

Access to University Studies: Implementing and Evaluating Multi-point Videoconferencing

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ABSTRACT

A formidable geographic barrier exists in Canada for institutions wishing to provide opportunities for university education but serving clients and communities in remote regions of a province. In early September 1995, the University of Alberta, Fairview College, and Kayas Cultural College embarked on a new partnership in offering a selected number of introductory Faculty of Arts courses in remote regions of northwestern Alberta. The primary mode of delivery was synchronized, multi-point videoconferencing (to as many as six sites), with all courses delivered from the University of Alberta campus. Slightly more than 70

RÉSUMÉ

Un obstacle géographique redoutable existe au Canada pour ces institutions espérant offrir des possibilités d'accès à l'enseignement universitaire tout en servant des clients et communautés de régions éloignées dans leur province. Au début septembre 1995, The University of Alberta, Fairview College et Kayas Cultural College se sont engagés dans un nouveau partenariat qui offraient un nombre choisi de cours d'introduction de la Faculté des Lettres aux régions éloignées du nord-ouest de l'Alberta. La vidéoconférence multi-points synchronisée (à un maximum de 6 sites) servait comme conduite primaire de programmes et tous les cours provenaient du campus de The

percent of the student cohort for the first academic year were Aboriginal students. This paper provides a contextual background, describes the implementation, and reports the findings from a detailed formative evaluation of this partnership. The focus is primarily administrative in that questions addressed will relate to how such programs can be planned, implemented, managed, and monitored.

University of Alberta. Les étudiants autochtones représentaient un peu plus de 70 pour cent de la population estudiantine pendant la première année académique. Cet article offre un arrière-plan contextuel, décrit l'exécution et rapporte les résultats d'une évaluation formative détaillée de ce partenariat. L'article a un thème particulièrement administratif parce qu'il adresse des questions de planification, d'exécution, de gestion et de surveillance de tels programmes.

INTRODUCTION

In today's post-secondary education context, universities are concerned more than ever with developing new ways to provide a variety of educational opportunities to an increasingly diverse student population. One obvious means for improving access is through expansion of distance education systems and programs. When combined with today's sophisticated and rapidly evolving communication technologies, distance education by electronic means becomes a promising growth area in the provision of many kinds of educational programs.

Another recently defined growth area relates to inter-institutional partnerships with community colleges and university transfer programs. Through a variety of formats, a college student can access introductory university courses for credit and later transfer to a university setting for degree completion. However, in Alberta, as in many other provinces, physical access to the nearest university and its resources can be a formidable geographic obstacle. An additional barrier exists for those institutions wishing to provide university transfer education but serving clients and communities in remote regions of a province.

This paper will describe one type of solution to such a dilemma. As of early September 1995, three institutions in Alberta—the University of Alberta, Fairview College, and Kayas Cultural College (a community-based organization providing educational and other services to a geographically dispersed Aboriginal population)—embarked on the University Studies Project, a distance education partnership offering a selected number of introductory Faculty of Arts courses for credit in remote

northwestern regions of the province. The primary mode of delivery was synchronized, multi-point videoconferencing (to as many as six sites), with all courses delivered from the University of Alberta campus. Instructional support included the use of the Internet and a University of Alberta WWW page in conjunction with the videoconferencing medium. Slightly more than 70 percent of the student cohort for the first academic year were Aboriginal students.

As expected, the realization of this program presented a number of cultural, administrative, and technical challenges, particularly for institutions that are by no means “seasoned veterans” in university/college partnerships or in distance education initiatives. This paper provides a contextual background, describes the implementation, and reports the findings from a detailed formative evaluation of this partnership. The focus is primarily administrative in that questions addressed will relate to how such programs can be planned, implemented, managed, and monitored.

Effective administration requires a holistic and multidimensional view of problems, processes, and possible solutions. The theoretical framework for the implementation of this project encompassed problems and solutions at a number of levels, including institutional cultures, planning and administration, instructional adaptations and course content, technological factors, student support systems, promotion, program costs, and legal/intellectual property issues. The evaluation examined six aspects of the program: (1) demographic profiles of students; (2) perceptions of how well students’ needs are being served; (3) planning and administrative issues; (4) necessary curricular and instructional adaptations; (5) the nature and extent of support services needed; and (6) the educational effectiveness of the delivery system. The evaluation results will establish a knowledge base for future policy decisions and program improvements. Recommendations for the effective planning and implementation of distance education initiatives will also be discussed.

