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Ontario's Distance Education & Training Network

UNDERSTANDING THE BUILDING BLOCKS OF ONLINE LEARNING

Through the writings
and research of pre-eminent
online learning authority and
Contact North | Contact Nord
Research Associate
Dr. Tony Bates

Contact North | Contact Nord

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For almost 50 years, Tony Bates has been a consistent, persistent and influential voice for the reform of teaching and learning in post-secondary education, notably through the effective use of emerging technologies. Author of 11 books and 350 research papers in the field of online learning and distance education, Tony Bates is also an advisor to over 40 organizations in 25 countries, and publisher of what is arguably the most influential blog on online learning with over 20,000 visits a month. A Contact North | Contact Nord Research Associate, Dr. Bates has helped educators, academic administrators and policy makers grasp key concepts, trends and challenges in online learning.

This Contact North | Contact Nord guide brings together the central perspectives and advice that Tony has provided on key issues in online learning over his many years of research, writing, and advising. Each section addresses a fundamental aspect of online learning – effective teaching, technology use, learner success, quality assurance, research, costing, and strategic planning – offering guidance and information essential to successful online teaching and learning. Contact North | Contact Nord enlisted two of his fellow Research Associates, Dr. Jane Brindley and Dr. Ross Paul, to undertake this retrospective which is a first in the world of online learning.

TECHNOLOGY FOR EFFECTIVE LEARNING

Adapting technology for effective learning is the mantra for Tony Bates' entire career – technology for accessibility, for flexible response to diverse needs, for improved quality and cost control, and for institutional accountability. His constant message is that most institutions are under-exploiting the potential of technology to respond to the growing pressures for change in post-secondary education. For meaningful improvements, major changes are needed in the prevailing institutional cultures and the way they are managed. Online learning, which harnesses the power of the Internet, multimedia resources and Web-based tools, is taking post-secondary education by storm. For Bates, the change is starkly different from that of earlier technologies mainly used to broadcast content. In the opportunities it provides to engage students, enhance quality, widen access and be cost efficient, and the radical changes it requires for the effective organization and rethinking of post-secondary education practices and processes, online learning is a game changer.

DRIVERS OF CHANGE IN THE WAY WE TEACH AND LEARN

The increasing recognition the world over of the central role that post-secondary education plays in social and economic success has resulted in many drivers for change, including the following which have been identified by Bates:

1) An increasing demand for college and university places that has led governments to use funding to drive up enrolments and left institutions to maintain or even improve quality.

2) Changing demographics (more older and part-time students) and more learner diversity (broader intellectual, language and cultural ranges), the dramatic increase in those pursuing post-secondary education while working at full- or part-time jobs, and the continuing growth and particular demands of life-long learning and preparation for employment in a constantly changing world.

3) Growing numbers of students at ease with new technologies and social media who are demanding the same sort of flexibility and access from post-secondary education that they already enjoy in their daily business and social interactions.

4) Pressures on institutions to be more open and accountable, especially for their deployment of taxpayer-provided revenues and ever escalating student tuition fees.

5) Recognition of society's needs for skilled knowledge-based workers and the associated focus on learning outcomes indicating the extent to which graduates have such requisite skills as critical thinking, problem-solving, communication, independent learning, and the ability to work in a variety of contexts, to work in teams and to navigate cultural differences.

6) Research evidence of the effectiveness of more interactive approaches to learning that engage students more intensively and practically both within and outside the traditional classroom.

7) The continuing evolution of Web-based technologies which make knowledge much more accessible and bring learners together without the constraint of time or place.

The message is clear. The status quo is not an option. Colleges and universities must find new ways to deal effectively with increasing numbers of students and to develop them as knowledge workers in a climate of increasing fiscal restraint and public accountability. Building on the work of theorists and practitioners the world over, Tony Bates offers thoughtful and practical responses to these challenges at a time when post-secondary education is experiencing high levels of scrutiny and increased expectations.

THE ROLE OF ONLINE LEARNING

New technologies for teaching and learning have enhanced learner access to and flexibility in post-secondary education. Bates and Sangrà have documented that enrolments are increasing much more rapidly in online than campus-based courses and that those for online learning far exceed the supply, at least in North America.

For Bates, online learning is the key to a successful response to the above drivers of change. It has the capacity to be responsive to a wide range of learning needs and can be offered at unprecedented levels of scale, unconstrained by time and place. It capitalizes on readily accessible content from a variety of sources and opportunities for more interactive learning where the focus is on developing research skills, critical thinking and creativity. It takes advantage of the power and flexibility of modern technologies and students' ease in applying them. Today's Web 2.0 tools (such as blogs, wikis and cloud computing) and social networks (MySpace, Facebook, LinkedIn, Twitter) enhance the ability of educators to address diverse audiences and allow them to pattern their teaching styles to many different needs and skill levels whether teaching in a traditional classroom, via online learning or a hybrid of these (often called blended learning).

Bates sees the pervasiveness of modern technologies as rendering the ability to find, analyze, organize, and apply digital information essential in almost all subject areas. He recognizes that core digital literacy is achieved not in a vacuum but as embedded in a given subject or discipline. This makes huge demands on faculty members who may lack digital literacy skills and it may also pose significant challenges to their preferred approaches to teaching.

It is this thoughtfulness, combined with a preoccupation with student learning and faculty support, that separates Tony Bates from technological champions who advocate glossy new toys while ignoring the challenges of using them to make real and sustained improvements to college and university teaching.

SEVEN KEY BUILDING BLOCKS OF ONLINE LEARNING

Bates considers technology a key factor in achieving an appropriate balance among post-secondary education's three competing forces – access, quality and cost. His work can be examined through seven of the key building blocks he has identified for developing effective and efficient online learning in colleges and universities.

1. Planning for effective teaching with technology

Tony Bates sees significant potential for online learning to transform college and university teaching, whether in hybrid or fully online models. Teachers and students no longer need to be present at the same location, learners actively contribute to the knowledge base through class discussions and small group projects online, and diverse learner needs can be readily accommodated whether students are learning together or in their own time. However, realization of this potential requires careful planning to ensure that course objectives are effectively matched to learning activities and that technologies are applied according to their specific capacities. Based on his research and online teaching experience, Bates provides sound guidance for faculty interested in teaching with technology.

2. How emerging pedagogies map onto the new technologies

Online learning supports many pedagogical approaches but an emphasis on learner development through activities such as collaboration, problem-solving and knowledge construction is particularly well served by the Internet and social media. Learners can pace their own learning, giving time for reflection and for understanding both the content and their own learning processes, enhanced by online discussion and small group projects. The effective implementation of online learning requires faculty to consider their views of the nature of knowledge and effective teaching, as well as the implications for their disciplines and of their choice of technologies.

3. How faculty can support learner success

Online learning makes particular demands of learners, notably in its assumptions of their research skills and capacity for independent study. Learner support activities include all the processes and services that colleges and universities offer so that students can navigate institutional systems and develop learning, research, and other essential skills. Bates provides faculty with advice and guidelines regarding their two main challenges in providing student support – online teaching and moderating and student feedback and assessment.

4. How faculty can assure quality in an online learning environment

New technologies render teaching and learning more transparent and accountable, with a greater emphasis on learning outcomes. Bates argues that there is convincing evidence that technology-based teaching succeeds best when courses are redesigned to exploit the benefits of technology, using well-established best practices in online learning combined with more traditional quality assurance methods of program and peer review. His writing outlines the key components in the design and development of quality online learning.

