ALIGNING INSTITUTIONAL CULTURE AND PRACTICE: THE UNIVERSITY OF BRITISH COLUMBIA'S
E-LEARNING FRAMEWORK

Michelle N. Lamberson, Director, Office of Learning Technology, The University of British Columbia, Vancouver, British Columbia, Canada

Kele Fleming, Manager, Professional Development, Office of Learning Technology, The University of British Columbia, Vancouver, British Columbia, Canada

ABSTRACT

Higher education institutions, particularly large, publically funded research-intensive institutions, are challenged with balancing the need for consistent, reliable infrastructure and services with agility in the face of technological and social change. The challenges are particularly evident when examining how technologies support an institution's teaching and learning mission. The approach taken by The University of British Columbia (UBC), a large, multi-campus, research-intensive public institution in Canada, is discussed in order to identify successful strategies addressing these challenges.

The current e-learning framework of UBC, articulated in terms of a collection of systems and services, stems from its institutional context, culture and history. UBC has a strong and influential Strategic Plan (Trek 2010) that identifies technology as a strategic lever, particularly with respect to improving instruction and widening access. In addition, competitive funding is available for enhancing teaching and learning. The environment is strongly shaped by UBC's overall decentralized administrative culture, which has led to the development of both local and centrally positioned learning technology support services. While this approach has challenges, particularly with respect to some redundancy in technology provision, this decentralised collaboration has led to a culture of innovation that has sponsored improvements in teaching and learning as well as development of effective learning technology tools (e.g., WebCT). The most successful projects and initiatives stem from building cross-campus alliances and partnerships that are in alignment with UBC's "Trek 2010" vision.

Introduction

In the face of technological and social change, higher education institutions, particularly large, publically funded research-intensive institutions, are challenged with balancing the need for consistent, reliable infrastructure and services with agility. These challenges are particularly evident when one examines how technologies support an institution's teaching and learning mission. The approach taken by The University of British Columbia (UBC), a large, multi-campus, research-intensive public institution in Canada, is discussed as a case study in order to identify successful strategies that directly address these challenges. We briefly summarize the nature of the current e-learning landscape as one aspect of the strategic drivers influencing current practice and provide a summary of the institutional context and key strategic planning and policy efforts as a means of understanding the evolution and development of the current state of UBC's e-learning framework. With this background information in mind, we explore the current framework, outlining how the nature of support and community services varies with respect to the implementation status (emerging, pilot and core) of the technology. It is our experience that technology is only one part of the equation when it comes to being able to successfully leverage technologies. Careful attention must be paid to the culture of the institution as well as how technology usage aligns with institutional and local goals.

At UBC the technologies used to support teaching and learning are diverse and rapidly changing. As this paper is being written, UBC is in the middle of strategic planning on a number of fronts (e.g., institution mission and vision, information technology and aboriginal strategy). This paper reflects current practice – a snapshot of our current complex environment focused primarily on the framework of UBC Vancouver from the perspective of the Office of Learning Technology (OLT), a centrally positioned unit charged with facilitating and coordinating technology initiatives in support of teaching and learning.

The e-Learning Landscape

The educational landscape is undergoing tremendous change and technology, particularly web-based applications and systems, is playing a key role. The small-scale innovative projects of the mid-1990's built for single courses and professors such as Murray Goldberg's grant funded work at The University of British Columbia (Goldberg, 1996), morphed into commercial and more recently, open source learning (course) management systems (e.g., WebCT, Blackboard, Sakai and Moodle). These systems are largely focused on enabling instructors to administer courses, with tools for managing student work, communicating synchronously and asynchronously, assessing learning, tracking performance and encouraging community interaction. In addition to these enterprise systems, there is a growing body of free, online tools that students (and faculty) can use to organize their work, communicate with friends and classmates, and publish and share media. These "Web 2.0" tools exceed the capability of institution-based learning management systems (LMS) with respect to ease of use and orientation. The tools are more user-centric, enabling individuals to create and publish content easily, communicate with user-defined groups and co-create content. Faculty and students are naturally drawn to them, but privacy issues associated with public web spaces is a challenge; how open do faculty and students want to be? What support level is needed or desirable? How reliable and enduring are systems that are not institutionally controlled?

The balance of control versus openness is a struggle for technology administrators. Security was cited as the number one issue in the 2008 EDUCAUSE Current Issues Survey (Allison et al., 2008), with the authors noting that it has been among the top three concerns since 2003. Tighter legal requirements (e.g., Canada's Freedom of Information and Protection of Privacy Act, United States' Family Educational Rights and Privacy Act) are requiring new and better ways to ensure privacy of students - locking the door to the records room has become a sophisticated algorithm. Enabling appropriate access is just as important as restricting access. As such, identity management, as indicated by its number 5 place on above mentioned EDUCAUSE survey (Allison et al., 2008) is rapidly growing in importance as an element of enterprise services. Lastly, institutions need to deliver services well and efficiently to clients (faculty, students and staff) who come with high expectations set by the commercial marketplace.

