Pedagogical Considerations for Online (E-learning) Teaching-Learning

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Introduction

As the global marketplace promotes the acceleration and expansion of educational opportunities, international linkages, overseas campuses, collaborative partnerships with multiple universities and other transnational relations, instructional quality and integrity remain keys to effectiveness and sustainability. For reasons of infrastructure, cultural diversity, educational regulations, languages, and real costs, the challenges in providing a quality and comprehensive education can be quite difficult. As developed and transitioning countries consider the development and/or enhancement e-learning, a concern for quality control and the necessary support systems to ensure programmatic integrity requires concerted attention. It is the responsibility of policy makers to identify and apply appropriate curricula design, development, support, and evaluation measures to ensure that their e-learners and their e-instructors experience an effective transition to a distance-learning environment. E-learners should have the same level of academic integrity as students who attend campus based programs. Hastily conceived and designed e-learning programs will create not only student and instructor discontent but political concerns as well (Churton, 2000). The premise of this paper/presentation suggests pedagogical aspects for online teaching and learning.

Government primary-secondary schools as well as institutions of higher education have or are considering the transition to an e-learning model for delivering information and class content to students. Appropriate pedagogical strategies must be considered not only to address the learning styles of students but also the teaching styles of instructors. The ability to be effective in an online learning environment is dependent upon an instructor’s ability to understand the strengths and weaknesses of an e-learning/teaching environment and employ appropriate pedagogical strategies that will maximize student’s learning. Requiring students to read page after page of lecture notes in the course website diminishes learning due to the physiological and psychological effect of extended attentiveness to screen resolution, static learning, innate visual cues, and the emissions associated with the technology. Traditional classroom methods will not be successful in an online teaching-learning environment regardless of the content.

Pedagogy is simply defined as the science of teaching. From instructional theory, pedagogy is also referred to as the correct use of teaching strategies (Brown, 2004). In a broader sense, especially in an e-learning environment, pedagogy includes teaching styles, learning styles, methodology, online course design, and the technological functions provided through course management software (CMS) and how they are used in the class. Too often instructors believe that teaching online classes is a simple transition from a face-to-face environment. Unfortunately, this is not valid.

Students, conversely, have developed broad and diverse experiences in using computers, ICT, and the internet. Millions of Asian students are members of MySpace, Facebook, You-Tube, Multiply and other...
socializing websites that encourage uploading of information, video files, text files, music files, images, site design and navigation. Instructors, to be successful, need to recognize that their students may well be more adept in navigating and using an online ICT environment then the instructors are themselves. The pedagogy that is used to keep students attention to the content and to guide their learning is critical for successful outcomes. Given the content, the key pedagogical aspects of online teaching/learning are the educational and instructional strategies used to deliver content and not the technology itself.

This paper will focus on pedagogical tools and strategies associated with course management software (CMS) or learner management system (LMS) including Moodle, Blackboard, Webct, Moodle, Epsilen and e-portfolio, and others and how instructors can and should use these tools to impact student’s learning. Pedagogical strategies include synchronous and asynchronous dialogs, access to academic resources and content, collecting and annotating Internet-based curricular resources, online assessments, assignment design, construction and submissions, file and time management, instructor informational and student homepages, gradebook/statistics with student access, group management, announcements, course calendar, student learning tools and others.

Principles of E-Learning and on-line Teaching

The selection of an appropriate curriculum management system (CMS) is not a simple task. One must consider the nature of the content to be delivered, the re-design of content, the CMS teaching and learning pedagogy, the population to be served and their access to technology, and the technological design skills of the instructor. Another critical concern is the overall cost of the CMS including licensing fees, operational costs, management costs, and technical support costs (Platt, 2001).

We commonly hear of CMS programs such as Webct, Blackboard, and Moodle. Whereas Webct and Blackboard (now under one company) perhaps blazed the international trail for online learning, Moodle and other CMSs have expanded the access to online learning by declaring open- not free- source-ware embracing a philosophical position of constructivism as a design premise as well as the availability of the software to the masses. Each of the CMSs are cited below. The pedagogical functions for each varying.

Figure 1.0: Moodle course developed recently at Hue University Medical Faculty. The content addresses Health programs in Vietnam. This course is a works in progress started in Oct. 2007.

WebCt is depicted in figure 2.0 and illustrates a training program for using WebCt.