5. Guidelines for faculty from educational technology research

From the start of his career, Tony Bates has been a researcher into the effective application of various media for improved educational outcomes. His roots have ensured that he continues to look to practical research outcomes in his assessment of various approaches to teaching and learning. His research places particular focus on the relationship between the unique characteristics of a technology and its effects on learning outcomes, thus providing faculty with a framework for decision-making about choice and use of technology. He also provides useful suggestions and guidance for faculty members interested in pursuing their own research in the field.

6. Costing considerations for hybrid and online courses

Online learning offers unprecedented opportunities to offer courses and programs to large groups of learners with relative cost efficiency. However, Bates makes an important distinction between cost reduction and cost effectiveness and cautions that online learning is not necessarily a cheaper alternative to face-to-face teaching. While cost analysis and control are largely institutional roles, faculty choices in instructional development and course delivery are critical components of this. Bates' development of costing models for hybrid and online courses represents a key part of his contributions to online learning.

7. Institutional and faculty roles in strategic planning

Far too often, institutional leaders and individual faculty members jump on technological bandwagons without considering the key determinants of success in institutional change – strategic planning and budgeting, the prevailing institutional culture, and the full involvement of and support for faculty in planning for change. Bates provides a blueprint for effective strategic planning in the context of integrating new technologies into a college or university.

Each of these building blocks is considered in more detail, emphasizing the practical guidance for development and implementation that Tony Bates has provided in his extensive publications. Throughout the guide, direct links are provided online to additional articles and blogs in which Tony expands on the ideas presented in each section. A list of key resources is provided at the end of this guide.

PLANNING FOR EFFECTIVE TEACHING WITH TECHNOLOGY

Tony's work on planning for teaching with technology in post-secondary education and the opportunities and challenges for faculty members offers practical guidance for the selection, implementation and understanding of the impact of various educational technologies.

According to Bates, online learning offers great potential to increase both quality and accessibility in post-secondary education. Teachers and learners can interact in shared virtual spaces no longer constrained by time and place; learners actively contribute to the knowledge base that becomes part of the online course content; electronic access to a wide range of quality learning resources allows for creative just-in-time structuring of knowledge presentation and opportunities for discovery within courses; and diverse learner needs can be readily accommodated whether students are learning together or in their own time.

Bates is enthusiastic about this potential but realizes that harnessing technology for pedagogical purposes is complex. It requires careful planning to ensure that course objectives are effectively matched to learning activities and that technology tools are applied according to their specific capacities to support certain kinds of learning. From his research and online teaching experience, he provides guidance for faculty interested in teaching with technology.

1. Ensure that the benefits justify the investment

The benefits of integrating technology into your teaching must justify the significant investment of your time and the costs. Bates recommends that you start with thinking strategically about the goals of technology use and how they fit with your course, program, departmental and institutional mission and mandate. Will technology facilitate more active learning and development of your students' research and analytical skills? Will it address such challenges as large classes or workload management? Will it open up new markets or improve accessibility to underserved groups such as part-time learners? Will it enhance quality, address unmet needs or reduce costs? Whatever the rationale, the case should be well researched and documented to attract the institutional support necessary to render it sustainable.

One approach is to include a discussion of technology use in any curriculum or course review. Departmental workshops might include teaching-focused strategic planning exercises such as environmental scanning, analysis of goals, values and priorities, technology demonstrations and small group discussions to develop a vision for teaching in the future.

Bates and Poole introduce a helpful framework to oversee technology integration and instructional design. The **SECTIONS** framework considers the following criteria for choosing and applying technologies for teaching:

- **S**tudent needs,
- **E**ase of use and reliability,
- **C**ost considerations,
- your approach to **T**eaching and learning,
- the desired level of **I**nteraction for students,
- the **O**rganizational support needed,
- the **N**ovelty factor, and
- the **S**peed with which the technology can be adopted or materials adapted.

A description of how the SECTIONS framework can be applied is outlined in a document from the University of British Columbia.

2. Develop a teaching plan

Bates recommends having a comprehensive teaching plan encompassing both curriculum (what) and delivery (how). Inclusion of a delivery plan ensures the integration of any technology use into regular college or university curriculum planning exercises.

In addition to curriculum, a teaching plan addresses issues such as your preferred approach to teaching (e.g. problem-based or inquiry methods); time allocations for lectures, seminars, labs, clinics, practicum sessions, field work and other activities; whether courses will be offered face-to-face, online, or in hybrid form (reduced class time with online interaction); scheduling for any face-to-face teaching; and who will teach.

3. Plan for course design and development time

Good teaching always requires preparation, but developing a fully online, hybrid or technology-enhanced classroom course takes extra time to develop before the course begins. Depending upon the subject, learning activities, choice of technologies, resources available and current teaching workloads, a new course may take up to a year to develop.

You may take a systems approach whereby the whole course is laid out and then each element designed and developed before teaching begins, or a more open-ended approach relying less on pre-prepared content and more on collaborative learning, class discussion, and building on the existing knowledge of learners. Bates' key message is that deciding on a teaching approach, laying out a plan, choosing appropriate technologies, developing and/or choosing learning resources, and ensuring the necessary support and infrastructure requires significant time and must be considered part of your teaching workload.

4. Seek specialist assistance and support

Course quality starts with your knowledge of the learners and your subject matter expertise but benefits immensely from other specialist support. Cross-functional communication among faculty, instructional designers, media specialists, Web programmers, copyright officers, and learner support professionals to facilitate course development provides a dynamic environment for innovation in teaching. It also requires some consideration of the form of collaboration required.

Bates describes different models of course development. The Lone Ranger approach is where a faculty member works independently to integrate a new technology, sometimes with some institutional financial support. A Boutique Model provides professional assistance on a project-by-project basis from an instructional support unit such as a teaching and learning centre. A Collegial Materials Development model involves academic colleagues working collaboratively on course development. A full Project Management Model involves a team of individuals contributing specialist skills working with a defined product, budget, timelines, and team leader to manage the process. More information on these approaches can be found in the section on Quality Assurance.

Model choice depends upon the size of the project (module, learning activity, whole course or program), design complexity and the level of technology integration. Adding one element of technology to a face-to-face course may be handled quite easily with one-on-one assistance from

a specialist whereas a project management approach to a fully online course with significant integration of various technologies probably yields the best quality and cost effectiveness. Once you have worked through developing a course with specialist help once or twice, you will be well positioned to work more independently.

5. Manage the teaching workload

Bates stresses that technology use should reduce class time, not add to your overall teaching load. Using online technology for a face-to-face class to share the syllabus and links to learning materials, such as journal articles, should not take extra preparation time and may even save time and resources. However, if you want to go beyond this basic use of technology in a course, it is important to carefully consider the cost and additional teaching time needed.

The investment required to plan, prepare and facilitate a course that incorporates pre-prepared modules, multimedia elements and/or online interaction such as class discussions or group projects will outweigh any significant gains in quality if the technology is not used to reduce face-to-face class time.

6. Collaborate

Use of online technologies opens up many opportunities for collaboration in teaching, within and across institutions, even across continents. Further, as Bates points out, combining efforts pays off in productivity and quality of teaching. Shared open educational resources can also significantly reduce development costs.

Courses or content common to a variety of programs can be identified and learning materials and resources developed and stored in readily accessible, shared virtual spaces. As with research and publication, faculty with subject expertise in a particular area from one or more institutions can work collaboratively online to develop core materials and/or source learning resources from increasingly available open educational resources.

Working collaboratively with colleagues, you can share ideas, jointly develop and share resources, and provide critical feedback to one another, thereby improving teaching practice. Equally important is the development of learning activities, assessment tools, and multimedia and interactive modules. Best created by a team, these will save resources as well as significant time for individual faculty members.

