Review of the Technology Enhanced Learning (TEL) Action Plan

FINAL REPORT

Submitted to:

Saskatchewan Learning

EKOS RESEARCH ASSOCIATES INC.

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EXECUTIVE SUMMARY

Background

In 2000, Saskatchewan's post-secondary institutions and Saskatchewan Learning began implementation of a five year Technology Enhanced Learning (TEL) Action Plan. The Plan provides a provincial collaborative framework for decisions around priorities and investments in technology enhanced learning in the post-secondary education sector. In order to examine the relevance, implementation and impacts of the Plan, and to provide input into a renewed strategy, a review of the TEL Action Plan was undertaken. This *Final Report* presents the findings from the study.

Issues

The review addresses the following issues:

> Relevance, flexibility and usefulness of the Plan as a provincial strategy;

> Actions implemented to achieve the vision, goals and priorities within the Plan;

> Impacts and effects of the Plan, including intended and unintended impacts for learners, faculty, and institutions;

> Alternatives, including strengths and challenges of the Plan, and future directions.

Methodology

The methodological approach for the review was based on six lines of evidence, combining both quantitative and qualitative methods, and canvassing the perspective of government and post-secondary institution representatives involved in the management and implementation of the TEL Action Plan, as well as faculty, learners, instructional designers, and outside experts:

> Review of documents and literature

> Key Informant Interviews

> Survey of faculty

> Survey of learners

> Survey of instructional designers and others

> Expert panel

Key Findings

Relevance

> According to experts and the literature, TEL is "here to stay" and indeed demand is expected to increase – offering this mode of delivery is becoming an important element of strategic plans for many post-secondary institution to meet the expectations of students and faculty. Results from this review show that over seven in ten students taking TEL courses agreed there is strong demand from students at their institution for online or televised courses and programs. Two-thirds of Saskatchewan faculty survey respondents agreed that investments in TEL are necessary to attract and retain students at their institution.

> Overall, the components of the TEL Action Plan were appropriate and have continued relevance in the current environment. The components of the Plan reflect many of the "best practices" or trends identified in the literature (e.g., partnerships, sharing of learning objects, incorporation of TEL into institutional strategic planning). Faculty and learner supports are addressing many of the challenges identified in the literature to the effective use of TEL.

> There is broad support for another shared provincial strategy to guide and fund post-secondary institution and government investments in TEL.

> Stakeholders hold the view that the current TEL Action Plan is a sound document, requiring modest adjustment rather than redrafting. Greater focusing of current goals and greater prominence for some of the Plan's existing principles and enablers are areas for attention.

> The TEL Action Plan is aligned with provincial government priorities, though a future iteration of the Plan will need to dovetail with emerging plans and priorities (e.g., the planned update of the province's economic development plan emerging from the Centennial Summit, Saskatoon, January 2005).

> The Plan has been an important catalyst, sparking activity in a new method of teaching and dissemination. The Plan has been fruitful in providing a venue to bring institutions together and helping to strategize around offerings and supports province-wide.

Planning and Implementation

> The Plan has generally been implemented as intended, recognizing that cultural and institutional change can be slow processes. Reasons for this include: (within most institutions) little initial activity/experience with TEL; lack of planning/governance processes in place and slow buy-in on the part of some institutions to support the kind and

pace of change originally envisioned in the TEL Action Plan; and challenges in implementing the collaborative model.

> The establishment of Campus Saskatchewan is a significant achievement of one of the collaborative priorities set out in the TEL Action Plan. It should be noted, however, that some key informants noted the need for prudence in terms of expansion of the mandate of and/or funding for Campus Saskatchewan.

> The target of 200 online courses has also been exceeded (if courses under development are included) and activity under the TEL Action Plan has evolved from a series of often ad hoc projects toward a more programmatic approach to allow students to complete a larger portion of their program through alternative forms of delivery using technology. There has also been significant activity in professional development of faculty and support to learners.

> The most extensive activity under the TEL Action Plan, particularly in the area of content development, has been within the province's two universities and SIAST (these institutions receive the lion's share of the funding and most of the province's learners enrolled in credit post-secondary courses are registered with one of these institutions). The role of the regional colleges is evolving to provide support for online learners, as well as those participating in televised courses.

> The role of the regional colleges has evolved significantly under the TEL Action Plan to support students enrolled in credit courses from the universities and SIAST and in using technology to enhance learning opportunities and services which the colleges are mandated to provide such as counselling and basic education for adults. The Saskatchewan Network of TEL Services is a key vehicle.

> A number of unique and noteworthy initiatives were developed and implemented by Aboriginal institutions under the TEL Action Plan. Still, many Indigenous learners living in remote communities do not yet have access to the technological infrastructure required for online courses. For Aboriginal institutions, these smaller scale operations, limited technological infrastructure and stretched human resources have made full participation a challenge. The corporate priority is on face-to-face instruction to serve their learners. Nevertheless, institutions have made appropriate use of TEL funds and expect to continue to play a role in the future.

> Learners and faculty who have participated in TEL are generally pleased with their experience and the experience has led to benefits in several areas. For students, TEL attracts an older student base and a significant portion of off-campus students. TEL has provided needed flexibility to balance education with other concerns such as work, family or course scheduling. TEL does not appear to have a negative impact on completion rates or students' academic performance. The views of on- and off-campus students are quite different in terms of motivation, demand for TEL and their experience of benefits, as are those of adult or non-traditional part-time students.

> The cadre of faculty currently involved in TEL represents a modest proportion of instructional staff overall. For faculty, benefits are perceived to occur for students in providing flexible options and an enhanced learning experience. Workload is the most significant barrier to participate in TEL and faculty have mixed views about their institution's support for TEL. Instructional designers (IDs) tend to provide more positive ratings than faculty in terms of the benefits of TEL, institutional support and future demand.

> Post-secondary institutions contribute significant resources to complement TEL Action Plan funds. Participants are, for the most part, comfortable with the current funding approach or at least recognize the difficulties in changing the status quo. Only a few would like to see TEL funds rolled into base budgets; however, beyond this, there is little consensus about change (the varied opinions include Saskatchewan Learning adopting a more prescriptive approach to funding decisions, linking funding allocation to deliverables or to more specific objectives, introducing funding caps for course development projects). In the longer term, sustainability of courses is an issue as institutions try to meet the costs of maintenance and upgrading of existing courses.

> With respect to efficiency, lack of a strategic approach in incorporating TEL into institutions' plans and priorities, together with weak project management within the institutions in some instances served to undermine efficiency early in the life of the Plan. Efficiency is perceived to have improved with experience and several ideas have emerged around potential opportunities for collaboration among institutions that would have positive impacts for efficiency (e.g., sharing of digital content, economies of scale in purchasing, streamlining administrative processes).

> In terms of monitoring, Saskatchewan Learning and the institutions have put in place processes to track all projects receiving TEL funding since 2000-01. The Department is seen to have been quite responsive to the suggestions of institutions to adjust the reporting requirements. At the same time, detailed and consistent data from the early years of the TEL Action Plan are weak. As well, it is difficult to assess progress of the Plan toward meeting all objectives with the data that are collected (e.g., participation of First Nations and Métis people in TEL courses is not available). Research into the effectiveness of TEL and impacts, in particular for learners, has not been undertaken in any extensive way.

Impacts and Effects

> The impacts on capacity within institutions have been significant, with the three largest institutions building and supporting organizational units to house their TEL activities, with specialists such as instructional designers available to support faculty. Aboriginal institutions and regional colleges have also developed capacity in this area. In the last

year, a requirement of funding for the largest post-secondary institutions has been the preparation of institutional plans showing priorities and actions for TEL and how they relate to the broader corporate strategic plans.

➤ The Plan has had important impacts in laying a foundation for inter-institutional collaboration in the area of TEL. Campus Saskatchewan, with a Management Board and associated working committees has been established. As well, there have been many examples of joint projects and efforts in areas pertaining to content development (e.g., Prairie Studies), faculty development and learner support (conferences, training activity, annual forums), and student services (e.g., admission forms). An unintended impact, the TEL Action Plan has fostered momentum in addressing province-wide credit transfer for both TEL and traditional courses and programs.

➤ There are indications that the TEL Action Plan is contributing to addressing the four goals set out for the Plan. While TEL certainly provides another option for rural and northern residents and for First Nations and Métis students to participate in PSE, the "penetration" of this mode is difficult to assess. Professional development activities and support for learners and faculty has undoubtedly led to increased skills, though impacts on the retention of faculty and graduates and on economic development of the province are unknown.

Implications

➤ There is a desire for another shared strategy for TEL in Saskatchewan, one that advances and capitalizes on the province's and institutions' foundational experience to date. This agenda would guide public investments in TEL to take the province to the next level of collaboration and capacity, and focus attention on selected key strategic areas. A future shared strategy should incorporate and extend the many strengths of the current Plan, such as the emphasis on a collaborative model and continued inclusion of faculty development and learner supports to ensure effective development and delivery of TEL content. The continuing evolution of the collaborative model needs to acknowledge and clarify the respective roles and responsibilities of the department and the Campus Saskatchewan Management Board (CSMB) for ongoing leadership and coordination of the TEL Action Plan.

➤ Among the areas for further consideration is whether the goals of the Plan (e.g., on-/ off-campus distinction) continue to be meaningful, and then to forge a closer link between the goals of a new shared strategy, institutions' academic plans and priorities, and funding decisions. Key principles that have been highlighted include accessibility, learner-centred focus, research-based and accountability. Identifying appropriate areas for specialization and niche expertise may also be useful, given the province's size.

›   Some of the spheres of action outlined in the original document were not vigorously pursued, but remain valid. These include, for example, meeting the lifelong learning needs of non-traditional learners, a closer linkage between TEL activity and the needs of the labour market and evolving economy, and an interjurisdictional focus that could include greater activity outside of provincial boundaries and outside of post-secondary boundaries (e.g., with the K-12 system). There are also new areas such as the Saskatchewan Learning Exchange and co-ordinated procurement that have garnered attention and interest. All of these are consistent with areas identified in the literature as important for the effective use of TEL.

›   The programmatic approach to content development is an important thrust, one that is strongly supported by off-campus students themselves and could be expected to improve the sustainability of TEL courses over time. The programmatic approach has also been identified as a "best practice" in the literature. Challenges will be to identify the "best" programs for TEL delivery based on effectiveness, demand, and institutional academic policies and priorities. Dovetailing faculty interest with a programmatic approach in content development will be a further challenge.

›   The feedback from learners does not point to any significant issues with respect to learning outcomes: discontinuation has not been problematic, nor has student performance (as measured by self-reported grade). Non-traditional, part-time learners value the enhanced flexibility offered by TEL and, in general, demonstrate greater enthusiasm for this alternative mode of delivery than other participants.

›   There has been significant activity and significant pressures on the area of faculty development – the level of support to faculty in developing and delivery TEL courses cannot be underestimated. Research has found faculty to be less enthusiastic and more conservative in their views on TEL than students. In fact, the numbers of faculty actively involved in TEL in an intensive way, such as teaching full courses online, is quite small in relation to the full complement of instructors. Broadening engagement will be a key issue and encouraging faculty interest beyond the cadre of "early adopters" will further underline issues related to workload and technical support. Finally, the review reflects other research indicating that faculty incentives and recognition for participation in TEL are barriers to full engagement of faculty (though this deeply entrenched reward and promotion system within institutions will not be easily amenable to change).

›   In terms of organization, the process of articulating the role of the regional colleges is ongoing. The needs of TEL learners in rural and northern Saskatchewan must be identified and taken into account to ensure success. There may be implications for funding, however, as these needs are understood and addressed (e.g., for infrastructure, staff training, tutor support, extended hours of service).

> Fuller engagement of Aboriginal institutions and addressing the needs of Aboriginal learners are important considerations for the future to ensure that participation and capacity building continues apace for this group.

> The current reporting regime does not support a full assessment of impacts. Administrative data have improved but suffer from varying institutional definitions of some key concepts (such as distinctions between on and off-campus students). Developing and implementing performance measures must be balanced against the reporting burden of institutions. Some experts noted the need for clear indicators of success and research on quality and outcomes (e.g., developing a research base on what works best for students, incorporating scholarly work into TEL development, course/resource development supported by formative and summative evaluation). Full assessment of impacts on learning would require support for evaluative research which is much more demanding and costly than the compilation of administrative data. This type of information could be valuable, however, in supporting well-informed decision-making about TEL and guiding change that is system-wide.

> Dissemination of the products related to TEL – planning documents, deliverables, learning objects, research results – made widely and publicly available both within and outside of institutions is a best practice to ensure knowledge is transferred throughout institutions and across the PSE system.

1. INTRODUCTION

In 2000, Saskatchewan's post-secondary institutions and Saskatchewan Learning began implementation of a five year Technology Enhanced Learning (TEL) Action Plan. The Plan provides a provincial collaborative framework for decisions around priorities and investments in technology enhanced learning in the post-secondary education sector. In order to examine the relevance, implementation and impacts of the Plan, and to provide input into a renewed strategy, a review of the TEL Action Plan was undertaken. This *Final Report* presents the findings from the study.

1.1 DESCRIPTION OF THE TEL ACTION PLAN

a) Background

The Technology Enhanced Learning (TEL) Action Plan was established by post-secondary institutions and Saskatchewan Learning in 2000 as a province-wide collaborative framework for guiding priorities, activities and investments in technology enhanced learning. The vision of TEL states "Saskatchewan's post-secondary education and training sector works collaboratively to make appropriate use of technology to serve the learning needs of all residents of the province by enhancing the quality of programs and extending access". The Plan had a five-year time frame, 2004-05 being the last year.

The creation of the TEL Action Plan in 2000 was the culmination of a lengthy process of consultation within Saskatchewan's post-secondary sector, and was founded on a history in the province of using technology to expand learning opportunities.[1] The goals for the TEL Action Plan and many of the Plan's key elements were sketched out in the late 1990s by the academic Vice-Presidents of the universities and SIAST in discussions with the Deputy Minister of the former

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[1] For example, the Saskatchewan Tele-Learning Association (STELLA), formed in 1986 by the two universities, technical institutes, community colleges, and provincial departments was instrumental in securing a federal-provincial agreement to build an advanced telecommunications network, using fibre optics, telephone, and satellite television, to provide access to education and information for Saskatchewan people. This network was formally established as the Saskatchewan Communications Network (SCN) in 1989. Later, the Distance Education Program Review Committee (DEPRC) served as an advisory committee to coordinate the delivery of televised and audio conference courses through SCN's satellite training network and to advise on provincial strategic directions for distance education. The provincial Multimedia Learning Strategy, launched in 1995 augmented services to integrate new media technologies for a more flexible "multi-mode" approach to enhance instruction.

Department of Post-Secondary Education and Skills Training. A consensus emerged that the government and the institutions should take collective action to enhance quality and increase access to post-secondary education through effective use of technology. The senior administrators recommended that a collaborative approach was the most effective means for the institutions to make progress considering the challenges facing Saskatchewan as a small province with limited resources.

A planning session was hosted by the department in May 1997 with participants representing the universities, SIAST, regional colleges, Métis and First Nations institutions, the provincial library, the department and other government agencies, to develop directions for the future of technology in post-secondary education. The need for collaboration among the partners was a major theme at this session and there was agreement to establish an inter-institutional working group to draft a new policy framework. The resulting document identified a vision, principles and key priorities for province-wide coordinated action to enhance learning through use of technology. This policy framework eventually became the foundation for discussions among senior administrators and the drafting of the TEL Action Plan.

Both of the Reviews of the Regional Colleges and SIAST, produced in 1999 and 2000, gave added force to directions for integrating the use of technology to meet future needs and challenges. The Regional Colleges Review recommended that the colleges work collectively to develop a network of technology enhanced learning centres to provide access and support for people in rural and northern communities who wished to take advantage of the growing array of post-secondary education and training opportunities becoming available through information and communications technologies. The SIAST Review recommended implementing the institution's Virtual Campus plan, "as part of the provincial technology-enhanced learning strategy and in collaboration with other post-secondary institutions in the province, to increase accessibility, quality, retention, and responsiveness to the needs of learners, employers and communities."

b) Definition of Technology Enhanced Learning

The term technology enhanced learning as defined in the Memorandum of Understanding for the Campus Saskatchewan partnership encompasses the use of "a variety of information and communications technologies to provide flexible, high quality learning opportunities for both on and off-campus students. Technologies include, for example, the Internet and Web-based applications, video and audio conferencing, CD-ROMS, videotapes and interactive television....Technology enhanced learning can be used to offer wholly 'virtual' online opportunities, can be multi-mode, employing a combination of technologies, or can be integrated with traditional classroom instruction or independent study courses."

The TEL Action Plan built on the experience in the province with interactive television and multimode projects, broadening the prior focus to include use of online technologies and

applications which were rapidly becoming available with the emergence of the Internet. The term and definition of technology enhanced learning were intended to place emphasis on learning, rather than technology as the driver, and on strategic use of different technologies as appropriate to learner needs and instructional objectives.

c) Principles, Goals and Enablers

The Action Plan is based on principles that include:

> Equity – TEL should strive to ensure access to educational opportunities, regardless of the learner's place of residence, socio-economic circumstances or demographic characteristics.

> Quality – Use of technology in post-secondary education and training should reflect content and instructional strategies that meet accepted academic, pedagogical and industry standards.

> Choice – TEL should lead to more flexible, responsive, relevant and timely programs and services to meet individual and labour market needs by providing greater choice in content or programs and multi-mode access.

> Coherence – Developments in TEL should contribute to creating a coherent and integrated delivery system and program array for post-secondary education and training in the province to increase opportunities and mobility for learners and to make the best use of resources.

> Sustainability – A technologically enhanced learning environment should be sustainable in the long term, supported by organizations on an ongoing basis within available resources.

> Partnerships – Partners in education and training, industry, communities, and telecommunications organizations should work together on the basis of mutual interests, complementary strengths and shared responsibilities for meeting the learning needs of Saskatchewan people.

The four goals that have been identified for the TEL Action Plan are described below.

1. Advance Education and Training in Rural and Northern Communities:

TEL will contribute to addressing the needs of rural and northern residents for affordable, flexible access to post-secondary education and training in their home communities and to preparing a skilled work force for building a stronger, more diversified rural and northern economy. TEL will support community and regional efforts to extend learning opportunities based

on identified needs related to social and economic development, building the capacity of communities to improve their sustainability and quality of life.

2.   Enhance First Nations and Métis Peoples' Education and Training:

TEL will be used to increase access to learning opportunities for First Nations and Métis people, using curriculum and learning models that are relevant to the cultural context, needs and preferences of First Nations and Métis peoples and communities. The provincial post-secondary sector will work together with First Nations and Métis institutions to enhance their capacity for TEL and to develop programs, resources, instructional strategies and delivery methods that support First Nations and Métis participation and success in post-secondary education and training.

3.   Develop and Retain Students, Graduates and Faculty For A Knowledge-Based Society:

TEL will be used to develop and retain knowledge, expertise and skills in the province. Applications will assist Saskatchewan people and industry to prosper in a knowledge-based society where high levels of technological literacy, innovation and advanced skills are essential throughout the population. The attractiveness and reputation of Saskatchewan's post-secondary sector will be enhanced by incorporating TEL in ways that enrich curricula and learning environments. This in turn will contribute to attracting expert faculty, researchers and students.

4.   Develop Saskatchewan's Intellectual Capital:

TEL will be a means for developing Saskatchewan's intellectual capabilities in information technologies and in a range of niche specialties where the province's post-secondary sector can achieve national and international stature for its programs and services. Research and development in the province will be strengthened by using TEL to attract private and public sector investment for creating new information technology products and applications for export markets, as well as for educational purposes in the province. TEL will complement provincial efforts to develop strategic knowledge-based and value-added industries that build on our unique strengths in the global economy.

To meet these goals, the Plan identifies a number of "enablers". The enablers are intended to contribute to the realization of each of the goals and to identify spheres of action that need focused attention, coordinated effort and sustained investment, including:

1. *Develop TEL Content and Instructional Strategies* – Build on existing capacity and models of delivery to support development of courseware and instructional strategies using information and communications technologies. A target of developing at least 200 online courses based on provincial, regional and industry sector priorities was established.

2. *Faculty Development and Support* – Provide opportunities for faculty development and support in using technology to design and deliver courses, using a multi-faceted approach including technical training and support, tools for integrating technology into teaching and learning, and participation in evaluation and research on best practices.

3. *Learner Support Services and Networks* – Provide academic and technical support for learners to participate in TEL opportunities. Academic support includes counselling in course/program selection, tutoring support for independent learning, access to library resources, and interaction with instructors and peers. Technical support includes access to computers, the Internet and other telecommunications technologies, help desk services and computer skills.

4. *Management and Coordination* – Build on existing cooperative mechanisms to ensure system-wide collaboration involving a broad range of stakeholders in implementing and managing the TEL Action Plan.

5. *Linkages with Industry, Communities and Other Organizations* – Encourage partnerships with organizations beyond the provincial post-secondary sector, such as industry and communities, to strengthen institutional capacity and relevance in TEL applications and to pursue joint interests with these organizations where mutual benefits are possible.

Actions and initiatives supported by the TEL Action Plan are elaborated in more detail in the next chapter (Section 3.1).

d)   Actions

The TEL Action Plan identifies both institutional priorities (taking into account that organizations within the sector will undertake plans and actions related to TEL to meet diverse needs and mandates) and strategic collaborative priorities (areas to be addressed for the post-secondary sector as a system).