Figure 3.0: represents the opening page of a current Blackboard course being taught at the University of South Florida by Dr. Churton. This course is offer every semester and enrolls students from overseas. The content addresses specific learning disabilities for teachers at the graduate level.
The captions represent front pages associated with the design format for Moodle, Blackboard, and WebCT. Each offer graphical design differences. However, and more importantly, the teaching and learning functions associated with each—although seemingly common across all three, may offer varying degrees of usability as well as access. Figures 4 and 5 illustrate the same course content designed in Blackboard as well as in Moodle (Churton, 2008).

A relatively newer CMS, offering an e-learning format is referred to as Epsilen (Jafari, 2008). Although a proprietary software, the license enables the development of a course online using Epsilen...
server. In order to enroll students however, you are required to purchase a site license. In addition, the authors have also developed an e-portfolio dimension, which intends to create a “professional” MySpace for educators.

Jafari (2008) suggests that sites such as MySpace, You-tube, and e-bay are “sticky”. That is, they are designed to lure individuals back to the site on repeated basis. The question arises as to why Blackboard or Moodle do not offer the same tackiness? What is in the software/course design that encourages individuals to return to their MySpace several times a day? Should our education courses try to accomplish the same end?

In addition, to the five CMS cited above, there are numerous other CMSs available that offer a variety of learning and teaching functions as well as graphical displays with open source or proprietary systems. Table 1.0 illustrates several examples of other CMS available on the market. Specific pedagogical tools associated with each CMS can be found by accessing the URL for each one. In addition, to the proprietary and the open source formats, many universities have designed their own CMS for use within their academic environments. Several programs in Southeast Asia have followed this self-design process.

<table>
<thead>
<tr>
<th>CMS</th>
<th>URL</th>
<th>Cost</th>
<th>TARGET POPULATION</th>
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<tr>
<td>LRN-</td>
<td><a href="http://www.dotlrn.org">www.dotlrn.org</a></td>
<td>Open</td>
<td>Gov., HE. K-12, Buss, NGO</td>
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<td>Higher Education (HE)</td>
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<td>Business</td>
</tr>
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<td>Open-</td>
<td>Athabascau University K-12, HE</td>
</tr>
<tr>
<td>BODINGTON</td>
<td><a href="http://bodington.org/">http://bodington.org/</a></td>
<td>Open</td>
<td>HE</td>
</tr>
<tr>
<td>BSCW</td>
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<td>Open</td>
<td>NGO, HE, K-12</td>
</tr>
</tbody>
</table>
The Process of Defining E-Learning

As with any process, one must first define the parameters or the context by which the process is conceptualized. Definitions of e-learning vary— as they should— and depend upon the needs and requirements of the programs that are utilizing ICT to deliver instruction. The evolution of e-learning and that of a rapidly expanding technology has now presented a new dimension of learning referred to as m-learning or mobile learning.

Relationship of m-learning to e-learning (Keegan, 2004).
Asia, as well as Africa and other continents, have looked towards the future relative to ICT and in providing basic communication services. Without the need to lay miles and miles of copper for telephone and voice messaging, wireless applications have replaced the infrastructure of the 20th century. While the USA and perhaps Europe are well entrenched with land based installation, continents as if Asia and Africa have move rapidly and significantly into wireless communications and technology. Mobile learning is the product of this Wireless Revolution (Keegan, 2004). To a certain degree, m-learning represents the next generation of learning. Keegan (2004) suggests that m-learning includes computers, laptop computers, PDAs (Personal Digital Assistants)/handhelds/palmtops, smart phones and mobile phones are included.

E-learning most often means an approach to facilitate and enhance learning by means of personal computers, multimedia, and the Internet. This includes email, discussion forums, and collaborative software. Advantages are seen in that just-in-time learning is possible, courses can be tailored to specific needs, and asynchronous learning is possible. E-learning may also be used to support distance learning through the use of WANs (Wide Area Networks) as well as Local Area Networks (LANS), which should assist schools in the transition (Wikipedia, 2005).

However, there are a variety of definitions that are used to describe how information and communication is delivered using ICT infrastructure. It would be prudent to at least identify what some of these definitions and at least note that some are not just from the world of education. The corporate and business sectors also design and promote e-learning. As education is becoming more of a commodity and streamed to resemble a corporate operation, perhaps we all can learn something from the world of economics. It must be noted, that it is not the intention of this paper to recommend a clear definition of e-learning since the process of defining e-learning is dependent upon the unique needs and characteristics of programs and on a larger scale schools, universities and countries they represent. In short, e-learning definitions will probably be quite similar in nature but defined differently across the Asia-Pacific region due to the unique needs of programs and the region. A few e-learning definitions are cited below which represent characteristics of education, industry, tourism, government, and service programs.

