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Abstract

In this study, institution-wide strategic plans that were available online were examined in detail to determine how educational technology was referred to in these documents. Based on this data and the literature, a schedule of principles for supporting the implementation of educational technology in post-secondary teaching was developed. Institutions that are formatively evaluating local efforts to understand and improve technologically supported instruction can use this checklist diagnostically.

Résumé: Dans cette étude, nous examinons en détail des plans stratégiques s'appliquant à l'ensemble de l'institution et qui étaient disponibles sur l'Internet, afin de déterminer comment la technologie était référencée dans ces documents. À partir de ces données ainsi que de la documentation, une liste de principes a été établie afin d'appuyer la mise en place de la technologie éducative au sein de l'enseignement post-secondaire. Les institutions qui pratiquent l'évaluation formative des efforts locaux pour comprendre et améliorer l'enseignement théorique appuyé par la technologie peuvent utiliser cette liste de contrôle pour leur évaluation diagnostique.

Introduction

Developing and implementing a strategic plan that includes educational technology is often a difficult and complex process (Ford, 1996). A strategic plan for educational technology refers to both the technological infrastructure and the manner that educational technology will be adopted in the teaching and learning environment (Bates, 2000, p. 46). The literature provides many examples of how an institution should develop a strategic plan for integrating educational technology (e.g., Benjamin et al., 1993; Bruce, 1999; Dill, 1996; Ford, 1996).

Ford (1996) suggested that the starting point for the development of an educational technology plan is to examine the overall strategic plan of the institution and how its objectives are currently being met. He was critical; however, that many institutional plans are too broad and therefore had no real meaning in driving the direction of organizational change. For example, a strategic plan that stated, "to be at the leading edge of teaching and learning," does not provide any steps or objectives to accomplish. Dill (1996) thought that the planning process was often superficial. He stated that the process of strategic planning was often used to avoid making difficult choices that may pit one department or unit against the other as they compete for limited resources.

Noblitt (1997) further cautioned that any dialogue between faculty and administration that concerns educational technology is not always civil. In spite of these criticisms, Gilbert (1996) thought that the institution needed to have a stated mission and a shared set of values among different constituencies on-campus. This vision should be within the context of what can be accomplished within the constraints of the

institution (Rossner & Stockley, 1997).

In *Educational Technology Planning*, Bruce (1999, pp. 8-11) suggested that a strategic plan that focuses on educational technology should be connected to both the institutional mission and vision, and that the plan should fit into the overall institutional information strategy, culture, values, and history. He provided a series of recommendations for institutions involved in the planning process. These recommendations include the need for: (a) communications and advisory processes, (b) professional development and training, (c) technical and instructional support, (d) distributed learning and support for distributed learning students, (e) provision of services at regional centres, (f) technology components such as the acquisition, deployment, utilisation, replacement and disposal of the educational technology components, and (g) policy considerations such as copyright and intellectual property appropriate usage, resource provisioning, and protection of privacy.

Noblitt (1997) added that a timetable should be created to manage expectations. Planning and priority setting should be a public institution-wide process so that individuals have the opportunity to respond to concerns before the plan is finalised (Benjamin et al., 1993, p. 44). The timeline should include opportunities for the institutional community to provide feedback and to develop a shared sense of what is involved in creating the plan (Noblitt, 1997). Ford (1996) expressed further concern that most plans have not been fully evaluated to determine whether the objectives have been met. To ensure that the plan does not become a static document, it is important to identify who is responsible for the plan and for updating it (Bruce, 1999, p. 24). Stoffle (1996) cautioned that it takes five to ten years to realistically make changes to both the culture and climate of an institution. The above literature suggests that strategic planning is an on-going process that needs to take into account the institutional culture and nuances in order to move towards implementation.

Implementing the Strategic Plan

When trying to create an environment that is supportive of educational technology, issues relating to credit hour requirements, registration, classroom assignments, and equipment purchase and deployment need to be addressed (e.g., Stoffle, 1996; Twigg, 1994). For example, an antiquated registration may not allow students to register for self-paced, self-directed courses.