Institutional priorities include the specific plans and actions that individual institutions will undertake to incorporate and advance TEL within their particular setting, guided by the framework of the TEL Action Plan. In addition, the Plan provides a shared framework for institutions to coordinate their individual plans and work towards the same ends using means appropriate to their circumstances.

Strategic collaborative priorities include joint initiatives that address major issues and challenges facing faculty and learners. The strategic collaborative priorities identified in the TEL Action Plan include:[2]

> ❯ Establishment of a Virtual Campus (Campus Saskatchewan) to facilitate access to TEL courses and programs for learners, featuring a "one-stop" web-site. Other issues identified for a Virtual Campus were credit transfer, streamlined admission processes/registration processes and links to other student services.

> ❯ Network of Technology Enhanced Learning Services to support learners via enhanced academic and technical supports. Regional colleges would take a lead role in supporting learners in rural and northern areas.

> ❯ First Nations and Métis partnerships to ensure that Aboriginal institutions are included to meet the goal of enhancing education and training opportunities for First Nations and Métis people.

> ❯ Inter-provincial, national and international initiatives to pursue out-of-province opportunities (e.g., joint projects or programs, courses/program for export markets)

> ❯ Inter-Institutional Faculty Development to increase faculty comfort level and skills in TEL, while meeting common needs and complementing institutional activities.

Strategic collaborative priorities are supported by Campus Saskatchewan, an organization established by post-secondary institutions and Saskatchewan Learning in 2002-03. Campus Saskatchewan is a partnership that supports the institutions in developing and advancing inter-institutional initiatives to achieve shared goals and priorities for the use of technology in learning, as identified in the TEL Action Plan. Campus Saskatchewan involves sixteen member institutions, including the province's two universities, the Saskatchewan Institute of Applied Sciences and Technology (SIAST) (with four campuses), eight regional colleges and four First Nations and Métis institutions. Saskatchewan Learning is an *ex officio* member of Campus Saskatchewan. The partnership is governed by the Campus Saskatchewan Management Board (see below). The Campus Saskatchewan office is situated at the SIAST Wascana Campus.

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[2] Note that a sixth strategic collaborative priority, TEL Consortium, was merged with the Virtual Campus to become the Campus Saskatchewan Management Board.

e) Partners

In addition to Saskatchewan Learning, the key partners in the TEL Action Plan are:

▸ *Universities*: there are two in the province – University of Saskatchewan (U of S) and University of Regina (U of R) - along with associated colleges;

▸ *Saskatchewan Institute of Applied Sciences and Technology (SIAST)*: SIAST has four campuses around the province involved in offering certificate/diploma technical education, Basic Education, Apprenticeship and other training programs, as well as supporting training through partnerships with the regional colleges and First Nations and Métis institutions, the universities (credit transfer arrangements and extension university courses) and private training colleges;

▸ *Regional Colleges*: There are eight Regional colleges serving communities in rural and northern Saskatchewan, and they offer a variety of programs and services including brokered credit courses programs from the universities and SIAST, Basic Education, Apprenticeship and work-based training, and industry and community education.

▸ *Institutions serving First Nations and Métis Peoples*: These are the First Nations University of Canada, the Saskatchewan Indian Institute of Technologies (SIIT), and the Gabriel Dumont Institute and Dumont Technical Institute (GDI/DTI).

f) Management and Resources

With the launching of the TEL Action Plan in 2000-01, the province began providing new funding support to the institutions to implement TEL priorities within their organizations and to undertaken collaborative or inter-institutional initiatives. Over the five year term of the Plan, approximately $17 million has been made available from Saskatchewan Learning.[3] The following tables show total TEL funding by institution and by priorities.

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[3] An additional $1.4 million was allocated from the Centenary Fund to SIAST and the regional colleges for infrastructure costs associated with implementation of their TEL Plans.

Table 1.1: TEL Funding Total 2000-05 by Priorities

Priorities	2000-01	2001-02	2002-03	2003-04	2004-05	Total
Content Development	$1,000,000	$2,369,000	$2,400,666	$1,788,062	$1,655,600	$9,213,328
Learner Services	$0	$535,000	$590,333	$448,583	$353,661	$1,927,577
Faculty Development	$455,000	$565,000	$595,000	$510,580	$554,414	$2,679,994
TEL Network of Services	$0	$400,000	$400,000	$400,000	$400,000	$1,600,000
Inter-Institutional/Campus Saskatchewan	$201,000	$287,000	$107,570	$153,775	$328,909	$1,078,254
Other	$0	$0	$62,431	$150,000	$158,416	$370,847
Total	$1,656,000	$4,156,000	$4,156,000	$3,451,000	$3,451,000	$16,870,000

Source: Saskatchewan Learning

Table 1.2 TEL Funding Total 2000-05 by Institution

Institution	2000-01	2001-02	2002-03	2003-04	2004-05	Total
University of Regina	$485,000	$967,000	$1,018,333	$812,629	$761,740	$4,044,702
University of Saskatchewan	$485,000	$1,166,000	$1,218,333	$971,967	$910,195	$4,751,495
SIAST	$485,000	$967,000	$1,019,333	$812,629	$761,740	$4,045,702
First Nations University of Canada	$0	$104,000	$110,000	$100,000	$100,000	$414,000
SIIT	$0	$100,000	$110,000	$100,000	$100,000	$410,000
GDI and DTI	$0	$100,000	$110,000	$100,000	$0	$310,000
Regional Colleges	$0	$465,000	$400,000	$400,000	$400,000	$1,665,000
Campus Saskatchewan and Inter-Institutional	$201,000	$287,000	$107,570	$153,775	$328,909	$1,078,254
Other	$0	$0	$62,431	$0	$88,416	$150,847
Total	$1,656,000	$4,156,000	$4,156,000	$3,451,000	$3,451,000	$16,870,000

Source: Saskatchewan Learning

In addition to the new TEL funding shown above, the province has continued to support the SCN (Saskatchewan Communications Network) satellite network and televised instruction. A total of $7.2 million has been provided over five years from 2000-05 to the universities, SIAST and regional colleges to develop and deliver televised courses and to operate "receive sites" where students could participate in these opportunities.

Implementation of the TEL Action Plan was initially guided by the TEL Steering Committee made up of senior representatives from the institutions, and chaired by the Deputy Minister of Saskatchewan Learning. In consultation with the institutions, the department established processes for administering components of the Plan and associated funding. For example, program criteria and processes were set up to determine TEL content development priorities and to select specific projects proposed by the institutions. A number of ad hoc and

standing committees were put in place to lead various aspects of the Plan, such as the Faculty Development and Support Committee, the Learner Services Committee, the TEL Institutions Working Group, the Regional Colleges Network of TEL Services Committee, the Academic Preparation Sub-Committee, and the Policy Sub-Committee.

A formal Memorandum of Understanding (MOU) was signed in 2003 to establish the Campus Saskatchewan partnership, to be governed by a Management Board (CSMB). The responsibilities of the CSMB are summarized from the MOU as follows:

> Lead development and implementation of inter-institutional policies, plans and initiatives;

> Oversee Campus Saskatchewan operations including committees and staff to support the Board;

> Advise Saskatchewan Learning on the allocation of TEL funding to support CS operations, inter-institutional initiatives, and institutional priorities.

The former TEL Steering Committee was replaced by the CSMB and the new board formally established terms of reference and membership for three working committees: Policy, Programs and Planning (PPP), Faculty Development and Support, and Learner Support Services. Each of these committees, with chairs reporting to the CSMB, was given a renewed focus in their terms of reference. Saskatchewan Learning is represented on the CSMB and the committees in an ex officio capacity. The committees play a key role in identifying, developing and carrying out inter-institutional priorities with coordination and support from the Campus Saskatchewan office.

The department continues to be responsible for the overall coordination and implementation of the TEL Action Plan and decisions with respect to the use of funding. The department has implemented processes to require institutions to prepare plans for TEL, showing how funding from the province will be used to achieve their specific objectives. Accountability is managed through an annual reporting process.

1.2 REVIEW OBJECTIVES AND ISSUES

The objective of the research is to review the TEL Action Plan for purposes of assessing the relevance, implementation and impacts of the Plan, now that the Plan is in its final year. The study reviews the experience and results gained over the past five years and possible future directions. The review addresses the following issues:

> Relevance, flexibility and usefulness of the Plan as a provincial strategy;

> Actions implemented to achieve the vision, goals and priorities within the Plan;

> Impacts and effects of the Plan, including intended and unintended impacts for learners, faculty, and institutions;

> Alternatives, including strengths and challenges of the Plan, and future directions.

A list of the detailed review questions is presented in Appendix A, including the data sources used to address each question.

1.3 METHODOLOGY

The methodological approach for the review was based on six lines of evidence, combining both quantitative and qualitative methods, and canvassing the perspective of government and post-secondary institution representatives involved in the management and implementation of the TEL Action Plan, as well as faculty, learners, instructional designers, and outside experts.[4]

> *Review of Documents and Literature*. Program documents and data from the 2003-04 TEL Reporting Template were reviewed to provide context for the study, understand the development of the TEL Action Plan and describe initiatives and activities under the Plan. Research pertaining to TEL carried out by Saskatchewan PSE institutions and other general literature on the rationale, implementation and scope of technology enhanced learning were also reviewed. A list of documents and literature is included in Appendix B.

> *Key Informant Interviews*. A total of 20 key informant interviews with 24 respondents was conducted with TEL Action Plan staff, partners and

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[4]   A more complete description of the methodology, including data collection instruments is available under separate cover: *Review of the TEL Action Plan: Revised Draft Workplan and Research Design Report*, 2004.

stakeholders in order to solicit their opinions and observations on the review issues. Respondents included Saskatchewan Learning and Campus Saskatchewan officials, representatives from the Campus Saskatchewan Management Board and members of the Policy, Programs and Planning committee, Faculty Development and Support Committee and Learner Support Services Committee.

› *Survey of Faculty and Learners*. A web-based survey was conducted of faculty involved in the development and/or delivery of TEL courses since the inception of the TEL Action Plan and of learners who participated in TEL courses in 2003-04. The survey provides an opportunity to understand the experience of TEL from the perspective of these two groups. E-mail invitations including the Internet address or 'URL' of the web survey were sent to potential respondents by all post-secondary institutions that received TEL Action Plan funding for course development and delivery.).[5] At least one e-mail reminder was sent to potential respondents to increase response rates. Overall, 224 faculty were invited to participate in the survey and 74 completed the survey, for a response rate of 33 per cent and a margin of error of +/- 10 per cent.[6] For learners, 2,954 were invited to participate in the survey and 266 completed the survey, for a response rate of nine per cent and a margin of error of +/- six per cent. Both the learner and faculty survey data were weighted based on the known distribution of these populations across institutions to ensure that the sample proportions reflected the population.

› *Survey of Instructional Designers and Others*. The input of instructional designers (IDs) and other specialists involved in TEL was obtained through a paper-based survey designed and implemented by Saskatchewan Learning. The instrument was closely based on the survey of faculty. In all, 27 surveys were mailed to instructional designers and other specialists at the U of S, U of R and SIAST. Sixteen questionnaires were returned, for a response rate of 60 per cent.

› *Expert Panel.* A virtual expert panel was assembled to address evolving trends with respect to TEL in post-secondary institutions and to balance the views of stakeholders closely involved in the Plan. Four experts participated in the exercise (listed in Appendix C), providing commentary in response to a series of research questions about broad trends with respect to TEL and, based on an information package, their assessment of the TEL Action Plan itself.

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[5]   Note that the views of the faculty and learners from the First Nations University of Canada are not represented in the survey results as this institution did not participate in the surveys.

[6]   The margin of error represents the estimated inaccuracy of findings due to use of a sample rather than the entire population. Note that the margin of error decreases as sample size increases, though the calculation assumes that the sample is not biased in any systematic way.

1.4   CAVEATS

The research approach for this review includes a strong blend of qualitative and quantitative methods. However, two caveats should be noted. First, as noted above, the response rate to the web-based surveys, particularly for learners, was low. The reasons for the low response rate may be many, including low rates of use of campus e-mail addresses, timing of the survey (two institutions did not send out invitations until the end of November), or students generally being inundated with spam and related e-mail (and also consequently having stringent blockers). Aside from the population distribution across institutions, there were no other means to assess the representativeness of the sample and, therefore, it should be recognized that the learner results are based on a relatively small sub-group of students participating in TEL. Second, the views of students and faculty of the First Nations University of Canada are not included in the survey results due to lack of responses. Finally, measurement of impacts in terms of some of the stated goals of the TEL Action Plan (e.g., retention of students/faculty) was hampered by lack of data or was beyond the scope of the study.

1.5   ORGANIZATION OF THE REPORT

Chapter Two of this report presents findings related to the ongoing relevance of the TEL Action Plan. Chapter Three examines issued related to planning and implementation. Impacts and effects are addressed in Chapter Four. Chapter Five provides a forward-looking perspective on future trends. Summary observations are provided in Chapter Six. To clarify the organization of the findings for the reader, the original review framework questions are presented at the beginning of each chapter. Note, however, that for ease of organization, the ordering of questions has been adapted.

2. RELEVANCE

A priority of this review was to examine the extent to which the major components of the TEL Action Plan were appropriate and to assess the need for another shared strategy in Saskatchewan with respect to TEL. One further issue under relevance is how the TEL Action Plan intersects with other government strategies and priorities.

Review Questions:

> Were the major components (e.g., vision, principles, goals, enablers, priorities for action) of the TEL Action Plan the right ones at the collaborative and institutional levels?

> To what extent is the concept of an overarching framework for TEL at the post-secondary level still useful?

> What is the relationship between the TEL Action Plan and other institutional, sectoral or governmental initiatives?

2.1 RELEVANCE OF MAJOR COMPONENTS

The key components of the TEL Action Plan were perceived by key informants and members of the expert panel to be appropriate and useful, and to have stood up well over the life of the Plan. Note that the concepts and values represented in the vision, principles and goals emerged out of a process of collaboration between the institutions and Saskatchewan Learning. Particularly sound and prescient features of the Plan that were noted included:

> Priority and mandate for collaboration amongst post-secondary institutions within the province;

> The inclusion of faculty development and learner support services as key complements to and, indeed, requirements of successful TEL content development and delivery;

> Flexibility of the plan to take into consideration unique capacities, mandates and priorities of individual institutions;

> Inclusion of a commitment to First Nations/Métis learners and to smaller Aboriginal institutions within the province, a commitment that is congruent with the long-term demographic picture in the province.

Overall, the components are viewed as having continued relevance. Comments from those most closely involved in the TEL Action Plan give little impetus to wholesale redrafting of the components of the current Plan. Rather, a future iteration of the Plan should be directed to modest adjustments and updating, and to addressing gaps or areas that were not a strong focus in the implementation of the current Plan. Greater attention to linkages with communities and industries, and to partnerships outside the province are two examples of areas which have been a lower priority in the first five years of the Plan, but remain valid objectives for TEL. Another example is the linkage between TEL and the needs in the labour market, which is alluded to now in the Plan, but could be made more explicit in a future shared strategy.

Where a weakness was cited in the current TEL Action Plan, it most frequently referred to the goals of the Plan, often described as "lofty" or "ambitious", or overly broad. Suggestions for revision included, first, a greater focusing or specificity of goals and, second, goal statements that are realistically achieved, given challenges and resources.

In terms of the former – specificity – there were several comments from key informants related to increased specificity of goals, though there was less consensus on what the specific goals should be. An example is the priority to serve distance learners; there is some debate as to whether this goal is still valid or whether future efforts around TEL should dispense with the distinction between on-campus and off-campus learners and focus on providing the most appropriate, convenient, effective TEL opportunities for all students.

In terms of the latter, the issue of moving toward more realistic goal statements was raised with respect to the third goal of the plan, retention of students, graduates and faculty and the fourth goal, enhancing Saskatchewan's intellectual capital. In terms of retention, for example, TEL has the ability to retain students within the province by increasing flexibility and offering a local alternative to the increasing array of online courses and programs provided by institutions outside of Saskatchewan and outside of Canada. TEL, as one delivery element of the provincial post-secondary sector, is unlikely, however, to *retain* graduates and faculty if other conditions within institutions and the provincial economy (e.g., employment opportunities, wages) are not favourable.

With respect to development of Saskatchewan's intellectual capital, again, the TEL Action Plan, by permitting enhanced access to learning, contributes to the overall level of learners' education and thus the intellectual capital of the province. TEL activities have also developed skills of faculty and specialists within institutions. Yet, the way this goal is currently stated there are several other elements related to development of the IT industry, strengthening research and development, and enhancing institutions' national and international presence. A narrower casting of this goal would be more useful in directing future activities.

Other comments from key informants and experts regarding the components of the current TEL Action Plan included:

> Clearer articulation and priority for directions that have emerged during the implementation of the current Plan such as content development guided by a programmatic approach (i.e., an approach intended to provide learners with a coherent array of course offerings to complete a credential using alternative modes), sharing of digital content and addressing the lifelong learning needs of adult learners;

> Assigning greater prominence to specific concepts or principles already appearing in the document, namely "learner-centred", "increasing or extending accessibility", "building capacity", "research-based" and "sustainability";

> Incorporating known best practices (e.g., value of smaller scale learning objects in facilitating re-use, shortened and more focused offering to meet the needs of adult learners, support for lifecycle revision, clear indicators of success and content development and delivery supported by evaluation); and

> Need for greater precision in the definition of TEL, use of language that reflects the broad spectrum of the TEL mode of delivery and elimination of dated language or jargon (e.g., "knowledge-based society").

Considering the perspective of faculty, the goals articulated in the TEL Action Plan generally have resonance with faculty, particularly increasing access for learners. Over 80 per cent of faculty agree that "it is important for (their) institution to offer off-campus options for students living in rural and northern areas" (Table 2.1). About two-thirds of faculty also agree that TEL is important to attract and retain students to the institution and provides students with an advantage in a knowledge-based society. Fewer faculty – 41 per cent — agree that investments in TEL are necessary to attract and retain top faculty.

The ratings of instructional designers to a similar set of questions are substantially higher than those of faculty. The strong majority of IDs believe investments in TEL are important to improve accessibility, attract and retain students, and provide students will skills for a knowledge-based society.

TABLE 2.1
Rationale for TEL

"Please indicate the extent to which you agree or disagree with the following statements"

It is important for my institution to offer off-campus options for students living in rural and northern areas

| 5 | 5 | 5 | 85 |

Investments in technology enhanced learning are necessary to attract and retain students to my institution

| 3 | 25 | 5 | 67 |

Participation in TEL provides students with an advantage in a knowledge-based society

| 3 | 13 | 22 | 62 |

Investments in technology enhanced learning are necessary to attract and retain top faculty

| 7 | 34 | 18 | 41 |

0% 20% 40% 60% 80% 100%

■ DK/NR   ■ Disagree (1-3)   ■ Neither (4)   ■ Agree (5-7)

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n=74   Survey of Faculty, 2004-05

2.2   CONTINUED NEED

Saskatchewan is one of a few provinces in Canada to have a shared strategy articulating goals around TEL at the post-secondary level. Those currently involved in the TEL Action Plan unanimously supported the renewal of a shared strategy to continue to fund TEL activities, encourage collaboration in this area among institutions and guide planning, priorities and government investments.

Many key informants, in fact, noted that the timing of the renewal is extremely important in that TEL activities and initiatives are now at a critical juncture. Momentum is building with the establishment of Campus Saskatchewan. Organizational structures to support collaboration are in place (vis-à-vis Campus Saskatchewan, the CSMB and working committees) and TEL activity within institutions is seen to have achieved a threshold where faculty engagement can now be extended beyond "early adopters" and content development can move toward more strategic choices within broader institutional planning.

According to key informants, the consequences of not having a TEL Action Plan would certainly be a slowing of TEL-related activity at the institutional level. While universities and other institutions have integrated TEL into strategic plans and have established infrastructures to support TEL (e.g., SIAST's Virtual Campus, the Centre for Academic Technologies at the U of R), according to key informants, the level of activity in terms of course development or support activities would be reduced without TEL Action Plan funds. Key informants also anticipated there would be a loss of momentum around collaborative initiatives and greater fragmentation of

activities. The funds and organizational structures flowing from the TEL Action Plan are an important and necessary driver of inter-institutional partnership. Prospects for the partnership continuing without a shared strategy (and attached funds) are perceived to be poor. Finally, for learners, without a TEL Action Plan there would be less growth in opportunities for courses and programs via the TEL mode and a loss of progress toward more seamless administration across institutions (e.g., credit transfer).

Experts agreed that government involvement in supporting TEL at the post-secondary level is appropriate and beneficial to drive change and collaboration. According to one expert, "a co-ordinated program of investment can move institutions forward across a range of goals (access, quality, containing cost, strategic change); without incentives to change, the process of adapting to our changing context will take much longer and produce a performance gap with competitors in the knowledge economy". Other roles for government that were suggested by experts were: 1) to extend the accessibility of learning resources and research products so these are fully shareable by the public; 2) design and measurement of key performance indicators – a costly, but useful exercise to monitor progress; and 3) supporting institutional change toward rewarding innovative teaching (with two of the experts noting the potential merits of certification of faculty in teaching/technology).