7. Ensure that course evaluation and maintenance are planned

Evaluation and maintenance of technology-based courses go hand-in-hand. As Bates points out, because technology-based courses are new and different, it is good practice to evaluate them regularly for educational effectiveness. Evaluation can take a number of forms, both formative and summative. Information about enrolments, grades, completion rates, feedback from students and faculty, as well as observations of student behaviour in the course are essential to course maintenance.

All technology-based courses require at least some minor maintenance. For Bates, once a course or a learning resource is developed, it should be kept dynamic to maintain quality. The content must be updated as new resources, such as journal articles, become available, assignments and learning activities revised, URL links checked and student feedback incorporated.

Keeping whole programs or many courses updated is complex, requiring resource allocation and a planned maintenance schedule. Just as development requires faculty time, so does evaluation and maintenance. The teaching plan (described above) should include an evaluation and maintenance strategy and schedule for technology-based courses that does not add to teaching load.

With these practical considerations, Tony Bates has established a clear path to success in adapting teaching and learning to new technologies. Bates also has an excellent series of blog posts on teaching with technology that address a wide range of considerations from the capacities of various technologies to educational theories.

HOW EMERGING PEDAGOGIES MAP ONTO THE NEW TECHNOLOGIES

A particular focus of Tony's work has considered how online technologies are proving to be particularly well suited to supporting current and emerging pedagogies that call for engagement, active learning, and skills development.

Tony Bates has observed that it is important to understand that technologies used for teaching are not pedagogically neutral but can be more or less suited to a particular teaching approach. The effective implementation of online learning requires you to consider your view of the nature of knowledge, what you believe constitutes effective teaching, how you apply these beliefs to your discipline, and the implications for choice of technologies and their integration into your practice.

THE EVOLVING PRACTICE OF TEACHING

1. Changing views of the nature of knowledge

In discussing pedagogical approaches, Bates advises that you start by examining your philosophical beliefs about the nature of knowledge (epistemology) that determine the ways in which you teach. Educational philosophies are not static. The concept of knowledge as a collection of facts, theories and testable concepts is giving way to notions of it as dynamic and relative, being constantly constructed by individuals and groups in a process of adaptation to change and experience. Even in the hard sciences, knowledge is seen more subjectively than it was in the past. Bates notes that such thinking has evolved not only because of the explosion of accessible knowledge, but also through recognition of the role that status and power play in controlling knowledge. As well as the shift toward viewing knowledge as more fluid and dynamic, he notes the influence of the Internet in giving rise to theories such as connectivism which describes knowledge as akin to collected wisdom being constructed through Web-based networks and communities.

You make decisions about how to teach based on your view of what constitutes knowledge and the best way to help learners acquire it, but ways of teaching are not mutually exclusive. Bates observes that, although you may have a preferred way of teaching, you probably use a variety of approaches based on the nature of the subject matter and your learners' needs and characteristics. What is critical is to make explicit your views and choices about the best approaches for teaching so that you can choose technology accordingly. Tony provides more detailed consideration of the relationships among the nature of knowledge, pedagogical approaches and online learning in his consideration of the implications of Web 2.0 tools.

2. Pedagogy with a focus on skill development and active learning

Bates notes that the shift in views about the nature of knowledge leads to a more constructivist approach to teaching. This places less emphasis on mastery of a specific body of knowledge and more on helping individuals acquire capabilities that enable them to successfully navigate rapid change and multiple contexts, both familiar and unfamiliar, confidently employing a wide variety of skills. Although concepts and theories form the backbone of a given discipline, desired learning outcomes are focused less on memorizing subject-based information and more on facilitating the student's intellectual and social development.

Bates describes current constructivist approaches to teaching as learner-centred, with the student fully engaged in a process of discovery based on exploration, dialogue, problem-solving and participation in knowledge

construction. Case studies, collaborative inquiry and problem-based learning are used to engage students through experiencing, discussion, and reflection. These teaching methods enable learners to become skilled critical thinkers, able to locate needed information among a plethora of resources and sources, organize it, analyze it, evaluate its credibility and usefulness, and skillfully apply it to a variety of situations individually or as part of a group. Bates emphasizes that the teacher's role is to challenge and stimulate students, ensuring that interaction, whether virtual or face-to-face, is of a quality that leads to learning demonstrated by social and intellectual development. He notes the importance of scaffolding, supporting learners in a way that facilitates their development from being dependent to independent and collaborative learners.

Bates emphasizes that skill development is not generic and must be embedded within a specific area of expertise. What is critical is that current pedagogical approaches require you to make thoughtful matches between desired learning outcomes and appropriate learning tasks and processes and then choose the technologies that will best support them.

3. Technologies that support active learning

Bates notes that technologies such as video, PowerPoint, and computer-based resources have mainly been used within an educational model that is objectivist and teacher-centric. He observes that online learning has the potential to support many different approaches to teaching (including didactic), but is particularly suited to current and emerging pedagogies. For example, he describes the key capacity of Web 2.0 technologies as empowering learners to create, adapt, share, disseminate and apply knowledge, facilitating the shift to more learner-centred approaches.

Technology itself has helped develop more active learners. The Internet, Web 2.0 tools, social networks and mobile devices provide instant access to vast libraries of expert- and amateur-sourced information, creating a society of seekers, communicators, and self-directed problem-solvers already using technology for reasons other than study. Bates stresses the teacher's role in harnessing this behaviour for traditional academic study by providing planned learning experiences, guidance, goals, feedback and criteria for assessment.

Bates has been a leader in establishing that different technologies have different capacities (affordances) that make them particularly suited for certain learning tasks. In learner-centred pedagogy, you use these tools in a framework that exploits their capacity to support active learning. If you choose a hybrid model of teaching (combining face-to-face with online), course content can be moved to the Web in the form of text, audio and video, freeing class time for discussion, analysis, and practice. Class discussion and collaborative projects can also easily be accommodated by virtual classrooms and current Web-based tools that support both synchronous (real time) and asynchronous (virtual time) communication.

Building collaborative activities into your classes contributes to skill development through dialogue, testing of ideas, problem-solving and knowledge construction. Allowing for a combination of synchronous and asynchronous learning provides students some ability to pace their learning, and gives time for reflection both on content and their individual learning processes.

Social media extend the virtual classroom, providing opportunities for activities such as collaboration, networking and authoring. For example, collaborative workspaces, such as wikis, are free and simple to create and allow students to work on joint projects; multimedia archives such as YouTube videos can be accessed as learning resources and created by students to demonstrate knowledge and skills; and virtual worlds, such as Second Life, enable knowledge construction through interaction and experimentation in real time.

IMPLICATIONS OF THE CONVERGENCE OF PEDAGOGY AND TECHNOLOGIES

Bates believes that the convergence of pedagogy emphasizing active learning and skill development and the availability of technologies well suited to supporting these is beginning to transform post-secondary teaching. Online learning can become a process of guided collaborative engagement in which students gain insight, understanding, increased capability and confidence through grappling with contextually based questions and problems, challenging their own ideas and those of others, reflecting on their learning, and constructing new knowledge.

While consideration of educational philosophy, teaching approaches and choices of technologies traditionally resides with an individual instructor, these decisions have implications better considered on a program-wide scale. Bates offers a number of questions to consider in developing an overall teaching plan incorporating both curriculum design and delivery.

1. What are the characteristics and needs of learners that we want to reach (part-time, full-time, older, younger, experience in using technology for learning)?
2. What skills and disciplinary knowledge are we trying to develop in this program? How will an "A" student be defined?
3. What kind of content do we want the learners to access and from what sources? Is quality content readily available? Do we need to create any content? What guidelines, if any, do we need to provide for finding and evaluating content?
4. What is our overall educational philosophy and approach to teaching for this program? How will our teaching approach support achievement of the skills we have identified as desired learning outcomes? Do the early courses have to include significant content and begin with a didactic approach? How can we help students build on their existing experience and become independent learners?
5. How can technology help us achieve our program goals? How can we best match technology choice to learning activity? Will the use of technology change during the program and, if so, how? What tools should we use and why?
6. What support will we need in the use of technology, both for us and for learners?