Rossner and Stockley (1997, pp. 334-335) provided a series of requirements that would ensure the successful implementation of the strategic plan for educational technology. These requirements include:

1. Assurance of support from the senior administrative level.
2. The commitment to put in place an easily accessible campus-wide technology "backbone" that supports Web-based instruction within and beyond the campus.
3. Extending library facilities to include the online library.
4. Designing a system that allows students to register via the Web.
5. Designing a system that allows faculty and students to access any campus-based server containing information relative to their work.
6. Supporting researchers experimenting with hardware, software, and models of instruction that enhance Web-based teaching and learning.
7. Requesting input from existing faculty and professional technical people with Web expertise.
8. Developing support systems that provide training in the educational uses of interactive technologies.
9. Providing on-going technical and pedagogical support for faculty and students working on the Web.
10. Committing adequate, long-term base budget financial support for Web-based instruction.

O'Brien (1995) recommended additional institutional issues that need to be addressed to implement strategic planning effectively. These included concerns about academic quality, workload, class-size, and access to support. He recommended that an infrastructure needed to be developed for distributed learning. This would include the co-ordination of efforts between registration, computer services, bookstore, student services, library, academic departments, and the co-ordinator of the online project.

The above literature refers to strategic plans that address specifically educational technology needs;

however, the question remains how educational technology planning gets translated to an overall institution-wide strategic plan that embraces all aspects of an institution _ not just the educational technology component. The research questions for this study examined this issue, specifically addressing:

1. Are issues surrounding educational technology addressed in institution-wide strategic plans? If yes, how are these institutions referring to educational technology in their plans?
2. Do these references correspond with the items identified in the Schedule of Principles for Strategic Planning for Educational Technology?

Methodology

Strategic Plans Included in the Analysis

In earlier research Stockley (2002), 26 institutional members of the Association of Universities and Colleges of Canada (AUCC) were identified as having online institutional strategic plans. This earlier study indicated that only 29% of the Association of Universities and Colleges of Canada (AUCC) had publicly accessible institution-wide strategic plans available on the website. Only those institutions that had an overall strategic plan were included in this study as many institutions had multiple educational technology plans that were departmentally-based and did not reflect the overall mission of the institutions. Several institutions had posted an earlier plan and a revised plan; for the purposes of this study, only the revised plan was examined. Institutions with online institutional strategic plans include:

1. University of Alberta
2. Athabasca University
3. University of British Columbia
4. University of Calgary
5. University College of Cape Breton
6. University College of the Fraser Valley
7. Lakehead University
8. University of Manitoba
9. McGill University
10. McMaster University
11. Memorial University of Newfoundland
12. Université de Moncton
13. Mount Allison University
14. Mount Saint Vincent University
15. University of Northern British Columbia
16. Nova Scotia Agricultural College
17. École Polytechnique de Montréal
18. Université du Québec en Abitibi-Témiscamingue
19. Université du Québec à Hull
20. The University of Regina
21. Université de Sherbrooke
22. University of Toronto
23. University of Victoria
24. University of Waterloo
25. Wilfrid Laurier University
26. University of Windsor

Analysis of Strategic Plans

Institutional strategic plans were downloaded and printed, due to the transient nature of the web, as there was a concern that these plans might not remain available online for further analysis. Each plan was read in print form and instances of educational technology were highlighted. The plans were re-examined on the websites using the search term "technology" or "technologie" to ensure that all instances were included. Only those instances of technology that were explicit in the plan were included in this study. Initial demographics were collected to determine whether regional disparities existed, whether size of student body affected whether an institution had a plan, and the overall number of references to educational technology within the plans.

The first level of analysis examined the number of instances in the institution-wide strategic plans that

related to the four areas examined throughout this research: strategic planning, organizational management, resource management, and professional development.

The second level of analysis included the development of a literature-review-based checklist. This checklist, called the Schedule of Principles for Strategic Planning for Educational Technology, was created based on commonalities found in the guidelines and recommendations for development of strategic plans that included educational technology (Bates, 2000; Benjamin, et al., 1993 pp. 44-45; Ford, 1996; Bruce, 1999, pp. 8-11; Rossner & Stockley, 1997). In this study, the Schedule of Principles for Strategic Planning for Educational Technology was used diagnostically to determine if the principles found in the literature were included in the 26 institutional-wide strategic plans that were examined.