2.3   RELATIONSHIP TO OTHER GOVERNMENT INITIATIVES

Among the review questions under relevance is the relationship between the TEL Action Plan and other sectoral or government initiatives. The consultations and policy development process for the TEL Action Plan, while inclusive of the post-secondary sector, did not explicitly involve other government departments. Nevertheless, the TEL Action Plan appears to be broadly aligned with provincial government priorities and planning documents issued by the government subsequent to 2000 reference the TEL Action Plan. For example:

> ❯ Saskatchewan's economic strategy *Partnership for Prosperity: Success in the New Economy* (June, 2001) notes that exploiting the Internet is a way of "equipping people for the New Economy", including offering post-secondary courses through the Internet to extend opportunities for learning, especially for rural residents and First Nations and Métis people.

> ❯ The *Aboriginal Education and Training Action Plan* (First Annual Report 2002-03) identified inclusion of Aboriginal post-secondary institutions in the implementation of the TEL Action Plan as a key action to support Métis and First Nations people's participation in a representative workforce.

> ❯ With respect to addressing the needs of rural residents, Saskatchewan Agriculture, Food and Rural Revitalization has produced a document *A Strategy*

for Rural Saskatchewan: Responding to ACRE that cites the TEL Action Plan as a key action in fostering training and skills development. The *Strategy* refers to the development of supports for online learners in rural and northern Saskatchewan under the Plan, as well as enhanced credit transfer and the Campus Saskatchewan web-site.

> The 2004-05 *Saskatchewan Learning Performance Plan* identifies objectives and key actions for the department in the current fiscal year. Objective 4 – "provide access to information and resources" commits to enhancing on-line access to learning resources, programs and services, establishing an online credit transfer guide on the Campus Saskatchewan web-site and fully implementing the TEL Action Plan within regional colleges. These actions support the intent of the learning sector to provide equitable access to information and resources to a geographically dispersed provincial population.

3. PLANNING AND IMPLEMENTATION

The focus of this section is on the implementation of activities associated with the TEL Action Plan. The concern in the first sub-section is the extent and types of initiatives that have been developed and implemented under the TEL Action Plan. The description of initiatives is organized according to the three areas of action: content development, faculty development and support; and learner supports. Other issues that are considered include funding allocations under the Plan and monitoring and accountability.

Review Questions:

›   To what extent were key actions and initiatives developed and implemented within institutions, by government, and through inter-institutional collaboration as a result of the TEL Action Plan?

›   What resources did the partners in the strategy (e.g., government department/agencies and institutions in-kind and financial contributions) contribute to planning and implementation of TEL initiatives? To what extent has the allocation of funds by government and the institutions/organizations supported the TEL Action Plan? How should the allocation process be strengthened? To what extent have the funds been used efficiently (value for money)?

›   To what extent are the roles and responsibilities for accountability clearly defined, understood, and demonstrated? To what extent are adequate processes in place to monitor actions, use resources, impacts and effects and to make adjustments as necessary? To what extent are performance-reporting requirements defined and implemented?

3.1 IMPLEMENTATION OF KEY ACTIONS AND INITIATIVES

a) TEL Content Development

Process

Developing courses and learning resources for online and televised delivery has been a key activity in implementing the TEL Action Plan. The majority of TEL funding was allocated to online delivery. Existing provincial funding continues to support course development and delivery via television. TEL content development (online and televised) occurs through an annual, two-stage call for proposals. Partner institutions and Saskatchewan Learning jointly identify criteria to ensure that the proposed courses and learning resources complement each other in responding to the needs of Saskatchewan's adult learners.

TEL content development proposals are developed by faculty and their departments who initially submit their proposals for review by representatives responsible for the institution's TEL plan. The partner institutions select and submit their prioritized TEL content development proposals to Saskatchewan Learning and the Campus Saskatchewan PPP Committee. Departmental staff and the PPP Committee members review the proposals, provide feedback to the developers about the "fit" of proposals to the criteria for TEL content development, identify inter-institutional coordination opportunities (initial stage), and finalize proposals for development (second stage). Saskatchewan Learning provides TEL funding to the institutions for content development, based on approved TEL content proposals. Provincial funding for content development is used to purchase faculty release time, support expert positions such as instructional designers and multi-media specialist and other expenses. Proposals may be modified depending on the availability of resources in any given budget year or unforeseen developments.

Online Course and Learning Resources Development

With support of TEL funding, 154 courses and learning resources for online delivery are currently under development (development of an online course or learning resource takes on average one - two years from being funded to being "delivery-ready"). The institutions have completed 110 courses and learning resources for online delivery for a total of 264 TEL funded online courses and learning resources that are currently available or under development (Table 3.1).

Table 3.1: Online Courses and Learning Resources Development

| Fiscal Year | TEL Funded by Fiscal Year | | | | | Total TEL Funded | Total Institution Funded | TOTAL TEL and Institution Funded |
	00-01	01-02	02-03	03-04	04-05			
Under Development	0	18	31	52	53	154	8	162
Completed	24	48	33	5	0	110	52	162
Total	24	66	64	57	53	264	60	324

The institutions also fund further online content development. To date, the institutions have funded development of 52 online courses that are ready for delivery, bringing the total of available online courses and learning resources to 162. The institutions are developing a further 8 online courses for a total of 162 courses and learning resources currently under development. In total, through the TEL Action Plan, there are more than 300 online courses and learning resources available or under development from Saskatchewan's post-secondary institutions.

Televised Course Development

Annual funding from the province to support televised development has been in place since 1989. The number of courses delivered tends to be similar from year to year. In addition to provincial funding, the institutions fund courses for televised delivery each year using their own resources.

Online and Televised Course Delivery in 2003-04/2004-05

In 2003-04, post-secondary institutions delivered a total of 128 online courses and learning resources; 82 of the courses/learning resources were TEL funded and 46 courses were funded by the institutions. As well, in 2003-04 the institutions delivered 47 televised courses (24 TEL funded, 23 institution funded) for a combined total of 175 courses (Table 3.2 and Table 3.3).

Table 3.2: Online and Televised Courses and Learning Resources Delivered in 2003-04

| Delivery Mode | Delivered 03-04 | | Estimated for Delivery 04-05 | |
	TEL Funded	Institution Funded	TEL Funded	Institution Funded
Online	82	46	144	54
Televised	24	23	23	17
Total	106	69	167	71
Total TEL Funded and Institution Funded	175		238	

Table 3.3: Online and Televised Course and Learning Resources Delivered in 2003-04 by Institution

| Institution | Delivery Mode | | | | Total |
| | Online | | Televised | | |
	TEL Funded	Institution Funded	TEL Funded	Institution Funded	
SIAST	30	29	6	17	82
U of S	27	15	10	-	52
U of R	19	1	6	2	28
First Nations University of Canada	1	1	2	4	8
SIIT	2	-	-	-	2
GDI/DTI	3	-	-	-	3
Total	82	46	24	23	175

In 2004-05, the institutions estimate they will offer 144 TEL funded and 54 institution funded online courses and learning resources (total of 167) and 40 televised courses (23 TEL funded, 17 institution funded) for a combined total of 238 courses and learning resources (Table 3.4).

Table 3.4: Estimated Online and Televised Courses and Learning Resources to be Delivered by Institutions in 2004-05

| Institution | Delivery Mode | | | | Total |
| | Online (Estimate) | | Televised (Estimate) | | |
	TEL Funded	Institution Funded	TEL Funded	Institution Funded	
SIAST	46	35	6	11	98
U of S	63	18	8	-	89
U of R	26	-	7	2	35
First Nations University of Canada	3	1	2	4	10
SIIT	2	-	-	-	2
GDI/DTI	4	-	-	-	4
Total (Estimate)	144	54	23	17	238

Televised and online courses and online learning resources cover a broad range of areas including:

› *Meeting the needs of the adult learner:* Development of courses that provide students with alternate delivery options to complete a significant portion, or all of their diploma or degree is a priority for TEL content development. For example: students can take first year SIAST business courses via television and the second year business specialty courses online to complete the business diploma; the universities have expanded opportunities for students to build on

first year Arts and Sciences courses available through televised delivery with online courses towards a degree; online course development in nursing, education, social work, human justice and computer sciences is a response to labour market and student demand. A detailed programmatic analysis of alternate delivery offerings was prepared for the Campus Saskatchewan partners in 2004 to further inform TEL course planning and development within a programmatic framework.

➤ *Extending professional development and certification opportunities through online delivery:* examples include professional nursing upgrading, Police Studies program, First Nations Child Care program, Post Degree Certificate in Education in Special Education, Certificate in Aboriginal Employment Development, Masters of Continuing Education, Masters in International Trade, Aboriginal business courses at the MBA level, Faculty of Education graduate courses in education technology, online resources in dentistry and law.

➤ *Developing institution specialties:* online courses and learning resources that support/extend institution niche areas. For example, biotechnology and veterinary medicine.

➤ *Initiating new online programs through institution partnership and joint development:* examples include the new online Prairie Studies program, Bachelor of Circumpolar Studies.

➤ *Developing new learning resources that support a number of courses and programs:* examples include, The Virtual Museum of Métis History and Culture, digital image banks, online lab and teaching components for math, geography, engineering, chemistry and biochemistry and veterinary medicine.

b) Faculty Participation, Development and Support

Participation

The survey of faculty members using TEL since 2000-01 provides an opportunity to examine to extent of faculty engagement and participation. Overall, 237 faculty were identified by their institution as having participated in TEL-funded content development or delivery projects since 2000-01. The institutional distribution is as follows:

Table 3.5: Faculty Participation in TEL-Funded Content Development or Delivery
        Projects (2000-04) by Institution

	Total
SIAST	89
U of S	39
U of R	92
First Nations University of Canada	13
SIIT	4
Total	237

Source: Based on institutions' identification of faculty for surveying

Based on an estimate of the total complement of instructors across the institutions, probably less than ten per cent of faculty overall are involved in the development or delivery of TEL-funded courses, programs or resources (fully online or televised). (Many more are involved in more limited uses of technologies for learning such as integration of web-based resources into their teaching.)

The survey responses indicate that faculty involved in TEL have been a faculty member for 14 years on average and are often drawn from Computer Sciences and Information Technology fields. One-third of faculty are Professors (assistance, associate, full, adjunct), almost three in ten are Instructors, with the remainder being Academic Administrators, Sessional Lecturers or other positions. A profile of faculty using TEL based on the survey results is included in Appendix D.

Faculty Development and Support

One of the key enablers identified in the TEL Action Plan is development and support for faculty to integrate learning technologies into their courses. The literature and the opinions of experts suggest there are several challenges in effective engagement and participation of faculty in TEL. Time pressures, lack of appropriate incentives/rewards (in an environment that values research productivity over teaching), lack of suitable teaching and technical skills, fear of a loss of autonomy, as well as lack of access to adequate technology are among the key challenges in effective use of TEL for faculty. Finally, there are challenges to overcome the jaundiced views of instructors who adopted unproven and ineffective learning technologies from the first wave of untested digital learning products (Zemski and Massy (2004)).

Institutions have enhanced professional development opportunities and support to their staff and faculty in the technology enhanced learning area. For example, in 2003-04, the U of S offered over 30 workshops, attracting 685 participants. Similarly, 34 workshops were provided by SIAST to staff and instructors, with 635 registrations. These workshops cover a variety of topics in development and delivery of TEL courses (e.g., software or course platforms such as

Dreamweaver and PowerPoint, use of digital imagery, integrating Web CT into teaching, teaching online).

Development and support of faculty extends beyond technology workshops. Each institution has internally implemented models and approaches to support faculty in the integration of technology into their teaching practice. It is common for the institutions to use a team approach as a way to ensure faculty are able to concentrate on teaching rather than the technologies. The teams are collaborative in nature with each member bringing specific expertise and resources to the projects. They consist of faculty who are the content experts and lay the foundation of the course and its content; instructional designers who guide the creation of the learning and interactive environments; educational technologists who create the multimedia elements that bring the learning environment to life; and technical staff who ensure the infrastructure supports the implementation of the course. In addition there are project management, administrative, library, help-desk and delivery services all of whom bring expertise and a collaborative focus to the development, offering and support of courses and learning resources.

Team members are located either in a centralized facility, as is the case with CAT (Centre for Academic Technologies, U of R) or the Virtual Campus, SIAST; or are part of a decentralized coordinated approach where resources and expertise are in different departments as is the case between Distance Learning Division and CAT at the U of R, or the Gwenna Moss Teaching and Learning Centre, Extension Division, Department of Media and Technology, and IT Services at the U of S. As well, institutions have designated facilities on-campus to provide faculty with one-on-one support as they become more comfortable in developing their courses, such as with CAT at the U of R and the Greenhouse rooms at each SIAST campus. The universities and SIAST also hold information seminars where faculty can highlight and share project experiences and lessons learned, as well as joint research opportunities exploring learning and teaching pedagogical issues.

To support faculty development, the Campus Saskatchewan partnership, in particular, the Faculty Development and Support Committee, sponsors inter-institutional events to develop skills and share expertise among faculty. Examples include:

> Professional development forums for faculty and staff (e.g., Two Days in May - 2003, Riding the Crest of Change: Technology Enhanced Learning -2004);

> Hands-on workshops on topics such as instructional design (e.g., Instructional Design Summit), the Learning Objects Roundtable, Learning Enhanced by Technology.

> Other activities, such as planning for a professional development event for regional college staff and faculty teaching online for the first time and development of an online resource and toolkit to support faculty and staff in their use of TEL.

The survey results indicate that, among faculty currently involved in TEL, 90 per cent have participated in professional development related to TEL. Among those faculty that have taken professional development activities, the most common aspects of TEL covered in these activities were: software or course platforms (76 per cent); instructional design (56 per cent); effective teaching with TEL (55 per cent); and best practices in the use of TEL (41 per cent). Professional development activities were most often delivered via hands-on workshop or short course (79 per cent) and almost six in ten (59 per cent) received one-on-one assistance. Between 40 and 50 per cent of faculty also mentioned readings, presentations and seminars.

As a result of these professional development activities, 50 per cent of faculty felt they were well-prepared to use TEL in their courses (responded 5, 6 or 7 on a 7-point scale), 30 per cent indicated somewhat (4) and 15 per cent did not feel adequately prepared (1, 2, 3 on the 7-point scale). Four per cent provided a "don't know/no response".

Instructional designers reported similarly high levels of participation in professional development in TEL, with a greater likelihood of training in software, course platforms and instructional design (virtually all). Instructional designers also indicated a higher level of preparedness for using TEL as a result of their professional development, with most providing a rating of "well prepared".

Faculty Experiences

Faculty are most apt to have experience in the development of online courses or learning resources (75 per cent) or integration of technology into face-to-face classroom instruction (53 per cent) (Table 3.6). Thirty-four per cent of faculty have delivered an online course and 31 per cent a blended course. One in five (18 per cent) have developed and 16 per cent have delivered a televised course. Faculty have been teaching courses/programs using TEL for about five years on average.

TABLE 3.6
Participation in TEL: Faculty

"What kind of experience do you have with technology enhanced learning (TEL)?"

Category	Percentage
Development of on-line course or learning resource	75%
Use of web-site/e-mail to post course materials, resources or communicate with students	53%
Delivery of course mainly online	34%
Delivery of blended or hybrid course(s) (i.e., a combination of some online, televised and/or classroom instruction)	31%
Development of televised course	18%
Delivery of televised course	16%
Other	14%

*Multiple responses possible

EKOS Research Associates Inc.

n=74
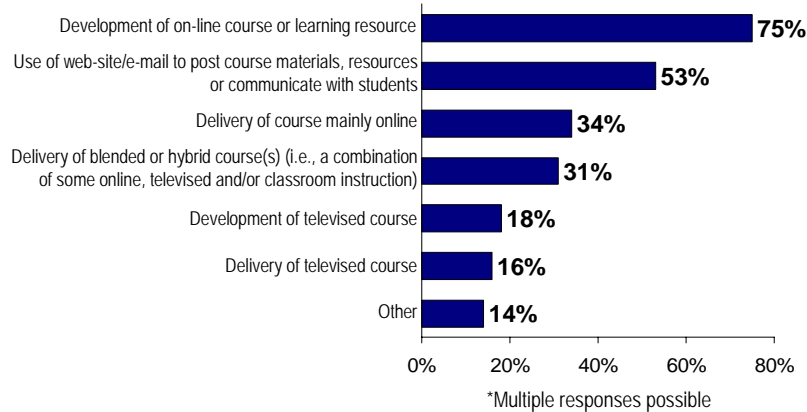
Survey of Faculty, 2004-05

The most important reasons faculty decide to teach courses/programs using TEL is because they were invited by their department (33 per cent), to enh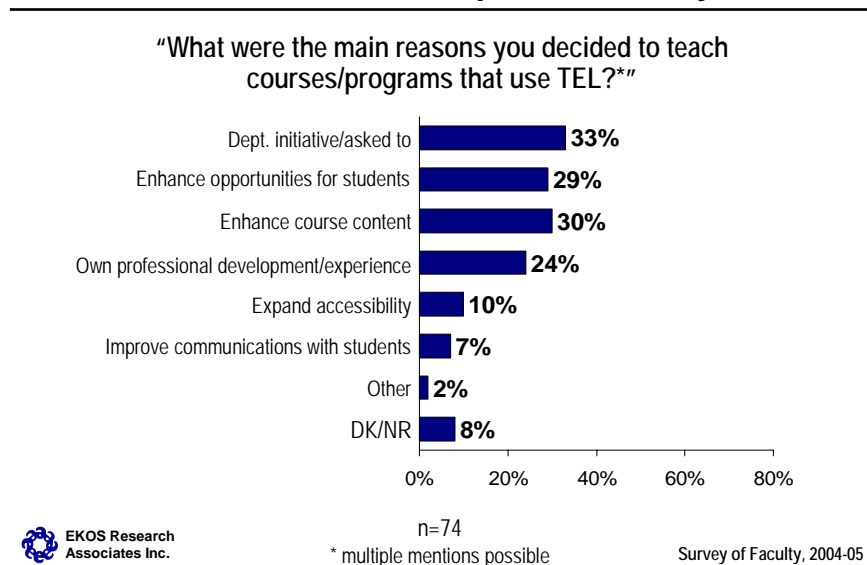ance course content or presentation of concepts (30 per cent) and to enhance opportunities for students and/or to meet student demand for flexibility (29 per cent) (Table 3.7). One in four were motivated by their own interest or professional development (24 per cent). Expanding accessibility for students and improving communications with students were mentioned by 10 and seven per cent of faculty, respectively.

TABLE 3.7
Reasons for Participation: Faculty

"What were the main reasons you decided to teach courses/programs that use TEL?*"

Reason	Percent
Dept. initiative/asked to	33%
Enhance opportunities for students	29%
Enhance course content	30%
Own professional development/experience	24%
Expand accessibility	10%
Improve communications with students	7%
Other	2%
DK/NR	8%

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n=74
* multiple mentions possible

Survey of Faculty, 2004-05

Faculty generally appear satisfied with their own TEL experience, but have mixed views about their institution's support for TEL. About eight in ten faculty say they would recommend the use of TEL to other faculty members. Looking at institutional support, almost six in ten faculty agree that their "institution has put in place academic, administrative and technical structures to support and integrate TEL into teaching and learning" (Table 3.8). One-quarter disagree with the statement. Faculty are less likely to agree that "there is strong leadership at my institution to guide the implementation of learning technologies" (42 per cent agree, 35 per cent disagree and 16 per cent neutral).

TABLE 3.8
Perceived Institutional Support for TEL

"Please indicate the extent to which you agree or disagree with the
following statements"

My institution has put in place academic, administrative and technical
structures to support and integrate TEL into teaching and learning

4	25	14	58

There is strong leadership and planning at my institution to guide the
implementation of learning technologies

8	35	16	42

0% 20% 40% 60% 80% 100%

■ DK/NR ■ Disagree (1-3) ■ Neither (4) ■ Agree (5-7)

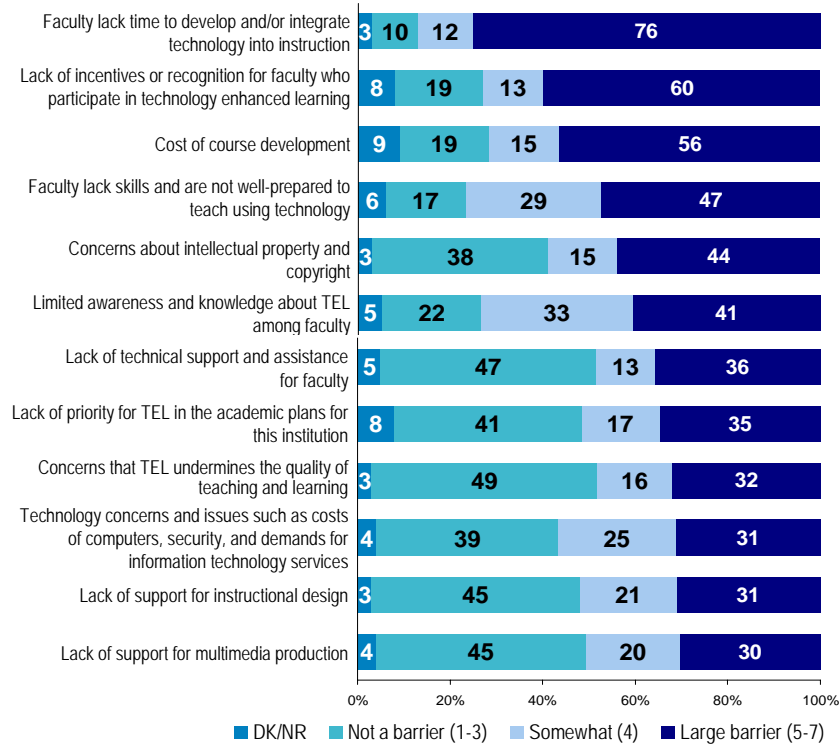EKOS Research
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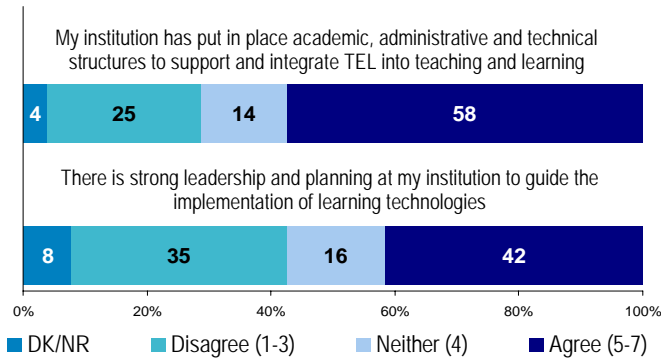
Survey of Faculty, 2004-05

Among instructional designers, all IDs say they would recommend the use of TEL to faculty. IDs also have more favourable opinions about administrative support and leadership with respect to TEL.