The Internet and Web 2.0 tools represent a significant shift in the way technology can be used to support learning, one that appears to be in synch with current pedagogies and approaches to teaching that put more control in the hands of learners. Bates offers a vision and a practical framework for planning processes that can help you take advantage of the new technologies by using them in educationally meaningful ways.

HOW FACULTY CAN SUPPORT LEARNER SUCCESS

Bates' work dedicates particular attention to the support of online learners, an area sometimes overlooked but which research has shown is essential to creating quality programs that provide the best opportunity for success.

WHAT IS LEARNER SUPPORT?

Learner support activities are all the interactive processes and services that colleges and universities offer to help students navigate institutional systems and develop the knowledge and skills they need in order to become lifelong, independent and collaborative learners.

Bates recommends a comprehensive institutional plan that recognizes that the accessibility of online learning extends to all parts of the student experience, with significant implications for faculty roles, all areas of learner support, and institutional infrastructure.

Bates identifies the following types of support as being most important for online learners:

- Marketing/course information
- Registration and tuition-fee payment
- Course admission/passwords/technical help
- Ordering and delivery of materials including library materials
- Student advising and counseling
- Online teaching and moderating
- Student feedback and assessment.

Development of comprehensive, high quality and accessible learner support creates a rich and responsive virtual learning environment which contributes to a culture of commitment and engagement. Here we focus on the two aspects of learner support which are provided by individual instructors – online teaching and moderating and student feedback and assessment.

WHY LEARNER SUPPORT?

For Bates, investment in online learner support is important because:

1. Online learning widens access to education resulting in a more diverse student population, but not everyone has the independent learning skills to meet its unique demands. To be successful, online learners need to take active responsibility for their learning and develop superior skills in written communication, navigating virtual environments and information literacy skills such as locating, evaluating and applying information.
2. Learners who choose online study because of its flexibility are often working adults with multiple responsibilities which put them at greater risk of dropping out
3. Effective learner support, along with quality course design, can mitigate the risk of attrition.
4. Many learners study online out of necessity and cannot travel to a campus to gain access to support and administrative services.
5. Campus-based learners, whether or not they are taking online courses, increasingly expect to conduct many other transactions with their institution online, including use of support services.
6. Educational institutions offering online study can distinguish themselves in a competitive market by offering accessible and comprehensive online support.

An additional perspective is provided in Tony's blog post in which he advises learners about the importance of the support services they are offered when they are studying online.

IMPLICATIONS FOR FACULTY

For learners who do not come to campus, faculty will often be the main point of contact with the educational institution. Their expectations may extend beyond your teaching role to advice about course choice, financial aid, and technical problems. If your institution has a comprehensive approach to online learning, these services will be accessible online and your role will be limited to making appropriate referrals. Otherwise, the lack of other forms of accessible support can place extra demands on you.

THE ESSENTIAL ROLES OF FACULTY IN SUPPORTING LEARNERS

Bates identifies the primary source of support for online learners as the instructor who guides, mentors, moderates and provides student feedback and assessment.

Online teaching and moderating

In stressing that the pedagogical advantage of online learning is the ability of students to interact with teachers and each other over time and distance, Bates offers the following advice to faculty:

1. Course design: Start with a well-designed course that sets out clear learning objectives, learning activities, and assessment methods, and clearly states expectations for students and for you as instructor.

2. Online class organization: Manage your time by establishing how and when you can be contacted, and your response turnaround time. Create a well-organized online classroom that is easy for students to navigate and includes information most frequently requested.

3. Focus on interaction: Invest your time more in interaction with students, and less in delivering content. The primary focus is students' individual and collaborative learning processes, but you should be active and visible as guide, observer and facilitator.

4. Introductory activity: Welcome students individually at the beginning of the course and set a task that helps them to get to know the classroom and each other.

5. Setting the tone: Establish a tone and culture of trust and openness that fosters participation. Model critical but constructive feedback and exchange of ideas, showing how to agree but take an idea farther and how to respectfully disagree based on evidence. Encourage students to ask questions, take risks with sharing ideas and opinions and to exchange with and support each other in the learning process. Foster a learner-led classroom but set clear expectations and boundaries and be prepared to intervene and react quickly to help students stay on track and be constructive.

6. Goal setting for discussions: Set explicit goals for online discussions so that interaction is more than an exchange of opinions and leads to deeper learning (e.g. deepening or personalizing understanding, developing critical and analytical thinking skills, problem-solving, knowledge construction and applying experience to new situations). Moderate discussions based on the expressed goals and help students develop the skills to participate.

7. Knowledge construction and academic skill building: Use class and small group discussions and projects to model and engage students in academic discourse, teaching skills such as constructing evidence-based arguments. Through focused discussion, students can build new ideas, reconsider the meaning of their experience, develop theories and frameworks and consider the implications of the application of new knowledge.

8. Learning objectives: Match discussion topics to learning objectives, thus helping students in completing assignments through better understanding of concepts and their application to a current issue.

9. Asynchronous communication and critical thinking: Asynchronous discussions lend themselves well to development of critical thinking. Model thoughtful questioning and response that move a conversation farther and deeper; help students to use the wait time between postings for reflection; provide clarification without ending the conversation; and encourage students to develop and test their own meaning of concepts and ideas.

10. Group activities: Use small group projects to help students build online cooperative and collaborative learning skills including sharing experience, using complementary strengths and testing and developing ideas. Students who have chosen online learning for its flexibility may be reluctant to engage in group activity. As an instructor, you can guide the process positively by providing criteria for self-selection for group formation, ensuring that students are clear about the task, monitoring discussions and progress toward goals, providing frequent feedback and encouragement, troubleshooting when groups get off track and defining the assessment process and criteria.

11. Individual participation: Encourage participation in a variety of ways through ensuring discussions are meaningful and relevant to learning objectives and learner experience, setting tasks that require reporting and engaging in peer critique. Check in by private e-mail with non-participants to find ways to support them and with those who dominate discussions to ensure that their participation is focused, meaningful and does not discourage others.

12. Adjusting for differences: Be aware of cultural, epistemological and language differences. Students used to a didactic model of teaching may not immediately thrive in a virtual classroom until they learn to challenge their teacher's and peers' ideas and to articulate their own with confidence. Students learning in a second language may need time to adjust to an environment where reading and writing are the main forms of communication. However, asynchronous communication gives them time to absorb meaning and compose responses.

Tony's blog post on management of communication between instructor and students provides additional insight into this topic.

Student feedback and assessment

Good teaching involves continual and effective feedback that helps students become better learners. Particularly in online environments where students can feel isolated, your continuous feedback is essential to supporting their learning.

1. Continuous feedback: Provide informal feedback in a variety of forms including monitoring class and small group discussions and projects and modeling desired skills and behaviours. Feedback at mid-term helps students know where they stand relative to stated objectives. Individual feedback by private e-mail is valuable when a student needs extra help and encouragement.

2. Learning objectives: Match formal assessment methods to stated learning objectives. If the objective is to enable learners to develop specific skills such as seeking, finding, analyzing and interpreting information or collaborative problem-solving, these abilities need to be assessed along with comprehension of the subject matter, a task made easier by choosing the right technology (#4 below).