Results

General Demographics

Demographically, there were no apparent regional disparities; nine of the provinces had representation in this study. Table 1 illustrates the availability of online institutional strategic plans by province.

Table 1.

Institutional Strategic Plans by Region

Province	Number of Institutions in Province	Strategic Plans Available	Percentage of Institutions by Province with Strategic Plans
British Columbia	9	4	44.4
Alberta	7	3	42.3
Saskatchewan	6	1	16.7
Manitoba	4	1	25.0
Ontario	29	8	27.6
Quebec	19	6	31.6
New Brunswick	4	2	50.0
Nova Scotia	10	3	30.0
Prince Edward Island	1	0	0
Newfoundland	1	1	100

Of the 26 institutions with strategic plans, 7 had over 20,001 full-time and part-time students, 5 had between 10,001 and 20,000, 5 had between 5,001 and 10,000 and 9 institutions had fewer than 5000

students registered. This suggests that the number of students registered full-time and part-time did not make a difference as to whether an institution posted their strategic plans on the World Wide Web. The number of specific references to educational technology in the 26 plans ranged from 0 to 24 occurrences, with a total of 251 references. The mean was 9.7 and the median was 12.

Twelve of the twenty-six institutions (46%) had twelve or more references towards educational technology. The institutions with fewer than 5,000 students account for 17% of the population referencing twelve or more occurrences of educational technology, institutions with 5,001-10,000 students had 25%, and institutions with more than 20,001 had 50% of the twelve or more references. The remaining 8% comprised of universities with student numbers ranging from 10,001-20,000.

Strategic Planning

Institutions that referenced the development or existence of an institutional strategic plan focussing specifically on educational technology were noted. In total, 11 of the 251 (4%) references targeted educational technology in their institutional strategic plans. Specifically, eight (31%) of the institutions mentioned the existence of a separate strategic plan that addressed educational technology within their institution-wide plan. These low percentages suggest that a strategic plan that only addressed issues surrounding educational technology was not emphasized in the final institutional wide strategic plan.

Organizational Management

The area of organizational management included issues relating to budget, technology transfer, library, impact of educational technology, use of technology for media purposes, and any other administrative references. These accounted for 69 (27%) of the 251 references to technology in the institution-wide strategic plans. Seven (3%) of the references related to budget, ten (4%) related to technology transfer, thirteen (5%) referred to the library, twenty (8%) highlighted the impact of educational technology on the university and society in general, ten (4%) included the use of technology for recruitment and media relations, and nine (4%) referred to administrative functions in general. This is illustrated in Figure 1.