According to faculty, the most important barrier to the use of TEL within their institution is that faculty lack time to develop and/or integrate technology into instruction (76 per cent indicated this to be a large barrier — 5, 6, 7 on a 7-point scale). (In a related item, 81 per cent of faculty agreed that teaching a course with technology increases faculty workload). This is followed by lack of incentives/recognition for faculty teaching using TEL (60 per cent cite this as a large barrier), the cost of course development (56 per cent) and lack of faculty skills and preparation to teach using technology (47 per cent). Technology-related concerns are considered a barrier by about three in ten faculty. Only a minority of faculty indicated concerns about the quality of teaching and learning as a large barrier.

TABLE 3.9
Barriers to TEL

"Please rate the extent to which your feel each of the following factors is a barrier to the use of technology enhanced learning (TEL) within your institution."

Barrier	DK/NR	Not a barrier (1-3)	Somewhat (4)	Large barrier (5-7)
Faculty lack time to develop and/or integrate technology into instruction	3	10	12	76
Lack of incentives or recognition for faculty who participate in technology enhanced learning	8	19	13	60
Cost of course development	9	19	15	56
Faculty lack skills and are not well-prepared to teach using technology	6	17	29	47
Concerns about intellectual property and copyright	3	38	15	44
Limited awareness and knowledge about TEL among faculty	5	22	33	41
Lack of technical support and assistance for faculty	5	47	13	36
Lack of priority for TEL in the academic plans for this institution	8	41	17	35
Concerns that TEL undermines the quality of teaching and learning	3	49	16	32
Technology concerns and issues such as costs of computers, security, and demands for information technology services	4	39	25	31
Lack of support for instructional design	3	45	21	31
Lack of support for multimedia production	4	45	20	30

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n=74

Survey of Faculty, 2004-05

In an open-ended question regarding any other barriers to the use of TEL, many faculty re-iterated concerns about workload, lack of recognition and cost. Others noted an absence of research on the effectiveness of TEL, the lack of flexibility of existing instruction technologies and difficulties with the "team" approach involving specialists in TEL course design.

The ratings of instructional designers to a similar battery of questions indicate that IDs also identify lack of time among faculty as a key barrier to use of TEL within the institution. Like faculty, IDs place concerns about the quality of teaching and learning and lack of technical support as lower order barriers.

Participation

In 2003-04 there were over 5,500 student registrations in courses delivered online or via television (Tables 3.10 and 3.11). The number of student registrations in televised courses is about the same as in 2002-03. However, the number of student registrations in online courses increased more than 65 per cent from 2002-03, reflecting a similar increase (66 per cent) in the number of online learning opportunities available for students in 2003-04, as more online courses under development were completed and delivered in 2003-04.

Not all institutions are able to distinguish between on- and off-campus student registrations in TEL courses. However, the numbers available indicate that many on-campus students are incorporating courses delivered online into their programs. Some on-campus students also take advantage of the televised delivery opportunities and many off-campus students continue to utilize the televised receive sites located at the regional colleges throughout the province.

Table 3.10: Student Registrations in Online and Televised Courses (2003-04)

Delivery Mode	Total Student Registrations	On-Campus	Off-Campus
Online	3,415	1,441	646
Televised	2,350	324	801
Total	5,765	1,765	1,447

On- and off-campus registration information is available for online delivery from U of R, SIAST and SIIT and for televised delivery from the U of R and U of S Institutions apply their own definitions for on- and off-campus

Table 3.11: Student Registrations in Online and Televised Courses by Institution (2003-04)

| | Delivery Mode | | | | | |
| | Online 03-04 Student Registrations | | | Televised Student Registrations | | |
	Total	On-Campus	Off-Campus	Total	On-Campus	Off-Campus
SIAST	1586	1263	323	1168		
U of S	1098			426	63	363
U of R	379	178	201	699	261	438
First Nations University of Canada	230					
SIIT	122			122		
Total	3415			2350		

On- and off-campus registration information is available for online delivery from U of R, SIAST and SIIT and for televised delivery from the U of R and U of S Institutions apply their own definitions for "on- and off- campus

The number of individual students participating in TEL courses in 2003-04 is lower than student registrations, owing to students possibly taking multiple programs using alternative modes. According to the data provided by institutions for survey purposes, 3,111 individual students participated in TEL courses in the 2003-04 academic year. Table 3.12 presents the institutional distribution. Based on an estimate of the total number of students enrolled in these institutions, it can be estimated that about five per cent of the student body participated in TEL courses in the past academic year. This is somewhat lower compared to estimates in the US where 13 per cent of students enrolled in institutions offering online courses had enrolled in at least one online course.[7]

Table 3.12: Learners Participating in TEL Courses by Institution (2003-04)

	Total
SIAST	1303
U of S	705
U of R	916
First Nations University of Canada	187*
SIIT	30
Total	3111

*Excludes students in televised courses
Source: Based on learners identified by institutions for surveying

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[7] The Sloan Consortium, *Sizing the Opportunity: The Quality and Extent of Online Education in the United States*, 2002 and 2003.

The survey information provides a profile of learners participating in TEL in the province.[8] Women are significantly overrepresented among those who have participated in TEL (a finding that is consistent with other surveys of online learners, but which could also be partly a function of higher response rates) and about four in ten indicated being employed full-time. Just under four in ten learners are 30 years or older (again, an overrepresentation compared to the general student population) and a similar proportion report having dependents. Almost one in ten learners indicate being of First Nations or Métis ancestry (though this is probably an underestimate of true participation given that students registered through the First Nations University of Canada are not represented in the survey). Three in ten are located outside of the province's four major centres and fewer than one in ten are located in northern Saskatchewan. Not surprisingly, these learners indicate a high level of computer skill – three-quarters say good to excellent – and access to both a computer and a high speed Internet connection (nine in ten or more). Learners are studying in a variety of fields, though, health sciences, business, social sciences or social work and humanities are fields that were mentioned most often. Just over half are full-time students. A profile of student characteristics using the survey data is included in Appendix E.

Learner Supports

Learner supports are included as a critical component of technology enhanced learning to ensure that students are aware of TEL education opportunities and can be successful in these courses. The literature and expert opinion both suggest that students' technological savvy is often overestimated and many learners lack the skills to fully exploit online learning possibilities. In order to be successful, learners must be supported in adapting their learning to these new approaches. Difficulty in identifying appropriate courses to put together a coherent program (often because they do not exist) can be a challenge. Finally, the vast array of institutions and courses that are available online can present a hurdle for students who may have difficulty assessing their quality and ensuring that the course is recognized.

Through the Learner Services Support Committee, Campus Saskatchewan partners collaborate to coordinate and extend support services for learners. The annual Learner Support Services Forum provides an opportunity for institution representatives across the province to share information, highlight success areas, and identify areas for collaboration.

The Campus Saskatchewan partners maintain an online searchable directory of courses available from Saskatchewan institutions that are delivered in alternative formats, including online, televised, blended technologies, independent study, and off-campus face-to-face. The directory serves as a "one-stop" location for students, counsellors and the public to check what credit courses are available and provides links to course information, admissions and registration information at the referring institution. Currently, there are close to 600 course entries in the

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[8]   For comparison purposes, in 1999-2000, 57 per cent of university students in Saskatchewan were women, one in five were 30 years of age or older and three-quarters were full-time students.

directory. In addition to online and televised courses, the directory lists about 280 independent/home study courses and over 190 courses offered face-to-face in off-campus locations.

The universities and SIAST also use TEL funds within their institution to develop or enhance services to support learners using TEL. Services include:

> marketing and promotion of course offerings;

> access to computers and high speed Internet connectivity;

> technical help desk services;

> student support centres/web-sites (offering advising/counselling, orientation to online learning, technical information, software plug-ins, student services, study supports);

> implementation of learner support tools (I-Help, ITReady);

> expanded library services (e.g., online ordering of material, full-text databases, e-book purchases, library instruction/information literacy);

> learner services projects to pilot new approaches (e.g., development of an online survey and polling capability to track student participation and satisfaction).

The Saskatchewan Indian Institute of Technologies (SIIT) is developing specialized training for its counsellors/tutors to help support Aboriginal students taking their online Aboriginal Employment Development Certificate.

Regional colleges have established learner services and new applications of technology to enhance educational opportunities in rural and northern areas. The Regional Colleges' *Network of TEL Services Implementation Plan Report*, approved by the college CEOs and Saskatchewan Learning in June 2001, provided a common framework for the colleges to begin to design and offer a range of academic and technical support services, building on the broad directions outlined in TEL Action Plan. The implementation plan included a two year pilot phase in order to increase the colleges' knowledge and expertise in the use of technologies, to assess learner and community needs, and to test various approaches and applications prior to making decisions with long-term consequences.

With the conclusion and evaluation of the pilots in 2003-04, the regional colleges worked together to prepare *Saskatchewan Regional Colleges' TEL Strategic Directions*, February, 2005. Within the document, the colleges outline a shared vision and principles, and the specific services they will each provide as part of a provincial network of TEL services. The required resources, including funding from the province and colleges' contributions, are also identified in the

strategy. Integration of technology enhanced learning into the core operations of the colleges is a theme that underlies the entire approach.

The proposed common principles are as follows:

› Uniform Access – Saskatchewan's regional colleges will offer a common set of basic services across the province that will provide students with access to education and training opportunities through technology enhanced learning.

› Human Support – In addition to access, colleges are a viable network throughout rural and northern Saskatchewan that will provide students with human support to ensure their success.

› Capacity Building – The colleges will work together as a network to collectively build capacity that promotes consistency, innovation and economies of scale.

› Academic Preparation – The colleges will work with other partners in the learning sector to extend and enrich learning opportunities and resources to meet the range of student needs for academic preparation.

› Awareness – The colleges will encourage and participate in a joint marketing strategy under the Campus Saskatchewan umbrella that would enable all institutions to promote technology enhanced learning.

The specific common basic services to be offered by each college are summarized in the following table:

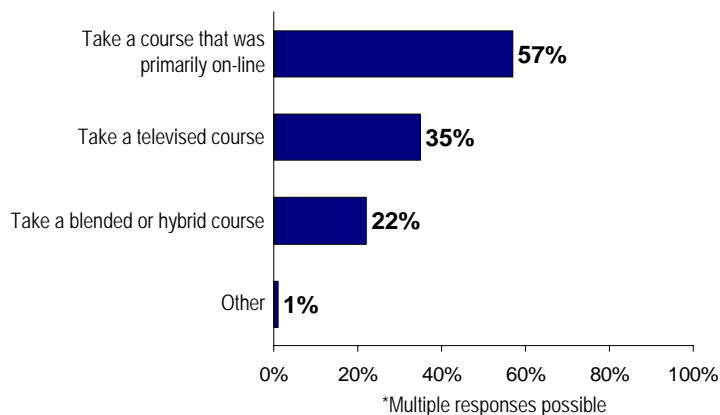| Activity	Description of Services
Access and Operations	› Provide students with access to and use of a variety of technologies including: ¤ computers and high-speed Internet/ CommunityNet at a minimum of five sites in college locations; ¤ access to equipment and college personnel at satellite receive sites for scheduled courses; › Operate and maintain sites, including scheduling, equipment and facilities; › Make sites available for extended hours; › Advertise and market TEL programs and services available at college locations and throughout the region.
Facilitation and Tutoring	› Provide orientation to operating equipment and ongoing technical support for students taking TEL courses or using computers at college sites during extended operating hours; › Provide face-to-face general tutoring and preparatory skills training in areas such as study skills, time management, technology skills, orientation to distance learning, and writing and math skills; › Ensure access to study spaces, meeting rooms, mentoring, tutoring, discussion groups, peer support, exam preparation and invigilation.

Counselling and Coordination	› Provide students with career and academic planning and advising;
	› Assist students throughout the pre-enrolment and enrolment process including educational planning, career counselling, registration assistance, and advocacy with educational institutions and other agencies;
	› Assist students with course/program selection and support services coordination;
	› Coordinate delivery of TEL services at college locations.
Management and Collaboration	› Develop, monitor and update colleges' annual TEL plans and prepare annual TEL reports;
	› Work with partners in the community to extend TEL services and respond to education and training needs;
	› Coordinate TEL services with post-secondary partners;
	› Contribute to system-wide collaboration.

Learner Experiences

Based on the survey responses, students were most likely to have taken a TEL course in 2003-04 that was primarily online (57 per cent), followed by a televised course (35 per cent) and a blended or hybrid courses (22 per cent) (defined as a combination of some online televised and/or classroom instruction) (Table 3.13). Participation in an online course is comparatively higher among those who are employed full-time (and, therefore, part-time students).

TABLE 3.13
Participation in TEL: Learners

"Considering your last school year (2003-2004), what type(s) of technology enhanced learning experiences did you have? Did you:"

Take a course that was primarily on-line: **57%**
Take a televised course: **35%**
Take a blended or hybrid course: **22%**
Other: **1%**

*Multiple responses possible

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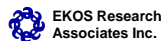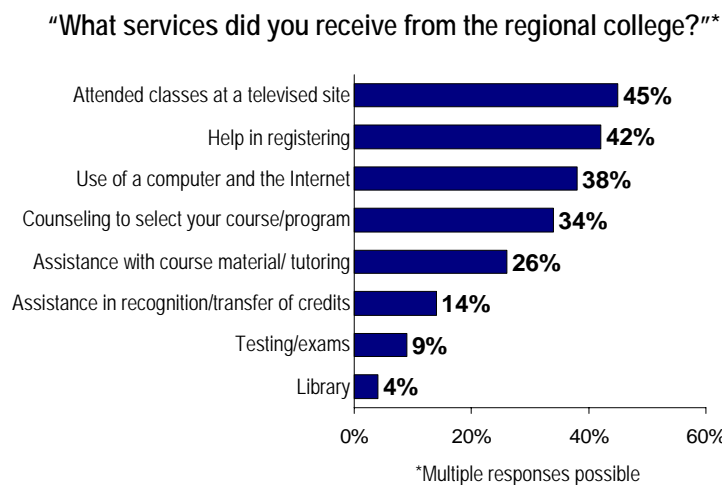
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Survey of Learners, 2004-05

The significant role of the regional colleges in rural and northern areas is reflected in the survey of students. Almost four in ten students (38 per cent) contacted in the survey used the services of a regional college for their course or program of study in 2003-04. This figure is higher among students taking televised courses (58 per cent) and for off-campus students (46 per cent).

Students use a wide variety of services from regional colleges, including: attended classes at a televised site operated by the regional college (45 per cent); help in registering for a course (42 per cent); counselling to select a course (34 per cent); used a computer/Internet at a college site (38 per cent); assistance with course material such as tutoring (26 per cent); and assistance in obtaining recognition and transfer of credit (14 per cent) (Table 3.14).

TABLE 3.14
Use of Regional Colleges

"What services did you receive from the regional college?"*

Service	Percentage
Attended classes at a televised site	45%
Help in registering	42%
Use of a computer and the Internet	38%
Counseling to select your course/program	34%
Assistance with course material/ tutoring	26%
Assistance in recognition/transfer of credits	14%
Testing/exams	9%
Library	4%

*Multiple responses possible
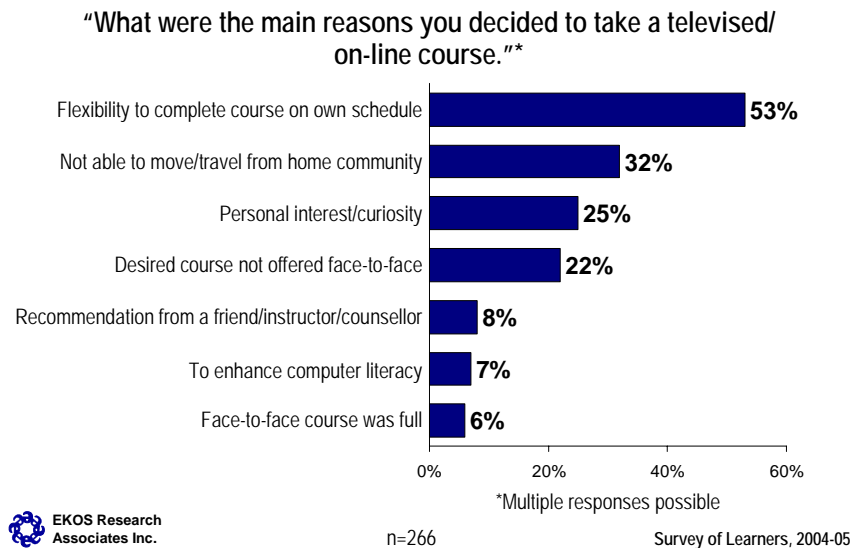
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Survey of Learners, 2004-05

For learners, the most important reason they decided to take a TEL course was flexibility to complete the coursework on their own schedule (mentioned by just over half of students) (Table 3.15). This is followed by not able or willing to move/travel from home community to attend classes on campus (32 per cent), personal interest, curiosity or preference (22 per cent) and desired course was not offered face-to-face (25 per cent). Ability to stay in one's home community is mentioned more often by off-campus students[9] and those living outside the province's four major centres. Flexibility is more important to adult and part-time learners and those taking courses online.

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[9]   For the purposes of this analysis, "off campus" is defined as learners not taking courses on-campus during 2003-04.

TABLE 3.15
Reasons for Taking TEL: Learners

"What were the main reasons you decided to take a televised/
on-line course."*

Reason	Percentage
Flexibility to complete course on own schedule	53%
Not able to move/travel from home community	32%
Personal interest/curiosity	25%
Desired course not offered face-to-face	22%
Recommendation from a friend/instructor/counsellor	8%
To enhance computer literacy	7%
Face-to-face course was full	6%

0%   20%   40%   60%

*Multiple responses possible

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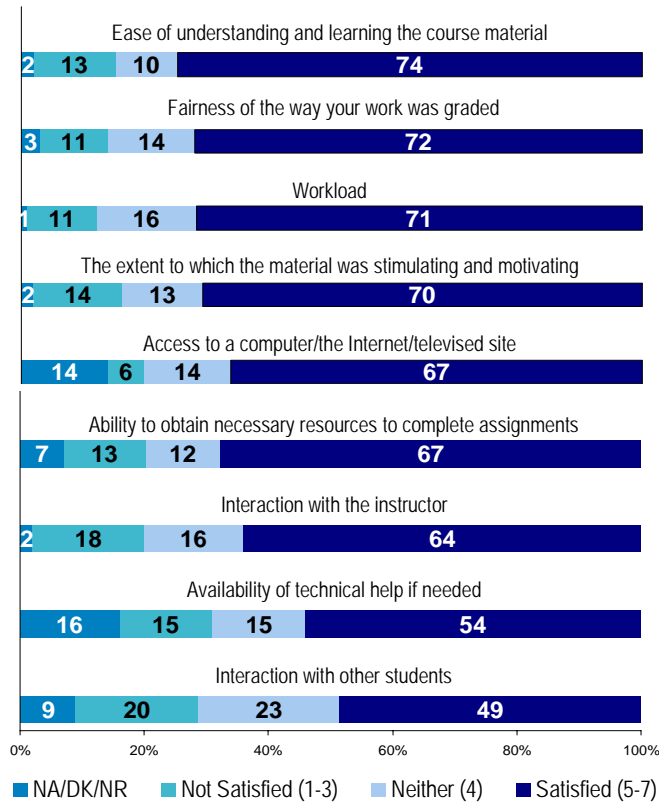n=266

Survey of Learners, 2004-05

For 48 per cent of students, the availability of TEL learning options was an important factor in attracting them to enrol in their post-secondary course or program. This proportion is higher – 60 per cent for off campus learners and 69 per cent among those living outside the province's four major centres. Part-time and adult students (over 30 years of age) were also more likely to agree with this statement.

Overall, learners are quite satisfied with their TEL experience. Most learners (80 per cent) agree that they would take another online or televised course in the future (again, higher among off-campus learners).

Considering specific aspects of their TEL experience, seven in ten or more learners were satisfied (5, 6 or 7 on a 7-point scale) with the ease of understanding and learning the course material, the fairness of the way their work was graded, the workload and the extent to which the material was stimulating and motivating (Table 3.16). Areas where students expressed less satisfaction were the interaction with other students (49 per cent satisfied), interaction with the instructor (64 per cent) and the availability of technical help if needed (54 per cent overall, but about two-thirds if the "not applicable/no response" cases are removed).