3. Transparency: Be transparent with formal assessments by including grading rubrics for each assignment as part of the course information. This not only contributes to learning and a sense of control for students, it should save you time in responding to individual e-mail queries.

4. Choose the best technology: Use the capacities of available technologies to their best advantage when designing assessment methods and tools. The online environment can accommodate multiple-choice examinations, writing assignments, collaborative projects, and demonstration projects such as e-portfolios that may include work samples, a learning journal, collected learning resources, and multimedia artifacts such as a self-produced video.

5. Detailed feedback: Include sufficient comments on formal assessments that help students understand their grade, strengths and areas for improvement. Written detailed feedback takes time but for online learners who do not have the opportunity to meet with you, it is essential for evaluating their own performance including what they are doing well and how they can improve.

6. Assessing participation: If you decide to assess participation in class discussions, set criteria based on the quality of posts and their link to stated learning objectives and publish these for students. As much as possible, avoid grading for quantity of posts and put the focus on learning through meaningful and relevant discussion and effective moderating.

7. Plagiarism: Help students understand the meaning of cheating within the context of academic standards. Post expectations with regard to original work and citation, and model desired behaviour. If you use plagiarism detection software, make it available to students so that they can evaluate and correct their own work first. Run all assignments and papers through plagiarism detection programs as part of the grading process, and be consistent in taking action when there are infractions.

Bates' essential message about supporting learners through quality teaching, moderating, feedback and assessment is that you can use these activities in purposeful ways to develop active approaches to learning that encourage learners to participate, analyze and criticize, offer alternative solutions and approaches and take risks. By providing effective learner support in rich online learning spaces, you can develop lifelong and independent learners well prepared for the knowledge-based society of the 21st century.

HOW FACULTY CAN ASSURE QUALITY IN AN ONLINE LEARNING ENVIRONMENT

Like many faculty members, you may be concerned that, in the rush to apply the latest technologies, the quality of online learning may not match that of face-to-face teaching. Based on a lifelong preoccupation with teaching with technology, Tony Bates offers knowledge and perspective concerning quality to those contemplating teaching through blended or hybrid learning, or embarking on a full online learning project for the first time.

We focus here on four issues that address the quality of online learning: comparing the results of online learning with face-to-face instruction; the status of online learning in your institution; the design and delivery high quality online learning; and the role of quality assurance

1. Comparing the results of online learning with face-to-face instruction

In a meta-analysis of over 1,000 research studies comparing the impact of face-to-face and online teaching, Bates and Sangrà concluded that there is no evidence of significant differences between the two modes of instruction. However, the authors interpret these results with caution, noting that quality is contextual. For example, the flexibility afforded by online learning makes it more attractive to adult or part-time learners, whereas younger full-time students may benefit more from face-to-face instruction until they have acquired more independent learning skills. A technology well suited to teaching welding to students in remote sites may not be suitable for teaching a hybrid social science class.

The demands of a particular teaching and learning context are paramount to assessing a technology's quality. Whatever the results elsewhere, you need to conduct your own research and evaluation of technology-based teaching to identify the conditions optimal for your teaching, your students and your institution.

2. The importance of the status of online learning in your institution

One of the key factors affecting the quality of online learning is how a given course is designed and developed. Bates has identified four main approaches to course development, representing increasing levels of institutional support for faculty. It is important to consider which of these approaches best fits your own situation.

a. Lone Ranger

If you are a pioneer in moving to online learning in your institution, you are probably what Bates calls a Lone Ranger. By far the most common approach, this model describes the efforts of an individual faculty member to integrate one or more technologies into a particular course without formalized institutional support. While this practice retains your autonomy and control, it usually requires a disproportionate amount of your time for preparation and may be difficult to sustain.

b. Boutique Course Development

In this approach, you are assisted by an instructional designer or technology support person from a centre set up by your institution for this purpose. This works well when relatively few instructors need help, but is probably not sustainable when demand increases and you can no longer count on appropriate help exactly when you need it.

c. Collegial Materials Development

Here, you collaborate with academic colleagues within or beyond your institution to develop online materials. You share ideas, jointly develop or share course materials and provide critical feedback to each other. You decide which materials to include in your courses and which to share with colleagues. This can be extremely effective, especially in bringing a group of colleagues together around common cause, but you may quickly discover that you need a more systematic approach and greater institutional support as this practice grows in the institution.

d. Project Management

Using the project management approach, you work with a team of experts according to your course development needs (instructional designer, multimedia designer, Web designer, programmer) managed by a team leader or project manager (who might be you). Bates suggests a full project management model as the best route to ensuring course and program quality, especially when developing entire courses or programs online. Other advantages of this approach are the opportunity to learn more about online learning as part of a team and efficient use of your time as subject matter expert because much of the technical support work and design are done by expert associates. Once you have gained course development experience working with a team, you may choose to work more independently

3. How to design and deliver high quality online learning

Once you have identified the optimal approach to course development for your needs in your institution, Bates offers the following components as the key to achieving high quality in online learning:

a. **Planning and instructional design**: Perhaps the strongest theme running through Bates' concerns about online quality is his preoccupation with careful planning and instructional design, stressing that you must first establish clear learning objectives and outcomes and plan an appropriate mix of learning activities to achieve them. This includes predetermining the nature of the interactions you want among students, the learning materials to be used and the tutor or instructor. An integral part of the course design process is selecting technologies for their specific capacity to support the learning activities and interaction chosen. As noted above, you can benefit from the assistance of in-house professional staff such as instructional designers and Web-programmers in these endeavours.

b. **Delivery and student support**: Given that all your students have ready access to the online components of your course, you have a responsibility to ensure that they have the technological and learning skills to take full advantage of them. Course quality depends not just on the materials but also on the extent to which students are engaged with them and with each other. Research underlines the importance of an instructor online presence in achieving this. Supporting students as they navigate through the wealth of learning materials available online will both motivate and help them to develop lifelong learning skills. Other important forms of learner support include library services, writing coaches and counselors and others who can help students develop their own independent and interdependent learning skills.

c. **Faculty knowledge and preparation**: It is important to identify what you need to learn about teaching online and find the appropriate professional development opportunities that will enhance your ability to produce effective online or blended learning courses. Developing collaborative working relationships with professional colleagues such as instructional designers and Web programmers can be invaluable. Your openness to taking their advice and considering new approaches to your teaching will be a key factor of success. Online learning opens up power relationships within an institution and your awareness of this will help you to navigate through the associated complexities of institutional politics in course development and design.

d. **Media production**: Recognizing that learning is enhanced by providing content in forms other than text, course quality is enhanced by effective visual and audio components. These need not be sophisticated or expensive. What matters most is the appropriateness of the graphics and other technological aids to your course objectives.

e. **Visibility of content**: You can take advantage of the public visibility of online course materials and interactions with students. While the openness of online teaching may be disconcerting at first, it contributes to the development and improvement of course materials by lending itself readily to more collaborative approaches with both peers and students. The development of open educational resources has contributed directly to quality improvement because learning materials can be critiqued and modified by your best academic colleagues from anywhere.

f. **Evaluation and revision**: It is important to formally evaluate course and program objectives and learning outcomes based on the goals set in your institutional or departmental plans and revise courses and programs accordingly. Benchmarking against other institutions also helps measure quality. There are numerous international agencies that set out best practice results from online learning against which you can measure the success of your own courses and programs.

More detail can be found in Tony's nine-step process for achieving quality in online learning.

4. The role of quality assurance

Enrolments in fully online and hybrid courses are escalating dramatically in post-secondary institutions all over the world. It is clear that technology has become part of teaching practice and the lesson from Tony Bates is that this underscores the need for you to incorporate quality considerations into course and program design from the outset. He points to the appearance of a new journal, International Journal for Innovation and Quality in Learning, dedicated to quality in online learning as a measure of the growing interest in this field.