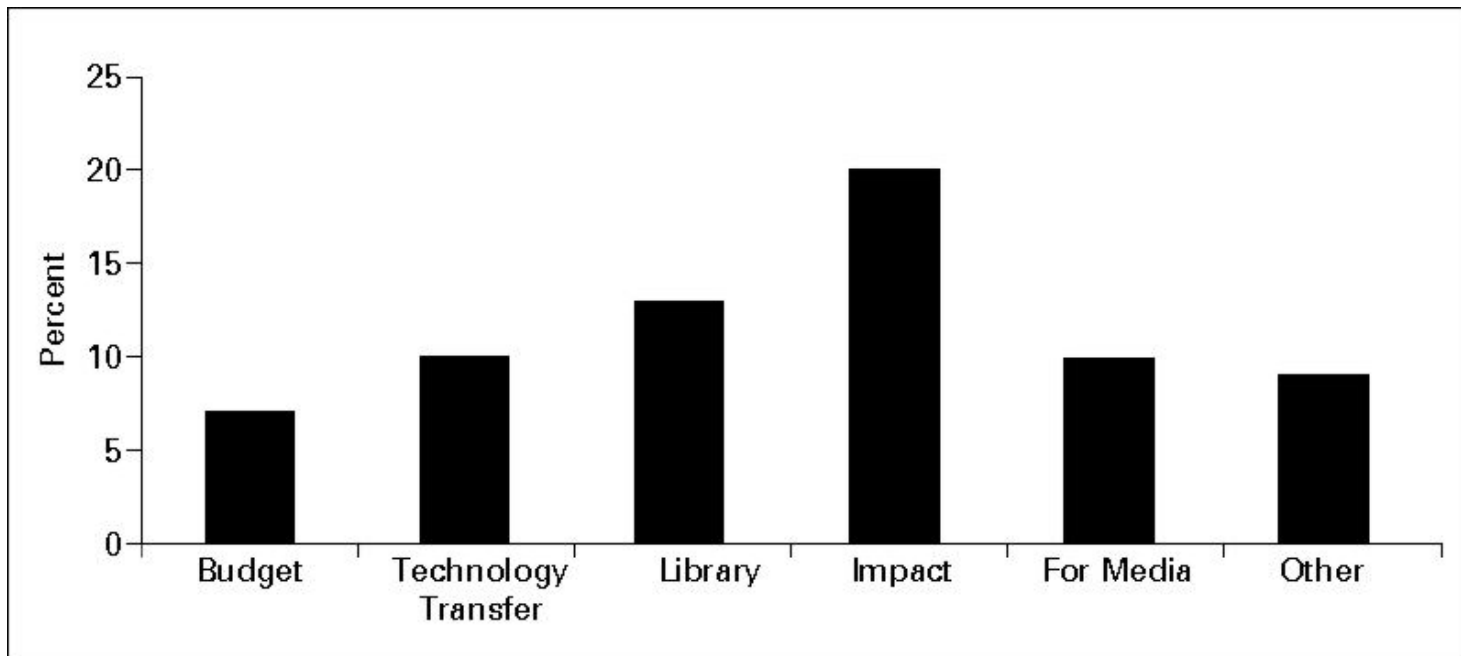


Figure 1. Percentage of References: Organizational Management

Resource Management

Resource management focused on issues related to the network infrastructure, hardware and software

issues, labs and enhanced classrooms, and administrative tools. Seventy (28%) of the 251 educational technology references in the institution-wide strategic plan were related to resource management issues. Fifteen (6%) of the references related to infrastructure, twenty-two (9%) to hardware and software issues, seventeen (7%) to labs and enhanced classrooms, and sixteen (6%) to administrative tools. These results are highlighted in Figure 2.