TABLE 3.16
Satisfaction with TEL

"How satisfied were you with the following aspects of your technology enhanced learning experience?"

Ease of understanding and learning the course material
| 2 | 13 | 10 | 74 |

Fairness of the way your work was graded
| 3 | 11 | 14 | 72 |

Workload
| 1 | 11 | 16 | 71 |

The extent to which the material was stimulating and motivating
| 2 | 14 | 13 | 70 |

Access to a computer/the Internet/televised site
| 14 | 6 | 14 | 67 |

Ability to obtain necessary resources to complete assignments
| 7 | 13 | 12 | 67 |

Interaction with the instructor
| 2 | 18 | 16 | 64 |

Availability of technical help if needed
| 16 | 15 | 15 | 54 |

Interaction with other students
| 9 | 20 | 23 | 49 |

■ NA/DK/NR ■ Not Satisfied (1-3) ■ Neither (4) ■ Satisfied (5-7)

EKOS Research Associates Inc.   n=266   Survey of Learners, 2004-05

The survey attempted to gauge student interest and demand for further courses using TEL. About half of learners (49 per cent) indicated that there had been an occasion when they would have preferred to take an online or televised course but it was not available (higher among adult students and those taking an online course). Seventeen per cent of learners have taken an online and/or distance education course from another institution outside of Saskatchewan (28 per cent of those who are over 30 years of age).
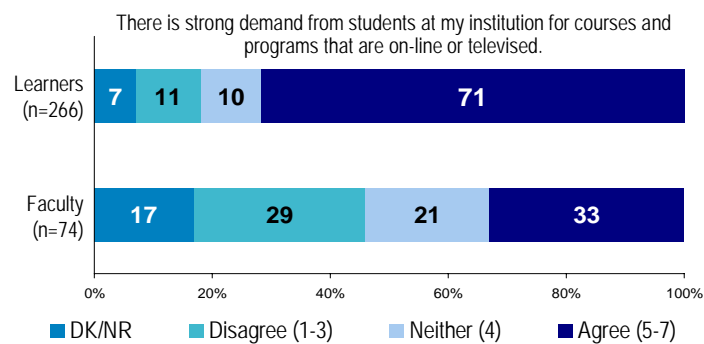
Three in ten learners (31 per cent) would prefer to complete more than half of their program of study through TEL or off-campus courses (this figure is between 50 and 55 per cent of adult, part-time and off-campus learners). One in five (22 per cent) would prefer to complete about half their program in this way and 41 per cent would prefer to complete less than half their program using TEL. Interestingly, the majority of IDs, but about half of faculty (52 per cent) agree that "their

institution should offer more options for students to complete a significant portion or all of a program using TEL".

Learners who have participated in TEL estimate demand for TEL among students to be much stronger compared to faculty offering courses through TEL. Seven in ten students agree that "there is strong demand from students for post-secondary courses and programs that are online or televised", compared to 33 per cent of faculty responding to the same statement (Table 3.17). Perceived demand is highest among IDs and is also higher among women, off-campus students compared to on-campus students and among students living outside the province's four major centres.

TABLE 3.17
Perceived Demand for TEL

"Please indicate the extent to which you agree or disagree with the following statement"

There is strong demand from students at my institution for courses and programs that are on-line or televised.

	DK/NR	Disagree (1-3)	Neither (4)	Agree (5-7)
Learners (n=266)	7	11	10	71
Faculty (n=74)	17	29	21	33

■ DK/NR ■ Disagree (1-3) ■ Neither (4) ■ Agree (5-7)

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Survey of Faculty and Learners, 2004-05

3.2 RESOURCES AND FUNDING ALLOCATION PROCESS

a) Contribution of Resources

As mentioned above, Saskatchewan Learning committed about $17 million dollars over the life of the TEL Action Plan. These funds have been directed to institutions to support their TEL activities and initiatives and a portion of funds has also been allocated to inter-institutional initiatives and operation of the Campus Saskatchewan office.

The expectation is that institutions themselves will also contribute financial resources to TEL from their base budget and/or make contributions in-kind. Indeed, institutions contribute significant resources to TEL activities and initiatives. Representatives of PSE institutions provided varying estimates of the ratio of TEL Action Plan dollars to resources (financial and in-kind) invested in TEL by the institution from at least two-to-one to as high as one-to-four (lower for smaller institutions). While assigning dollar value amounts to institutional contributions presents challenges, examples of institutional contributions include:

> Content development (additional course development or supplementing TEL dollars for content development projects, and maintenance and upgrading of existing content);

> Staff time/travel (e.g., for participation in TEL Action Plan committees, activities and reporting for faculty, administrators, counsellors, specialists);

> Office space, network access, expanded wireless access (e.g., for Campus Saskatchewan and for organizational units coordinating TEL);

> "Evergreen" initiatives to provide faculty and staff with up-to-date desktop computers;

> Adjustments to library and registration systems to suit TEL course delivery;

> Supplemental support for Help Desk, learner support, faculty development;

> Funding of specialist and support positions (e.g., instructional designers, counsellors);

> Marketing and promotion of TEL offerings; and

> Software, training, licenses and integration with other campus systems.

b)   Allocation Process

The current process of allocating funds from Saskatchewan Learning to post-secondary institutions evolved from a series of historical decisions made by Saskatchewan Learning in collaboration with the partner institutions, rather than a set of formal criteria. In the first year of the Plan, 2000-01, the three largest institutions – U of S, U of R and SIAST – received equal shares of the new TEL funding that became available in that year to begin to implement the Plan. This decision acknowledged that each of the major provincial credit-granting institutions, regardless of their particular mandate, scope of programming or size, required a base amount of funding to have a critical mass of resources to ramp up their TEL activities. This allocation of funding also reflected the historical pattern that had evolved over the previous ten years in the distribution of provincial funding for televised instruction (SCN) and the former Multi-media Program Development and Support Fund. As well, the approach was intended to avoid competition which would work against the collaborative model.

A number of developments occurred in 2001-02 as implementation of components of the Plan proceeded and the provincial contribution for TEL increased from $1.656 M to $4.156 M:

> Regional colleges began to receive TEL funding, with the actual amount determined by the budget estimate to implement base level TEL services pilot projects as outlined in the Regional Colleges' Network of TEL Services: Implementation Plan Report, June, 2001 (page 39).

> Aboriginal institutions were invited by Saskatchewan Learning to formally join the TEL initiative through participation on the TEL Steering Committee and by developing their own projects and capacity with support from the TEL funding. The level of funding acknowledged that the institutions had very little experience in or capacity to take on new TEL applications, had questions about the value and appropriateness of TEL for their student populations, and could benefit through partnership approaches with provincial institutions.

> The allocation to the University of Saskatchewan was increased relative to the University of Regina and SIAST in recognition of the institution's scale of operations.

It was possible to make the above changes in 2001-02 without negative consequences for any partner as the overall level of resources had increased. In subsequent years when TEL funding was reduced by the province, the institutions and the department agreed to preserve funding as far as possible for the smaller institutions (i.e., regional colleges and the Aboriginal institutions) recognizing that they would be least able to absorb reductions and the need for them to build their capacity.

The funding provided by the TEL Action Plan was cited as critical for institutions in undertaking activities and initiatives related to TEL. Positive elements of the current funding allocation include:

> Relatively open and transparent process where CSMB representatives are aware of total funds and their distribution, participate in decisions around funding set aside from institutional allocations – i.e., Campus Saskatchewan;

> Year-to-year and across institution flexibility in the amounts assigned among the three envelopes – content development, faculty development and learner support;

> Separation of the TEL funds from base grants to institutions, ensuring that these funds are dedicated exclusively to TEL activities and priorities;

> Stable funding on a year-over-year basis; and

> Ongoing support to the Aboriginal institutions and regional colleges to begin to undertake projects in this area.

The funding allocation process is seen to have had a mixed effect on collaboration among the partners. While the funds attached to the TEL Action Plan provide a strong incentive for partnership (or at least participation), the absence of clear formulae or a clearly prescriptive approach on the part of Saskatchewan Learning also opens the door to a potentially divisive inter-institutional competition for funds.

There is little consensus around directions for strengthening the allocation process and, as a result, many institutional representatives are content to maintain the status quo in this area. And, given that a funding precedent has been set, change is very difficult and will be unwelcome for institutions that might see a reduction in their allocation as a result.

At this time, there is no broad desire, particularly at the working level, for TEL funds to be rolled into institutions' base budgets. Having funds for TEL "protected" within a separate funding envelope and with discrete reporting and accountability requirements was viewed by many as desirable given the relative recency of TEL activities within institutions and the inherent dangers that once within a base budget, these funds would be allocated to other priorities as institutions struggle with their finances.

In the 2004-05 Business Plan for Campus Saskatchewan, one of the areas for action is to "make recommendations to the Campus Saskatchewan Management Board regarding the allocation of TEL funds to member institutions". Among the issues raised by key informants with respect to this area were:

> Allocation should foster partnership and inter-institutional collaborative efforts toward a programmatic approach;

> Funding decisions linked more closely to objectives;

> Rationalizing funding for content development projects, or establishing maximum contribution levels (funding caps); and

> Clarity around rules related to funding of administrative/overhead expenses and funding of course maintenance and up-grading.

c)   Efficiency of Use of Funds

This review could only assess cost-efficiency of the TEL Action Plan in a qualitative fashion. The qualitative analysis indicates that, on the one hand, there has been significant leveraging of institutional dollars to supplement TEL funds, thus increasing efficiency. On the other hand, several key informants pointed to practices initially employed under the TEL Action Plan that

functioned to undermine efficiency. Corrective measures have been taken and improvements to cost-efficiency were perceived to have been realized in the latter years of the implementation of the Plan as partners gained experience with course development and delivery in a TEL environment and put in place the organizational means to effectively use resources.

Practices mentioned by key informants that have had a negative impact on the efficient use of TEL funds include:

> Content development, both within institutions and on an inter-institutional basis, is currently moving toward a programmatic approach where funds are directed to providing students with a more coherent array of TEL programs. Initial efforts were less co-ordinated and more often driven by the initiative of individual faculty members – the "early adopters", rather than pedagogical or program goals. A weak connection initially between TEL and institutions' overall academic or business planning processes may have led to missed opportunities for TEL to contribute to academic strategies or goals;

> The practice in some institutions of "granting" faculty funds up-front for content development and delivery without sufficient accountability for deliverables or timelines. This practice has now been revised to pay units or departments "on delivery", often based on formal letters of agreement, pushing administrators to greater involvement and responsibility for decisions about TEL, workload implications and sustainability of products;

> Insufficient attention to follow-up or maintenance of online products once they have been developed or partially developed leading to situations where materials were not fully utilized or became out-dated;

> Low rates of participation in some courses;

> Wide range in the funding on a per course basis across institutions and significant variability in proportional costs dedicated to overhead. While larger investments may be required for some courses or disciplines or may pay dividends in terms of higher quality products, there is no substantiating rationale for variability in costs and no measures or monitoring in place to determine whether benefits are always commensurate with higher costs; and

> Several institutional representatives have found participation in the TEL Action Plan to be heavy in terms of time commitments to meetings and committee work. This can be particularly burdensome for smaller institutions that do not have fully dedicated personnel to coordinate TEL activities.

Finally, new avenues are being explored to increase efficiency of investments in TEL such as collaborations in areas such as sharing of digital content/learning objects to reduce duplication and economies of scale in procurement (e.g., of software licenses). TEL content

development and investment decisions taking into consideration the effectiveness of TEL for various types of courses/disciplines, market demand and offerings available from other jurisdictions could also maximize value for money in the future.

3.3   MONITORING AND ACCOUNTABILITY

The Annual Reporting Template is the key vehicle for ensuring accountability for funds disbursed by Saskatchewan Learning to post-secondary institutions and to demonstrate progress toward achieving objectives.[10] The Annual Reporting Template includes sections on TEL content development and delivery status for each funded project, specifically:

> delivery method (online, televised, blended models);

> development status (i.e., complete, under development, not developed, other);

> delivery status (i.e., fiscal year(s) that the course was delivered); and

> (number of) student registrations (total, on-campus, off-campus).

The Reporting Template asks for similar information for institution-funded TEL content.

Finally, the Reporting Template provides opportunities for post-secondary institutions to identify:

> key accomplishments (highlights, including links to their corporate strategic business plan);

> TEL integration in the institution (integration of TEL in course/program development and delivery, and through inter-institutional activities);

> faculty development support activities;

> learner support activities;

> impact of TEL activities (on course and program delivery, accessibility, learning and retention, faculty development and support);

> issues/barriers for development of TEL and lessons learned; and

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[10]   Note that reporting requirements stemming from funds provided to regional colleges for a series of pilot projects are different. Regional colleges were required to submit annual, interim and final reports. See Appendix B for a listing.

> emerging trends affecting institutions and recommended direction for the future of TEL.

Roles and responsibilities of the post-secondary institutions with respect to reporting are indicated to be clear and institutions accept the need for accountability for public funds. However, institutions have found the reporting methods to be cumbersome, time-consuming and at odds with the length of time required to bring a TEL course to fruition. As well, those charged with responsibility for reporting often face practical difficulties in locating and retrieving information that has disparate sources across their institution. The 2003-04 Reporting Template featured a number of changes to ease the reporting process and post-secondary institutions acknowledge improvements in this version, which have reduced the reporting burden.

However, further efforts to streamline the template and, to the extent possible, to provide institutions with a matrix that is populated with the course and funding data that is available to the Department would be appreciated by some institutions. Timelines for reporting in relation to project start-up should also be examined.

Prior to the 2003-04 academic year reporting on TEL activities has not been effective, with little consistent data available on delivery results (e.g., number of TEL courses developed, number of enrolments). The quality of information has been uneven in some areas and does not fully support an assessment of the TEL Action Plan according to its goals. Specific weaknesses include:

> While data from the 2003-04 fiscal year is largely complete and includes tracking of all projects funded since the inception of the TEL Action Plan, there is no clear picture of, for example, level of student participation in TEL for the years prior, though narrative information is available that describes activities and initiatives;

> There are no data available on Aboriginal participation in TEL-funded courses (one of the four goals of the Plan), nor on other student characteristics that might be of interest (e.g., full-time/part-time status, employment status);

> There is no common definition of on-campus/off-campus students and institutions do not uniformly collect these data for TEL courses; and

> Number of enrolments and number of students are not adequately represented – i.e., as students can take more than one TEL course, the number of enrolments does not equal number of students.

Finally, there has been limited research on the quality, effectiveness and completion rates associated with TEL from the perspective of faculty and students. The University of Regina has done a qualitative inquiry into students' experience of TEL (the Action Research for Technology Enhanced Learning (ARTEL) project) and has also conducted surveys of both faculty

and students on the subject. The extent to which TEL courses and programs are successful in key areas such as expanding access, flexibility and impacts, positive or negative, on the teaching and learning experience are largely addressed in an anecdotal fashion.[11] The current review study has confirmed, however, that there are significant barriers in conducting this type of research particularly in effectively reaching the student population. Issues related to cost of conducting research and institutional practices around teaching and learning evaluations (often only shared with the instructor and department head) also complicate the ability to generate impact-related information.

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[11] Note that other research related to TEL has been undertaken, but does not relate directly to faculty/learner experiences. For example, the Centre for Distributed Learning at the University of Saskatchewan undertakes research, disseminates information and explores issues related to impact of technology in teaching and learning. Cumberland Regional College is researching "best practices" in using technology to facilitate access to a range of learning opportunities that support development of marketable skills. This research is supported by a Community Learning Network grant and the province through the TEL program.

4. IMPACTS AND EFFECTS

This section is concerned with the extent to which the TEL Action Plan achieved its intended impacts. In particular, the review study assessed the progress made towards building capacity within institutions to develop and deliver TEL and enhancing collaboration. As well, the review examines impacts for faculty and learners and progress toward achieving the Plan's formal objectives of: advancing education and training in rural and northern communities; enhancing Métis and First Nations peoples' education and training; developing and retaining students, graduates, and faculty for a knowledge-based society; and developing Saskatchewan's intellectual capital.

Review Questions:

> ❯ To what extent has the Plan been sufficient and useful in guiding the efforts of the department and post-secondary institutions to achieve common purposes?

> ❯ To what extent has the TEL Action Plan been successful in building capacity for technology enhanced learning within post-secondary institutions?

> ❯ To what extent has the TEL Action Plan positioned Saskatchewan's post-secondary institutions to be more effective in supporting technology enhanced learning compared to other jurisdictions?

> ❯ What impact has the TEL Action Plan had on collaboration between and among the partners?

> ❯ To what extent have TEL initiatives or activities been of value to instructors and faculty, counsellors and learners? What impact has the TEL Action Plan had on learners? Faculty? Others?

> ❯ To what extent has the TEL Action Plan been successful in achieving its broad goals?

> ❯ What unintended impacts, either positive or negative, has the TEL Action Plan had?

It should be noted that measuring the impacts and effects of the TEL Action Plan presents challenges. First, the timeframe for development and delivery of TEL courses can be protracted and some elements of the Plan such as the Campus Saskatchewan partnership and Network of TEL Services are quite new. Second, impacts in terms of access, and development and retention of students, graduates and faculty are a product of many factors (e.g., connectivity, provincial economic conditions). Therefore, it is difficult to determine the effect of specific TEL Action Plan initiatives. Finally, the lack of available administrative data in some areas and use of varying definitions (e.g., for on-/off-campus) has impacted on the review.

These qualifications aside, there have been some early indicators of success. There have been significant enhancements in institutional capacity to deliver TEL, as well as many examples of successful collaborative initiatives. These are elaborated below.

4.1   BUILDING CAPACITY

The TEL Action Plan is seen to be broadly aligned with the goals of post-secondary institutions in the province in such areas as outreach, access, and upgrading of technological capacity. The Plan provided a useful road map or touchstone that provided guidance on goals and objectives but was broad enough to permit institutional discretion. The impact of the Plan in guiding the TEL activities within PSE institutions has been variable depending primarily on: 1) institutional strength in TEL prior to the implementation of the Plan (i.e., institutions that were leading in this area prior to the Action Plan are less apt to have drawn from it); and 2) the extent to which the institution has been able to capitalize on TEL funds (i.e., depending on their size and resources).

The five years the TEL Action Plan has been in place have seen significant growth in the capacity of institutions to develop and deliver TEL. The TEL Action Plan is viewed as having had benefits to institutions in sparking an expansion and increasing momentum in TEL. Post-secondary institutions readily acknowledge their TEL activity would be significantly reduced without the support of the TEL Action Plan. Considering content development alone and including courses for both online and televised delivery (completed and under development), 80 per cent of institutions' content development projects are funded by TEL.

The previous chapter outlined many key actions and initiatives that have been implemented under the TEL Action Plan. Focusing on institutional capacity, highlights are summarized below.[12]

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[12] Note that for many of these activities, TEL funds represent only a portion of the total required investment, with the remaining funds contributed by institutions.

a)   Building Organizational
Units

Organizational units feature a team approach involving faculty, instructional designers, multimedia and technical specialists. Centralizing the TEL capacity of institutions and supporting faculty within a team of design specialists is cited as an emerging trend in the literature (see Section 5). Activity in Saskatchewan includes:

> At SIAST, a Virtual Campus has been operating since 2001. The mandate of the Virtual Campus is to "bring together services, quality programming, technical support and electronic learning enterprise in a seamless manner".

> The University of Regina has created a new Centre for Academic Technologies (2002). Together with the Distance Learning Division of the Centre for Continuing Education, five instructional designers and three multimedia specialists support faculty in TEL content development. The Centre also functions as a "greenhouse", sponsoring workshops and demonstrations of learning technologies.

> The University of Saskatchewan's TEL activities have recently been centralized within the Gwenna Moss Teaching and Learning Centre and the role of TEL will be articulated in a Foundational Document on Teaching and Learning.

> The First Nations University of Canada has recently hired a TEL Coordinator to assume responsibility for coordination and learner support in the university's online and Web CT delivery.

> The regional colleges are establishing TEL service centres at college locations throughout the province that provide computers for student use and offer technical, counselling and support services for students.

b)   Infrastructure
Enhancements

Infrastructure enhancements are varied and some examples include:

> The "Information Commons" at the University of Regina, which is a computer area consisting of 124 computers established in the Library;

> SIAST's Virtual Campus has established dedicated "greenhouse" centres where faculty can draw on in-house technical and project management expertise to make effective use of technology in teaching. TEL funds have been used to implement technical upgrades;

- Expansion and updating of Web CT licenses and support (for example, the use of WebCT at the U of R has increased from 71 course sections in Fall 2001 to 425 course sections in Winter 2004);

- Integration of related campus systems;

- Technical Help Desks; and

- Library initiatives, including subscriptions, e-book purchases, videos.

c)   Strategic Planning

In 2003-04, Saskatchewan Learning, in discussion with the CSMB, revised the annual TEL planning process to call for institutions to submit multi-year plans. The plans are intended to encourage institutions to develop a coherent internal approach in their TEL activities, linked to broader organizational goals and priorities.