There is growing interest in open and community source tools. Some of this is fueled by the recent lawsuits between vendors in the LMS space. However, as the academic origins of WebCT and Blackboard attest, innovative tool development grows naturally out of the educational arena as individuals and research groups develop solutions in response to instructional need or pedagogical advance. Sharing project deliverables (content, code, best practices) is being actively encouraged by funding bodies like the UK's Joint Information Systems Initiative (JISC; http://www.jisc.ac.uk) and British Columbia's BCcampus (http://www.bccampus.ca); these organizations require that the products of funded projects be available free of licensing costs to those in their respective sectors (Joint Information Systems Committee, 2005; BCcampus, 2008). Open Education has moved into the mainstream with large projects such as MIT's Open Courseware (http://ocw.mit.edu/OcwWeb/web/home/home/index.htm), and Rice University's Connexions project (http://cnx.org/). The format for content delivery is also changing, with mobile devices offering new ways to reach large numbers of people. Platforms such as iTunes U (http://www.apple.com/education/itunesu_mobilelearning/itunesu.html), currently a free service, enable institutions to showcase the intellectual efforts of the faculty and students, as well as reach new audiences.

Supporting this effort is a growing set of technical standards put forward by organizations like the IMS (www.imsproject.org) and IEEE (http://standards.ieee.org/) that enable exchange of content and data. The availability of standards combined with a recognition by LMS vendors and developers that it is impossible to create every type of specialized learning tool is leading to a new generation of software systems that leverage application programming interfaces (APIs) and web services. Recent versions of LMSs are taking advantage of these new standards and approaches, exposing more APIs so that external tools can leverage the course management platform. The names for this capability vary (Blackboard Building Blocks™, Blackboard PowerLinks™, Moodle plugins, etc.), but the ability to stitch tools together, as opposed to having one system, is becoming increasingly strengthened. A positive aspect of this trend is that it is creating a more modular environment where accommodations can be made in alignment with pedagogical and discipline needs. We will explore this concept a bit further later in the paper.

Organizational Context: The University of British Columbia

National/Provincial Context

Within Canada, education is a provincial responsibility. The Province of British Columbia is Canada's westernmost province, with a population of approximately 4.4 million, more than half of which is located in the Vancouver region (Government of British Columbia, 2008b). Currently, post-secondary education in British Columbia falls under the purview of the Ministry of Advanced Education and Labour Market Development, whereas the Ministry of Education oversees the K-12 educational system. Universities in British Columbia are authorized through legislation. The University of British Columbia falls under the University Act, a piece of legislation first enacted in 1908 and updated over the years to reflect changes in scope and mandate of universities operating in British Columbia.

The current provincial government, elected in 2001, put forward a platform of Five Great Goals, the first of which was to "make B.C. the best educated, most literate jurisdiction on the continent" (British Columbia Government, 2008a, Five Great Goals, para. 1). Since that time, British Columbia's post-secondary system has undergone significant expansion, including increasing the number of universities from 5 to 11 (largely through the conversion of colleges and University Colleges) and the number of "seats" by 32,000 (Ministry of Advanced Education and Market Development, 2008). As part of this expansion, UBC increased its enrolment (including graduate enrolment) and added a new major campus in Kelowna, located about 400 km from Vancouver in the interior of British Columbia. Under a government mandate to increase the number of medical doctors being trained in BC, UBC also expanded its medical school to be multi-campus, with a curriculum co-delivered to three disparate geographic locations (UBC Faculty of Medicine, 2007) via video-conferencing and other technology enhanced methods.

A key government agency that was founded to support e-learning is BCcampus. BCcampus provides funding for collaborative course and educational resource development, encourages professional development and provides a portal of learner services that facilitates discovery and registration in online and other forms of distance learning opportunities. This agency serves the university, college and institute sectors aggregating course information for a broad range of educational subjects, from traditional science and liberal arts to vocational training. Funding for educational development requires that institutions collaborate in development, as well as submit final products to a provincial online repository (Shareable Online Learning Resources, SOL*R, http://solr.bccampus.ca).

Institutional Context

The University of British Columbia is a multi-campus institution with two residential campuses in Vancouver and Kelowna, and two smaller specialized campuses in Vancouver (Robson Square, Great Northern Way). In total, there are just over 49,000 students, with about 10% of these located at UBC Okanagan (UBC Planning and Institutional Research, 2008). There is a strong international presence at UBC; approximately 12% of students that enroll represent 140 countries. UBC is routinely ranked in the top fifty institutions worldwide (UBC, 2008).