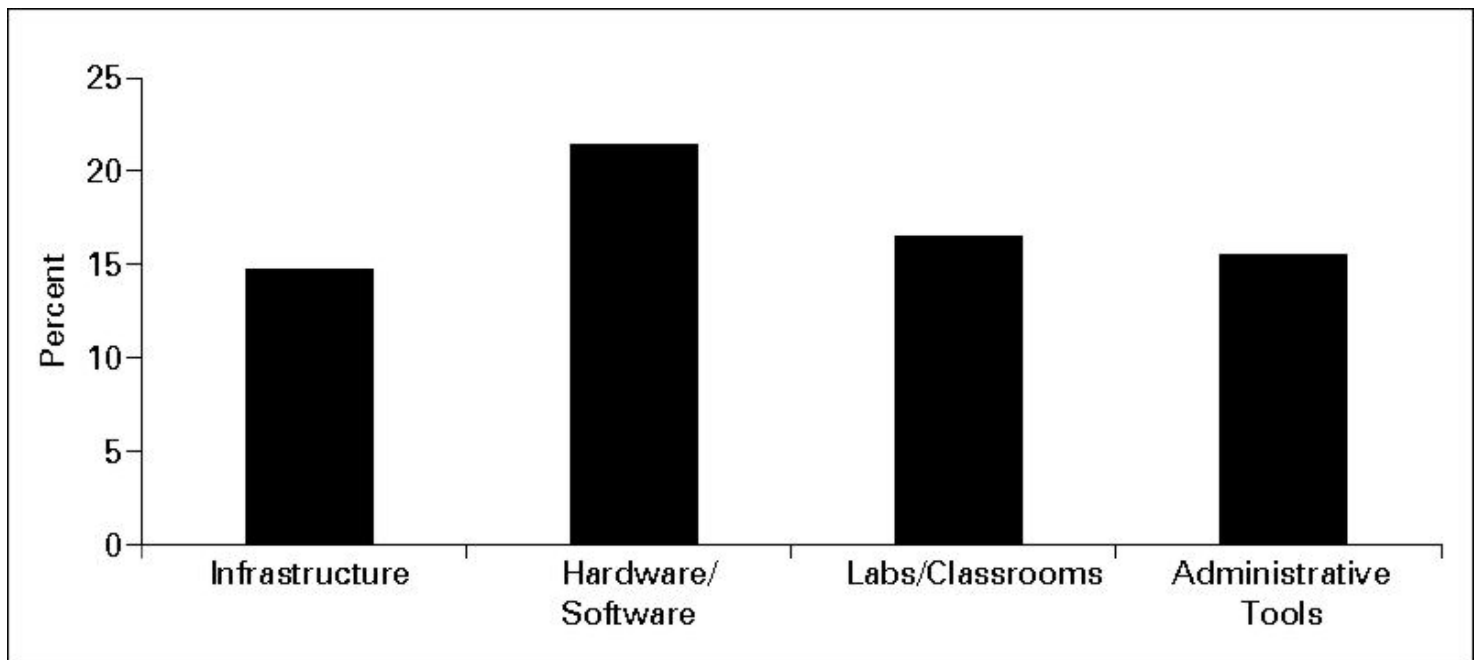


Figure 2. Percentage of References: Resource Management

Professional Development

Professional development accounted for 102 (41%) of the 251 references to the term educational technology. This section included a wide range of professional development activities including: support, course development, research, and issues relating to students. The need for a centralized unit to provide support for educational technology accounted for ten (4%) of the references to educational technology. Pedagogical support occurred three (1%) times, in comparison to technical support, which occurred eleven (4%) times. Research into or relating to educational technology had thirteen (5%) occurrences. Lifelong learning is mentioned in three (1%) instances, and student issues in general were referred to seventeen (7%) times. In total 45 (18%) of the references to educational technology were related to course issues. Figure 3 graphically organizes this data.