Several experts in the literature have identified the importance of strategic planning to provide a clear blueprint for implementation of learning technologies (Council of Ontario Universities, 2000). Among the elements of the plan, there should be articulation of the strategic vision and goals; alternative strategies and resource requirements; organization, management and administration strategies; an implementation plan; and evaluation and reformulation. Other suggestions include:

- planning has to be institution-wide to communicate that the institution as a whole supports the integration of these technologies (Cuneo et al. (2002));

- strategic planning should focus on educational technology and should be connected to the institution's information strategy, culture, values, and history (Bruce (1999));

- planning should include a timetable and be a public-wide process, so that individuals have the opportunity to respond to concerns before it is finalized (Noblitt (1997));

- strategic plans should deal with the following issues: intellectual property; corporate funding; teaching effectiveness as a central component in all decisions relating to tenure, promotion and salaries; system security; and exposure to successful practices (Stockley (2004)).

Activities and initiatives under the TEL Action Plan are now being integrated into the longer term strategic planning frameworks of the province's largest institutions. The U of S, U of R and SIAST have all undertaken integrated or business planning exercises spanning to 2006 (U of R), 2007 (U of S) and 2009 (SIAST). Within these documents, institutions have articulated their

vision, values, core themes and goals. Goals have been linked to strategies and programming, as well as to initiatives in student services, corporate practices and the physical infrastructure. For SIAST, TEL is a key component of the institution's priority to enhance accessibility, quality and responsiveness, and more broadly, in addressing provincial training needs and the Saskatchewan Learning Sector Performance Plan. Specific TEL initiatives are woven throughout the document, included within the new initiatives planning for individual divisions (e.g., Nursing, Community Services), as well as for other areas such as the Library. A separate section is dedicated to the priorities, initiatives and budget of the Virtual Campus.

For the U of S and U of R, TEL is less integrated into the various strategic and academic priorities of the institution. Rather, for the universities, TEL finds a "home" in these institutions' goals around teaching and learning. The Gwenna Moss Teaching and Learning Centre at the U of S, together with an upcoming Foundational Document on Teaching and Learning, will address the appropriate use of technologies and fulfill commitments to the TEL Action Plan and the Campus Saskatchewan partnership.

Among the key actions supporting the U of R's goal with respect to teaching and learning ("give our students an accessible and enviable learning experience") is support for the effective use of technology in teaching. The Centre for Academic Technologies is the vehicle to carry out action in this area.

The regional colleges are developing a long-term technology enhanced learning strategic plan for implementing TEL services in rural and northern Saskatchewan. In the future, each college will use the TEL Strategy to design and offer common services in their areas, as well as TEL applications and services customized for their particular circumstances. In addition, annual TEL plans will be integrated into the colleges' annual Business Plans which are submitted to the department.

d)   Programs and Policies

As mentioned elsewhere, TEL content development activities have expanded significantly under the TEL Action Plan, leading to numerous courses offered by institutions using various modes of technology. TEL has also created the impetus within institutions and across institutions to examine and address a number of policy issues, such as copyright and intellectual property, admissions policies (e.g., vis-à-vis residency requirements), and credit transfer among others.

There is little empirical evidence on Saskatchewan's position with respect to capacity in TEL compared to other jurisdictions in Canada. Four in ten surveyed faculty agreed that their institution compares well with others in terms of integrating learning technologies into courses, though one-quarter didn't know. Anecdotally, key informants were of the opinion that Saskatchewan institutions generally compare well in this area and that, at the very least, the TEL

Action Plan has put in place mechanisms to close the gap between the province's institutions and those in other jurisdictions. Saskatchewan also has several unique advantages in terms of an established collaborative model and guiding framework, a regional college system with capacity to support TEL students and significant resources being devoted to upgrading the technological infrastructure in remote areas (the CommunityNet program).

4.2   ENHANCING COLLABORATION

The implementation of the TEL Action Plan is founded on a collaborative model. The consultation process leading up to the TEL Action Plan and the framework document recommends co-operation across the post-secondary system and reflects the commitment of institutions to a system-wide collaborative model. A key mechanism for collaboration is the Campus Saskatchewan Management Board. As mentioned elsewhere, the CSMB is composed of senior administrators from all partner institutions with staff support provided by the Campus Saskatchewan office. Working committees (Policy, Programs and Planning, Faculty Development and Support, and Learner Support Services) include representatives from across post-secondary institutions and are generally viewed as useful and effective structures.

Key informants agree that the TEL Action Plan has had a positive impact on collaboration among the partners. There has been an increase in contact and networking across institutions leading to greater willingness and opportunities for information sharing and support. The formal establishment of the Campus Saskatchewan partnership has contributed to a common vision and priorities for inter-institutional work and put in place processes and practices to undertake this work. A few key informants raised a cautionary flag about expanding the funding and/or mandate of the Campus Saskatchewan office.

Where collaborations have been successful in other areas, these have focused on very specific goals or projects or have been an outgrowth of the common agenda of the working committees. Clear roles, an evident need, tangible benefits for institutions and students, and sustained commitment were also identified by key informants as ingredients of success. Avenues to advance inter-institutional collaboration in TEL identified by experts focused on supporting discipline-based initiatives and facilitating sharing of learning objects. Credit transfer arrangements were noted as a critical prerequisite of effective inter-institution collaboration.

Several examples of partnership successes have been described elsewhere and will be only briefly mentioned here:

> Joint content development and joint program development, including the Prairie Studies program, an online undergraduate degree program to be offered jointly by the U of S, U of R and the First Nations University of Canada. Another

example is the Gabriel Dumont Institute (GDI) Virtual Museum of Métis Culture and History (a web-site containing a wealth of primary Métis-specific resources including oral history interviews, photographs and print, audio and video files), developed in partnership with the U of S Division of Media and Technology, Multimedia Unit, as well as a number of other external partners;

> Faculty development events offered to instructors across the various institutions who are involved in development or delivery of TEL;

> Annual Learner Support Forums;

> Library initiatives, including an information literacy program under development to support learners across institutions in using library services and databases;

> Administrative projects such as the Common Registration Form, the Visiting Student Application Form and credit transfer; and

> Collaborations with outside organizations such as with COHERE - Collaboration of Online Higher Education Research.

While there have been successes in inter-institutional partnerships, there have also been challenges. Post-secondary institutions do not routinely work collaboratively on a broad set of issues such as TEL. According to key informants, the challenges to partnerships around TEL include:

> Time and resource commitment. Collaborations require a time commitment that can challenge institutions, particularly those that are smaller;

> Differing organizational cultures. Different mandates, visions, and planning practices can make the blending of collaborative priorities with institutional objectives a challenge. For some institutions, sustained involvement in TEL is not a high corporate priority due to other agendas, learner supply or infrastructure capacity; and

> Institutional governance. The size and complexity of the university environment, in particular, makes institutional change difficult. Many of the issues raised by TEL are not easily integrated into existing regimes.

The benefits of collaboration for institutions have included:

> Development of networks and relationships for sharing of information and successful practices for TEL;

> Greater strategic choices in TEL content development;

> Enhanced quality of courses/programs by sharing of abilities and areas of expertise;

> Reduced duplication and more efficient use of (pooled) resources; and

> Benefits for students (e.g., programmatic choices, streamlined administrative processes).

Note that the focus of collaborations over the five years of the TEL Action Plan has largely been inward – that is, in establishing partnerships and undertaking activities *within* the post-secondary education sector. Relatively little work has been done in the area of developing partnerships with industry or communities to build interest or establish joint projects. The notable exceptions are some collaborative initiatives with other post-secondary institutions outside of Saskatchewan. Examples include: the U of S, in collaboration with COHERE is developing an online Canadian Studies program; and the U of S and U of R are developing courses within the Bachelor of Circumpolar Studies through the University of the Arctic.

Key informants were asked to describe any future opportunities for collaboration among the partners and with other organizations. Continued joint content development projects and collaboration around programmatic/strategic choices for content development is an ongoing priority for many. Several key informants noted other potential collaborative projects (some of which have already been initiated and show promise):

> The proposed Saskatchewan Learning Exchange. Currently under development, the Learning Exchange involves partner institutions and the K-12 system. The purpose of the Saskatchewan Learning Exchange is to create a mechanism for sharing and re-using digital learning resources. Experts cited the experience of other initiatives – MERLOT (Multimedia Educational Resource for Learning and Online Teaching) and CLOE (Co-operative Learning Object Exchange) – in this area that could prove useful (reciprocal exchange and peer review models, re-use illustrations, learning impact studies, optimum unit size of shareable learning resources);

> Shared Technical Help Desk Services. Some key informants noted the increased Help Desk demands as use of TEL expands to more faculty and learners (e.g., extended hours, human infrastructure). Some hope institutions could work together to expand service in this area, though technology challenges and significant differences across the array of TEL courses may make this difficult;

> Economics of scale in procurement (e.g., common technology, licenses, training and counseling tools, system-wide videoconferencing) – an avenue that is currently on the agenda of Campus Saskatchewan;

> Sharing of library resources/services;

> Collaborations with Aboriginal institutions in developing culturally appropriate materials for First Nations and Métis learners, and providing opportunities for others to learn about First Nations and Métis cultures and issues;

> Collaborations outside of the province such as is currently occurring with COHERE and outside of post-secondary sector boundaries (e.g., with the K-12 system); and

> Development of marketing and promotional materials and strategies for TEL courses and programs.
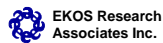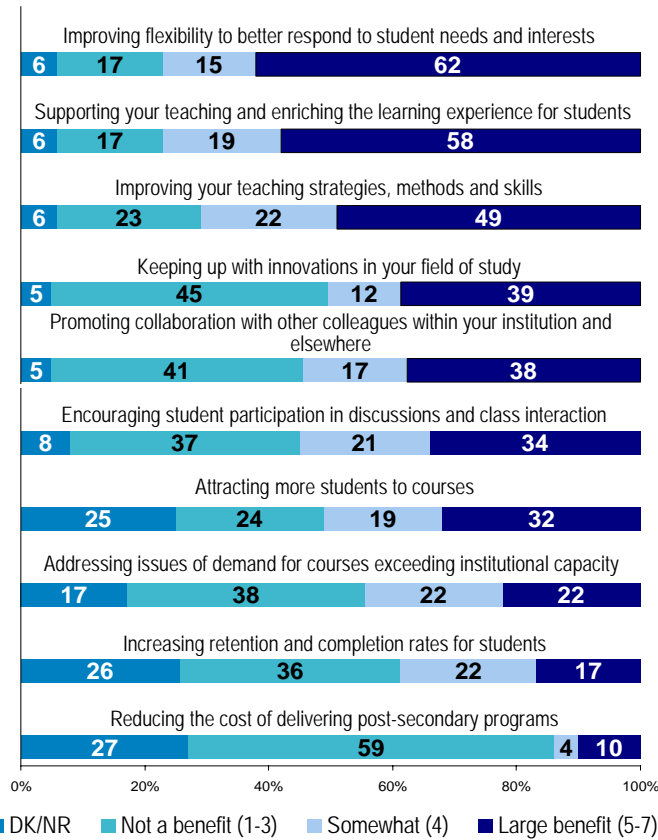
4.3   IMPACTS ON USERS

a)   Faculty

As described above, faculty development and support has been an important area of activity and both TEL funds and institutional resources have been employed to engage and support faculty to make appropriate use of technology for learning. While professional development initiatives have been welcomed and reportedly well-attended, the cadre of faculty involved in the development or delivery of TEL content or learning resources is quite modest.

According to faculty who are using TEL, the most important benefits of their experience with technology enhanced learning have been improving flexibility to respond to student needs and interests (62 per cent indicate a large benefit (5, 6, 7 on a 7-point scale), supporting the teaching and learning experience (58 per cent) and improving their teaching strategies, methods and skills (49 per cent) (Table 4.1). A second tier of benefits where faculty indicate more mixed views are in areas of keeping up with innovations in their field, promoting collaboration with other colleagues and encouraging student participation in discussion and class interaction. In these areas as many faculty indicate a large benefit as indicate little benefit. Where TEL is viewed as having least benefit (by one in five or fewer faculty) is in addressing institutional capacity issues, increasing retention/completion rates and, last, reducing the cost of delivering post-secondary programs (note the substantial proportion of faculty who provided a "don't know" response to these latter items).

TABLE 4.1
Benefits of TEL: Faculty

**"To what extent has your experience with technology enhanced
learning had any of the following benefits?"**

Improving flexibility to better respond to student needs and interests
6 | 17 | 15 | 62

Supporting your teaching and enriching the learning experience for students
6 | 17 | 19 | 58

Improving your teaching strategies, methods and skills
6 | 23 | 22 | 49

Keeping up with innovations in your field of study
5 | 45 | 12 | 39

Promoting collaboration with other colleagues within your institution and elsewhere
5 | 41 | 17 | 38

Encouraging student participation in discussions and class interaction
8 | 37 | 21 | 34

Attracting more students to courses
25 | 24 | 19 | 32

Addressing issues of demand for courses exceeding institutional capacity
17 | 38 | 22 | 22

Increasing retention and completion rates for students
26 | 36 | 22 | 17

Reducing the cost of delivering post-secondary programs
27 | 59 | 4 | 10

■ DK/NR ■ Not a benefit (1-3) ■ Somewhat (4) ■ Large benefit (5-7)

EKOS Research Associates Inc.

n=74

Survey of Faculty, 2004-05

IDs provided higher ratings of the benefits of TEL in virtually all areas compared to faculty (the exceptions being ratings of student retention and reducing costs, where ratings were similar to faculty or lower). The proportion of IDs providing a positive rating of the benefits of TEL in keeping up with innovations in their field and improving their skills and design strategies was more than double that of faculty.

Faculty's weaker ratings of the benefits of TEL in terms of addressing institutional capacity or cost of PSE delivery issues may account for their mixed views about the overall benefits of TEL. Four in ten faculty (41 per cent) agree that the anticipated benefits of TEL have been overrated, while a similar proportion disagree with the statement (40 per cent). Fourteen per cent are neutral. IDs are less apt to agree with this statement compared to faculty.

b)   Learners

The previous chapter noted that, while the proportion of students making use of online and televised opportunities is quite small in relation to the total who are registered, TEL courses attract a somewhat unique learner group – overrepresenting women, those who are off-campus, employed students and adult students.

Most learners who participated in TEL were quite successful and there are few concerns with respect to discontinuation. The completion rate of TEL courses is high at 91 per cent (considering students′ most recent TEL experience). Moreover, students reported that their grade in their most recent TEL course was at least average for them (53 per cent) or better than average for them (33 per cent).
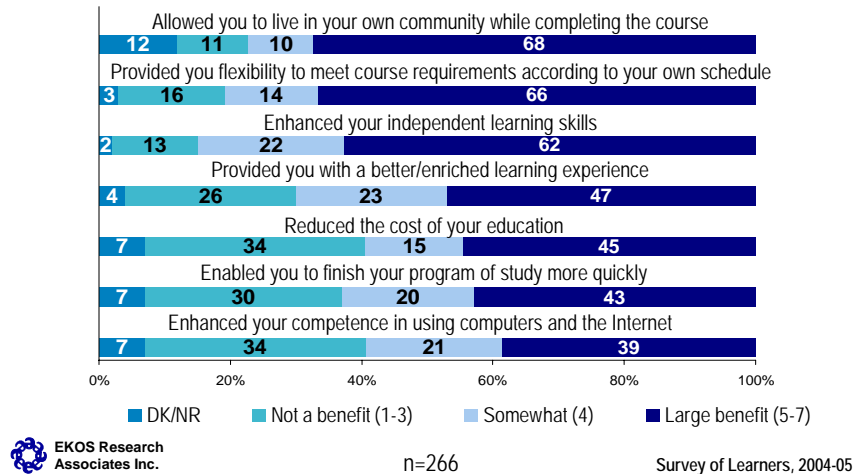
When asked in the survey whether they would have been able to take their most recent TEL course had it not been offered using technology, 48 per cent of learners said no (higher among adult, part-time students). Forty-three per cent indicated that they would have been able to take their most recent TEL course by traditional means had it not been offered online or via television. One in ten did not know or did not respond.

Learners were asked to rate the benefits of their TEL experience. The most highly rated benefits were allowing the learner to live in their own community while completing the course (68 per cent indicated this to be a large benefit (5, 6 or 7 on a 7-point scale)), provided flexibility to meet course requirements according to their own schedule (66 per cent indicating a large benefit) and enhancing the learner′s independent learning skills (62 per cent) (Table 4.2). Almost half indicated their TEL experience had benefits in terms of providing a better/enriched learning experience and 45 per cent felt the TEL experience had benefits in terms of reducing the cost of their education or enabling them to complete their program of study more quickly (43 per cent). Fewer learners (39 per cent) indicated a benefit in terms of enhancing their competence in using computers and the Internet. This figure is considerably higher, however, looking only at those learners taking online courses (45 per cent).

Off-campus and adult learners rate most of the benefits of their TEL experience consistently higher than on-campus students.

TABLE 4.2
Benefits of TEL: Learners

"How would you rate the following benefits of your technology enhanced learning experience?"

Benefit	DK/NR	Not a benefit (1-3)	Somewhat (4)	Large benefit (5-7)
Allowed you to live in your own community while completing the course	12	11	10	68
Provided you flexibility to meet course requirements according to your own schedule	3	16	14	66
Enhanced your independent learning skills	2	13	22	62
Provided you with a better/enriched learning experience	4	26	23	47
Reduced the cost of your education	7	34	15	45
Enabled you to finish your program of study more quickly	7	30	20	43
Enhanced your competence in using computers and the Internet	7	34	21	39

EKOS Research Associates Inc.   n=266   Survey of Learners, 2004-05

Other benefits of their TEL experience mentioned by students (fewer than 10 students in each case) in an open-ended question were: small class size; enhanced communication with instructor and interaction with other students.

c) Others

Experts note that, for administrators, the rapid evolution of learning technologies, the need to balance costs against (the sometimes reportedly mixed) benefits of TEL and ensuring quality standards are significant challenges. Key informants noted the impacts of the TEL Action Plan for administrators to include greater awareness of TEL and the need to consider TEL in planning (e.g., release time) and curricular decisions. For specialists (e.g., instructional designers, multi-media specialists), the TEL Action Plan has expanded demand for their skills, encouraged sharpening of their skills and, consequently, their need for training and development.

4.4 ACHIEVEMENT OF GOALS

a) Advancing education and training in rural and northern communities

The overarching vision of the TEL Action Plan is to "serve the learning needs of all residents" and to "extend access". The goals of the Plan clearly place a priority on off-campus students living in rural and northern communities in the province. There is a strong push toward a more programmatic approach in TEL content development decisions; that is, an approach where off-campus students can complete all or most of their program (or at least the early years of a program) in their home community.

The TEL Action Plan was intended to build on other efforts to reach students in their home communities. The focus on online content compl0ements televised courses delivered via the province's narrowcast satellite network operated by the Saskatchewan Communications Network (SCN) that has been in operation since 1989. In 2001, the province began implementation of CommunityNet, a $71M project, extending over six years, that provides a secure wide area network and high-speed Internet access in 366 communities in Saskatchewan, providing the basic infrastructure to support technology enhanced learning in locations throughout the province. Accessibility for rural and northern residents depends to a great extent on progress of the infrastructure.

Unfortunately, administrative data are not complete on the ratio of on-campus to off-campus registrations for TEL courses. Moreover, institutions apply their own definitions of on- and off-campus. Of the data that are available,[13] 57 per cent of registrations in TEL courses are on-campus students, 43 per cent are off-campus. Considering online delivery only, 73 per cent of registrations are on-campus and 27 per cent are off-campus. The proportions for the televised mode are reversed: 29 per cent of registrations are on-campus students and 71 per cent are off-campus.

In the learner survey, 30 per cent of students indicated they were living outside of the province's four major centres (one possible definition of off-campus) and 44 per cent of students indicated that in 2003-04 they were not taking courses on-campus (a second possible definition of off-campus). Seven per cent of students reported living in the North of the province.

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[13] On- and off-campus registration information is available for online delivery from U of R, SIAST and SIIT and for televised delivery from the U of R and U of S.

For rural and northern students, their access to TEL courses includes those that are televised or fully online (i.e., hybrid or blended courses that include some face-to-face instruction can reduce utility for off-campus students if they are not located near a campus or cannot attend the campus). Clearly, when an online course becomes available, there is no reason on-campus students also cannot take advantage of this alternative mode of delivery and this is where the majority of the student pool resides. Online courses can provide additional flexibility for on-campus students to balance work, family or course scheduling issues. Still, some key informants felt that choices with respect to content development have not adequately reflected the needs of off-campus students and rather place more importance on priorities of institutions to address capacity issues or the preferences of on-campus students.

b) Enhancing Métis and First Nations Peoples' education and training

Like all residents in the province, Métis and First Nations people in Saskatchewan can access post-secondary education through any of the province's institutions. TEL provides additional options for Métis and First Nations people to access post-secondary opportunities while staying in their home communities and/or to blend post-secondary education with family or work responsibilities.

As mentioned elsewhere, the TEL Action Plan provides funds to the province's Aboriginal post-secondary education institutions, largely for content development and to begin to build internal capacity for delivery of courses using technology. As well, the province's universities and SIAST contribute in this area. Examples of Aboriginal-specific content development projects are listed below.

