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A Review of Benefits and Limitations of Online Learning in the Context of the Student, the Instructor, and the Tenured Faculty

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Distance education is a formal learning activity, which occurs when students and instructors are separated by geographic distance or by time. Learning is supported by communications technology such as television, videotape, computers, e-mail, and mail. Online learning is any learning experience or environment that relies upon the Internet/World Wide Web (WWW or Web) as the primary delivery mode of communication and presentation. There are potential benefits of investing in online learning for example, increased access, improved quality of learning, better preparation of students for a knowledge-based society, "lifelong" learning opportunity, profit making, and many more. Limitations are also evident in this popular learning environment. Among them are: (a) online learning start-up funding, (b) organizational preparedness, and (c) student readiness. This article will review the benefits and limitations of online learning from three perspectives namely, (a) the student, (b) the instructor, and (c) the tenured faculty (faculty offering the programme).

Many universities and colleges have started to invest heavily in online teaching. Why are institutions across the world doing this? Is the investment justified? Why is there an increasing demand for online courses by employees, employers, individuals with families, and the standard student population? There are many rationales for offering and investing in online education, ranging from increasing access, to improving the quality of learning, to reducing costs, to preparing students better for a knowledge-based society, to responding to market demand, to "lifelong" learning opportunity, to collaborative learning across the world, to profit making (Dolence & Norris, 1995; Katz & Associates, 1999). To what extent, though, does the reality

match the rhetoric? This article attempts to answer these questions by weighing out the potential benefits and limitations of online learning in the context of the student, the instructor, and the tenured faculty.

Traditional or face-to-face instructional environments have been criticized for encouraging passive learning, ignoring individual differences and needs of the learners, and not paying attention to problem solving, critical thinking, or other higher order thinking (Banathy, 1994; Hannum & Briggs, 1982). On the contrary, new advances in Internet-based technology have brought challenges and opportunities to education and training, in particular through online instruction. Online instruction is a form of distance education delivered over the Internet. Studies have shown that online instruction offers a major breakthrough in teaching and learning since it facilitates the exchange of information and expertise while providing opportunities for all types of learners in distant or disadvantaged locations (Hill, 1997; Webster & Hackey, 1997).

Online learning is of two types. Some students who cannot afford to access a university or college campus may take programmes by way of distance education offerings. Others may engage in distributed learning or hybrid classes in that they combine some elements of oncampus teaching with online access to materials and discussion forums.

While online instruction is gaining popularity, it is not free from criticisms posed by traditional print-based faculty. Many educators and trainers do not support online instruction because they do not believe it actually solves difficult teaching and learning problems (Conlon, 1997) while others are concerned about the many barriers that hinder effective online teaching and learning. These concerns include the changing nature of technology, the complexity of networked systems, the lack of stability in online learning environments, and the limited understanding of how much students and instructors need to know to successfully participate using communication and information technology [CIT] (Brandt, 1996). Online instruction also threatens to commercialize education, isolate students and faculty, and may reduce standards or even devalue university degrees (Gallick, 1998).

While most courses can benefit to some degree from an internet component, not all courses can be effectively transformed from a hands-on classroom experience to a totally computer-based learning environment. Furthermore, faculties cannot overlook the risks anticipated in financial management and technical support for faculty. Within the periphery of technical support, a faculty needs to have sufficient allocation of revenues to units that take the risk of converting their face-to-face programmes to an online one. Pilot projects such as these may warrant unnecessary yet important expenditure. A faculty needs to understand the importance of retaining professionalism in this transitional period. A team approach to course development and delivery is prime when testing and assessing this change in curriculum delivery.

While these concerns may be unwarranted, there is continuing research to accurately determine the benefits and pitfalls of online instruction, particularly when compared to the more traditional face-to-face learning environment. Researchers and educators continue experimenting on how students' online experiences differ from their experiences in face-to-face learning environments (Shea, 2006). Gaining knowledge about the processes and outcomes of online instruction as compared to traditional face-to-face environments will help educators and researchers make more informed decisions about future online course development and implementation.

BENEFITS

Why Invest in Online Learning?

