research is being done at York University through its Centre for the Study of Computers in Education that is school- and university-based related to the use of technology in teaching and learning (*e.g.*, word processing and student writing; examining the levels of access to a computer for significant benefits to accrue; formative evaluation of Web-based courses; and the integration of online projects into teacher education). There is also a great deal of research being conducted at OISE/UT. Examples of research are: knowledge-building across local-area and wide-area networks; electronic environments and issues of community; telecommunications as a vehicle for professional development; research in online learning, distance learning and computer conferencing; electronic discourse; and psychological assessments with ICT. The University of Western Ontario notes that the Centre for Exceptional Learning conducts ICT related research. At Brock University, there is research being conducted on comparing face-to-face delivery with online delivery at the junior and intermediate levels. A few universities describe new research focusing on ICT being conducted by graduate students. At McGill University there have been a number of studies looking at the integration of ICT into teaching and how it affects teachers' practice and students' learning. For example, it was found that the collaborative use of ICT within learning projects fosters engagement and knowledge advancement in the classroom and that teacher knowledge is an important condition of successful ICT integration. Queen's University conducts research related to telecommunications in teacher education and the use of computers in education.

CONCLUSION

The purpose of this survey is to assist the SNAB Working Group on Professional Development to develop directions/recommendations to support improvement of the School Net Program. Some potentially valuable data on the current state of integrating ICT into learning in selected Canadian faculties of education were obtained. Lack of time, formal policies, technical support, funding, hardware and software, skills development and motivation on the part of many faculty members were most commonly cited as barriers in implementing existing and future ICT programs. Numerous ideas were offered as solutions to overcome these perceived barriers, including release time for faculty, external partnerships, and special federal and provincial initiatives to encourage greater use of ICT in faculties of education.

APPENDIX A

Faculties of Education that Participated in the Survey:

Bishop's University
Brock University
Concordia University
Lakehead University
Laval University
Malaspina University College
McGill University
Memorial University of Newfoundland
Queen's University
University of British Columbia
Université de Montréal
University of New Brunswick
University of Ottawa
University of Regina
University of Toronto (OISE/UT)
University of Western Ontario
University of Winnipeg
York University

APPENDIX B

SNAB Working Group on Professional Development of Educators

Terms of Reference for the Report on pre-service level teacher

To report on the practices and models used in faculties of education with _pre-service level teachers_ in helping them integrate ICT into learning.

NB. While the emphasis is on pre-service, attention will also be given to the practices and models used in faculties of education with _in-service teachers_ in helping them integrate ICT into learning.

1. Collect reports of exemplary practices and models within faculties of education on the integration of ICT into learning.

2. Contact faculties of education to get information about two kinds of programs to integrate ICT into learning with emphasis on the first: 1) those for pre-service teachers and 2) those for in-service teachers. The purpose is to identify exemplary practices and models, including online delivery. The study should also identify barriers and gaps in faculties of education in developing programs to help pre-service and in-service teachers integrate ICT into learning.

3. On behalf of the Working Group on Professional Development, prepare a final report to be submitted to the School Net National Advisory Board, based on #2 above.

4. Submit the final report to the SNAB Working Group on Professional Development.

Timeline

The final report must be submitted to the SNAB Working Group on Professional Development no later than March 12, 1999.

APPENDIX C

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SCHOOL NET SURVEY
CANADIAN FACULTIES OF EDUCATION

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Name of Faculty: _____ _____
& Institution: _____

Contact Name: _____
Telephone: _____

Background

School Net, a non-profit organization funded by Industry Canada, wishes to conduct a survey of a sample of Canadian faculties of education. The purpose of the survey is to identify exemplary practices and models of the use of information and communications technology (ICT), including online delivery of courses. We also wish to identify barriers and gaps that faculties of education face in developing programs to help pre-service and in-service teachers integrate ICT into learning.

You should have recently received a letter introducing the study and indicating that someone would be contacting you to participate in a telephone survey. We would appreciate your assistance in answering the following questions.

Survey

1. a) Does your Faculty of Education have a formal policy or philosophy on the use of information and communication technologies (ICT) in teacher education?

    Yes _   No _

    If yes, please briefly articulate the policy/philosophy.

    _____
    _____
    _____
    _____
    _____

2. a) Does your Faculty provide teacher professional development and training programs on integrating ICT in the curriculum and student learning?

    Yes _   No _

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b) If yes, please name and briefly describe the programs and identify them as pre-service, in-service or graduate programs.

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v_____
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3. Briefly describe what you would consider to be examples of best practices in the integration of ICT in your Faculty. Please indicate whether they are found in pre-service, in-service or graduate programs.

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4.   For the best practices outlined in question #3, what skills are developed, and at what level
      of proficiency?

Skills	Proficient	Level of Proficiency Somewhat Proficient	Not Proficient
i_____	–	–	–
ii_____	–	–	–
iii_____	–	–	–
iv_____	–	–	–
v_____	–	–	–
vi_____	–	–	–
vii_____	–	–	–
viii_____	–	–	–

ix_____   –   –   –

x_____   –   – –

5.   What are the driving forces (e.g., personalities, policies, events) behind implementing and sustaining these training programs?

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6. a)   What are the major barriers that the Faculty is facing in implementing existing or future ICT programs (e.g., preparedness of faculty members, no one assigned responsibility for this, lack of hardware and software)?

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iii_____
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v_____
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What are the possible solutions for existing or future programs?

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7.   In your opinion, what are the gaps (e.g., what is missing; what would be desirable to
      have)?
      **(Note to interviewers: You may use the categories below as prompts if the respondent
      doesn't provide ideas.)**

      Infrastructure (e.g.,
      hardware, software,
      maintenance &
      replacement):_____

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                     _____

      *Technical Support
      & Training*:_____

                     _____

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      Policies:_____

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      Partnerships
      (both public sector
      & private sector):_____

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                     _____

      Other?_____

                     _____

                     _____

8.   What suggestions do you have to overcome the barriers and gaps?

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9. a) Does your institution/Faculty carry out research on the integration of ICT with curriculum and learning?

                  Yes   _   No   _

If yes, please briefly describe the results/findings of this research.

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10. a) Would you be able to send me a copy of the results/findings of this research (full reports or abstracts)?

                  Yes   _   No   _

If you answered "yes" to question #1, would you be able to send me a copy of the formal policy or philosophy of the use of ICT in teacher education?

                  Yes   _   No   _

If so, please fax this information to (416) 325-6622, or mail it to:
                  EQAO
                  2 Carlton Street
                  Suite 1200
                  Toronto, ON
                  M5B 2M9

Thank you for your cooperation in responding to this survey.