- Learning that is accomplished over the Internet, a computer network, via CD-ROM, interactive TV, or satellite broadcast (geocities, 2005).
- Self-paced, interactive training programs produced on CD or the Web that contain multimedia elements (ie, sound, video, animations) and automated test questions that provide instant feedback to the trainee. (Progress Information Technologies, 2005).
- The process of learning via computers over the Internet and intranets. Also referred to as Web-based training, online learning, distributed learning, or technology for learning. (Marriott, 2005)
- Any technologically mediated learning using computers whether from a distance or in face to face classroom setting (computer assisted learning, 2005)
- A process that facilitates education using a network (Internet, LAN or WAN). (Online Degree Zone, 2005)
- Self-study training material that is provided electronically (typically, over the Internet). (TechScriber, 2005)
- Covers a wide set of applications and processes such as web-based learning, computer-based learning, virtual classrooms, and digital collaboration. It includes the delivery of content via Internet, intranet/ extranet, audio and videotape, satellite, and CD-ROM. However, many organizations only consider it as a network-enabled transfer of skills and knowledge. (NEIU, 2005).
Learning that is facilitated by the use of digital tools and content. Typically, it involves some form of interactivity, which may include online interaction between the learner and their teacher or peers (New Zealand Ministry of Education, Interim Tertiary e-Learning Framework 2004).

This term has two different meanings. It can mean a comprehensive offer of courses and "on-the-job" e-business training modules for all levels of management for the purpose of accumulating internal e-knowledge and promoting e-business-related networking and the exchange of know-how. It can also mean learning via electronic media. (Siemens, 2005)

What occurs when education and training (typically credit but also non-credit) are delivered and supported by networks such as the Internet or intranets. Learners are able to learn any time and any place. In this report, we use the terms "online learning" and "e-learning" interchangeably. (EDU SPEC, 2005).

### Teaching-Learning Process

A primary requirement for supporting an e-learning program is to ensure that students and instructors understand the teaching learning process as it applies to e-learning. Teaching and learning may have never been more important or more apparent than in the current age of a knowledge-based society. The e-learning student will be paramount in mediating his or her own learning. The nature of education delivery is changing, and new technology and other related innovations can provide promising educational opportunities for individuals who are currently not being served, particularly for individuals without easy access to traditional campus-based education or for whom traditional courses are a poor match with education or training needs (Churton, 2001). The change is reflected on how learning or communication is achieved.

Figure 6 illustrates the interrelatedness of three learning models and associated pedagogical tools to:

Figure 6: Learning Models
Designed by Debbie Heck, Bodil Ask, Åke Bjørke and Ng Chong

Watkins et al. (2002) see learning as action-oriented. To be effective, learning must be “a reflective activity, which enables learners to draw upon previous experience to understand and evaluate the present, so as to shape the future action and formulate new knowledge”. Learner control theory and research plays a significant role in the design and delivery of appropriate distance learning programs. We know that faculty teach and students learn using different instructional and learning styles. Learner-centered instruction places students at the focal point of the teaching/learning process and encourages the understanding of and appreciation for diverse educational, professional, and personal characteristics among students (Churton, 2003). Strategies to impact learning outcomes must be viewed through an...
understanding of the population that is to be served. Although these characteristics can pertain to any group of students, it is evident that successful e-learners tend to be:

- Independent learners
- Self-motivated and driven to achieve
- Accountable for responsibilities
- Balancing multiple responsibilities
- Appreciative of time and distance

Churton (2004) suggested that to be successful in e-learning, students need to develop an appreciation and understanding for active learning and an ability to work independently from the instructor and/or facilitator. Student-to-student networking and student-to-teacher communications such as email, virtual discussion board, synchronous chat sessions, telephone calls, or informal meetings can assist in facilitating the learning process. In addition, consistent, non-intrusive instructor intervention and communication with students significantly increases the completion rate of students.