Several studies have analyzed and revealed several potential benefits to online learning (Bartolic-Zlomislic & Bates, 1999; Scott, Aragon, Shaik, & Palma-Rivas, 2000; Curtis & Lawson, 2001; Taylor, 2002; Stick & Ivankova, 2004). Main benefits include new markets, economic benefits, international partnerships, reduced time to market, educational benefits, anonymity, student interaction and satisfaction, growth in faculty learning curve, and "rich" feedback and evaluation.

New Markets

Online learning has the potential to tap into markets, both national and international, that cannot be easily accessed with other more traditional forms of course or program delivery. For example, with the establishment of online Foundation and Degree biology courses, the University of the South Pacific (USP) will easily be able to tap into student markets in the whole of the South Pacific. USP thereby will be able to reach a much larger market than most of its print-based distance courses and a much wider market than is possible for a face-to-face course.

Online learning can potentially sustain programs that have been struggling for viable numbers in an oncampus version. Kwantlen University College was able to sustain a program that had been struggling in an oncampus mode. Classes increased in size when the same course was offered at a distance, and students surveyed commented that the online delivery gave them more flexibility, and many said that they would not have been able to have taken the course in an oncampus version (Bartolic-Zlomislic & Bates, 1999).

At the same time, economic pressures make it difficult for individuals to take several years off from work to attend a university on a full time basis. Online graduate degrees from a wide range of universities and institutes, for example, ITT Technical Institute and the University of Phoenix offer the opportunity for students to continue their education while at the same time continue working in their field of business.

For employers, online courses can substantially reduce the cost of training, especially if the organization has remote locations. Besides lowering training costs, less time is spent away from the office, lower management costs result, and productivity is increased. This practice is observed in many staff development programs at institutes. Staff continually upgrade their skills by studying online. This offers great choices to be on par with advancements in one's own field while being employed.

Economic Benefits

Cost is a multi-pronged instrument for the tenured faculty. The faculty needs to take into account many cost factors before implementing online learning systems. Bartley and Golek (2004) investigated cost factors by constructing matrices for costs of online learning. They demonstrated that cost factors were divided into capital and recurrent costs, production and delivery costs, and fixed and variable costs. Capital costs are costs for the purchase of equipment or materials. Recurrent costs are costs that occur on an ongoing basis (for example, the cost of computer support). Production costs are those associated with the development of a course/program, while delivery costs are costs associated with the delivery or "teaching" of course materials.

After weighing the pros and cons of online learning, Bartley and Golek (2004) concluded that the benefits to online learning are very real and one should be able to justify any additional cost in terms of what the school will gain.

Universities expect enormous returns from online courses. From the result of an investigation in Nigeria, it was concluded that open and distance-learning institutions are highly cost-effective when considering the purpose of establishment in the general framework of the education system (Olugbenga, Rotimi, & Olakulehin, 2006). This is because Distance Education programmes have been found to be costly at the initial stage and gradually becomes cheaper due to economies of scale (Olugbenga et al., 2006).

More promisingly, online learning has potential to provide synchronous audio and video interaction among students and accommodate scheduling demands without the costs of new facilities (Bartley & Golek, 2004).

International Partnerships

With the potential for global markets comes the opportunity for international partnerships. Student's benefit from the highly diverse nature of fellow students due to collaborative components in the course (international discussion groups and collaborative assignments). In addition, pedagogical benefits due to international partnerships include access to international experts. Lu, Diggs, and Wedman (2004) examined the efficacy of a global project designed to facilitate partnerships between US and international K-12 classrooms through telecommunications technology. The project was

based on a conceptual framework linking information and learning, enabling technology, and global connections.

Reduced Time to Market

A huge benefit to online learning is the ease and speed with which course materials may be updated. Given revised data used to mean having the material retyped, printed and bound, then mailed out to students or distributed to them in class, often after significant delay. With an online course, the instructor may edit the appropriate web pages in his course, upload the new material and it becomes available to students instantaneously. The time lag is removed.

Educational Benefits

A common benefit found in online courses is that students learn more than just course content. Weiner (2003) found that online learning significantly improved writing and computer skills in Cyber Schools in America. This study revealed that the key to successful online learning for adolescent students lies within motivational issues and highly structured courses. Additionally, the results of this research indicate that adolescent students are ready to learn in cyberspace if they are able to commit to their education and if the appropriate support and guidance is available to them, especially from their teachers.