CONTEMPORARY DEBATES IN DISTANCE EDUCATION RESEARCH

The implementation and evaluation of this project take place at a time and within a milieu of heated debate on contemporary issues in distance education. One such issue is the effect of technological media on the structuring of knowledge and, indeed, on how different technological media represent reality. On one hand, there is the view that suggests that devices (the technological medium)—by influencing and even creating new

methods and techniques of delivery—affect educational culture and the way we view the learning process and may even affect students' creation and understanding of content (Bates, 1995). On the other hand, extensive empirical research has been conducted on technological media, levels of interaction, satisfaction levels, and student achievement (see, for example, Fulford & Zhang, 1993; Kendall & Oaks, 1992; Ritchie & Newby, 1989; Russell, 1992, 1993, 1994; Stubbs & Burnham, 1990; Tobin, 1995). Although different instructional delivery environments lend themselves to differing levels of interaction, differences in the extent of interaction (Kendall & Oaks, 1992) and perceptions of interaction (Fulford & Zhang, 1993) tend to impact on student satisfaction. No clear and positive link has been established with student performance.

This “no significant difference” phenomenon (see Russell, 1992, 1993, 1994) also raises an additional question on the influence of satisfaction. Although the type of media, the levels of interaction, and other variables such as student support (Tallman, 1994) cannot be shown to directly affect achievement, they do appear to influence student satisfaction levels (Fulford & Zhang, 1993; Kendall & Oaks, 1992; Ritchie & Newby, 1989; Tallman, 1994). The question then arises: How important is satisfaction? Although the link between satisfaction and achievement is dubious at best, student satisfaction will most surely influence motivational levels, retention and completion rates in courses and programs, and students' tendencies to return to a medium again for additional learning (Biner, Dean, & Mellinger, 1994). Thus, aside from the educationally desirable condition of providing learning to satisfied clients, much needed longitudinal research may shed valuable light on the relationship between satisfaction and the future of distance education programs.

A significant percentage of students in the University Studies Project were of Aboriginal descent. Thus, a further unavoidable question in evaluation relates to how the needs of this particular group were met. The problem is, again, that research on minority populations and distance education is sparse, and studies pertaining specifically to Aboriginal learners appear scarce indeed. Tobin (1995) suggests that “review of the literature did not find that research has paid attention to a wide spectrum of the disparate learner groups” (p. 204). Given cultural traits endemic to Aboriginal heritage such as the centrality of oral traditions, an orientation to the present, the importance of face-to-face communication, and the significance of community and group solidarity, the use of synchronous, highly interactive technology along with structured schedules of learning

and a clearly defined support system does not seem an unreasonable approach. Delivery systems demanding a high degree of learner autonomy may not be appropriate, and learner independence most likely should not be an immediate program goal or a measure of program effectiveness. Indeed, Spronk (1995) is quite clear on what not to do: "What clearly does not work with Aboriginal learners is the home study model" (p. 91).

Finally, the research findings discussed above point to a need for additional study focused on the administration of distance education. This need was clearly articulated by Bates as early as 1981 when he called for "preparation programs or at least courses for planners and managers of distance education and particularly audio visual media . . ." (p. 89). Paul (1995) indicates a lack of emphasis on emerging technologies and innovations in distance education research and, instead, a preoccupation with well-established and traditionally researched technological and educational problems. Tobin (1995) suggests a number of areas within the administration of distance education in need of further study, including organizational change that has occurred or is required in relation to distance delivery, satisfaction with and effectiveness of organizational structures established for distance education, the nature and extent of inter-organizational cooperation, and professional development for the changing roles of faculty within a milieu of rapid technological and educational advancement. To reinforce the need for an examination of administrative issues, Moore (1994) suggests that "the barriers impeding the development of distance education are not technological, nor even pedagogical . . . The major problems are associated with organizational change, change in faculty roles, and change in administrative structures" (p. 4). It is within this context of the need for administrative understanding that the present program implementation and evaluation are discussed.