Research on technology's benefits for teaching is viewed generally as positive when shifting from a traditional direct approach to a more learner-centered approach. Research (Dede, 1996) specifically shows that educator’s use of technology results in:

- Increased emphasis on individualized instruction
- More time engaged by teachers advising students
- Increased interest in teaching
- Interest in experimenting with emerging technology
- Increased administrator and teacher productivity
- Increased planning and collaboration with colleagues
- Rethinking and revision of curriculum and instructional strategies
- Greater participation in school and district restructuring efforts
- Increased teacher and administrator communication with parents
- Increased communications among teachers (OTA, 1995)

Traditionally, classroom teachers rely on visual and unobtrusive cues from their students to enhance their delivery of instructional content. The attentive teacher consciously and subconsciously receives and analyzes these visual cues and adjusts the course delivery to meet the needs of the class during a particular lesson (Churton, 2004). In contrast, the e-learning teacher has few, if any, visual cues. Those cues that do exist or are filtered through technological devices such as typed text or images on video monitors.

To function effectively, students must quickly become comfortable with the nature of e-learning teaching and learning. Efforts should be made to adapt the delivery system and pedagogy to best motivate and meet the needs of the students, in terms of both content and preferred learning styles. Consider the following strategies for meeting students' needs:

- Assist students in becoming both familiar and comfortable with the e-learning environment and prepare them to resolve the technical problems that will arise. Focus on joint problem solving, not placing blame for the occasional technical difficulty.
- Make students aware of and comfortable with new patterns of communication to be used in the course.
• Learn about students' backgrounds and experiences. Discussing the instructor's background and interests is equally important.
• Be sensitive to different communication styles and varied cultural backgrounds. Remember, for example, that students may have different language skills, and that humor is culturally specific and won’t be perceived the same way by all.
• Remember that students must take an active role in the e-learning delivered course by independently taking responsibility for their learning.

Curriculum Adaptation: In developing or adapting e-learning instruction, content should remain basically unchanged, although its presentation may require new strategies and additional preparation time.

Suggestions for planning and organizing e-learning delivered courses include:
• Begin the course planning process by studying e-learning education research findings addressing student outcomes consistent with your instructional objectives.
• Understand the limitations and advantages of the various e-learning formats available. Select the format that best meets the instructional needs of students academically and technologically.
• Establish protocols for class administration, either site or online based, to maintain class integrity and for technological backups.
• If course materials are electronically sent or placed on the server, be sure hard copies are available that can be posted for students having difficulty viewing or downloading the information. This could be placed in the library as well

Instructors and Course Designers: Need to realistically assess the amount of content that can be effectively delivered in the course.
• Be aware that student participants will have different learning styles. Some will learn easily in group settings, while others will excel when working independently.
• Presenting content through e-learning is usually more time consuming than presenting the same content in a traditional classroom.
• Diversify and pace course activities and avoid long lessons. Intersperse content presentations with discussions and student-centered exercises.
• Humanize the course by focusing on the students, not the delivery system.
• Use locally relevant case studies and examples as often as possible to assist students in understanding and applying course content. Typically, the earlier in the course this is done the better.
• Be concise. Use short, cohesive statements and ask direct questions, realizing that technical linkages might increase the time it takes for students to respond.
• Develop strategies for student reinforcement, review, repetition, and redemption.
• Participants will quickly grow comfortable with the process of e-learning education and the natural rhythm of effective teaching will return.

Improving Interaction and Feedback: Since e-learning separate teachers and students, the pedagogical implications of interaction and academic feedback are important for effective class results. A constructivist approach to design can assist in providing the vehicle for feedback and interaction by encouraging learners to take more responsibility for their learning (Hiltz, Wellman, 1997). To improve interaction and feedback, consider the following:
• Use pre-class study questions and advance organizers to encourage critical thinking and informed participation on the part of all learners. Realize that it will take time to improve poor communication patterns.
• Early in the course, require students to contact you and interact among themselves via electronic mail, telephone, or post so they become comfortable with the process.
• Arrange virtual office hours using a toll-free number. Set evening office hours if most of your students work during the day.
• Integrate a variety of delivery systems for interaction and feedback, including one-on-one and conference calls, fax, E-mail, video, and computer conferencing. Contact each site (or student) every week if possible, especially early in the course. Take note of students who don't participate during the first session, and contact them individually.
• Have students keep a journal of their thoughts and ideas regarding the course content, as well as their individual progress and other concerns. Have students submit journal entries frequently.
• Identify individual students to ensure that all participants have ample opportunity to interact. At the same time, politely but firmly discourage individual students or sites from monopolizing class time.

Student outcomes: The effectiveness of technology tends to vary as a function of the curriculum content and instructional strategy delivered by the technology. When content and strategies are determined to meet accepted education standards, research documents that technology can be a benefit.