Anonymity

Another benefit of the online delivery method is that the associated anonymity can result in greater participation from all students, including "shy" ones. The lack of visual cues allows the instructor to treat all students in the same manner. Learner identity has emerged as a new strategic learning variable within online learning environments. Learner identity can be used as a deliberate learning strategy as in online role-plays or discussion forums with pseudonym postings. At other times students may use online learning as an opportunity to reconfigure their learner identity.

Freeman and Bamford (2004) provided a case study of altered learning identity in a professional higher education context where the blend of resources included online asynchronous discussion forums. Interesting cross-sectional and longitudinal data of anonymous postings revealed 1% of students posting 50% of such messages, students responding to their own posts and cases of peer impersonation. Anonymity appears popular for clarifying expectations, particularly when courses are new.

Student Interaction and Satisfaction

Results of studies of distance learning courses indicate that interactive qualities appear to be a major factor in determining course quality as reflected in student performance, grades, and course satisfaction. Roblyer and

Ekhaml (2001) have discussed that students perform better in online courses due to the flexibility and responsiveness experienced in online learning. They also discussed that students' satisfaction is positively impacted when (a) the technology is transparent and functions both reliably and conveniently, (b) the course is specifically designed to support learner-centered instructional strategies and (c) the instructor's role is that of a facilitator and coach.

In addition, the increasing amount of online resources available through the Web, such as online journals and relevant web sites, provide a rich source of resources for the online learners (Thurmond, 2003). Technology allows distant groups to interact over the Web, work on shared topics, and build a sense of community even if students are thousands of miles away (An & Kim, 2006).

Online learning is an easy way to bring remote lecturers into a course. Without the time and expense of travel, an expert can address a class from any location, responding to student questions in real time, providing a more compelling learning experience than, for example reading that expert's writings (Bartley & Golek, 2004).

Online courses can use Centra Symposium collaboration software for distance teaching and learning. Centra Symposium provides a live, web-based environment that can support instruction, presentations, and meetings. Symposium is ideal for highly interactive team collaboration, virtual classrooms, and hands-on training applications. This tool is ideal for student activities that are either not possible or not efficient with asynchronous tools (Yerk-Zwickl, 2003).

Furthermore, in many situations, forwarding additional materials, outlines, articles, assignments, and so forth, to students by e-mail or forums between in-class lessons can enhance learning. Online communication between faculty and students are greatly speeded up contributing to the learning experience. Students no longer have to be in a classroom, by their telephones, or in front of their computers at all times to learn.

Growth in Faculty Learning Curve

Working with creative web design teams will enhance one's own appreciation of the complications of designing an effective online course. The instructor has the ability to greatly enhance his or her presentation by the addition of slides, audio messages, video animation, flat or three-dimensional images, and hyperlink texts. Multimode presentations easily convert to web presentations.

Online courses mean instantaneous communication. Faculty benefits from the experiences of having students from different time zones, different countries, and different cultures.

"Rich" Feedback and Evaluation

Good software and meaningful applications provide substantial benefits for students, parents, and school administrators as well: vastly improved

communication, greater accountability, better student compliance, and greater objectivity in evaluation (Taylor, 2002).

Encouraging student inter-communication gives student feedback from their peers as well as from their instructor and makes them feel an integral part of the group.

Instructors use Blackboard and WebCT to easily write scripts that bring up a web page with results of tests, quizzes, and assignments that show the grade to date. This provides each student with immediate feedback. It is also possible to list all scores and grades so that a student may compare his or her result with rest of the distant classmates.

The ability to measure results of one's teaching serves a double purpose. First it helps to evaluate the progress that students are making. Second, it is part of the learning process for students. Effective evaluations also help the educators to assess the effectiveness of their own delivery. Every teacher should perform detailed effectiveness-analyses on a regular basis. This is possible quite easily in online courses (Taylor, 2002).

LIMITATIONS

Several potential limitations are also found in online learning by the students, the instructors and the tenured faculty namely the need for start-up funding, adequate time, organizational preparedness, student readiness, differing stages of team development, crisis management, faculty learning curve, members with limited language skills, technical support, team effort, synchronous- or asynchronous-classroom contexts, costs, accessibility to course materials, delayed feedback, and evaluation and assessment (Bartolic-Zlomislic & Bates, 1999).