Bates observes that the growing competition among institutions, combined with the relative openness of online learning, will increasingly place a premium on the development of quality assurance measures. Accreditation agencies in the USA, Britain and Australia are developing formal quality assurance standards for online learning. While Canada has not established formal quality assurance mechanisms, there is increasing interest in key performance indicators and benchmarking practices in colleges and universities.

Bates offers the following as the best guarantees of quality in online learning:

- Your own knowledge of and experience in the use of technology for teaching and learning
- Your access to highly qualified and professional learning technology support staff and project management approaches to online learning
- Institutional support in the form of appropriate instructor-student ratios, your own professional development, and appropriate release time for course development
- Your attention to systematic evaluation and ability to use the results for continuous improvement to the teaching and learning process.

GUIDELINES FOR FACULTY FROM EDUCATIONAL TECHNOLOGY RESEARCH

Tony Bates' approach to online learning is pragmatic but informed by his on-the-job experience, widespread reading and consulting, and his focused research into the application of technologies to post-secondary education. From his early work on the adaptation of radio and television for distance education through to his latest studies of Web 2.0 technologies, he has derived practical lessons for the effective application of various media and technologies for improved educational outcomes

We address two aspects of his work here – the implications of some of the key findings from his lifelong work on educational technology for faculty members using online learning to complement, supplement or replace their classroom teaching, and his guide to related questions of particular interest to faculty researchers.

LESSONS FROM RESEARCH FOR SUCCESSFUL ONLINE LEARNING

Bates emphasizes the importance of starting with the right research questions in deciding which technologies are most appropriate. Simply asking which is "better", face-to-face or online teaching, is singularly unhelpful and easily misunderstood. While most studies reveal no significant difference between the two, this does not mean that the choice of technologies is inconsequential. It all depends on what you are trying to achieve and which technologies best serve your ends.

Bates identifies the following as among the most consistent and helpful outcomes of studies into the application of different technologies in post-secondary education.

1. The focus should be on the teaching, not the technology

From his experience and studies, Bates concludes that any foray into online learning must start with a vision of your model of teaching and learning. It must be based on sound instructional design compatible with your teaching values and intentions. Bates' blog post Decide How You Want to Teach Online is a good starting point.

2. Different media have different educational capacities.

While your preferred pedagogical approach should inform the technologies you employ (and not the other way around), moving into online learning will almost certainly require a rethinking of your basic approaches to teaching. Technologies have unique characteristics and capacities, making each one more or less closely aligned with different pedagogies. Online learning, particularly using Web 2.0 technologies such as such as wikis, blogs, e-portfolios, and social media, which allow learners to find, adapt, create, share and publish information easily, represent the potential for a significant shift in power from teacher to learner necessitating a more constructivist approach to learning.

Online learning can accommodate a range of Web 2.0 tools as well as different media: text, graphics, audio, video, animation and simulations. You need to understand their capabilities and use them appropriately (e.g. a wiki for communication and collaboration, a blog for broadcasting ideas or for reflective thinking, a simulation for experiencing) in order to realize their educational advantage.

Using technologies according to their unique capacities leads to deeper understanding, and a wider range of learning outcomes and skills in applying content. You can pattern your use of various media to the needs and different learning styles of individual learners. In short, teaching with

technology has to be explicitly designed to exploit the full pedagogical potential of the range of media it can support. In a recent post, Bates described this finding as his first "aha" moment in recounting a series of insights derived from research throughout his career.

3. Online learning is compatible with constructivist approaches

Constructivist approaches to teaching and learning focus on the assimilation and accommodation of new experiences with previous forms of understanding, requiring the learner to be active in observing, comparing, questioning, reflecting and discussing. Online learning, particularly using Web 2.0 tools and multimedia, facilitates this kind of active and collaborative learning. The asynchronous nature of online learning encourages interaction with and reflection on content, and online discussions provide the opportunity for students to test ideas, and build and construct knowledge through collaborative learning. Thus online learning can provide a way for you to approach teaching differently from didactic practice in large lecture classes.

4. Asynchronous learning supports reflection and critical thinking skills

The asynchronous nature of online learning provides students with considerable control over the pace and timing of their learning, allowing for and encouraging reflection on content, the learning process, and the self as a learner. Students can reconsider and compare content, even in the form of discussion, which is recorded and available for consultation throughout the course. The opportunity for students to challenge course materials and other students' conceptions and arguments within a course, and to find and compare multiple and perhaps conflicting sources of information can all contribute to the development of critical thinking skills. However, there is still a need for your active intervention as moderator and designer to ensure that these skills are actually developed.

5. Online moderation is essential

For online discussion forums to enable learners to construct their own meanings, increase their depth of understanding of key concepts and principles in a subject, and apply them to new contexts, research has indicated that very careful course design and purposeful online moderation are needed. As a moderator of online discussions, you will need to ensure that students are meeting the necessary academic standards, such as offering evidence-based arguments, setting arguments within a conceptual framework, and relating discussion to the concepts and ideas covered in the course materials. If not, the discussion can easily deteriorate into a swapping of unsubstantiated opinions among students.

6. Online learning supports collaboration

One great advantage of online learning is the opportunity for students separated by time and place to work together on common tasks. Learning to collaborate online is an increasingly important workplace skill, and it provides important opportunities for students to share experiences and test and develop their ideas. It is particularly valuable for courses where students are from different countries or cultures, and in professional and continuing education programs, where participants can share and draw from relevant experiences. There is evidence, however, that using the Web for collaborative learning is not without challenges. Students will benefit from clear task definitions, guidelines for collaborative work,

procedures to deal with conflict resolution and criteria for individual and group assessment. In this respect, the general literature on collaborative learning is just as essential to online as to face-to-face teaching

7. Open educational resources (OER) facilitate both quality and cost effectiveness

The increasing availability of free and open educational resources not only offers huge potential to dramatically extend post-secondary access to credit and non-credit programs in a cost-efficient manner, but it also allows the instructor to select the very best quality of teaching materials from all over the world. OER can facilitate many different applications, with choices available from loose collections of learning materials (OER Africa) and carefully designed courses (Carnegie Mellon University's Open Learning Initiative) through collaborative degree programs across institutions (OERu) to massive open online courses (MOOCs). A useful discussion of these different applications can be found in Tony's consideration of the relevance and practicality of OER.

8. Evaluation is important to innovation

Evaluation to improve performance is part of all good teaching but is particularly important for online teaching where new tools and approaches are still rapidly developing. At a basic level, the quality of online learning can be measured by comparing quantitative indicators such as completion rates and measures of learning such as grades obtained compared to those of students in face-to-face classes. In addition, it is critical to evaluate whether more skill-related learning outcomes such as information literacy, online collaboration or communication skills can be achieved through learning activities that exploit the capacity of particular technology tools. The best way to continue to improve and innovate is through systematic analysis of experience and outcomes. Bates provides a helpful overview of evaluation of online courses for faculty in the step on on evaluation and innovation in his series on the Nine Steps to Quality Online Learning.

RESEARCH QUESTIONS YOU MIGHT WISH TO PURSUE

As a faculty member teaching online, you play an important role in building knowledge about this field through evaluating and innovating in your practice. If you decide that you would like to go beyond evaluation to pursue research into online teaching and learning, Bates' 2007 paper, *Map of Research into E-Learning*, is a good starting point. In it, he provides research questions, appropriate methodologies, references for related studies, potential partners, and possible outputs. Of particular interest to faculty members are the topics listed under his section on Teaching and Learning, including methods of course design; quality assurance; the relationship among pedagogy, various technologies, and skill development; how to combine synchronous and asynchronous teaching; and the impact of online learning on learners.