UBC is a research-intensive institution responsible for delivering a broad range of undergraduate and graduate academic and professional degree programs. The overall organizational structure of UBC reflects its multi-campus character. Under the University Act, UBC comprises "…a chancellor, a convocation, a board, an Okanagan senate, a Vancouver senate, a council and faculties" (University Act, 1996, University Structure, Section 3.2.1). Though multi-campus, UBC has one President and Vice Chancellor (currently Stephen J. Toope); the Deputy Vice Chancellor of UBC Okanagan and 6 Vice Presidents report to the President. A full organizational chart of the University can be accessed at the UBC President's website (http://www.president.ubc.ca/orgcharts/index.html).

A portion of the organizational chart, focusing on the portfolio of the Vice President Academic and Provost is reproduced as Figure 1. Like many research institutions, UBC's administration is decentralised, with significant autonomy provided to the Deans of the faculties. Technology support provision for both information and learning/educational technologies is managed through a combination of local and central services. A key indicator of the decentralised character is the distribution of staff in the information systems and technology job family within the University, only 20% of which are employed by UBC Information Technology (UBC IT), the central service unit (Dodds, personal communication, 2008). While the IT job family is not fully representative of all who support learning technology (many of whom are in the educational programming family), it does underscore the distributed character of support. In addition, the oversight of the major IT systems is distributed, with line management responsibility for applications (e.g., Student Information Systems, Finance, Human Resources, Research, Library)

and in some cases infrastructure, falling within the associated units, and reporting through to different Vice Presidents.
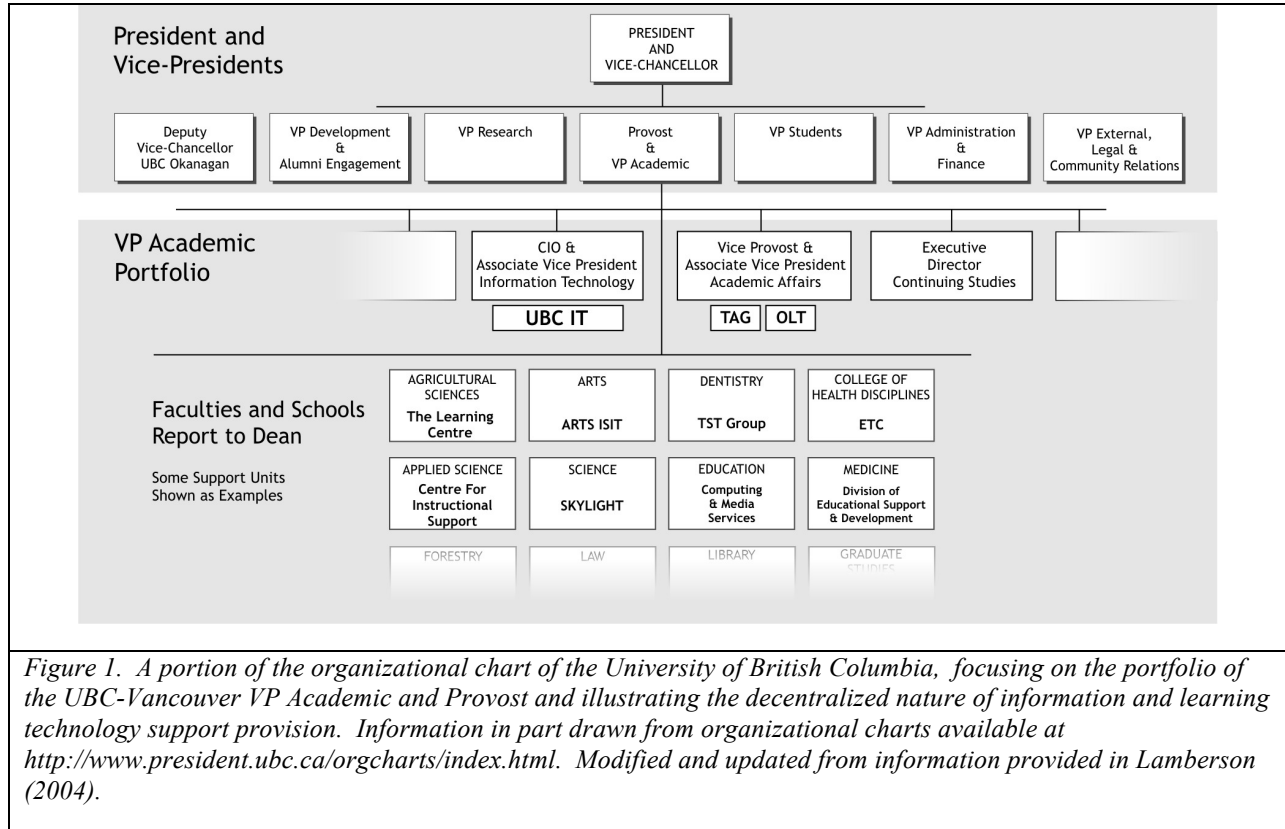

Figure 1. A portion of the organizational chart of the University of British Columbia, focusing on the portfolio of the UBC-Vancouver VP Academic and Provost and illustrating the decentralized nature of information and learning technology support provision. Information in part drawn from organizational charts available at http://www.president.ubc.ca/orgcharts/index.html. Modified and updated from information provided in Lamberson (2004).