The Need for Start-Up Funding

The University of British Columbia's cost-benefit study revealed that start-up costs were substantially higher than anticipated (Bartolic-Zlomislic & Bates, 1999). In fact, the first offering of the course was 75% over budget. This was largely due to higher-than-anticipated time spent on instructional and administrative tasks.

The cost for the second and subsequent offerings of the course decreased substantially. Lower costs in subsequent courses were due largely to improvements made in the way the course was administered and conducted, and better organization of the online tutoring (Bartolic-Zlomislic & Bates, 1999).

Adequate Time

Bartolic-Zlomislic and Bates (1999) study found that instructing (and learning) in the online format appeared to be time consuming. This was mainly due to the large amount of reading (discussion forums) and writing

required. Instructional time varied depending on how the online discussions were handled. Novice online instructors needed extra time and training.

Students also perceived interacting online to be time consuming (Taylor, 2002). However, for the lecturer this interaction occurred at the expense of efficiency because mediated one-to-one interactions, such as e-mail interchanges, were easily initiated by students and were very time-consuming.

Organizational Preparedness

Some technological developments have opened new possibilities for organizational chaos, while others have made lives more complex (Murgatroyd, 1992). With the development of online courses and programs comes the need to revise current policies and procedures to accommodate the online student and the online process. All this leads to a much-higher-than-anticipated amount of time spent on administrative tasks and, consequently, unanticipated costs.

Student Readiness

Presence and expansion of online distance education are one of the characteristics of the information society by which we can estimate the level of its development. Student readiness poses great impact upon the success of an online course or program (Sulcic & Lesjak, 2002). Primarily, students must have the necessary technology available to them (suitable computer and Internet access) before they can benefit from this type of program. In this way, some costs are transferred from the institution to the learner, as the learner must now provide for his or her own learning tools.

In addition, as with other forms of distance and distributed education, students must be self-directed learners. Their participation in and completion of online courses is entirely up to them. Online students have the additional burden of dealing with technical delays and difficulties that may occur.

Differing Stages of Group Development

Groups are open continuously to new membership. In addition to new members joining an established group, other online members may log on or log off at any time during a session. Such fluctuations in membership make it difficult for online groups to engage in the typical group phases of warm-up, action, and closure or to maintain the working stage of group development for extended periods. This limitation reduces the efficacy of online support groups as a sole support source for some members (Gary & Remolino, 2000).

Crisis Management

The successful resolution of an emotional crisis in cyberspace is challenging. Limited feedback and the lack of identifying information complicate the assessment and referral process (Gary & Remolino, 2000).

Faculty Learning Curve

If one's computer literacy is not up to scratch, it may take some time to fill in the knowledge gaps and to become a proficient online course developer and instructor. Thurmond (2003) found that student satisfaction depends more on the quality and effectiveness of the instructor and the instruction than on the technology.

Members With Limited Language Skills

Members with an expressive or receptive learning disability or with language limitations (such as English as a second language) may be frustrated by the rapid pace and multiple dialogues, and consequently, may be frustrated by text-based communication. Furthermore, members may be challenged in communicating feelings and thoughts clearly to others based on cultural perceptions. In a text-only format with limited interpersonal feedback, communicative misunderstandings are common for all members and this could be exacerbated for the member with limited language skills (Manner, 2004).

Orienting the nontraditional student, becoming aware of cultural reluctance about seeking assistance, providing personal feedback, handling issues related to language conventions, embedding important cues, clues and reminders in course materials, and offering other essential supportive methods of instructions are recommended for online programs (Manner, 2004).

Technical Support

As with any real-time event, time zone differences are a concern especially with synchronous classrooms. The wider the student demographics, the more complicated the problem becomes. (Taylor, 2002).

Additionally technical problems are always potentially troublesome in the case of videoconferencing and virtual meetings. Issues such as sound and video quality can be affected by network traffic, improper set up, and other technical parameters (Taylor, 2002). Infrastructure differences among participants can also come into play, both in terms of local hardware and connection speeds.

Furthermore, not everything can be easily updated. Re-engineering audio and video plug-ins can be major time consumers as well as a strain on the budget.