• Increases performance when interactivity is prominent
• Increases opportunities for interactivity with instructional programs
• Is more effective with multiple technologies (video, computer, telecommunications etc.)
• Improves attitude and confidence especially for 'at risk' students
• Provides instructional opportunities otherwise not available
• Can increase opportunities for student-constructed learning
• Increases student collaboration on projects
• Increases mastery of vocational and work force skills
• Significantly improves student problem solving skills
• Improves writing skills and attitudes about writing for urban LEP students
• Improves writing skills as a result of using telecommunications
• Increases the preparation of students for most careers and vocations

E-learning activities are designed to fit the specific context for learning the nature of the subject matter, intended learning outcomes, needs and goals of the learner, the learner's environment, and the instructional technologies and methods.

1. E-learning opportunities include a clear statement of intended learning outcomes, learning content that is appropriate to these outcomes, clear expectations of learner activities, flexible opportunities for interaction, and assessment methods appropriate to the activities and technologies.
2. Elements of a e-learning event—the learning content, instructional methods, technologies, and context—complement each other.
3. The selection and application of technologies for a specific learning opportunity are appropriate for the intended learning outcomes, subject matter content, relevant characteristics and circumstances of the learner, and cost range.
4. E-learning activities and modes of assessment are responsive to the learning needs of individual learners.
5. The e-learning experience is organized to increase learner control over the time, place, and pace of instruction.
6. E-learning outcomes address both content mastery and increased e-learning skills.
7. Individuals with specialized skills in content, instructional methods, or technology work collaboratively as a design team to create e-learning opportunities.
8. The e-learning design is regularly evaluated for effectiveness, with findings used as a basis for improvement (Dede, 1996, Churton, 2003).
Pedagogical Considerations for e-Learners

The use of pedagogical strategies is dependent upon the learning model that is select. Below are listed several strategies that CMS offer to the instructor in varying levels and dimensions. To be successful, instructors are required to transition from a face to face teaching environment to one that maximizes the benefits of an online environment. Pedagogical strategies that might be considered for this transition are cite below. Certainly not all will be used and/or the CMSD selected may not offer the specific strategy. However, the underlying premise this that the teaching-learning process should encourage students to be active and more responsible for their discovery of knowledge in this environment.

**Student Community Building tools** allow students to create study groups, clubs, or collaborative teams. Student Community Building tools can encourage and support the growth of student friendships and partnerships. Some products enable students to create and manage these groups. Some products also allow these groups to be formed at the system level, rather than the course level.

**Student Portfolios** Student Portfolios are areas where students can showcase their work in a course, display their personal photo, and list demographic information. Student Portfolios are often located on or are a part of students personal homepages in each course. Some products provide a private folder and a public course or team folder that students can use to display their work. Students personal homepages typically give them access to course content, internal email, course announcements, and the course calendar. See also Calendar/Progress Review for tools that allow students to track their progress in a course.

**Course Management** -- Course Management strategies allow specific resources in a course, such as readings, tests or discussions, available to students for a limited time only or after some prerequisite is achieved. This deliberate unfolding of the course resources can be used to prevent students from being overwhelmed and discouraged. Some systems enable this course management to be individualized so that course experience can be tailored to accommodate individual learner situations.

Curriculum management provides students with customized programs or activities based on prerequisites, prior work, or results of testing as well as to manage multiple programs, to do skills/competencies management, and to do certification management. These tools may be similar to the tools used in student services as part of providing academic advising to students.

Course templates are tools that help instructors create the initial structure for an online course. Instructors use templates to go through a step-by-step process to set up the essential features of a course. Course Templates are artifacts of particular pedagogical approaches to instructional content and process. The local value of particular templates will depend in part on the match between the template designer's approach and the specific instructor's approach.

Before adding any content to the Content Collection, students should plan out how they will manage their content. This will allow them to organize content in a way which best meets their individual needs. Files in the Content Collection are organized in a tree structure of nested folders up to, and including, the content area level. This means that each folder may contain other subfolders and files. The term “items” refers to files and folders.

**Group Management**-- Instructors can manage the students in their courses. For example, Instructors may add and drop individuals or groups of students to and from a course, create new students, create groups of students within in a course.
**Test & Assessment:** Instructors use Assessments to test Student knowledge, measure Student progress, and gather information from Students. When creating an Assessment there are a number of things the Instructor should consider before creating the Assessment: The structure of the Assessment and the types of questions that will be included, Deployment and setting options, such as test presentation and feedback, How the Assessment will be graded and the availability of multiple attempts.