ASPECTS OF IMPLEMENTATION

As early as February 1995, informal discussions took place between administrators at Fairview College and the University of Alberta concerning the possibility of this project. The initial discussion focused on the provision of Faculty of Arts university credit courses as its desired academic structure. In late May and early June 1995, the Special Sessions Office at the University of Alberta (which administered the project) received two formal proposals from Fairview College outlining the parameters of the program and the respective institutional responsibilities. Implementation of the program began in late June 1995 and was essentially

complete by the start of the 1995–96 academic year, with most major operational elements in place.

The basic responsibilities of each institution were defined in the initial proposals. Roughly, the University of Alberta provided the requested courses, appointed instructors, distributed textbooks, managed the admission and registration of students, and provided library support. The responsibilities of Fairview College and Kayas Cultural College involved making the necessary facilities and equipment available. This included access to the central bridging site at Fairview College, the recruitment and screening of students, the promotion of the project, the coordination of registration within their own regions, and the establishment of a student support system consisting of program advisors or counsellors, technical support, and tutors.

On-site program advisors were designated for each of the three Fairview College sites and for the Kayas College system. Additional staff at each site were selected for tutorial support as needed during the term. Proctors assisted with videoconferencing system operations at each site, and a technology coordinator monitored operations for all Fairview College and Kayas College sites. Librarians at each of the Fairview College sites provided additional assistance for distribution of program materials, textbooks, and liaison with the University of Alberta library system. Personnel at the University's Registrar's Office, assisted with admission and registration procedures, and the day-to-day administration of the program was conducted by an off-campus coordinator from the University's Special Sessions Office.

Prior to the commencement of courses, program advisors at each site received course descriptions and outlines from instructors, University of Alberta pamphlets and brochures on policies, procedures, and guidelines for new students, and University calendars. These materials were used by advisors for student counselling and course selection, and distributed to students as needed. In addition, each student received an introductory letter from the Registrar's Office explaining the special nature of the program and her or his status in it.

The program reflects a potentially streamlined administrative approach for inviting new groups of students into university studies. At the same time, it avoids the bureaucratic complexities of university transfer. Courses are administered primarily through University offices and taught and evaluated by University of Alberta faculty. Students receive credit for first-year University Arts courses, which are then applicable to a number of

undergraduate programs. In the first academic year, four first-year Faculty of Arts courses (English, History, and two Psychology courses) were offered, along with one introductory learning strategies and study skills course. In September 1995, the student cohort consisted of 39 students at three sites within the Fairview College system and at three sites within the Kayas College region.

The implementation of this program occurred under quite severe time constraints—slightly more than two months to the beginning of the academic year and the first course offerings in September 1995. Although numerous operational elements were defined throughout the implementation, for purposes of this discussion, the project can best be represented in terms of eight aspects or dimensions: (1) institutional cultures; (2) program planning and administration; (3) technology; (4) support systems; (5) instructional orientation, adaptation, and effectiveness; (6) costs; (7) promotion; and (8) legal / intellectual property issues. These eight general aspects of implementation are depicted in Figure 1.