Team Effort

Developing effective online learning requires a concerted team effort should the instructor lack the online course development skills (Taylor, 2002). Traditional teaching relies on the instructor to develop his/her material. When faculty prepare for online lessons, life becomes far more complicated, at least

initially. It requires the instructor to be totally up to date on web design, Javascript®, and so forth, software to make an effective web-based course.

The major limitation to developing online courses is the experience and knowledge of the instructor. Instructors have many different levels of creativity and technical knowledge. He or she must not necessarily be a “Web guru” but know the instructional pedagogies that go into creating an effective online learning experience (Knight & Bermant, 2002).

Asynchronous- or Synchronous-Classroom

In an asynchronous classroom, students can log onto the Web and access lessons whenever it is convenient to them. A synchronous classroom is where all students log onto the Web at the same time and are able to communicate with the instructor and each other using chat facilities or audio/video links.

Asynchronous classes preclude getting an immediate discussion going. Students may feel the need for more immediate response to their questions or submissions. In a synchronous classroom students may not sign in at the same time. If their participation is necessary, it could upset the entire lesson. Lessons are always limited, for example 60-90 minutes. Someone joining late detracts from the lesson if everything has to be recapped. Time is money-students may be paying for their access time on hourly rate. Running overtime can be expensive (Taylor, 2002).

Time zones can make it difficult. If an instructor sets a sign on time for 8.00 P.M. Fijian time, times around the world for students may click different hence much thought and coordination has to go into the process. An instructor must be cognizant of where his or her students live or work. Assuming the learners are adults, they may very well have work, family or other conflicting commitments.

Costs

The cost of upgrading systems and programs may be viewed as heavy by faculties interested in distance education. Cost factors are divided into capital and recurrent costs, production and delivery costs, and fixed and variable costs. In the field of synchronous learning, though there maybe an advantage for capability of interactive instruction, the initial cost and running cost, being high, are the main problems. On the other hand in the asynchronous learning though there maybe an advantage of spatial and temporal flexibility for the learners, cost for producing the contents is the main disadvantage. (Hiraki et al. 2004). Programs may be delayed if costs are viewed as prohibitive.

Ability to Access Course Materials

To reach all students, tenured faculty will need to design the course by taking into account the availability of softwares and hardwares to students. If

students live in smaller centres or remote parts of the countries, they may not have access to or be able to afford new computer equipment. Flye, Gibson, Seemann, and Wilkinson (2002) found that there is a significant impetus to put computers in elementary and college classrooms, but not all classrooms have them and many do not have a sufficient number of machines for the number of students served; many learners on all levels have insufficient exposure to technology in the learning environment and hands-on time is severely restricted. The computers are present in most learning environments, but in many cases the number of machines is simply insufficient. Many students of all ages do not have computers at home and do not have access to them in their community. This lack of access sets the stage for learners, child and adult, who do not have access to computer and electronic technology outside of the classroom to be at a competitive disadvantage compared to those who contact advanced technology in a number of different settings.

Feedback and Evaluation

The issue of student retention and completion rates in distance education have been investigated and vigorously argued over for at least the last seven decades. This discussion has intensified since the introduction of e-learning and its progression from the periphery of mainstream and earlier modes of distance education and training to a more central role (Berge & Huang, 2004).

Tyler-Smith (2006) reviewed factors that contribute to high online drop out rates. He explained the high early attrition rates using the multi-dimensional learning tasks required by early e-learners. These tasks were negotiating the technology, negotiating the Learner Management System interface, negotiating the learning content, becoming an e-learner, and negotiating Computer-Mediated Communication.

The issue of early drop out rates in e-learning needs further research, but it is believed that attending to and explaining how some learners may be affected by cognitive overload and the development of strategies to deal with it will reduce early attrition, improve retention and enhance learning outcomes among mature adult learners engaged in e-learning programmes. (Tyler-Smith, 2006)

Online education can appear to be an impersonal exercise, which leads students to feel "eSolated" from instructional staff and classmates. Online interactions lack the nonverbal cues that are a component of face-to-face contact, and this may reduce the extent of the communication that occurs. Much online conversation occurs asynchronously, with substantial delays in receiving a reply. This may have both advantages and disadvantages for the participants. The lack of spontaneity associated with a seminar group gathered around the table may be offset by the possibility of having greater time

for reflection and generation of a considered response (Manner, 2003).