Automated Testing and Scoring tools allow instructors to create, administer, and score objective tests. Some products provide support for proctored testing in a suitable computer lab classroom as an approach to ensuring academic honesty. Note: See also Online Grading, Self Assessment, and Student Tracking.

**Online Grading Tool:** Online grading tools help instructors mark, provide feedback on student work, manage a gradebook. Online Grading Tools enable instructors to mark assignments online, store grades, and delegate the marking process to teaching assistants. Some tools allow instructors to provide feedback to students, to export the gradebook to an external spreadsheet program, and to override the automatic scoring.

**Self-assessment** Instructors can create self-assessments. The system can display instructor-created feedback and hints. Self-assessment tools allow students to take practice or review tests online. These assessments do not count toward a grade. Self assessments encourage students to take responsibility for their own learning and to monitor their learning progress. Self assessments can also facilitate student motivation if students receive feedback on the self-assessments and if there is a direct connection between the self assessments and the measurement instruments the instructor uses to determine final course grades. Note: For information on the different question formats, e.g., multiple choice or fill-in-the-blank, see Automated Testing and Scoring. Student Tracking is the ability to track the usage of course materials by students, and to perform additional analysis and reporting both of aggregate and individual usage. Student Tracking tools include statistical analysis of student performance data and progress reports for individual students in the course. The progress reports generally consist of both activities and the time stamps of when the activity occurred.

**Grade book:** Instructors record and manage all Student grades in the Grade book. The grade book can be used to continuously monitor progress of students giving both students and the instructor a record of assignments, exams, etc.

**Announcements:** post timely information critical to course success. The Instructor can add, modify, and remove announcements from the Announcements page. This is an ideal place to post time-sensitive material such as: when assignments are due, changes in the syllabus, corrections/clarifications of materials, exam schedules. When adding an Announcement, Instructors can also send the Announcement as an email to Students in the course. This ensures that Students receive the announcement even if they do not login to the course.

**The Staff Information** page allows Instructors to post information about themselves, Teaching Assistants, guest speakers, and other Course leaders. The page gives students a resource to look up names, email addresses, office hours, and photographs

**Calendar:** Instructors can use the Calendar to indicate important course related events. The dates and events that appear on the Calendar are for all students in the course. Some typical items Instructors may include in the calendar are: section meetings, assignment due dates, exams, guest speakers.

**The Tasks** page organizes projects or activities (referred to as tasks) by defining task priority and tracking task status. A user can create tasks and post them to the Tasks page. Each user can post personal tasks to their page, Instructors can post tasks to students participating in their courses, and System Administrators can post tasks to all students’ Tasks pages. Task information is arranged in columns that display the priority, task name, status, and due date.
**Video Services** Video services enable instructors to either stream video from within the system, or else enable video conferencing, either between instructors and students or between students. Video Services include tools for broadcasting video to those without a video input device. Some video services provide for two-way or multi-way video conferencing which may be point-to-point connections or mediated through a central server. See also Real-Time Chat and Whiteboard. Podcasts are being increasing used to offer real and creative lessons for students.

**File Exchange** File exchange tools allow learners to upload files from their local computers and share these files with instructors or other students in an online course. Note: File attachments to messages are part of Internal Email and Discussion Forums. File Exchange tools enable downloading files and upload or posting files over the Web from within the course (a.k.a. assignment drop box). The Digital Drop Box enables Students to exchange files with the Instructor.

**The Glossary Manager** controls all of the entries in the Course Glossary. Each course has its own Glossary of terms. Each entry consists of the term and an accompanying definition. The Glossary must be enabled by the Instructor before Students can view it. To turn on the Glossary, simply enable it as a Course Tool and then add it to the Course Menu.

**The Messages feature** gives each course a private and secure system for communication that functions similar to email. Keep in mind that Messages cannot be sent or received outside of the students in the course. Messages are usually accessed through the Communications area of a course. Although, as with most features, the Instructor can restrict access or change the layout of the Course Menu so that Messages are accessible directly. For information about using Messages as a user, please see the Blackboard Academic Suite User Guide.