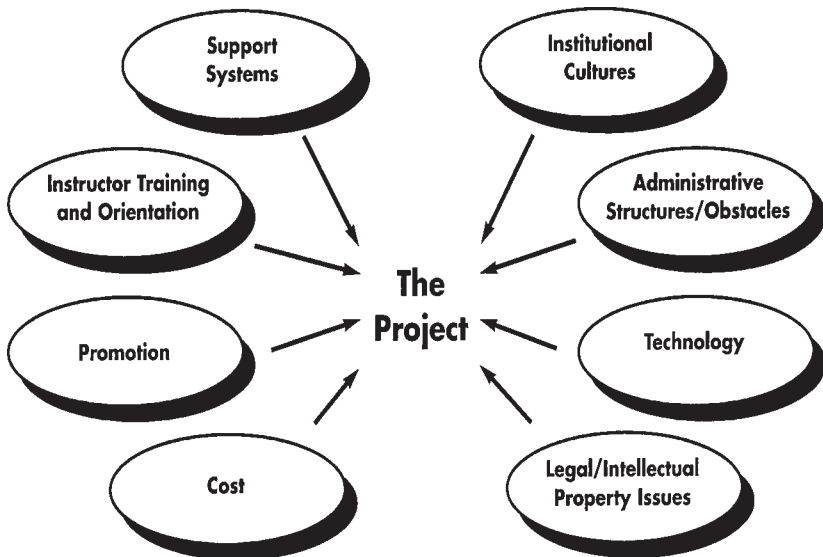


FIGURE 1: Aspects of Implementation

THE EVALUATION

A detailed formative evaluation of the University Studies Project was begun towards the latter part of the first academic term in late November to early December 1995. Plans to include the evaluation as a crucial part of implementation were set a number of months earlier. The main purposes of the evaluation were to provide a comprehensive assessment of the operation and effectiveness of the project, to provide the necessary information base for program improvement, and to inform decisions on the future development of the project and other similar initiatives.

Design and Method

A research design with an emphasis on multiple forms of data collection was deemed most appropriate for this evaluation. Since identification of respondents with characteristics similar to the student population was highly unlikely, pilot testing was not seen as a fruitful approach to the development of the survey instrument. Rather, an advisory committee was set early in the process to define the parameters of the study and the evaluation questions and to review the survey instrument and data collection procedures. Further development of the survey was based on feedback from a statistical consultant and survey designer and from informed senior colleagues within the University. Given the generous time frame for evaluation, a good deal of planning beforehand was possible, with the qualification that the design and approach to data collection remain flexible to accommodate emerging issues that could influence subsequent data collection decisions.

Because this author also coordinated the implementation of the project, it was necessary not only to establish a certain healthy distance from the evaluation research, but also to build in an element of objectivity. Therefore, rather than a single researcher, a research team was used, both for data collection and particularly for data analysis and interpretation of findings. The research team consisted of the principal researcher (the author) and three research assistants.

The primary methods of data collection employed were: (a) written surveys to students; (b) individual and focus group interviews with counsellors, tutors, administrators, and instructors as deemed necessary; and (c) classroom observation of the teaching and learning processes. The analysis of documents, which consisted mainly of the review of annual reports, mission statements, academic calendars, and promotional

brochures, was used as a supplementary method. During the data collection, Fairview College was asked to make available students, counsellors, and administrators for interviews, to supply documents for analysis, and to expedite the completion of survey instruments.

Data analysis was ongoing as the evaluation progressed; emerging issues were assessed for applicability to further data collection procedures. The analysis of the data, including defining and verifying major categories, patterns, or themes, was conducted by the research team, with the principal investigator providing guidance and feedback. Both the interpretation of the data and the definition of the findings were based on a consensus among researchers and therefore subject to what was, in essence, a continual peer review process. Additional verification of the findings was obtained through feedback from members of the advisory committee and, where possible (in the case of interviews and observations), from members of respondent groups, including tutors, counsellors, and instructors. This, and the use of a research team, enhanced the overall credibility of findings and reduced the possibility of bias by a single researcher in interpreting results. Findings from multiple data sources were used as a triangulation method to strengthen the validity of interpretation, results, and recommendations.

Summary of Findings

Given the time frame and the circumstances under which this project was implemented, many of the evaluation findings are not surprising and could have easily been predicted. What may be more surprising is that the findings are highly consistent with other recent research on similar programs (see, for example, Sorensen, 1995). In all, from a cohort of 34 students in December 1995, 29 usable questionnaires were returned. Surveys consisted of both Likert-type and open-ended-question items grouped into general categories, including demographic information, planning and administration, technology, support services issues, and general questions on student satisfaction with various aspects of the program. As well, five support staff, mostly on Fairview College and Kayas College sites, were interviewed by telephone using a semi-structured interview guide. Three administrators closely associated with the project were also interviewed.

Three faculty members from the respective departments on the University of Alberta campus instructed English, History, and Psychology courses. In-depth interviews were conducted with all three instructors, as

were observations of the teaching and learning processes during on-line broadcasts. Data collection procedures took place between late November 1995 to the end of March 1996. Data sets from the various sources were then analyzed, compared, and integrated into final report form. Although most data analyses were complete by the end of April 1996, some aspects of the evaluation such as costs analysis and intellectual property issues were still in progress. The interpretation of the data that follows is based on the combined analyses of research team members, with guidance and support provided by the principal researcher.