Before posting marks and performance results to a forum that is accessible, it is advisable to seek permission of all students. Some people are sensitive to such practices and may view it as invasion of their privacy. In America, the federal law protects the privacy of students however Fiji has no such laws. Student marks are almost always pasted on notice boards for student reference. A similar practice is observed in the regional nations served by the University of the South Pacific.

Online learning systems may make it difficult to control participation of the students. The instructor must have a way of checking that each student is actively participating.

The instructor should be willing to accept the fact that e-learners are subject to many opportunities for distraction. These may come in the guises of work, family, or social commitment. The Internet itself can be a huge distraction to students. The ability to toggle between open programs means that one could have a study program open yet be playing a computer game, viewing other websites, listening to MP3 music, and so forth. Instructors have to preempt by either issuing periodic reminders about the need to focus on studies or having University policies that allow instructors to prohibit students from such practices in a classroom under instruction.

Assessment

If instructors rely too heavily on multiple choice/true/false/other “click the answer” responses, it may not be sufficient to judge students’ depth of knowledge and their ability to respond in length. Instructors need to be aware of encompassing the Bloom’s taxonomy while assessing e-learners online. They must keep in mind the Competence categories (Knowledge, Comprehension, Application, Analysis, Synthesis and Evaluation) and the skills their students need to demonstrate from each category, to reveal genuine online learning.

Teaching and learning has to consist of two-way traffic. Some students may view the assessment process as being highly impersonal if all scoring/grading is handled by a computer system. It is important for the instructor to review results and to provide personal feedback on individual basis.

Conclusions

Online learning is here to stay. Hundreds of universities, continuing education institutes, and countless commercial organizations are turning to online learning for very valid reasons.

Online learning does provide the opportunity to reach new markets both for selling their programme and educating students. Lifelong learning in the 21st century can be characterized by the convergence of diverse global learners using web-based technology tools to develop and sustain virtual

communities of practice. These virtual communities can connect geographically and demographically disparate individuals from schools, higher education, and the workplace to collaboratively achieve common purposes or solve real problems. Stevens, Gatling, and Murdock (2004) have designed a "culturally dynamic" course management system named Moodle for diverse lifelong learners. Already, nonprofit organizations are building communities of Moodle schools and training organizations that can then be empowered to offer cross-institutional teaching and learning projects.

The flexibility of online learning is clearly of great value to many mature adults trying to balance work, family, and study requirements. Hoyt and Stockman's (1999) paper offers working class individuals an online corporate university more readily known as The Virtual Business Training Center (VBTC). This is an integrated business resource center that provides business users with access to online training, market research, project management, and other project based resources. The VBTC also functions as a business lab and virtual internship for Ohio University students. Business, faculty, and student users can access statistical data analysis, reference materials, continuous improvement problem-solving activities, market analysis information, and technical / software support at their own pace, time, and convenience. All partners of the Virtual Training system can access this information in both synchronous and asynchronous technology elements. This system is designed to build skills required to succeed in a project driven workplace.

Furthermore, some have taken the initiative to further improve the quality of practical training through developing a dynamic and flexible, online space for tutoring and personal evaluation of the student, based on an open and continuous communication among businesses, students, and university professors-tutors. This allows greater flexibility to students from all works of life (Reparaz, Naval, & Lara, 2004).

In an increasingly globalised society, many learners seem to appreciate the advantages of international courses and the opportunity to work collaboratively and closely with colleagues across the world, and to have access not only to the course instructors, but also to textbook authors and experts from other institutions. Educational digital libraries are a common site that promises improved accessibility, community development, and advancement of educational reform agenda of particular disciplines. A famous digital library program, the Digital Library for Earth System Education (www.dlese.org) serves as an instance of digital library development issues for panel discussion. The past decade has witnessed the increasing trend of usage of the Web in homes and schools, the emergence of new kinds of "electronic communities," and the widespread creation and distribution of digital educational materials. Digital libraries are becoming a means for disciplinary communities to share, organize, and assess their intellectual hold-

ings. There are many digital library efforts underway aimed at improving K-12 and undergraduate science education. The Digital Library for Earth System Education (DLESE) has emerged to support the specific educational needs of the geoscience community. In the tradition of community libraries, digital libraries can fundamentally change the way students learn, instructors teach, and researchers interact, by providing new ways of sharing information, tools, and services (Marlino, 2002).