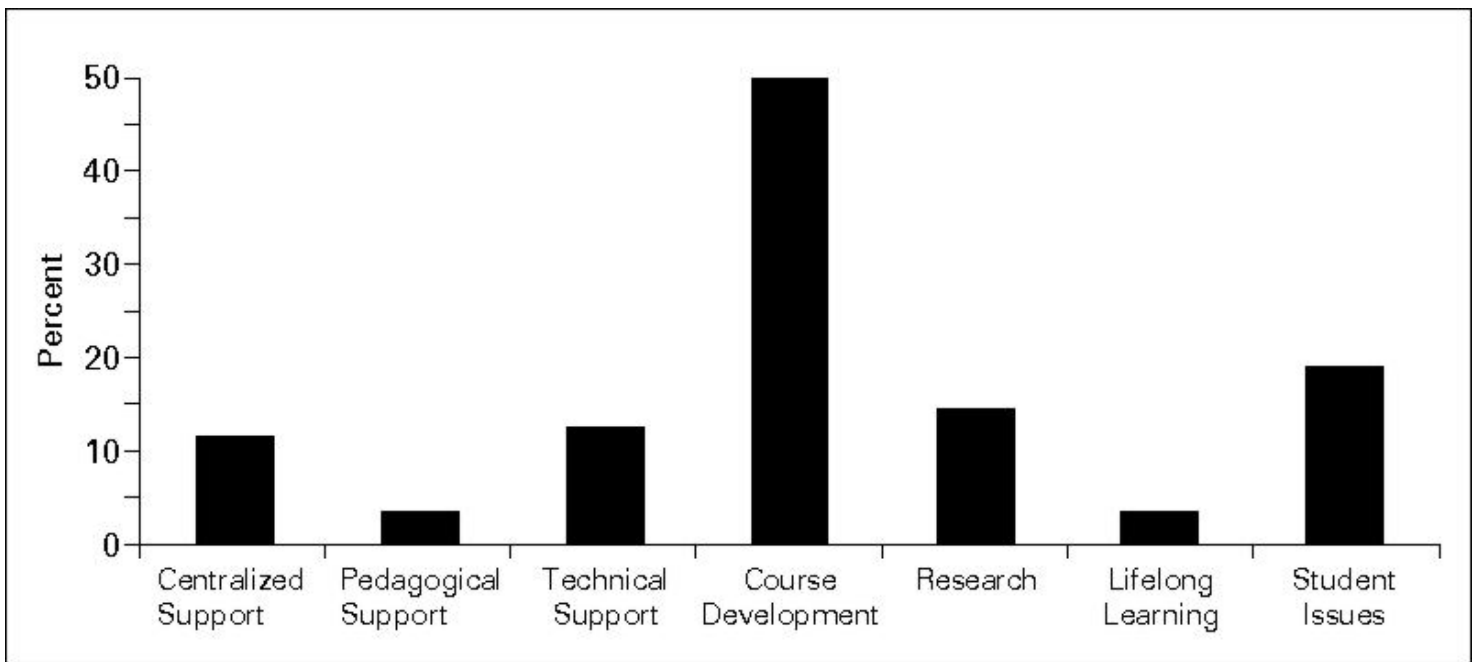


Figure 3. Percentage of References: Professional Development

Comparison Between Four Areas of Research

Figure 4 provides a summary of the number of references to educational technology according to the four areas researched in this study. Strategic planning was referred to in 4% of the references (11 occurrences), organizational management in 27% (69 occurrences), resource management in 28% (70 occurrences), and professional development in 41% (102 occurrences).