The profile of students participating in this project is quite distinct. Out of all respondents, 26 students (90 percent) were 25 years of age or older at the time of the study, and 27 students (93 percent) were female. There were 19 respondents (65 percent) with one or more dependent children under the age of 6 years, and 20 (69 percent) with one or more dependent children 6 years of age or older. A total of 14 students (48 percent) indicated some level of college training or completion of a college or technical school diploma as the highest level of education attained prior to admittance to the project. Another 10 respondents (approximately 34 percent) indicated completion of a general education diploma (8 students or 28 percent) or a high school diploma (2 students or 7 percent) without matriculation. Responses by remaining students included writing challenge examinations for high school courses and participation in university / college entrance programs. (Responses on levels of education must be compared with the fact that a significant number of students had participated in special teacher assistant programs designed for Aboriginal students.) Although attempts had been made at a promotional campaign during the brief time prior to the start of classes, 15 students (slightly over 50 percent of the respondent group) had first become aware of the program through word of mouth. The main reason for students taking courses in the project was that they planned to seek university transfer and on-campus degree completion later. Of those responding, 22 students (76 percent) indicated this. Finally, 20 respondents (69 percent) stated that they were employed either full or part-time prior to admission to the project.

Based on student surveys, and through the analysis of data from other sources, planning and administrative issues stood out as one major area of concern. Students expressed a desire for more course and program information during the admissions and registration process, more effective program advising and counselling support, and improvement in turnaround time for screening and acceptance into courses. Many indicated

that there had also been a mix-up in billing for tuition fees. Support staff interviews generally corroborated these findings. In addition, these staff members expressed concern over both their lack of knowledge of the program and their lack of understanding of policy and procedures on admission and registration. Unfortunately, because support staff had not been engaged at the early stages of the project development, they lacked the knowledge of some program details necessary for effective student counselling. Counsellors and students also expressed concern over access to University of Alberta student services. Students were paying fees for services to which they had little or no access.

Questions were also asked on satisfaction with the selection of university courses and with course scheduling. Although students were reasonably satisfied with the selection of courses (25 students or 89 percent of those responding were satisfied or very satisfied), they indicated additional preferences for courses such as geography, Native studies, anthropology, and sociology. The videoconferenced delivery of each of the courses was scheduled differently: one course three times a week; two courses twice a week; and one course in a three-hour block once a week in the evenings. Of those responding, 13 students (52 percent) indicated a preference for one-hour classes three times per week, while another 8 students (32 percent) preferred one-and-a-half-hour classes twice a week. The three-hour block seemed to be the least-preferred choice. When questioned on start times for classes, 17 students (65 percent) indicated the 8:00 a.m. to 4:00 p.m. time slot as a preferred choice.

Using a 5-point Likert-type scale, data were obtained on satisfaction with various aspects of the delivery medium and how these related to interaction, and on physical environment conditions associated with the medium and facilities provided. On average, students seemed satisfied with such factors as ability to concentrate, interaction with other students, class attendance, and disruptions. Means for these variables ranged from a low of 3.23 (SD = 0.86) for interaction with students at other sites, to a high of 4.22 (SD = 0.93) for interaction with same-site students. However, the review of written comments by students showed concern over the extent of student-instructor communication and also over student access to instructors through additional teleconferencing "office hours." Only 8 students (30 percent of those responding) indicated they were satisfied or very satisfied with instructor office hours. Notably, 11 students (slightly over 40 percent of those responding) indicated that they did not even use this service. Overall, students wanted more convenient scheduling of office

hours and more immediate access to instructors. Despite the highly interactive real-time nature of the videoconferencing medium, many students indicated that they would have preferred more face-to-face contact with instructors through on-site visits.