Bates' paper is a rich resource for researchers into online learning. Even if you do not pursue research in any of these areas, you may find it useful simply to review the questions in developing your own approach to online learning and conducting systematic evaluation of your work.

COSTING CONSIDERATIONS FOR HYBRID AND ONLINE COURSES

Much of Tony Bates' work has been about how to increase access to learning by leveraging technology while still achieving the highest quality of education. According to Bates, online learning offers unprecedented opportunities to offer courses and programs to large groups of learners with relative cost efficiency. However, he notes that teaching with technology is not necessarily cheaper than face-to-face instruction if technology is merely added on to the existing model without careful attention to course design.

In his analysis, Bates makes a useful distinction between cost reduction and cost effectiveness. In fact, the introduction of new technologies is apt to add costs, at least in the short term. In addition to investment in infrastructure (networks, computers, and technical support staff), the steep learning curve for everyone adds both time and cost. Technology is also changing rapidly and so infrastructure investments are constant.

However, while he concludes that technology is unlikely to reduce absolute costs, it can improve cost effectiveness in the organization in several ways, by

1. enabling institutions to reach out to more and different students;
2. using technology to reduce or eliminate some activities currently carried out by instructors, freeing faculty time for more productive use;
3. using technology to improve the quality of learning, either by facilitating new skills and learning outcomes or by enabling students to achieve existing learning goals more easily, quickly and/or thoroughly.

Bates stresses that such cost effectiveness requires radical changes in teaching methods and organization. He offers thoughtful advice on how to determine the relative costs of adopting technologies for hybrid and fully online courses, focusing on academic cost factors (planning, development and design, faculty and staff training, delivery, maintenance and overheads) as well as more institutionally based concerns (infrastructure, and administration).

Bates reminds us that costing exercises depend on certain assumptions always open to challenge. You may find the following lessons from his experience useful as you adapt new technologies within your own context and institutional culture. Although many of the costing factors are outside the immediate control of faculty, a wider understanding of what Bates offers as institutional, as well as faculty-related, cost-related guidelines may be useful to planning.

KEY COST FACTORS

Because online learning requires new approaches to teaching and learning and consequent changes in organizational structures, there are significant costing implications. Bates has found that faculty members have two particular cost-related concerns – the management of time and the need to justify investment through positive results. While new technologies may incur software, hardware and copyright costs, for example, the most expensive investment in post-secondary teaching is usually faculty salaries. This places a premium on how you use your time, notably for instructional development and course delivery.

1. Instructional Development

Planning and developing online components, courses or programs are complex and time consuming activities. As a faculty member, your upfront time investment will likely be high, although it will be less if your institution provides a support team of instructional and Web designers. Once you become more familiar with this mode of teaching, you will be more efficient in subsequent development projects and, once an online course has been well established, you will only have to monitor it for effective achievement of learning outcomes and currency of the materials and make the appropriate periodic revisions. Hence, for a given course, your time investment in its development should be significantly less in subsequent years.

2. Course Delivery

The comparative costs of online and face-to-face teaching differ fundamentally in the ratio of fixed to variable costs. To retain quality in the latter case, you have to add more teachers as enrolments grow or class sizes will escalate and quality may be compromised. For online teaching, if courses are well designed, they can serve many more students with relatively small cost increases.

For Bates, the quality of course design is a key to controlling costs. The nature and amount of teacher-student interaction are integrated into the course design, facilitating planning of teaching workload. Online learning facilitates a variety of pedagogical approaches which help reduce instructor time, including independent learning, peer-to-peer interaction and using adjuncts or teaching assistants effectively. Once established, a course can provide a quality, active learning experience that becomes increasingly cost efficient over time because more enrolments can be added without comparable cost increases.

Bates offers some guidelines for optimum class sizes for face-to-face, hybrid and fully online courses but cautions that these depend very much upon the amount of interaction built into the course. An online course that manages teacher-student interaction well, for example with the use of group projects, peer critique and learning materials that provide feedback and self-assessment tests, can be offered to 100 or more students with relatively low delivery costs. On the other hand, Bates estimates that online courses are less cost-efficient than face-to-face instruction for enrolments under 20 students.

A BUSINESS PLAN APPROACH

Bates and Sangrà offer the following components, many at the level of institutional control, of a business plan approach:

1. Track time investment

Given that instructor time is the key costing variable, it makes sense that faculty members track how their time is used in teaching – for course development and design, selecting appropriate technologies, changing the ways work is done with students and managing the whole process with institutional colleagues.

2. Change how costs are tracked

As the use of technology-based teaching expands, take an activity-based approach to costing, allocating all direct expenses and the associated revenues to program accounting, allocating each instructor's time and

proportional salaries to all aspects of course development and delivery. Bates and Sangrà argue that only in this way can the true costs of online learning be fairly compared with those of face-to-face teaching.

3. Be clear on issues of compensation for technology-based teaching

A lot of technology-based teaching may be developed at the expense of other activities, meaning that faculty members require release time or at least formal recognition that other priorities may be compromised in the short-run (research, community service and/or other teaching) until online materials are identified or created and integrated into courses.

4. Link costs to benefits

Investing in technology may enhance the teaching of a particular course but this also increases its net costs, at least in the short term. To truly assess cost effectiveness, you must be clear about the associated benefits. Are your students more actively engaged? Are they more successfully achieving the desired learning outcomes? Are there cost efficiencies in the long run? The results will help you and the institution determine the value of such continuing investments.

5. Develop business plans for programs

Bates advocates activity-based business plans to achieve the above steps. This involves costing all the investments of faculty and other staff time in developing and delivering courses, including planning, maintenance and overheads. We have not traditionally done this for classroom teaching and so there is understandable resistance to using this process for online approaches. However, the increasing interest in online learning, combined with tighter fiscal regimes in almost all colleges and universities, strongly suggests the merits of an activity-based approach to costing, budgeting both time and money for maximum learner success.

Bates strongly promotes developing a business plan that takes full account of the 10 key cost factors in online learning including:

- The number of hours required for course development and preparation;
- The number of hours required to teach a course;
- The number of students in a course;
- The ratio of instructors to students (class size);
- The pay scale of instructors (in particular, ratio of tenured to adjunct faculty);
- Method of course design, development and delivery (e.g. 'Lone Rangers' vs. team work);
- The pedagogy used (e.g. recorded lectures, constructivist or objectivist approach);
- The choice of technology for delivery (e.g. lecture capture, LMS, Blackboard Collaborate);
- The assessment of the course and its outcomes; and
- Overhead costs (institutional administrative costs, network costs, etc.).

As a concrete example, Bates recounts UBC's approach to costing one of the courses in its 12-course Master's of Educational Technology program, designed to be delivered completely through online learning. In a detailed case study, he shows how the initial costs were significant but projected to be recouped over the life of the course. Some of the surplus revenues should be reinvested in the program to ensure its continuing quality and up-to-date contents.

Ultimately, your investment in online learning, notwithstanding its relatively high development costs, will pay off to the extent that it extends accessibility, enhances or at least matches the quality of learning outcomes of face-to-face teaching and is more cost efficient in the long-term because of reduced delivery costs per student.

A more detailed assessment of the factors influencing the costs of online learning and the various categories of costs is provided by Bates in a document prepared for Contact North | Contact Nord. Many of his other publications on costs are cited in the Contact North | Contact Nord document on Online Learning as a Possible Cost Saving Measure.