Table 4.3: Examples of TEL-Funded Aboriginal Content Development

Institution	Courses, Programs, Learning Resources
First Nations University of Canada	› Cree and Saulteaux language studies (CREE 100/101, SAUL 100/101)
	› Introduction to Indian Social Work (ISW 200)
	› Indian/Native Studies Education (WEB MATERIALS)
	› Introductory Survey of North American Indian Art (INAH100)
	› International Indigenous Studies (INST200) (recognized for credit in an International Indigenous Studies program, a collaboration initiative with the Autonomous University of Chiapas)
	› Introduction to Indian Studies II (INST101)

Institution	Courses, Programs, Learning Resources
SIIT	› Certificate in Aboriginal Employment Development Program (CAED) › First Nations Orientation to Day Care and Headstart Programs (OCOM114) › SIIT Learner Resources (SIITLAB) › Indian Government Law (ILAW 235)
GDI	› Virtual Museum of Métis Culture and History
DTI	› Métis Studies Adult Basic Education10 (ABE 5-10 METIS)
U of S	› Cultural Diversity and Aboriginal Health (NURS 498.3) › Management of Contemporary Aboriginal Organizations (MBA 815) › Aboriginal Education: Leadership and Governance (EDADM 819.3) › Indigenous Economic Development (MBA 817) › Aboriginal Management Systems (MBA 818.3) › Introduction to Native Studies (NATST 110.6)
U of R	› Adapted Physical Activity: Aboriginal and Rural Perspectives (KHS 190) › Sport Tourism, Indigenous Peoples and Peripheral Areas (KHS 359)
SIAST	› Aboriginal Resource Rights (RLAW 102)

As with students living in rural and northern communities, TEL courses provide one tool to expand access to PSE for First Nations and Métis people. However, little evidence was available to assess the number of First Nations/Métis learners who have participated in TEL. The current reporting template does not require institutions to report on the ancestry of TEL students and students enrolled through the province's Aboriginal institutions represent a relatively small proportion of all post-secondary students in the province. As mentioned earlier, the survey of learners conducted for this review indicated that just under one in ten learners participating in TEL last year were of Aboriginal ancestry.

There may be substantial barriers, however, in further improving participation of First Nations/Métis students in TEL. In the experience of key informants, these include: lack of access to high-speed Internet for some on-reserve students or those living in remote communities; lack of adequate computer skills to take advantage of fully online courses; limited technology and human resource capacity of Aboriginal institutions to offer and support TEL courses (e.g., server capacity, help desk infrastructure, lack of access to WebCT (SIIT)); and learning preferences that, in the experience of Aboriginal institutions, require a strong coach/instructor relationship to maximize success.

c) Developing and retaining students, graduates, and faculty

Faculty

As mentioned elsewhere, the "reach" of TEL activities includes faculty participation in professional development events and over 200 faculty involved in TEL course development and/or delivery. There are no clear data on the extent to which TEL has impacted on the retention of faculty. Key informants were generally not of the opinion that TEL, in and of itself, could have a significant impact on faculty transitions. Recall that faculty opinions were mixed on the extent to which investments in TEL are necessary to attract and retain top faculty (section 2.1).

Those involved in the TEL Action Plan identify faculty development and participation as one of the key challenges. The learning curve for many faculty is steep and requires more assistance and greater investment than many within the PSE system anticipated. As well, issues related to workload, faculty incentives and copyright (noted above) serve to undermine faculty interest.

Students and Graduates

For students, TEL provides an additional option to participate in post-secondary education offered by local provincial institutions. Recall that about half of learners using TEL (higher among off-campus) indicated that the availability of TEL was important in attracting them to enrol in their post-secondary program. Two-thirds of faculty agreed that investments in TEL are necessary to attract and retain students at their institution. Participating in TEL has other benefits for learners as noted above in terms of developing independent learning skills and, for some, technological readiness. The extent to which TEL offerings are able to retain students and then graduates within the province was not examined in this study. Some key informants were dubious as to whether these were appropriate or fair expectations of TEL compared to graduates' broader considerations such as career opportunities and the overall health of the province's economy.

d) Developing Saskatchewan's intellectual capital

Impacts of the TEL Action Plan on developing Saskatchewan's intellectual capital were not measured in a rigorous or quantitative way. Impressions of key informants were generally favourable; in so far as students' access to PSE is expanded, the intellectual capital of the province will benefit. TEL activity in terms of content development, professional development and learner support have also expanded skills of faculty and specialists within institutions. Other strands

related to intellectual capital such as impacts on the IT industry, strengthened research and development are unknown and likely to be minimal.

4.5 UNINTENDED IMPACTS

The key unintended and positive impact of the TEL Action Plan has been progress toward improved credit transfer arrangements and information for course offerings in either traditional or alternative formats. The TEL Action Plan's call for "enhanced credit transfer and recognition to support access, mobility and program completion for students" initiated momentum toward development of a policy framework for a province-wide credit transfer system in 2003-04. The Saskatchewan Council for Admissions and Transfer (SaskCAT) has been formed to implement access to credit transfer information through an online, public-view transfer guide. SaskCAT is housed within Campus Saskatchewan.

Note that faculty and IDs are very supportive of improvements to credit transfer arrangements. Over eight in ten faculty and all IDs agree that "post-secondary institutions in Saskatchewan should develop improved credit transfer arrangements so that students have more flexibility and options for completing their programs of study".

On the negative side, the activities and initiatives implemented under the TEL Action Plan have had significant and unexpected costs for institutions in terms of faculty development and, for the longer term, maintenance and upgrading of existing course materials and learning objects. The question of the ongoing sustainability of TEL projects looms large for institutions, particularly as new content development projects add to the existing inventory of TEL courses.

4.6 TEL ACTION PLAN STRENGTHS AND CHALLENGES

The purpose of this section is to summarize the strengths and challenges of the TEL Action Plan that have emerged during the course of the review and the analysis of findings. Strengths of the TEL Action Plan include:

> *A policy-based approach.* The Plan has contributed to drawing attention to TEL within post-secondary institutions. The TEL Action Plan encouraged institutions to expand their TEL capacity and to begin to incorporate the issue into corporate strategic planning.

> *Flexibility.* For institutions undertaking TEL activities and initiatives, the Plan has proven quite flexible to support common objectives, within the unique circumstances of institutions. The TEL Action Plan also has shown flexibility in

content development (e.g., the GDI Virtual Museum – not strictly a course per se, but nevertheless funded as a publicly accessible learning resource) and incorporation of new concepts/directions (e.g., work by the Saskatchewan Learning Exchange, not envisioned as a priority at the outset of the Plan).

> *Partnership/collaborative model.* The TEL Action Plan was based on consultations with the PSE sector and represents a convergence of thinking between government and the sector. The Plan also included smaller institutions as partners. The collaborative model, while presenting challenges for institutions that normally operate solely on the basis of an institutional agenda, has reaped benefits with examples of joint projects, reduced duplication and the fulfillment of a major objective of the Plan, Campus Saskatchewan.

> *Inclusion of faculty development/learner support.* The emphasis on these elements placed a priority on effective, high quality TEL delivery over quantity, and recognized the importance of a technological and human support infrastructure.

During the life of the TEL Action Plan, and looking to the future, a number of challenges were also noted. Among them were initially high expectations for TEL, particularly given the relatively small investment in comparison to the significant costs of TEL design and delivery, the "ground zero" starting point in many institutions in the area of TEL, challenges in establishing partnerships in the post-secondary education sector and the long time-frames necessary to undertake institutional and cultural change within academia.

Specific challenges mentioned by key informants include:

> *Lack of strategic approach within institutions*. There were initial challenges in integrating TEL in a strategic way in institutions' academic plans and priorities and, related to this, development of a programmatic approach to guide investments. These issues are, at least in part, attributable to "growing pains" in introducing change;

> *Challenges in monitoring and measuring outcomes*. Implementing measures of success and monitoring of outcomes associated with project funds was a challenge early in the life of the Plan and, more broadly, there has been an absence of research on the effectiveness of TEL and impacts on students;

> *Role of the regional colleges that is currently in transition*. The regional colleges have played a strong role in supporting learners as televised "receive" sites. The colleges are continuing to define their role with respect to learner support in the context of TEL. This presents new challenges in terms of funding, skills and infrastructure;

- *Administrative issues*. These are primarily related to time burden and reporting timelines;

- *Lack of acknowledgement of ongoing costs*. Current resource allocations do not address costs of TEL course maintenance and up-dating;

- *Lack of broad awareness of TEL within institutions.* Engagement of faculty, administrators and decision-makers has been a challenge, limiting buy-in and slowing the full integration of TEL into institutional plans and activities. Lack of awareness among learners may also be an issue, leading to some courses being undersubscribed.

- *Limited participation of Aboriginal institutions*. This includes full participation in committees and in inter-institutional initiatives due to a variety of issues such as strained human and technical resources and different institutional priorities.

5. FUTURE TRENDS

One of the objectives of the review was to provide a forward-looking perspective to inform a possible future shared strategy around TEL in the province. The perspective of key informants, experts in the field and the literature was canvassed to understand future trends in learning technologies in the post-secondary environment.

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Review Questions:

➤ To what extent has the environment (both internal and external) for TEL in the post-secondary sector evolved since the Plan was adopted?

➤ To what extent has the Plan demonstrated flexibility to respond appropriately to changes in the environment (both internal and external)?

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5.1 EVOLVING ENVIRONMENT

As an overall context, first, many key informants noted the highly dynamic nature of this relatively new field, driven in part by the quick pace of the evolving technological environment. Two-thirds of faculty agree that "over the next decade, TEL will change the nature of post-secondary education". Forecasted technological changes affecting TEL include the growing popularity and sophistication of cell phones and games (the latter being found to have positive learning impacts); the growth of wireless networks, which further eliminate special barriers of learning; and digitalization of pen and paper through the advent of digital ink, embedded chips, and cheap wireless communications. These advances have the potential to increase access, raise the expectations and increase the skills of potential e-learners, result in new approaches to curriculum design and will necessitate instructors becoming more technologically adept.

Within Saskatchewan, the further development of TEL will also take place within a changing demographic and economic context. The labour market is aging and significant shortages in key areas are forecast. The First Nations population, a growing segment within the province, is expected to make up an increasing portion of the labour market. Out migration of youth is also a challenge for the province.

Second, there is an overall expectation of increased demand for TEL in post-secondary education. In the US, the Sloan Consortium study of post-secondary institutions produced an estimated increase in enrolments in online courses of 15 per cent in 2004 among institutions of a similar size to the largest post-secondary institutions in the province. Over 60 per

cent of schools this size say that online education is critical to their long-term strategy. At the same time, technology enhanced learning is not expected to supplant traditional teaching or distance education methods.

According to the literature, among the most significant trends affecting technology-enhanced learning will be the increasing demand for lifelong learning (at the post-secondary level). The demand for lifelong learning has been spurred by rapid changes in technology and workers' need for ongoing updating of, or changes, in skills. In tandem is an increasing desire to be able to participate in education and professional development wherever or whenever one desires or is able to do so. Lifelong learners have a different and more varied demographic profile than traditional students – older, often with work and family responsibilities.

Other trends identified in the literature and by experts that will contribute to the growth in demand for TEL include:

> the increasing cost of PSE, specifically rising tuition fees, will increase demand from on-campus students for more flexible learning activities that enable study to be combined with income-generating part-time work;

> continued growth in the need for post-secondary education as a requirement for entry into many occupations and fields;

> expectations of students and need for congruence with new ways of thinking and learning due to early exposure to the Internet, in the K-12 system and through gaming and simulations;

> while there are pockets of students who are underserved with respect to infrastructure or experience affordability issues (e.g., personal computers, fees), the overriding trend is toward broader access;

> increased competition for students from institutions that are already offering online learning and offering quality credentials will spur institutions without such options to adopt them; and

> the increasing shortage of faculty in Canada, requiring more cost-effective use of learning materials, a focus on revenue generation and a search for new markets without straining the existing physical infrastructure of the institution (e.g., the lifelong learning market).[14]

As the use of TEL in PSE institutions spreads, existing regional education monopolies are expected to be challenged. Students will have the capability to acquire credentials anywhere. This will also mean that institutions will need to benchmark their technologies against

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[14] Council of Ontario Universities (March 2000). *A Time to Sow: Report from the Task Force on Learning Technologies*. Available at www.opas-partnerships.com/eng/pdf/time2sow.pdf.

other jurisdictions and to seek alliances and partnerships with other institutions. For example, a number of community colleges in Alberta and Ontario are partnering with Athabasca University to offer the third and fourth years of Bachelor degrees. Institutional issues around financing will also mean increased attention paid to the cost-effectiveness of learning technologies, and, as a result, measurement of benefits.

5.2   LESSONS LEARNED

Based on their knowledge of the research and personal experience, expert panel members offered key "lessons learned" about the successful use of technology enhanced learning and key priorities and strategies to effectively position the province in the area of TEL in the future. Among the lessons learned that were identified by experts are:

> The success of technological innovations in teaching and learning must be inextricably linked to the extent to which these innovations support and enhance learning (and, according to one expert, allow learners to create and direct their own learning experience). Initiatives that do not have this primary goal as their underpinning will not achieve the support of faculty or of learners themselves.

> Building partnerships to address needs in the area of TEL is critical. This is particularly the case for a province such as Saskatchewan, which does not have the critical mass in population to develop the array of TEL content and resources that would be of value to students. Specialization and development of niche expertise within TEL is recommended, for example, capitalizing on experience in the province with First Nations and Métis education.

> To be most productive, funding for technology enhanced learning and the intellectual energy of faculty should be linked to the administrative and strategic goals of institutions. This leads to more effective and long-term, sustainable impacts.

> The appropriate use of technology carries significant demands for faculty to master technological skills, pedagogy and to understand the strengths and weaknesses of learning technologies.

> TEL content development and delivery needs to be guided by best practice which, according to one expert, includes: clearly defined learning outcomes linked to the use of technology, designs that encourage active and interactive learning; strong learner support (orientation, moderating, regular and systematic feedback); and cheap, reliable, easy-to-use software, hardware and networks". These practices need to be sustained by strong senior management support and organizational/technological/project management support (learning technology

support units using teams of professional instructional designers and media producers/web programmers as well as faculty).

> Experts emphasized the benefits of developing learning objects to a common technical standard and supported by the requisite agreements to be shareable. Small scale re-useable resources have proven to be most useful and there are opportunities for linkages with other national and international repositories as well.

> There is a need for more research to understand what makes for effective use of learning technologies and to distinguish between successful and ineffective innovations through evaluation. Institutions spend relatively little on research on innovation in teaching and learning. The increased understanding and sharing of effective pedagogies and learning resources can contribute to improvements in quality and reduce duplication and cost.

The literature and research on technology enhanced learning was also canvassed and provides many examples of best practices in the use of learning technologies, case studies of "trend setting" institutions and surveys of faculty and students participating in online learning. Many of the examples of best practice or lessons learned confirm the comments of the experts and include:

> A study of 21 post-secondary institutions in the US that consider their use of e-learning to be successful was conducted to discover best practices and innovations. The following ingredients of success were identified: Internet-supported learning was consistent with the institution's mission and supported by administrators and faculty; there exist competitive pressures to provide this type of learning; faculty and students are well-supported by services such as helpdesks, course development help from a support centre, technical training and one-on-one support for faculty. The use of a programmatic approach (getting programs fully online) also led to increased success (Abel, 2005);

> Online courses offered by institutions identified as "new pacesetters" had the following features in common to improve the quality of student learning: an initial assessment of each student's knowledge/skill level and preferred learning style; an array of high-quality, interactive learning materials and activities; individualized study plans; built-in continuous assessment to provide instantaneous feedback; and appropriate, varied kinds of human interaction when needed (Twigg, 2001, p. 11);

> Based on the experience of over 30 online delivery sites, success factors included: an enthusiastic teacher(s); local support from, and direct access to, an ICT-experienced teacher/mentor; significant institutional support in the form of relief time and/or encouragement; an implementation appropriate to the local

environment….; and positive initial experiences (cited in Eklund, Kay and Lynch, 2003, p.14).

➤ The Contact North Roundtable (2003) identified the following opportunities in the area of e-learning, from a national perspective: 1) Research in e-learning (effectiveness of e-learning vs. traditional methods; strengths and weaknesses inherent in this process; development of flexible and usable methodologies; supporting different learning styles, learning experiences; and to try to better understand where e-learning fits into our educational and training systems); 2) Development of partnerships/collaborations and the sharing of resources between various institutions, governments and the private sector; 3) Professional development within the corporate world; 4) Canada can become a world leader in the field of learning objects, intelligent search engines and intelligent databases, and the development of standards; 5) Customization of learning services; 6) Governments to play a critical role in advancing e-learning (developing a national education policy and governance body, placement of national infrastructure to support sharing between provinces, accreditation issues, ensuring that these are not treated as a business proposal, but as a learning and education proposal, and taking adequate steps to secure funding for learning in Canada).

➤ For more effective integration of information and communication technologies, Cueno et al., (2002) made the following recommendations: 1) Make evaluation of learning technologies a priority requirement. This means more evaluation in terms of learning and teaching needs is required; 2) Incorporate learning and teaching styles into technology investment decisions; 3) There is a serious need for institutional support for student and faculty computing, mainly because on-campus computer access is very limited in terms of time (students) and since adequate hardware is unattainable for many faculty members, who tend to work from home on course preparation and other academic activities.

Many developments under the TEL Action Plan have been implemented or have evolved in a way that is consistent with the lessons learned described above. The use of a programmatic approach in TEL content development and the Saskatchewan Learning Exchange are two examples of current thrusts that are supported by best practice.

6. SUMMARY THEMES

Following are a series of summary observations based on the results of the review. Themes are organized according to the major issues identified for this review.

6.1 RELEVANCE

> According to experts and the literature, TEL is "here to stay" and indeed demand is expected to increase – offering this mode of delivery is becoming an important element of strategic plans for many post-secondary institution to meet the expectations of students and faculty. Results from this review show that over seven in ten students taking TEL courses agreed there is strong demand from students at their institution for online or televised courses and programs. Two-thirds of Saskatchewan faculty survey respondents agreed that investments in TEL are necessary to attract and retain students at their institution.

> Overall, the components of the TEL Action Plan were appropriate and have continued relevance in the current environment. The components of the Plan reflect many of the "best practices" or trends identified in the literature (e.g., partnerships, sharing of learning objects, incorporation of TEL into institutional strategic planning). Faculty and learner supports are addressing many of the challenges identified in the literature to the effective use of TEL.

> There is broad support for another shared provincial strategy to guide and fund post-secondary institution and government investments in TEL.

> Stakeholders hold the view that the current TEL Action Plan is a sound document, requiring modest adjustment rather than redrafting. Greater focusing of current goals and greater prominence for some of the Plan's existing principles and enablers are areas for attention.

> The TEL Action Plan is aligned with provincial government priorities, though a future iteration of the Plan will need to dovetail with emerging plans and priorities (e.g., the planned update of the province's economic development plan emerging from the Centennial Summit, Saskatoon, January 2005).

> The Plan has been an important catalyst, sparking activity in a new method of teaching and dissemination. The Plan has been fruitful in providing a venue to bring institutions together and helping to strategize around offerings and supports province-wide.

6.2 PLANNING AND IMPLEMENTATION

▸ The Plan has generally been implemented as intended, recognizing that cultural and institutional change can be slow processes. Reasons for this include: (within most institutions) little initial activity/experience with TEL; lack of planning/governance processes in place and slow buy-in on the part of some institutions to support the kind and pace of change originally envisioned in the TEL Action Plan; and challenges in implementing the collaborative model.

▸ The establishment of Campus Saskatchewan is a significant achievement of one of the collaborative priorities set out in the TEL Action Plan. It should be noted, however, that some key informants noted the need for prudence in terms of expansion of the mandate of and/or funding for Campus Saskatchewan.

▸ The target of 200 online courses has also been exceeded (if courses under development are included) and activity under the TEL Action Plan has evolved from a series of often ad hoc projects toward a more programmatic approach to allow students to complete a larger portion of their program through alternative formats using technology. There has also been significant activity in professional development of faculty and support to learners.

▸ The most extensive activity under the TEL Action Plan, particularly in the area of TEL content development, has been within the province's two universities and SIAST (these institutions receive the lion's share of the funding and most of the province's learners enrolled in credit post-secondary courses are registered with one of these institutions). The role of the regional colleges is evolving to provide support for online learners, as well as those participating in televised courses.

▸ The role of the regional colleges has evolved significantly under the TEL Action Plan to support students enrolled in credit courses from the universities and SIAST and in using technology to enhance learning opportunities and services which the colleges are mandated to provide such as counselling and basic education for adults. The Saskatchewan Network of TEL Services is a key vehicle.

▸ A number of unique and noteworthy initiatives were developed and implemented by Aboriginal institutions under the TEL Action Plan. Still, many Indigenous learners living in remote communities do not yet have access to the technological infrastructure required for online courses. For Aboriginal institutions, these smaller scale operations, limited technological infrastructure and stretched human resources have made full participation a challenge. The corporate priority

is on face-to-face instruction to serve their learners. Nevertheless, institutions have made appropriate use of TEL funds and expect to continue to play a role in the future.

> Learners and faculty who have participated in TEL are generally pleased with their experience and the experience has led to benefits in several areas. For students, TEL attracts an older student base and a significant portion of off-campus students. TEL has provided needed flexibility to balance education with other concerns such as work, family or course scheduling. TEL does not appear to have a negative impact on completion rates or students' academic performance. The views of on- and off-campus students are quite different in terms of motivation, demand for TEL and their experience of benefits, as are those of adult or non-traditional part-time students.