The distributed support model applies also to e-learning, with many faculties having a locally positioned learning and information technology support unit (examples are illustrated in Figure 1). Two centrally positioned units that report to the Associate Vice President and Vice Provost for Academic Affairs offer a range of services that support e-learning, commonly in partnership with one another: the OLT and the Centre for Teaching and Academic Growth (TAG). TAG focuses on the professional and personal development of faculty and future faculty (graduate students) and houses the Institute for the Scholarship of Teaching and Learning. OLT facilitates and coordinates learning technology initiatives (including skills training), partners with Faculties to develop and deliver distance education courses and is considered the business owner of centrally provided learning technology applications (e.g., WebCT, Turnitin, Wimba, CoursEval, certain weblog and wiki servers). UBC IT provides infrastructure and application support for certain applications, as well as campus wide network, communication and identity services.

Key Strategic Efforts

UBC has built an international reputation for high quality research and entrepreneurship, particularly with respect to creating spin-off companies and commercialization of research. One of these companies was WebCT, the company formed to commercialize the software of the same name. Though the company has been sold twice since its formation in 1996, the impact of this software is still felt worldwide. Information and learning technology innovation at UBC is not limited to WebCT. Some highlights include: 1) UBC was one of the first campuses to implement uPortal; 2) the campus received an Educause Award for its innovative, self-service approach to student admission; 3) the Faculty of Arts Instructional and Information Technology Support team has been recognized for the development of "Ancient Spaces" (http://ancient.arts.ubc.ca/), a learner centred approach to using gaming in classical studies; and 4) UBC is a founding member of the Kuali Student community source project (http://student.kuali.org), which is developing a new community source student information system. These examples

are not exhaustive, but demonstrate that innovation is an organizational characteristic, taking place in both academic and administrative units.

What is it about UBC's environment that has enabled these successes? We believe that they result from alignment with the institutional mission and vision: from an academic perspective, emphasis has been placed on considering technology as a strategic lever to enable achievement of teaching and learning goals. We can look as far back as 1938 to underscore this, when the then Director of University Extension, Gordon Shrum, stated (bold emphasis is ours):

> "During the past year, as heretofore, it has been the policy of the department to serve, as far as possible, all sections of the Province, particularly the more remote urban centres. Since funds for the work have been limited, an effort has been made **to explore new media for the equalization of the educational opportunities offered by the University**. In this connection emphasis has been placed upon the use and development of **the radio and the directed study-group**. In all phases of the work the main effort has been directed towards **providing an educational programme with a constructive purpose** and with some **degree of continuity**." (Shrum, 1938, p. 31-32).

More recently, UBC has made some strategic policy decisions and undergone strategic planning exercises that have influenced the e-learning framework. These are briefly summarized below. These efforts form a platform upon which UBC's e-learning strategies are built and supported.

Allocation of strategic funding for teaching and learning enhancement

In 1991, UBC established the Teaching and Learning Enhancement Fund; funding is derived from strategic re-allocation of 3.5% of student tuition revenue. Faculty, staff and students are eligible to compete for annual grants of $1,000 to $150,000 for projects that enhance teaching and learning. The fund has served as an engine for ongoing enhancement of teaching and learning practices, including the creation of software such as WebCT and the Ancient Spaces project mentioned above. These funds are distributed through an annual grant process as well as through strategic projects at the discretion of the Office of the Provost. A key characteristic of this fund is the emphasis on direct benefits to students. This requirement has resulted in a widespread engagement of students in teaching and learning projects, including creating a diverse set of employment opportunities. Over the years a number of these grants have focused on using technology to address particular learning goals or support learning in various ways.

A question that is commonly asked by visitors to various technology units at UBC relates to faculty motivation for using technology – does UBC provide incentives for using technology? The answer to this is no, the emphasis at UBC is upon enhancing teaching and learning, not using technology. Innovative application and experimentation with technology to enhance learning is supported and, as outlined below, scholarly activity associated with these efforts is recognized.