**Discussion forums** are online tools that capture the exchange of messages over time, sometimes over a period of days, weeks, or even months. Threaded discussion forums are organized into categories so that the exchange of messages and responses are grouped together and are easy to find. The organization of the messages can be a simple temporal sequence or they can be presented as a threaded discussion where only messages on a specific topic called a thread are displayed in sequence. An instructor viewing the Discussion Board page on the course control panel or the administrator panel is presented with a count of distinct participants in the entire board. The total number of forums and posts are also displayed for each discussion board. The discussion board name is a link that takes the instructor to that discussion board when clicked. The Discussion Board is an outcomes based learning tool that can be applied in a number of ways to enhance learning and measure performance. The Discussion Board is the perfect place in a course for peer review. Each student may start a thread and include their work in the initial post. Other students then review the work, assign a rating to the initial post, and include comments in a response. As students respond, the feedback expands as students reinforce and build on points made by other students.

Discussion Boards give students the freedom to share their thoughts and opinions on class topics with other students. Occasionally, students may introduce material to the Discussion Board that is inappropriate for the class discussion. Depending on the maturity and the sensitivity of the students in the course, it may be important to review student posts for inappropriate content before sharing posts with the rest of the class. Instructors can assign Discussion Board students to act as moderators. Moderators review posts before they are added to a thread and displayed to the class. The Moderator may be the Instructor or other responsible participants.

**Collaboration Tools** allow students and Instructors to engage in synchronous communication. Instructor can access all of the Collaboration Sessions for the course, including those that have already taken place and those that are scheduled for the future. Instructors can also schedule new Collaboration Sessions and make changes to those already scheduled from this page. **Virtual Classroom** students can ask questions, draw on the whiteboard, and participate in breakout sessions from the Virtual Classroom. The session administrator establishes which tools in the Virtual Classroom students can access.
Chat: The Chat allows the students to interact with each other via a text-based chat. Chat is part of the Virtual Classroom. It can also be accessed separately. Real-time Chat - Real-time chat is a conversation between people over the Internet that involves exchanging messages back and forth at virtually the same time. Chat includes facilities like Internet Relay Chat (IRC), instant messaging, and similar text exchanges in real time. Some chat facilities allow the chats to be archived for later reference. Some chats can be moderated, similar to the notion of "passing the microphone." Other chats can be monitored, where an instructor can view the conversation in a room without their presence being broadcast.

Whiteboard: Whiteboard tools include an electronic version of a dry-erase board used by instructors and learners in a virtual classroom (also called a smartboard or electronic whiteboard) and other synchronous services such as application sharing, group browsing, and voice chat. Application sharing allows a software program running on one computer to be viewed, and sometimes controlled from a remote computer. For example, an instructor using this feature can demonstrate a chemistry experiment or a software utility to an online student and allow the student to use the demonstration software from their own computer. Group Web Browsing allows an instructor to guide learners on a tour of web sites using a shared browser window. Voice chat allows two or more to communicate in real time via microphones, conference call style, over an Internet connection. Enables students to present different types of information as they would on a blackboard in a classroom.

Searching Within Course: Searching within a course is a tool that allows students to find course material based on key words. Searching tools enable students to locate parts of the course materials on the basis of word matching beyond the user's current browser page. (which can be searched using the browser>edit>find menu).

Peer Review: A common learning tool in classrooms is providing feedback to other students on their work. Students prepare an essay, lab report, or presentation and share it with the class. Other students are asked to comment on the work and offer criticisms for improvement. This process helps the student improve their assignment, but is even more valuable to the students that review the work. Reviewing the work of another student enforces classroom learning and helps the reviewer practice important communication skills.

Internal Email: Internal email is electronic mail that can be read or sent from inside an online course. Email tools enable messages be read and sent exclusively inside the course or alternatively the tools enable links to external email addresses of those in the course so that contacting course members is facilitated. Internal email may include an address book and some address books are searchable. Students can use the Internal email feature to email individuals and groups. Instructors can send email to individuals who participate in the course from the Send Email page. Emails can be sent to individual students or to groups of students within the course, such as all Teaching Assistants. Instructors cannot send email to others via the Internet with the Send Email function.

Online Journal/Notes: – enable students to make notes in a personal or private journal. Students can share personal journal entries with their instructor or other students but cannot share private journal entries. Online Note/Journal tool enables students to make notes about course experiences. These notes can be personal or private. Students can share personal notes with an instructor or other students. They cannot share private journal entries. This tool can be used to facilitate writing assignments where parts are written over time and then later assembled into a document. This tool also can be used to make personal annotations to pages of a course that can later be used as a study aide. The Online Notes tool can also be used to record reflections about personal learning accomplishments and how to apply this new knowledge.