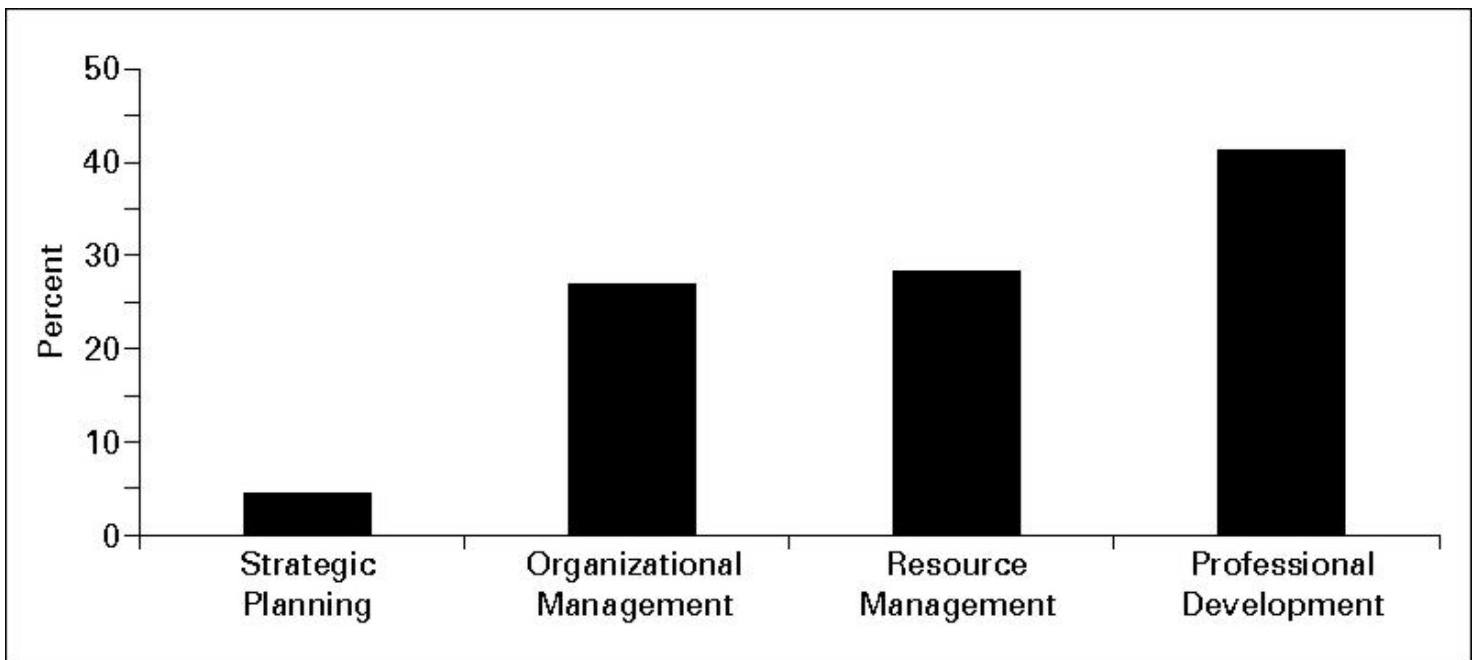


Figure 4. Percentage of References: Four Research Areas

Schedule of Principles for Strategic Planning for Educational Technology

The 251 identified references to educational technology in the institution-wide strategic plans were mapped using the Schedule of Principles for Strategic Planning for Educational Technology. In total, 206 (82%) references to technology corresponded with the items identified in the Schedule (see Table 2).

Table 2.

Schedule of Principles for Strategic Planning for Educational Technology

Number of Occurrences	%	Strategic Planning
5	2	Co-ordinated across campus
4	2	Reviewed and revised regularly
5	2	Integrated
1	0	Functional
Organizational Management		
9	4	Institutional budgetary issues identified
0	0	Corporate funding
9	4	Technology transfer issues addressed
3	1	Co-ordinated technical and instructional support
9	4	Library updated and maintained
0	0	Intellectual property
3	1	Commercialisation of course content
1	0	Release time or incentives to develop courses
24	12	Recognition of the impact of technology on education
0	0	Teaching effectiveness as a central component in all decisions relating to tenure, promotion, salaries
Resource Management		
11	5	Infrastructure
22	11	Access to technology
19	9	Upgrade plan for technology (hardware and software)
10	5	Computer literacy
0	0	System security
15	7	Email and enhanced web-based services for students
Professional Development		
13	6	Technical support
3	1	Instructional support
5	2	On-going research
2	1	Just-in-time and scheduled support
4	2	Centres for courseware production
24	12	Integration of technology in teaching encouraged

		Integration of technology in teaching strategies
3	1	Collaboration
2	1	Strategies for inclusion
0	0	Exposure to successful practice of colleagues

General Conclusions

This research provides an overview of how educational technology is referred to within institution-wide strategic plans and provides a tool, the Schedule of Principles, which can be used for diagnostic purposes. Based on this Schedule of Principles, 251 references to the use of educational technology were noted. However, less than 4% of these references targeted the existence or need for an educational technology strategic plan within the larger institution-wide plan. Given that only 4% of the references focused on strategic planning, an assumption is drawn that this was not viewed as a priority within the institution-wide strategic plans.

Of the four areas examined (strategic planning, organizational management, resource management and professional development), issues relating to course development or management were mentioned most often in the institution-wide strategic plans (18%). The next highest occurrence included items relating to hardware and software issues (9%). The least mentioned items were issues concerning pedagogical support and lifelong learning (1% respectively).

The data collected from the Schedule of Principles for Strategic Planning for Educational Technology corresponded with the initial analysis in that 12% (24) of the occurrences of educational technology in the institution-wide strategic plans related to the integration of technology in teaching. Recognition of the impact of technology was also referred to 24 (12%) of the times in the plans. These findings suggest that within the institution-wide strategic plan the importance of educational technology to the university is recognised and corresponds with the issue of the inclusion of technology in course-related activities.

However, many items that were identified by the literature review (as summarized by the Schedule of Principles) as being important to include in a strategic plan that included educational technology were not referenced in any of the online strategic plans. Specifically, issues concerning (1) intellectual property, (2) corporate funding, (3) teaching effectiveness as a central component in all decisions relating to tenure, promotion, and salaries, (4) system security, and (5) exposure to successful practices of colleagues were not reported. Each of these five issues were described as important in the literature as institutions move toward integrating educational technology. It is recommended that those embarking on the strategic planning process use the Schedule of Principles as a guide or checklist to ensure that their plan incorporates the educational technology elements identified within the Schedule. This Schedule was based on the literature reviewed on strategic planning and can be used diagnostically to evaluate local efforts and promote discussion surrounding technologically supported education.

Acknowledgements

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