Establishment of the importance of the Scholarship of Teaching and Learning

UBC has a strong research focus, leading to a cultural emphasis on discovery and dissemination. Under the terms of the collective agreement between UBC and the Faculty Association of the University of British Columbia (FAUBC), faculty members are evaluated primarily on the basis of teaching and scholarly activity (University of British Columbia and the Faculty Association of the University of British Columbia, 2006). The strong emphasis on teaching, combined with a culture that rewards discovery and nurtures reflective practice, has led to widespread interest in the scholarship of teaching and learning (SoTL). In 2004, UBC founded the Institute for the Scholarship of Teaching and Learning. Housed within TAG, the Institute provides a community support framework, sponsors research collaborations and serves as a strategic advocate for advancing scholarly practice. The importance of SoTL has been codified at UBC in the collective agreement, which was modified in 2004 and continues to include SoTL as a scholarly activity (University of British Columbia and the Faculty Association of the University of British Columbia, 2004, 2006). The current language is as follows:

> "For the scholarship of teaching, scholarly activity may be evidenced by originality or innovation, demonstrable impact in a particular field or discipline, peer reviews, dissemination in the public domain, or substantial and sustained use by others. For example, textbooks and curriculum reform that changed academic understanding or made a significant contribution to the way in which a

discipline or field is taught might constitute useful evidence of the scholarship of teaching whereas textbooks or curriculum revision of a routine nature would not." (UBC & FAUBC, 2006, Scholarly Activity, para. 3)

Strategic Planning: the Trek Vision process

In the past 12 years, UBC has undergone two rounds of visioning and planning that have resulted in the development of a strategic framework known as Trek (Trek 2000, Trek 2010). Trek has its roots in the initial establishment of the UBC Campus at Point Grey. In 1922, responding to overcrowding at the Fairview Campus and dissatisfaction with the Province's lack of action on their promise to provide UBC with its new campus, the students took to the streets and organized a protest walk (the Great Trek) out to the Point Grey site (UBC Archives, 2008). Martha Piper, UBC President from 1997-2006, leveraged this metaphor in 1998 to facilitate the development of Trek 2000 and an updated version in 2005, Trek 2010. These documents identify a mission and vision for the University and establish a five-pillar framework upon which to organize its goals and principles, namely: People, Learning, Research, Community and Internationalization. The pillars represent UBC's high-level values that are common across academic and administrative units. They provide a high level planning and prioritization framework. People and groups applying for TLEF funds, for example, must articulate how project goals address the goals and strategies articulated in the Learning Pillar of Trek 2010.

Technology is specifically identified in the Trek documents as a strategic tool for advancing teaching and learning practice and as a catalyst for innovation. Strategies identified in Trek 2010 that speak to technology's importance in supporting teaching and learning include:

- Support innovative teaching and create new learning experiences through the application of leading-edge technology.
- Create new programs for both full-time and part-time students that address the life-long learning needs of citizens in a knowledge-based society.
- Continue improvements to all aspects of the learning environment, including upgrades to laboratories and classrooms.
- Continually strive to improve the digital environment at all UBC sites.
- Enhance service and support for distance learners.
- Make the big small wherever appropriate: provide individualized services and experiences to students within Faculty-based or program-based communities.

Planning: ACCULT and e-Strategy

In the late 1990s, with the increased use of learning technology tools, a committee struck by the Provost led a visioning process related to how technology could be used to support learning. The Ad Hoc Committee on Advancing the Creative Use of Learning Technologies (ACCULT) put forward a report to Senate in February 2002 that explored the benefits of learning technology use as well as identified principles under which technology could best support teaching and learning:

1) enhance quality student learning;
2) decentralized initiative and control;
3) central facilitation; and
4) coordinated learning technology (LT) and information technology (IT).

A key recommendation of the committee was to establish a centrally positioned office to facilitate learning technology initiatives across the campus. Senate endorsed this report. The underlying principles represent core assumptions of the e-learning framework we discuss below.

In addition to the ACCULT process, UBC IT (then IT Services) facilitated the development of a high-level technology vision, e-Strategy (http://www.estrategy.ubc.ca). e-Strategy considers how IT supports the strategic vision of the institution and enables people to excel. The "e" in e-Strategy stands for "enabling". As illustrated in Figure 2, e-Learning is one of the core pillars of e-Strategy, along with People, e-Research, Community, e-Business, and Connectivity, built on a platform of Sustaining Operations.

Figure 2. The components of e-Strategy, UBC's strategic information technology framework. Note that Sustaining Operations provides the foundation for e-Strategy, with all components intended to support the needs of People.

e-Strategy has been a valuable organizational framework for considering the strategic importance of Information technology. Perhaps more importantly, the e-Strategy concept has received considerable buy-in at the community level. Since 2002, the yearly e-Strategy Town Hall has provided a venue for information and best practice exchange amongst information and learning technology professionals, faculty and students. An e-Strategy e-Learning Open House was launched in 2004, providing an annual venue for exchange within the community of e-learning practitioners.