For institutions, the benefits provided by the ability to partner with other international institutions is important at both an economic and educational level. Developing joint programs allows costs to be shared and risks reduced. Turchi and Ruppert (2004) reported a study where the Appalachian Rural Teacher Technology Alliance (ARTTA) was formed in 2000 to engage four teacher education programs and three public school partnerships in the integration of technology into preservice programs and their accompanying field experiences. ARTTA funding came from the U.S. Department of Education through a Preparing Tomorrow's Teachers to Use Technology program (PT3) grant. As part of a small liberal arts institution, Warren Wilson College's Teacher Education Program provided physical resources and curricular strengths and benefited from the technological expertise in the larger institutions. This study emphasized lessons learned from the sharing of opportunities and challenges, which can be met with appropriate technological tools, and integration of efforts.

Last, the economics of online courses are complex, fascinating, and not transparent. Under the right conditions, online learning cannot only be cost-effective, but can actually enrich instructors with skills and knowledge and bring in net profits for an educational institution.

On the contrary, a limitation to investment in online learning firstly desires substantial start-up funds for faculties. Most faculties may not be able to afford such risks. It also needs additional time for faculty to learn how to use these new technologies.

Students also need to learn to study effectively online. Variation in student abilities, such as different stages of group development and limited language skills, may limit the progress of individuals and teams in online courses. Also, time lags in e-mail communication and delays in feedback due to asynchronous classrooms could prove frustrating and discouraging to student learning. Students need to be psychologically ready and financially able to embrace this method of course delivery.

Instructors need to introduce new administrative and organizational procedures that meet the requirements of online learners. This may be limited by the skills and capabilities of the instructor. Instructors utilizing technology in their Distance Education classrooms possess certain needs, including a range of administrative and technological support functions. The provision of effective support structures for instructors during the course creation

process, as well as continued throughout the course presentation and beyond, may increase the quality of the education experience. Topics considered essential for support of the distance education instructor include: ongoing technology training and trouble-shooting; instructional design; student training/assistance from technical personnel; administrative support; and mentoring (Restauri, 2004).

Technology is changing the face of education and online learning offers much to learn about and many interesting opportunities. These opportunities may complicate faculty life until members are adequately trained.

The type of course or course content will also determine the success of an online course or program. Distance education has evolved to the point where technology is no longer a major concern to distance educators and students. For the most part, technology used in the delivery of distance courses is stable and reliable. Ironically, it is the human factors that most greatly influence distance teaching and learning thus, the importance of appropriate pedagogy and course design (Dehler, 2004). Dehler emphasized the importance of harnessing the features and functions of a computer-mediated communication (CMC) or course delivery (CD) system to deliver online training courses that are engaging, pleasing, and pertinent to teachers and their professional development. Whether or not online learning can be considered successful and worth the investment will largely depend on the values and goals of the organization, the instructor and the students.

Finally, for an online course or program to be successful, benefits and limitations to the organization and to the student should be appropriately balanced. It is important not only to focus on the costs of developing and delivering an online course or program, but also to focus on potential performance and value added benefits to both the institution and more importantly to the student.

References

- An, H., & Kim, S. (2006, March). The benefits and limitations of online group work in a teacher education program. In C. Crawford, D.A. Willis, R. Carlsen, I. Gibson, K. McFerrin, Jerry Price, et al. (Eds.), *Proceedings of Society for Information Technology and Teacher Education International Conference 2006* (pp. 2465-2472), Orlando, FL. Chesapeake, VA: Association for the Advancement of Computing in Education.
- Banathy, B. (1994). Designing educational systems: Creating our future in a changing world. In C.M. Reigeluth & R.J. Garfinkle (Eds.), *Systematic change in education* (pp. 27-34). Englewood Cliffs, NJ: Educational Technology Publications.
- Bartolic-Zlomislic, S., & Bates, A. (1999). Investing in on-line learning: Potential benefits and limitations. *Canadian Journal of Communication*, 24(3), 349-366.
- Bartley, S. J., & Golek, J. H. (2004). Evaluating the cost effectiveness of online and face-to-face instruction. *Educational Technology and Society*, 7(4), 167-175.
- Berge, Z., & Huang, Y. (2004). A model for sustainable student retention: A holistic perspective on the student dropout problem with special attention to e-learning. *DEOSNEWS*, 13(5).