Questions pertaining to environmental conditions and videoconferencing quality included factors such as room layout and video screen positioning, video and audio quality, comfort levels (room temperature and fresh air), noise levels, and room access. Findings indicated general satisfaction with environmental conditions and videoconferencing quality on most counts. In a few cases, dissatisfaction was indicated with the quality of video reception, possibly due in part to problems encountered in the first weeks of the project and the fact that one site could only receive lectures through satellite transmission. Concern was also expressed by students over the need for adequate and quiet study space outside of lecture times.

Instructors reported minimal changes to the content of courses, and only minor instructional adaptations. Slight changes were made in readings in one course to reflect the "northern and cultural" circumstances of students, while one instructor reported minor adaptations in teaching method and interaction with students to accommodate the delivery medium. Overall, the instruction provided and the course content delivered were clearly indicated as strengths of this program. Student responses indicated "high praise" for the quality of instruction by the University of Alberta faculty and general satisfaction with the content of courses. Results of course and instructional assessments conducted by the University departments through the Special Sessions Office corroborate these findings.

A number of questions were designed to elicit data on the extent of contact, the ease of contact, and the value of consultation with counsellors, tutorial staff, and instructors outside of class time. Findings for these items are somewhat surprising and mildly alarming. Significant percentages of students had much less contact with counsellors, instructors, and particularly tutors than was originally assumed. Out of those responding, 18 students (72 percent) had no contact with counsellors, 15 students (58 percent) had no contact with instructors, and 11 students (46 percent) had no contact with tutors outside of class time. The majority of those students responding appeared neutral on the helpfulness of consultation with counsellors, while 7 students (32 percent of those responding) perceived consultation with tutors as not at all helpful. On a 5-point scale ranging from "not at all helpful" to "very helpful," the means for helpfulness of

consultation with counsellors and tutors were rather low at 3.27 (SD = 1.49) and 3.00 (SD = 1.97), respectively. The value of consultation with instructors, when it occurred, was slightly higher, with a mean of 3.73 (SD = 1.79).

Overall, the most frequently mentioned weakness of the project was poor turn-around times for transfer of documents, assignments, and instructor feedback and evaluations. This was somewhat predictable given the geographic obstacles present. Students, support staff, and instructors consistently reported inefficient turn-around times; clearly, there is a need for well-defined, enhanced support in this area. The technological support (Internet) that was intended to address this problem was not developed or used to the extent originally anticipated.

Finally, counsellors, instructors, and particularly students reported a need for more University library support. Initially, attempts had been made to define and establish electronic access to library resources; however, given the constraints involved, it was not possible to provide library support to the extent originally hoped for. Students called for access to more books and other materials, and for the possibility of small reference collections being made available at various sites.

Despite these inadequacies, this project is considered a moderate success, given the 51 percent completion rate and an overall mean GPA for those completing of 5.2 (on a 9-point scale). (The mean GPA for 12 students who completed more than one course was 5.4.) In all, inadequacies in the first run of this project point quite clearly to the need for enhancements in the various forms of student support. Responses of all participants on administrative issues point to the need for extensive intervention, engagement, and collaboration on the part of inter-organizational members in order to provide understanding of policies, procedures, and the range of services required for an effective program.

RECOMMENDATIONS

The question now arises of how to integrate what has been learned from experience and research into something coherent that will provide clear guidelines for planning and action. Therefore, an attempt has been made to encapsulate the important considerations emerging from this discussion into some broad recommendations for administrators faced with similar types of challenges.

This author believes that distinct advantage and insight can be achieved by viewing the implementation of distance education programs as the “management of innovation,” and the following recommendations stem from this basic premise. In essence, such a view may best enlighten what is actually taking place, especially in those initiatives where the institutions and stakeholders involved are relative newcomers, both to technology and distance education. However, a word of caution. These recommendations are not presented as recipes, formulas, or clearly defined steps for success. As there can be no certainty in just what administrative perspective, plan, or strategy will be most valuable in the future context of constant educational change, they are best taken as guidelines for thought rather than as recipes for success.

1. *Comprehensive planning.* The systematic implementation of any purposeful innovation in complex educational contexts assumes some form of planning, whether it be ad hoc and informal, or organized and formal. Given this, and given the obscure nature of innovation itself, any model, system, or plan for implementation will necessarily be comprehensive—in that it must account for the multiple factors and variables influencing success—and therefore complex—in that the interplay among influencing factors and variables and program success will be far from simplistic or superficial in nature. Research knowledge, information, and evaluation findings relevant to the type of program being implemented will be key elements in the process of planning.