Summary: Key Strategic Efforts

This section has discussed a wide range of experiences and initiatives that have shaped the current e-learning framework. The examples provided are institutionally focused and as such, represent the tip of the iceberg. Academic units have their own history that has shaped local approaches and methods. However, at the highest level, shared values have evolved that speak to this common history:

- Teaching and learning needs drive technology use: choose tool(s) to complement/satisfy instructional goals.
- The UBC environment is diverse, with a need for both local and central provisioning of resources.
- There is strong value in community.

Considered in total, the planning and policy efforts outlined above provide a strong foundation for practice, and underpin the e-learning framework.

e-Learning Framework: Beyond Technology

The term e-learning framework is used by the Joint Information Systems Committee (JISC), the UK-based IT funding agency, as follows:

> "The e-Learning Framework is a service-oriented factoring of the core services required to support e-Learning applications, portals and other user agents. Each service defined by the Framework is envisaged as being provided as a networked service within an organisation, typically using either Web Services or a REST-style HTTP protocol." (JISC, 2008, What is the e-Learning Framework, para.1)

This definition is strongly focused on technology, as one would expect given JISC's focus and mandate. For the purposes of this paper, and in alignment with the particular approach taken at UBC, we use this terminology to

represent the scaffolding (support framework) that influences the successful implementation of technology in service of teaching and learning. We define our e-learning framework as a collection of systems and services associated with technologies used to support and enhance teaching and learning. The framework represents a mechanism for considering how to approach and manage technology change, leverage institutional resources effectively and, most importantly, support those using technology in their teaching and learning. As such, this framework is not about technology, but how technology enables faculty and students to teach and learn and UBC to address its strategic academic objectives as articulated in Trek 2010.

Framework Structure

As outlined in Table 1, the framework comprises five systems (Course and Program Support, Learning Community Support, Learning and Teaching Skills Development, Applications Support, Infrastructure Support); each system comprises a set of services. Please note, the table is not intended to be comprehensive of all academic, technology, professional development and business services available, but focuses on those that are associated with e-learning.

Table 1. UBC's e-learning framework, consisting of systems and services that support teaching and learning with technology.

System	Services (major types cited)
Course and Program Support	Instructional and learning design
	Course development
	Curriculum development
	Teaching support
	Learning support (tutoring, study groups)
	Course and teaching evaluation
	Registrar/Enrolment services
Learning Community Support	Documentation and learning resource development
	Pedagogy-focused workshops and seminar series
	Technology selection and support committees
	Community of practice development
	Scholarship of teaching and learning research
Teaching and learning Skills Development	Application training
	Instructional skills development
	Learning skills development
	Reflective practice development
Applications Support	Software installation and troubleshooting
	Identity management provision
	Database support
	User technical support
Infrastructure Support	Classroom technology installation and maintenance
	Server Management
	Physical plant (power, heating, cooling, etc.),
	Application monitoring
	Security (including firewalls)
	Backup and disaster recovery
	Network operations
	Data centre operations

The systems and associated services outlined in Table 1 are not unique to UBC, and can be expected to be available at most institutions. In alignment with the decentralized support framework described above, these services are distributed between centrally positioned units and faculty-based units. Infrastructure Support and Applications Support in general are provided by UBC IT; Learning and Teaching Skills Development and Learning Community Support in general are supported by TAG and OLT; and Course and Program Support in general is supported by faculty-based support units.

The Framework in Practice: Deployment Considerations

Stemming from the decentralized collaborative model put forward by ACCULT, the generalizations outlined above do not apply to all types of technologies. At UBC, support is provisioned differently depending on the relative maturity of the technology. The lifecycle concept enables us to consider the services needed over a deployment spectrum that ranges from exploration to development to operations. As outlined in Table 2, depending on the stage, service provision varies; emerging technologies are typically supported by locally-positioned (unit-based) staff organized in a project team, whereas the core technologies have a wider support base and a diverse set of associated services that include delivery from staff in both faculty-based and centrally positioned support units.

Table 2. Relationship of provisioning of service, target audience, goals and engagement strategies to the lifecycle stage of technology implementation

Technology Lifecycle Stage	Service Provision	Audience Focus	Typical Goals	Engagement strategies
Emerging: Exploration Stage	Local support unit or vendor based	Project focus: Self-selected faculty and students	• Determine pedagogical value • Enable safe experimentation	• One-on-one consultations • Hands on workshops • Demo accounts
Pilot: Development Stage	Infrastructure (server support) provided by UBC IT or Vendor User and learning Support services incorporated into project plan. Often provided by a blend of faculty support units, OLT and vendor	Coordinated pilot focus: project teams comprising a blend of early adopters and mainstream faculty	• Strengthen understanding of pedagogical value • Build proficiency in use • Develop communities of practice • Develop support resources • Develop integration tools that link technical systems • Develop metrics • Develop research agenda	Methods outlined above plus: • Expert talks and pedagogy focused seminars • Think tanks, mini-conferences • Introductory Workshops • Build case studies • Listservs • Cross training of support staff