INSTITUTIONAL AND FACULTY ROLES IN STRATEGIC PLANNING

Tony Bates describes a key "aha" moment in his career when he realized the critical importance of planning and good management for the effective use of technology in education, especially in the academic sector. From that moment forward, he became an advocate for a much stronger faculty role in strategic planning for online learning.

Consider your own interest in and experience with educational technology. Have you used online learning in your teaching? If so, are your efforts paying off in terms of knowledge and skill acquisition by your students? Are your interests and understanding consistent with those of your colleagues? Is your involvement encouraged and supported in your department and institution? Have you been able to develop your own knowledge of and skills in blended or online learning? How does online learning fit your approach to teaching and learning? These are the sorts of questions that Bates suggests you consider in support of a strategic approach to planning for online courses and programs. It soon becomes evident that a crucial component of your success in online learning is the degree of congruence between your values and approaches and those of your institution.

THE STAGES OF DEVELOPMENT OF ONLINE LEARNING

According to Bates, the introduction of online learning in an institution follows a fairly standard pattern of five distinct stages:

1. **Lone Rangers**. These are the early adopters who take their own initiative, often without immediate or direct support from the institution.
2. **Encouragement**: The efforts of these early adopters attract some interest and support from senior administrators through small grants or reduced teaching loads.
3. **Chaos**: As a growing number of instructors embrace online learning, the administration starts to worry about quality, duplication of effort, lack of technical standards and, above all, the costs of scaling up to large numbers of classes and instructors.
4. **Planning**: It is recognized that priorities need to be set, common technical standards established, technical and design support and training for faculty developed and cost-effective ways of developing online learning established so that budget and instructor workloads can be controlled.
5. **Sustainability**: The institution has established a stable system of online learning that is cost effective and scalable. Few institutions have reached this stage.

THE CENTRAL ROLE OF PLANNING

Central to the work of Bates is using planning as the key to reaching the final stage of sustainability. He observes that moving an institution to the appropriate use of learning technologies is more about human change than technical decisions. It requires patience and long-term strategies, which may explain his findings that few institutions have institutional plans for learning technologies. He believes that institutional leaders are too cautious and choose to enhance traditional classroom instruction, an approach that tends to add costs without measurable learning benefits, instead of transforming the way teaching is designed and delivered.

The decision to integrate technology within the operations of an institution is a strategic one because it requires substantial investment and significant organizational change. Bates makes a compelling case for strategic planning, noting that it is increasingly important not just to integrate technology but to exploit fully its potential for innovation, improved learning outcomes and more efficient resource deployment. Because technology changes so rapidly, such planning must be continuous. He has observed the following problems in institutions that have not planned well for its introduction:

- The lack of a clear rationale for technology use
- A concern about the quality of online learning
- Duplication of effort and concomitant cost increases
- Unanticipated increases in faculty and student workloads
- A growing disillusionment with the promise of technology

COMPONENTS OF A STRATEGIC PLAN FOR ONLINE LEARNING

As an antidote to such concerns, Bates recommends a well-structured strategic plan for online learning that addresses the following elements, among others:

- Rationale for its use
- Student target groups
- Academic level
- Course content
- Learning outcomes
- Teaching approaches
- Student assessment and program evaluation
- Choice and use of technologies
- Program team
- Program administration, including associated business plans
- Financial plan, including fees and resources needed
- Risk management

Bates offers more detail on this approach, as well as a case study on strategic planning in his description of the work that he did for the Southern Alberta Institute of Technology.

In their case studies of 11 post-secondary institutions, Bates and Sangrà found that technology integration was highest where it was prominent in an overall strategic plan, especially if accompanied by specific plans for online learning. However, where institutions had online learning plans not embedded in a larger strategic plan, they ran into conflicts later, notably in ensuring sufficient funding to make it effective. Where technology integration was lowest, none of the institutions had any formal strategic plan.

STRATEGIC PLANNING – WHERE DO YOU FIT IN?

Obviously, your institution's commitment to and support for online learning will be a major factor in your own success with it. Nevertheless, Bates starts with the importance of faculty attitudes, their concerns for autonomy and academic freedom and the organizational culture within which they work.

Just as online learning will be more effective in an institution that takes a strategic approach to planning, Bates encourages a similar approach by individual faculty members. Before embarking on the development of online materials, you need to consider carefully their relationship to your preferred

mode of teaching and the readiness of your students. Ideally, your own planning will be supported by and in sync with that of your institution.

From Bates' extensive work on online learning, we can extrapolate the following key planning issues for your consideration. In the ideal case, the impetus will be taken by your academic department or, at least, in collaboration with key colleagues, but the following planning parameters apply even if you are embarking alone. Each piece of the plan should be carefully considered before you undertake any online project:

1. Develop a clear vision and rationale for why you are developing online materials, courses and/or programs. This will involve a rethinking of the curriculum and how best it can be taught. The presumed outcome is an array of courses offered in the mode (face-to-face, hybrid, fully online) most appropriate to the learning outcomes you establish.
2. Recognize that moving from face-to-face to online teaching will require significant changes in your approaches. Do everything you can to ensure congruity between the mode of course development and delivery and your core values about teaching and learning.
3. Take full account of the costs associated with initiating online learning, starting with the increased demands on your time and including the implications for technical and other support by your institution.
4. Use the learning outcomes for each online course as the basis on which you can evaluate its effectiveness and make subsequent revisions. Your investment of additional time for course development will be more easily justified to the extent that you can see demonstrable improvements in student learning outcomes and widened accessibility to your courses.
5. Take the time to learn about the strengths and weaknesses of different technologies in their application to teaching and learning.
6. Recognizing the typical evolution of online learning in an institution described by Bates (above), work with your colleagues to develop a strong planning ethos that recognizes the interdependence of all variables and that moves you toward a project management approach to ensure course and program sustainability.

FACULTY DEVELOPMENT IS AN IMPORTANT PART OF PLANNING

Bates believes that, for most instructors, faculty development should not be treated as a separate, independent activity, but be embedded in a broad range of team-based strategies that support the collaborative development of effective online learning.

Bates has found best practice in faculty development for online learning is embedded in a strong instructional technology plan for the institution. From this perspective, your institution's organizational culture makes a considerable difference to your approach to online learning. As part of planning for teaching with technology, it is important to consider your professional development needs and reasonable to look to your institution for assistance in this regard.

In summary, recognizing the pedagogical and institutional changes necessary for effective online learning, Bates has developed a strong case for the importance of effective coordination and planning, not only by the institution but also by faculty members individually and in groups. Whatever your institution's stage of development with technology integration, a thoughtful, planned approach to teaching and learning in conjunction with your colleagues can pay rich dividends for both you and your students.

Through these building blocks, Tony Bates shows how online learning can transform teaching and learning in the twenty-first century. Faculty members and institutional leaders can find practical and thoughtful advice, and even inspiration, in his writing and research. At the same time, he invites them to challenge his models and dream up new approaches that take advantage of the powerful facility that online learning provides to improve access to and the quality of post-secondary education.

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HIGHLIGHTS FROM TONY'S WEB SITE

www.tonybates.ca – follow Tony's regular postings on his web site and the animated responses he regularly gets from his readers

If you are fairly new to online teaching, you might want to read the series of 10 posts on Tony's blog on Quality Online Learning which cover designing, teaching, and evaluating online courses in some detail. If you start with the last one, you will find links to all the previous ones. A condensed version covering all the main posts in the series can be found here. Experienced instructors might be interested in reading *Designing online learning for the 21st century*.

Whether new or experienced, you will find much value in reviewing How to Prepare and Moderate Online Discussions for Online Learning for a more detailed discussion of best practices.

Bates also has an excellent series of blog posts on teaching with technology that address a wide range of considerations from the capacities of various technologies to educational theories.

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