2. *Collective change.* In order for the innovation to take hold and result in sustained educational improvement, change must occur on an operational level; behaviour patterns and the functioning of the organization must change in cooperation with change in the behaviour patterns of individuals.

3. *An interventionist approach.* An interventionist strategy for implementation means that: (a) change is not initiated from within, by the group to be changed, but rather from without, by an external agent; and therefore (b) a single and clearly defined innovation with a specific objective is planned and, in turn, linked to the strategic view of the change agent. In the case of the present initiative, change came primarily from the university side. However, it should be noted that the inter-institutional nature of the University Studies Project presents a special range of obstacles. In order to achieve success, change must occur in the habits of all institutions involved, partly based on how institutional responsibilities are defined. (See, Jones & Lewis, 1991, for a more detailed explanation of concepts related to recommendations 2 and 3 above.)

4. *Flexibility, feedback, and organizational learning.* Nothing is defined for certain. Since innovation, by definition, will tend to be ambiguously defined, allowances must be made for feedback, assessment, and redefinition of any aspect of planning. The result of the innovation will be organizational learning, and, in turn, this will require strategies and models with flexibility and feedback loops.

5. *Collaboration.* The nature of many important aspects of the initiative must be essentially collaborative. There are two main reasons for this. First, collaboration goes hand-in-hand with enlisting the support of key stakeholders and decision makers that is so necessary to success. Second, collaboration allows members to assimilate and understand—to learn—what the initiative is really about. This is an important step in changing the behaviour of the organization itself, which is the end goal of the change initiative.

6. *Evaluation.* This component needs to be taken seriously as an important step in providing a knowledge base for policy decisions and program development. In part, this means that research questions and evaluation designs must be tailored to the nature of the project being evaluated, and findings must be examined in the light of realistic expectations. Evaluation needs to be removed from the “back end” of program planning and be seen as an essential part of implementation itself.

7. *Student support systems.* As discussed earlier, no direct link has been established between delivery mediums, levels of interaction, and their effect on student achievement. If these variables do not influence achievement, then what does? One possible answer seems to point in the direction of various forms of student support services. This was confirmed in the present evaluation and has been suggested by others. Tobin (1995), after reviewing the literature on the subject, explains, “Research with students . . . indicates that their success is closely tied to the provision of these services” (p. 207). Brindley and Jean-Louis (1990) reinforce a similar view with this comment: “We believe very strongly now that we must move in the direction of an interventionist model of support services” (p. 69).

In what ways and to what extent are these recommendations important for the implementation of distance education? Two final suggestions are now offered. First, planning and implementing systems of distance education focused on the efficiency of technological functioning account for only one dimension of a multidimensional process and appear more consistent with the mass production and instructional design orientation of an industrial model, rather than with a fluid and interconnected systems

model (Sewart, 1993). To take a more service-oriented approach is simply to recognize that along with technical operations comes a variety of administrative, instructional, tutorial, and other forms of support that appear to be critical to student success and therefore intimately linked with educational accountability. A comment by Bates (1995) encapsulates the educational common sense of such an approach: "Technology is not the issue. The issue is: how and what do [we] want students to learn? . . . concentrate on designing the learning experience and not on testing the technology" (p. 14).

Second, an exclusive focus on other operational details of programs also appears to be inadequate. The view taken in this paper is that the solutions to many of the specific problems of implementation in distance education are not simply a matter of attending to program details. This statement should not be misinterpreted as it is not to suggest that such details are unimportant or that they should be ignored. Rather, in order to account for the human and organizational dynamics of implementation, an additional approach is required that places program specificity in a larger administrative context. This view has been ignored in distance education research. Initiatives accounting for these dynamics will transcend the level of program and technological detail that will inevitably be present in any new distance education venture. Thus, it is argued here that implementation from the point of view of innovation management will shed valuable light on how planning and implementation activities can be translated into successful and sustainable results. The recommendations that have been presented move towards this larger view of distance education programs.

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