Bookmarks, allow students to easily return to important pages within their course or outside their course on the web. In some cases bookmarks are for an individual students private use, and in others can be shared with an instructor or amongst an entire class. Some systems also allow bookmarks to be annotated. Bookmarks allow students to easily return to important pages within their course or outside
their course on the web. Systems vary in allowing students to store their bookmarks in a course folder, a personal folder, or a private folder. Course folders are open to all students and instructors in a course. Personal folders contain bookmarks that individual students can share whereas bookmarks in private folders are for the students own use. Bookmarks can sometimes be annotated and categorized within folders.

**Calendar/Progress Review** Students can view their completed and pending course readings and activities. Students can view their grades. Calendar/Progress Review tools enable students to document their plans for a course and the associated assignments in a course. Calendar/Progress Review tools often enable students to check their marks on assignments and test, as well as their progress through the course material. Students can sometimes compare their marks on an assignment with the average score on that assignment, view total points earned, total points possible and percentages per unit, per item and overall course grade.

**Work Offline/Synchronize** Instructors can publish course content on a CD-ROM and tracking and performance data are automatically uploaded into and synchronized with the student performance database. Upon re-entering a course, students have the option of resuming at the last page viewed. Work offline/synchronize is a set of tools that enable students to work offline in their online course and for their work to be synchronized into the course the next time they log-in. Sometimes students download course content to their local computers and sometimes they access content on a CD-ROM. Course content that resides on a CD-ROM can also be linked to dynamically within the online course. A course placeholder automatically returns students to the location in their course where they were working the last time they logged off. The ability to work in a course environment offline and/or to automatically return to the location in the course where you were working the last time you logged off, is especially useful in situations where communication links are unreliable or expensive. The offline environment is essentially a local client application that embodies the important features of the online product without a continuous connection to the Internet. Tracking and student performance data are automatically uploaded into and synchronized with the student performance database the next time the student logs in. The course placeholder tool is essentially an automated bookmark that returns students directly to the page of the course where they had stopped working the last time they logged off.

**Private content space and Public content space** Creating separate folders for personal content (private space) and folders that are available to other students (public space) is very helpful. This method allows the user to have certain folders available only to them, where they can store personal content. For example, one personal folder may contain papers and projects that are in progress, while another contains professional content that is not ready to be shared, such as resumes and cover letters for jobs. Additional permissions for these personal folders are not granted to anyone else. When a document is ready to be shared, it may be copied or moved to a public folder. For example, if an Instructor is working on a course document he or she can create the draft in a personal folder, and then move it to a shared folder when it is complete. The shared folder is shared with all students enrolled in the class (public space that is set to be available to only course members), and allows for collaboration. Creating a private folder- A private folder is created in the same way as other folders in the Content Collection, through the Add Folder option. The permissions granted on the folder determine whether or not it is private. In the username folder, a private folder is a subfolder that is not shared with any other students. A user may create a subfolder in his or her username folder and not grant any other students permissions to it.

**Instructional standards** compliance concerns how well a product conforms to standards for sharing instructional materials with other online learning systems and other factors that may affect the decision whether to switch from this product to another. Instructional Standards Compliance involves trying to make it possible for applications from different product producers to work well together. There are presently several proposed standards but the most prominent are the standards developed by the IMS Global Learning Consortium that define the technical specifications for interoperability of applications and services in distributed learning and support. The IMS standards can be found at www.imsglobal.org. The SCORM standards-in-progress integrate the industry specifications from IMS, AICC, IEEE, and ADRIANE and are operational standards with corresponding compliance test suites for learning.
objects (www.adlnet.org/main.html). In terms of compliance there appear to be three levels: awareness of the standards, claimed partial compliance, and self-tested compliance with the SCORM test suites. Other migration considerations are situations that would make switching to another application more complicated, such as proprietary data formats for content which make it difficult to import course content into another application. Also there are sometimes situations that complicate the upgrading from one version of the software to a later version. To the extent that student data is maintained in the system there can be separate complications in migrating non-course information to other versions or platforms.

Summary

The administration and management of online e-learning programs have rapidly become an important component in addressing education at all levels. An ever-increasing number of academic programs are developing e-learning courses and programs, while those already involved are expanding their activities. While these opportunities are welcome developments, new and untried delivery systems test conventional assumptions, raising questions as to the essential nature and content of an educational experience and the resources required to support IT and e-learning. In transitioning to e-learning environment, programs should consider the pedagogical strategies used to support instructor’s teaching and to enhance student’s learning.

REFERENCES