> The cadre of faculty currently involved in TEL represents a modest proportion of instructional staff overall. For faculty, benefits are perceived to occur for students in providing flexible options and an enhanced learning experience. Workload is the most significant barrier to participate in TEL and faculty have mixed views about their institution's support for TEL. Instructional designers (IDs) tend to provide more positive ratings than faculty in terms of the benefits of TEL, institutional support and future demand.

> Post-secondary institutions contribute significant resources to complement TEL Action Plan funds. Participants are, for the most part, comfortable with the current funding approach or at least recognize the difficulties in changing the status quo. Only a few would like to see TEL funds rolled into base budgets; however, beyond this, there is little consensus about change (the varied opinions include Saskatchewan Learning adopting a more prescriptive approach to funding decisions, linking funding allocation to deliverables or to more specific objectives, introducing funding caps for course development projects). In the longer term, sustainability of courses is an issue as institutions try to meet the costs of maintenance and upgrading of existing courses.

> With respect to efficiency, lack of a strategic approach in incorporating TEL into institutions' plans and priorities, together with weak project management within the institutions in some instances served to undermine efficiency early in the life of the Plan. Efficiency is perceived to have improved with experience and several ideas have emerged around potential opportunities for collaboration among institutions that would have positive impacts for efficiency (e.g., sharing of digital content, economies of scale in purchasing, streamlining administrative processes).

> In terms of monitoring, Saskatchewan Learning and the institutions have put in place processes to track all projects receiving TEL funding since 2000-01. The

Department is seen to have been quite responsive to the suggestions of institutions to adjust the reporting requirements. At the same time, detailed and consistent data from the early years of the TEL Action Plan are weak. As well, it is difficult to assess progress of the Plan toward meeting all objectives with the data that are collected (e.g., participation of First Nations and Métis people in TEL courses is not available). Research into the effectiveness of TEL and impacts, in particular for learners, has not been undertaken in any extensive way.

6.3   IMPACTS AND EFFECTS

> The impacts on capacity within institutions have been significant, with the three largest institutions building and supporting organizational units to house their TEL activities, with specialists such as instructional designers available to support faculty. Aboriginal institutions and regional colleges have also developed capacity in this area. In the last year, a requirement of funding for the largest post-secondary institutions has been the preparation of institutional plans showing priorities and actions for TEL and how they relate to the broader corporate strategic plans.

> The Plan has had important impacts in laying a foundation for inter-institutional collaboration in the area of TEL. Campus Saskatchewan, with a Management Board and associated working committees has been established. As well, there have been many examples of joint projects and efforts in areas pertaining to content development (e.g., Prairie Studies), faculty development and learner support (conferences, training activity, annual forums), and student services (e.g., admission forms). An unintended impact, the TEL Action Plan has fostered momentum in addressing province-wide credit transfer for both TEL and traditional courses and programs.

> There are indications that the TEL Action Plan is contributing to addressing the four goals set out for the Plan. While TEL certainly provides another option for rural and northern residents and for First Nations and Métis students to participate in PSE, the "penetration" of this mode is difficult to assess. Professional development activities and support for learners and faculty has undoubtedly led to increased skills, though impacts on the retention of faculty and graduates and on economic development of the province are unknown.

6.4   IMPLICATIONS

> There is a desire for another shared strategy for TEL in Saskatchewan, one that advances and capitalizes on the province's and institutions' foundational

experience to date. This agenda would guide public investments in TEL to take the province to the next level of collaboration and capacity, and focus attention on selected key strategic areas. A future shared strategy should incorporate and extend the many strengths of the current Plan, such as the emphasis on a collaborative model and continued inclusion of faculty development and learner supports to ensure effective development and delivery of TEL content. The continuing evolution of the collaborative model needs to acknowledge and clarify the respective roles and responsibilities of the department and the Campus Saskatchewan Management Board (CSMB) for ongoing leadership and coordination of the TEL Action Plan.

> Among the areas for further consideration is whether the goals of the Plan (e.g., on-/ off-campus distinction) continue to be meaningful, and then to forge a closer link between the goals of a new shared strategy, institutions' academic plans and priorities, and funding decisions. Key principles that have been highlighted include accessibility, learner-centred focus, research-based and accountability. Identifying appropriate areas for specialization and niche expertise may also be useful, given the province's size.

> Some of the spheres of action outlined in the original document were not vigorously pursued, but remain valid. These include, for example, meeting the lifelong learning needs of non-traditional learners, a closer linkage between TEL activity and the needs of the labour market and evolving economy, and an interjurisdictional focus that could include greater activity outside of provincial boundaries and outside of post-secondary boundaries (e.g., with the K-12 system). There are also new areas such as the Saskatchewan Learning Exchange and co-ordinated procurement that have garnered attention and interest. All of these are consistent with areas identified in the literature as important for the effective use of TEL.

> The programmatic approach to content development is an important thrust, one that is strongly supported by off-campus students themselves and could be expected to improve the sustainability of TEL courses over time. The programmatic approach has also been identified as a "best practice" in the literature. Challenges will be to identify the "best" programs for TEL delivery based on effectiveness, demand, and institutional academic policies and priorities. Dovetailing faculty interest with a programmatic approach in content development will be a further challenge.

> The feedback from learners does not point to any significant issues with respect to learning outcomes: discontinuation has not been problematic, nor has student performance (as measured by self-reported grade). Non-traditional, part-time learners value the enhanced flexibility offered by TEL and, in general,

demonstrate greater enthusiasm for this alternative mode of delivery than other participants.

› There has been significant activity and significant pressures on the area of faculty development – the level of support to faculty in developing and delivery TEL courses cannot be underestimated. Research has found faculty to be less enthusiastic and more conservative in their views on TEL than students. In fact, the numbers of faculty actively involved in TEL in an intensive way, such as teaching full courses online, is quite small in relation to the full complement of instructors. Broadening engagement will be a key issue and encouraging faculty interest beyond the cadre of "early adopters" will further underline issues related to workload and technical support. Finally, the review reflects other research indicating that faculty incentives and recognition for participation in TEL are barriers to full engagement of faculty (though this deeply entrenched reward and promotion system within institutions will not be easily amenable to change).

› In terms of organization, the process of articulating the role of the regional colleges is ongoing. The needs of TEL learners in rural and northern Saskatchewan must be identified and taken into account to ensure success. There may be implications for funding, however, as these needs are understood and addressed (e.g., for infrastructure, staff training, tutor support, extended hours of service).

› Fuller engagement of Aboriginal institutions and addressing the needs of Aboriginal learners are important considerations for the future to ensure that participation and capacity building continues apace for this group.

› The current reporting regime does not support a full assessment of impacts. Administrative data have improved but suffer from varying institutional definitions of some key concepts (such as distinctions between on and off-campus students). Developing and implementing performance measures must be balanced against the reporting burden of institutions. Some experts noted the need for clear indicators of success and research on quality and outcomes (e.g., developing a research base on what works best for students, incorporating scholarly work into TEL development, course/resource development supported by formative and summative evaluation). Full assessment of impacts on learning would require support for evaluative research which is much more demanding and costly than the compilation of administrative data. This type of information could be valuable, however, in supporting well-informed decision-making about TEL and guiding change that is system-wide.

› Dissemination of the products related to TEL – planning documents, deliverables, learning objects, research results – made widely and publicly

available both within and outside of institutions is a best practice to ensure knowledge is transferred throughout institutions and across the PSE system.

APPENDIX A
REVIEW QUESTIONS AND DATA SOURCES MATRIX

ISSUES AND DATA SOURCES

	Document/ Literature Review	Key Informant Interviews	Survey of Faculty	Survey of Learners	Survey of Instructional Designers	Expert Panel
Relevance						
› Were the major components (e.g., vision, principles, goals, enablers, priorities for action) of the TEL Action Plan the right ones at the collaborative and institutional levels? ¤ Are these components still relevant and appropriate in light of emerging needs and issues? ¤ How should they be modified in the future?	X	X				X
› To what extent has the environment (both internal and external) for TEL in the post-secondary sector evolved since the Plan was adopted including: ¤ The global education environment? ¤ Public demands and expectations for post-secondary education? ¤ Demographic, economic, and social changes? ¤ Changes in information and communications technologies? ¤ Developments within post-secondary institutions? ¤ Student and faculty capacity to use technology? ¤ Needs and demands of learners and the labour market?	X	X				X
› To what extent has the Plan demonstrated flexibility to respond appropriately to changes in the environment (both internal and external)?		X				

	Document/ Literature Review	Key Informant Interviews	Survey of Faculty	Survey of Learners	Survey of Instructional Designers	Expert Panel
› To what extent has the TEL Action Plan positioned Saskatchewan's post-secondary institutions to be more effective in supporting technology enhanced learning compared to other jurisdictions? ¤ How has this changed over the course of the Plan? ¤ What is the current situation?	X	X				X
› To what extent has the Plan been sufficient and useful in guiding the efforts of the department and post-secondary institutions to achieve common purposes?	X	X				
› To what extent is the concept of an overarching framework for TEL at the post-secondary level still useful? ¤ What type of framework would be appropriate in the future?		X				
› What is the relationship between the TEL Action Plan and other institutional, sectoral or governmental initiatives including: ¤ Institution's academic plans? ¤ Learning sector strategic plan? ¤ First Nations and Métis education/employment plans? ¤ Economic development? ¤ Rural revitalization?	X	X				
Planning and Implementation						
› To what extent were key actions and initiatives developed and implemented within institutions, by government, and through inter-institutional collaboration as a result of the TEL Action Plan?	X	X				

	Document/ Literature Review	Key Informant Interviews	Survey of Faculty	Survey of Learners	Survey of Instructional Designers	Expert Panel
› What resources did the partners in the strategy (e.g., government department/agencies and institutions in-kind and financial contributions) contribute to planning and implementation of TEL initiatives? ¤ What resources were mobilized and levered as a result of the Plan?	X	X				
› To what extent has the allocation of funds by government and the institutions/organizations supported the TEL Action Plan?	X	X				
› How should the allocation process be strengthened? ¤ By government ¤ By institutions/organizations		X				
› To what extent are the roles and responsibilities for accountability clearly defined, understood, and demonstrated?	X	X				
› To what extent are adequate processes in place to monitor actions, use resources, impacts and effects and to make adjustments as necessary?	X	X				
› To what extent are performance-reporting requirements defined and implemented?	X	X				

	Document/ Literature Review	Key Informant Interviews	Survey of Faculty	Survey of Learners	Survey of Instructional Designers	Expert Panel
Impacts and Effects						
› To what extent have TEL initiatives or activities been of value to instructors and faculty, counsellors and learners?		X	X	X	X	
› To what extent has the TEL Action Plan been successful in achieving its broad goals including: ¤ Advancing education and training in rural and northern communities; ¤ Enhancing Métis and First Nations peoples' education and training; ¤ Developing and retaining students, graduates, and faculty for a knowledge-based society; ¤ Developing Saskatchewan's intellectual capital?	X	X	X	X	X	
› What impact has the TEL Action Plan had on collaboration between and among the partners? ¤ To what extent has the TEL Action Plan been successful in developing a collaborative model for technology enhanced learning within Saskatchewan's post-secondary sector? ¤ What are the outcomes of this collaboration?	X	X				
› To what extent has the TEL Action Plan been successful in building capacity for technology enhanced learning within post-secondary institutions?	X	X				

	Document/ Literature Review	Key Informant Interviews	Survey of Faculty	Survey of Learners	Survey of Instructional Designers	Expert Panel
› What impact has the TEL Action Plan had on: ¤ Learners? ¤ Institutions (including faculty and instructors, counsellors, instructional designers, multi-media specialists and administrators)? ¤ Employers? ¤ Government?	X	X	X	X	X	
› What unintended impacts, either positive or negative, has the TEL Action Plan had?		X				
› To what extent have the funds been used efficiently (value for money)?		X				
¤ How can the funds and resources be used more efficiently?		X				
› What are the lessons learned in the development and implementation of the TEL Action Plan?	X	X				X
› What improvements could be made? How could these be incorporated into the next planning iteration?	X	X				X

APPENDIX B
LIST OF KEY DOCUMENTS/LITERATURE

DOCUMENTS AND LITERATURE

- ▸ TEL Action Plan Program Documentation
    - ◇ TEL Templates for Reporting for Academic Years 2003-04, 2002-03, 1998-02
    - ◇ Letters of Understanding between Saskatchewan Learning and post-secondary institutions
    - ◇ *The Role of Technology Enhanced Learning in Academic Preparation: A Strategy and Action Plan*, September 2002
    - ◇ Campus Saskatchewan, *Distance Learning Opportunities 2004-2005 (brochure)*
    - ◇ Campus Saskatchewan, *2004-2005 Business Plan*, June 2004
    - ◇ Campus Saskatchewan, *Possible Organizational Models*, October 2001
    - ◇ Campus Saskatchewan Management Board Committee Minutes
    - ◇ Technologies in Learning Working Group, *Technology-Enhanced Learning, Phase 1: Discussion Paper on the Integration of Technologies in Post-Secondary Education and Training for Saskatchewan, Executive Briefing*, December 1997
    - ◇ Technologies in Learning Working Group, *Technology-Enhanced Learning, Phase 1: Discussion Paper on the Integration of Technologies in Post-Secondary Education and Training for Saskatchewan*, December, 1997
- ▸ Government of Saskatchewan Sector/Departmental Plans/Annual Report
    - ◇ Agriculture, Food and Rural Revitalization, A Strategy for Rural Saskatchewan: Responding to ACRE
    - ◇ Post-Secondary Sector Aboriginal Education and Training Action Plan First Annual Report - 2002-2003
    - ◇ Saskatchewan Learning Annual Report 2003-2004
    - ◇ Saskatchewan Learning Performance Plan 2004-05

- ◆ Partnership for Prosperity: An Economic Strategy - Towards 2005

- ◆ Partnership for Prosperity Year 1 Progress Report (Fall 2002)

- ◆ Partnership for Prosperity Year 2 Progress Report (2003)

❯ Post-Secondary Institution Plans

- ◆ A Framework for Action, University of Saskatchewan Integrated Plan 2003-07

- ◆ TEL Activity at the University of Saskatchewan: Institutional Plan, June 2004

- ◆ Comprehensive Budget Plan for 2004-05, University of Regina

- ◆ Reaching our Potential: Planning for Progress 2002-06, University of Regina

- ◆ SIAST Business Plan 2004-2009

❯ Regional Colleges

- ◆ Regional Colleges' Network of TEL Services Implementation Plan Report, June 21, 2001

- ◆ TEL Services Pilot Project Proposals and Evaluations

- ◆ Regional College Business Plans 2003-04

❯ Research pertaining to TEL carried out by Saskatchewan PSE institutions and faculty

- ◆ University of Regina, Action Research for Technology Enhanced Learning, *TEL: Communities of Practice* (CD-Rom)

- ◆ University of Regina, Technology Enhanced Learning Survey, 2004 (Strategic Planning Faculty Survey, Student Survey, Summary of Results)

❯ General Literature

- ◆ Abel R. *Achieving Success in Internet-Supported Learning in Higher Education: Case Studies Illuminate Success Factors, Challenges, and Future Directions*, Alliance for Higher Education Competitiveness, 2005.

- ◆ Alberta Learning, Learning and Technology Policy Framework (Draft), May 2003.

◆ Alberta Learning and LEARN, *Impacts of the Learning Enhancement Envelope (LEE) on Alberta Post-Secondary Education*, Abridged Final Report, 2001

◆ Bates, A.W. and G. Poole, *Effective Teaching with Technology in Higher Education, Foundations for Success*, San Francisco: Jossey-Bass, 2003

◆ Contact North Roundtable on e-Learning, *The Future of e-Learning: A Preliminary Snapshot,* March, 2003

◆ Council of Ontario Universities, Task Force on Learning Technologies, *A Time to Sow –Report from the Task Force on Learning Technologies*, 2000.

◆ Cuneo, C. B. Campbell and D. Harnish. The Integration and Effectiveness of ICTs in Canadian Postsecondary Education, Paper prepared for the 2002 Pan-Canadian Education Research Agenda Symposium, Montreal, 2002.

◆ DiPaolo, A. Stanford Center for Professional Development Stanford University, *Choices and Challenges: Lessons Learned in the Evolution of Online Education*

◆ Downes, S. *A Conversation (with Mark Oehlert) on the Future of E-Learning.* www.downes.ca/files/oehlert.htm.

◆ Eklund, J., M. Kay and H. Lynch. *E-learning: emerging issues and key trends: A discussion paper*, Australian Flexible Learning Framework, 2003

◆ Industry Canada, Advisory Committee for Online Learning. Various Papers.

◆ Industry Canada, Advisory Committee for Online Learning, *The e-learning e-volution in Colleges and Universities: A Pan-Canadian Challenge*, 2002.

◆ Oehlert, M. *The Future of e-Learning Models and the Language We Use to Describe Them*, The Masie Centre, Boise State University, November 2003.

◆ "*Quality on the Line: Benchmarks for Success in Internet-Based Distance Education*" (http://www.ihep.com/Pubs/PDF/Quality.pdf)

◆ Sloan Consortium (The) *Entering the Mainstream: The Quality and Extent of Online Education in the United States*, 2003 and 2004, 2004.

◆ Sloan Consortium (The). *Sizing the Opportunity: The Quality and Extent of Online Education in the United States*, 2002 and 2003, 2003.

◆ Stockley, Denise. *Strategic Planning for Technological Innovation in Canadian Post-Secondary Education*, Canadian Journal of Learning and Technology, Vol. 30, No.2, Spring, 2004.

◆ UK Department of Education and Skills, *Towards a Unified e-Learning Strategy*, Consultation Document, July 2003.

◆ Zemsky, R. and W. Massy, *Thwarted Innovation: What Happened to e-learning and Why*, A Final Report for The Weatherstation Project of The Learning Alliance at the University of Pennsylvania in cooperation with the Thomson Corporation, 2004.

APPENDIX C
LIST OF EXPERTS

EXPERT PANEL MEMBERS

Dr. Anthony Bates, Author: *Effective Teaching with Technology in Higher Education, Foundations for Success*, San Francisco: Jossey-Bass, 2003
Former Director
Distance Education and Technology, Continuing Studies
The University of British Columbia

Terry Anderson, Athabasca University
Professor and Canada Research Chair in Distance Education
Athabasca University,
320 10030 107 St.
Edmonton, AB Canada

Dr. Tom Carey
Associate Vice-President,
Learning Resources & Innovation
University of Waterloo

Stephen Downes
Senior Research Officer
National Research Council of Canada
Moncton, New Brunswick, Canada
(Affiliated with the Council's Institute for Information Technology, E-Learning Research Group)

APPENDIX D
PROFILE OF FACULTY PARTICIPATING IN TEL

Profile of Faculty

Characteristics	Percentage
Years as Faculty	
Member	14 years
Field of Study (top six)	
Arts and Science - Natural and Physical Sciences	8
Arts and Science – Social Sciences	10
Computer Science and Information Technology	17
Fine Arts, Applied Arts and New Media	9
Health Sciences	13
Education	9
How would you rate your skills in using technology to enhance learning?	
Poor (1-3)	9
Average (4)	20
Good (5-7)	69
Current Position	
Instructor	32
Sessional Lecturer	11
Assistant Professor	8
Associate Professor	10
Full Professor	13
Academic Administrator (Dean, Associate Dean, Department r Program Head, Director)	17
Adjunct Professor	1
Other (please specify)	8
Gender	
Male	49
Female	43

Source: Survey of Faculty, 2004-05
n=74

APPENDIX E
PROFILE OF LEARNERS PARTICIPATING IN TEL

Profile of Learners

Characteristics	Percentage
Taken Courses Previously	
Yes – online	17
Yes – televised	15
Yes – correspondence using print material	31
Yes – face to face classes held in an off-campus location	15
None of the above	46
Taking Classes On-Campus	
Yes	56
No	44
Main Area of Study (top choices)	
Health Sciences	21
Arts and Science - Humanities	10
Arts and Science – Social Sciences	13
Business, Commerce, Management and Administration	12
Social Work	11
Other (specify)	12
What type of credential did/will this program give you?	
Diploma/certificate	36
Undergraduate degree	48
Post-graduate degree	5
Don't know/no response	10
Status	
Full-time	55
Part-time	36
Don't know/no response	9
Own a computer	
Yes	95
No	5
Access to the Internet off-campus	
Yes	96
No	4
High Speed	
Yes	89
No	11
Location Where Used Computer for Course	
Home	74
Workplace/office	15
University/SIAST campus	23
Regional College	5
Did not use a computer	11

Characteristics	Percentage
Rated computer skills	
Good	75
Average	21
Poor	5
Employment Status	
Yes - full-time	41
No – part-time	36
No	22
Gender	
Male	21
Female	78
Age	
19 or younger	10
20-21	17
22-25	23
26-29	12
30-39	16
40-49	14
50 or over	7
Dependants	
Yes	36
No	63
Equity Group	
First Nations Person	4
Métis Person	4
Person with disability	3
None of the above	86
Size of Community	
200,000+ (e.g., Saskatoon, Regina)	51
30,000 - 199,000 (e.g., Moose Jaw, Prince Albert)	16
10,000-29,000 (e.g., North Battleford, Swift Current, Yorkton)	9
2,500-9,999	10
Rural/farm	11
Out of province	2
Located in Northern Saskatchewan	
Yes	7
No	93

Source: Survey of Learners, 2004-05
n=266