Core: Operations Stage	Infrastructure and application support provided primarily by UBC IT or vendor (with SLA)
	
	User Support is tiered with routine technical needs handled by UBC IT,
	
	Learning Community services available campus wide through TAG/OLT workshops (may be delivered by local support staff)
	
	Most course and program services delivered by faculty-based unit.
		Campus-wide scope with diverse programs that appeal to innovators & mainstream.	• Implement training and support programs
			• Implement system and training metrics
			• Implement ongoing system evaluation
			• Utilize tools that enable system integration
			• Support and grow communities of practice
			• Encourage SOTL research
				Methods outlined above plus:
				
				• Tiered workshops
				  – Novice (new faculty)
				  – Experienced
				• Ongoing LT staff professional development & training.
				• Detailed Documentation
				• User groups & conferences

The current e-learning framework is designed to support teaching and learning with technology, not only technology. As such, the emphasis is on people and process. The most successful projects at UBC, most notably WebCT, grew through grass roots experimentation and community engagement.

At early stages in projects (Exploration Stage, Table 2), significant learning takes place as a technology is developed or deployed; expertise grows in the project staff. With small project teams, personalized support can be provided and risk ably managed. As the technology enters the pilot stage (Development Stage, Table 2), the coordinated project approach enables us to explore different aspects of technology use, particularly in more discipline-specific contexts. By bringing in central IT resources to manage infrastructure, risk is managed while expertise in supporting an application is gained by the broader community. Most important, more people are able to explore the pedagogical use cases presented by the technology. Both emerging and pilot projects are commonly funded through the Teaching and Learning Enhancement Fund (examples include weblogs, wikis, e-portfolios). Centrally positioned units can play a critical role in both of these stages by tracking the activity, raising awareness, identifying others with similar interest, and by providing select types of expertise.

With core e-learning applications, business ownership rests with the OLT and infrastructure is managed by UBC IT. As a result of the volume of usage, a differentiation is seen in term of application support, resulting in a need for tiered services. Annually at UBC, our LMS has 3,000 active course sites, 33,000 total users and up to 1300 concurrent users. In order to maintain the core elements of the application, the UBC IT e-Learning Applications group manages operations, maintenance, bug fixes, upgrades and complex issues that require back end access to the program. Local support units work with faculty and students, answering questions related to how and why to use a program.

For the LMS, in our experience, questions concerning "how" an application is used often morph into questions concerning pedagogy and instructional approaches ("why"). Hence, this type of application support blends into Course and Program Support, which is handled by the unit responsible for supporting the course. The majority of course and program support associated with campus-based e-learning (services associated with course development and delivery in particular) are accommodated at the local support faculty level. For many fully distance courses, there are specialized units (e.g., OLT and the Faculty of Education's Office of External Programs and Learning Technologies) who provide these services. Learning Community Support and Learning and Teaching Skills Development are facilitated by centrally positioned units such as TAG and OLT, in partnership with local support units.

Looking Forward: Managing Technology Change and Enabling Choice

The "emerging, pilot and core" spectrum represents a shift in deployment type from experimentation to mission critical. What does mission-critical mean in the context of e-Learning systems? In essence, if some aspect of a student's grade or an instructor's ability to deliver a course component rests on the proper operation of a particular system, it is mission critical. Though a bit tongue-in-cheek, this definition does encapsulate the student and faculty member perspective, as well as the need to appreciate the level of risk inherent in LT deployments.

Institutionally, the number of core technologies, those that represent ubiquitous services that can be expected to be accessible from most places on and (in the case of web-based systems) off-campus, is limited. Figure 3 provides an illustration of many of these systems, along with their current technology lifecycle stage. Our LMS (Blackboard [WebCT] Vista and Campus Edition) is currently the only e-learning software that falls into this category. However, there are several systems, currently in pilot stage, that are approaching "mission critical" status (e.g., web-based course evaluation system, weblogs, wikis).
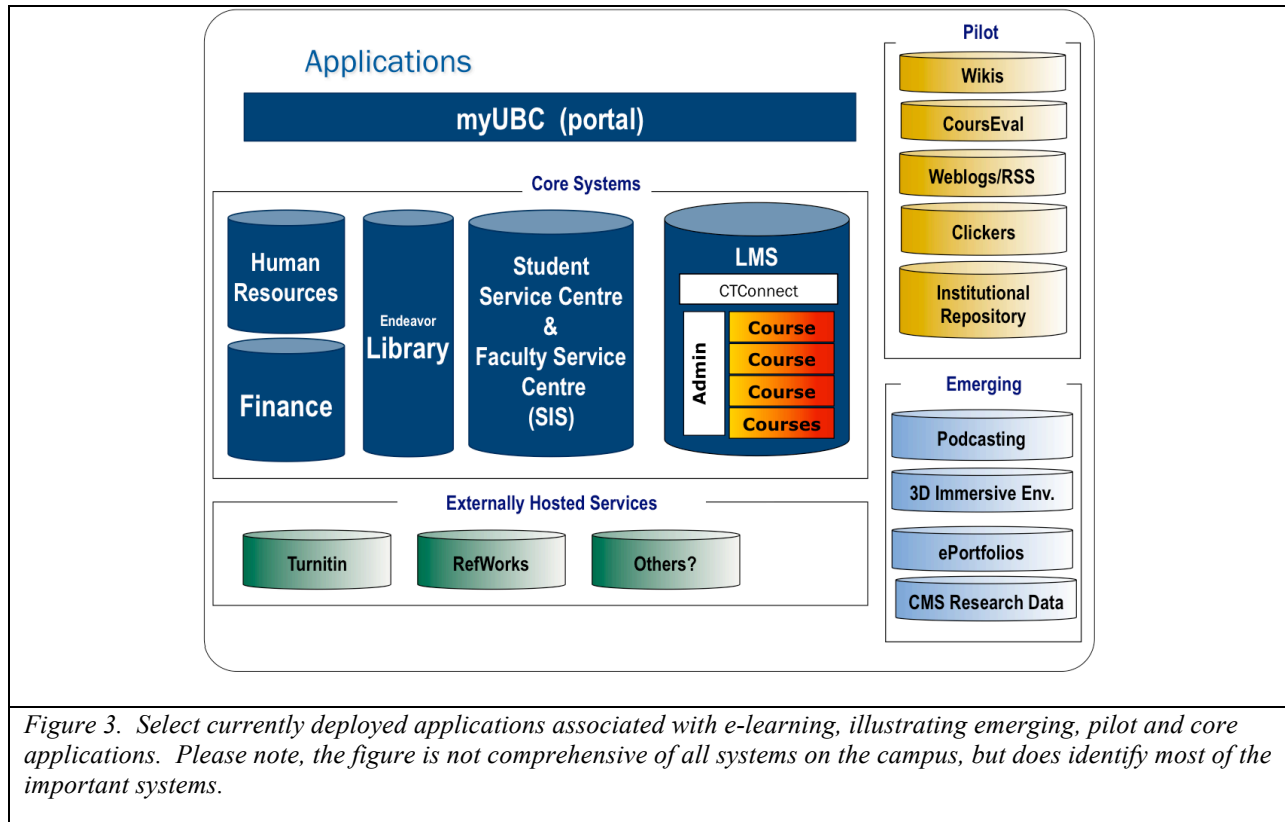
Figure 3. Select currently deployed applications associated with e-learning, illustrating emerging, pilot and core applications. Please note, the figure is not comprehensive of all systems on the campus, but does identify most of the important systems.

An interesting aspect of UBC's environment is the positioning of its Campus Wide Login, Portal and LMS. We can take advantage of the standards mentioned in the e-learning landscape section to enable a diverse, but integrated system. Utilizing the built in APIs and web services, we are increasingly able to stitch systems together, including the major business systems (student information system/faculty service centre, library, human resource and finance), placing them into the workflow of faculty and students, thereby positioning them within the e-learning framework core services. In addition, we are able to take advantage of the plugin capabilities of the LMS to integrate and simplify the workflow and account management tasks associated with external applications (e.g., Turnitin). With further build-out of the identity management services and development of web services (through projects like Kuali Student), UBC will be able to deploy technologies that are used by a limited group of people (e.g., a department) in an enterprise way. We are currently seeing this in the e-business area (managing building key cards for example), but over time this will be more prevalent in the e-learning space.

Concluding Statement

In this short paper we have attempted to provide a summary of the history and current state of UBC's e-learning framework, with a particular focus on aligning the structures and processes with strategically identified priorities and culture. At its core, the e-learning framework has the principles identified in Trek and ACCULT, with a core focus on investigating how technology supports teaching and learning, enables decentralized initiative and control, positions central groups like OLT and TAG in community support and facilitation roles and coordinates information technology and learning technology efforts.

Perhaps the most important lesson that has been learned at UBC is that technology is only a single part of the equation when we look to understand how to be successful with technology implementation. Teaching and learning needs must be prioritized. Institutional structures should look to accommodate diverse approaches, placing support at different levels of the institution, leveraging economies of scale where possible on the technology front, while recognizing and valuing the need for locally positioned support teams familiar with the discipline context and well versed in pedagogy. Encouraging innovation is a worthwhile effort, but sustaining innovation takes time and needs to engage the entire learning community: students, faculty and staff.

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