- Brandt, D.S. (1996, February). *Teaching the net: Innovative techniques in internet training*. Paper presented at the 11th Annual Computers in Business Conference, Washington, DC.
- Conlon, T. (1997). The internet is not a panacea. *Scottish Educational Review*, 29(1), 30-38.
- Curtis, D., & Lawson, M. (2001). Exploring collaborative online learning. *Journal of Asynchronous Learning Networks*, 5(1), 21-34.
- Dehler, C. (2004, March). The pedagogy and design of online teacher professional development. In C. Crawford, D.A. Willis, R. Carlsen, I Gibson, K. McFerrin, Jerry Price, et al. (Eds.), *Proceedings of Society for Information Technology and Teacher Education International Conference 2004* (pp. 2107-2112), Atlanta, GA. Chesapeake, VA: Association for the Advancement of Computing in Education.
- Dolence, M., & Norris, D. (1995). *Transforming higher education: A vision for learning in the 21st century*. Ann Arbor, MI: Society for College and University Planning.
- Flye, A., Gibson, G., Seemann, E., & Wilkinson, L. (2002, March). Technology as a developmental influence. In C. Crawford, D.A. Willis, R. Carlsen, I Gibson, K. McFerrin, Jerry Price, et al. (Eds.), *Proceedings of Society for Information Technology and Teacher Education International Conference 2002* (pp. 2511-2512), Nashville, TN. Chesapeake, VA: Association for the Advancement of Computing in Education.
- Freeman, M., & Bamford, A. (2004). Student choice of anonymity for learner identity in online learning discussion forums. *International Journal on E-Learning*, 3(3), 45-53.
- Gallicek, S. (1998). Technology in higher education: Opportunities and threats. (ERIC Document Reproduction Service No. ED415929)
- Gary, J., & Remolino, L. (2000). Coping with loss and grief through on-line support groups. In J. Bloom & G. Walz (Eds.), *Cybercounseling and cyberlearning: Strategies and resources for the millennium* (pp. 95-115). Alexandria, VA: American Counseling Association.
- Hannum, W., & Briggs, L. (1982). How does instructional system design differ from traditional instruction? *Educational Technology*, 22(1), 9-14.
- Hill, J.R. (1997). Distance learning environments via world wide web. In B.H. Khan (Ed.), *Web-based instruction* (pp. 75-80). Englewood Cliffs, NJ: Educational Technology Publications.
- Hiraki, K., Kawahara, S., & Yonekura, T. (2004, June). Web.com: Web-browser-for-communication; aiming for web-based class. In P. Kommers & G. Richards (Eds.), *Proceedings of World Conference on Educational Multimedia, Hypermedia and Telecommunications 2004* (pp. 281-286), Lugano, Switzerland. Chesapeake, VA: Association for the Advancement of Computing in Education.
- Hoyt, B., & Stockman, M. (1999, June). Multi-tiered technology interventions: The virtual business training center an online corporate university. In P. Kommers & G. Richards (Eds.), *Proceedings of World Conference on Educational Multimedia, Hypermedia and Telecommunications 1999* (p. 1551), Seattle, WA. Chesapeake, VA: Association for the Advancement of Computing in Education.
- Katz, R., & Associates. (1999). *Dancing with the devil: Information technology and the new competition in higher education*. San Francisco, CA: Jossey Bass.
- Knight, J., & Bermant, B. (2002, March). Profession or vocation? The changing roles of college faculty. In C. Crawford, D.A. Willis, R. Carlsen, I. Gibson, K. McFerrin, Jerry Price, et al. (Eds.), *Proceedings of Society for Information Technology and Teacher Education International Conference 2002* (pp. 606-607), Nashville, TN. Chesapeake, VA: Association for the Advancement of Computing in Education.

- Lu, W., Diggs, L., & Wedman, J. (2004, June). Building cross cultural partnerships through the internet: What works and what doesn't. In P. Kommers & G. Richards (Eds.), *Proceedings of World Conference on Educational Multimedia, Hypermedia and Telecommunications 2004* (pp. 4782-4786), Lugano, Switzerland. Chesapeake, VA: Association for the Advancement of Computing in Education.
- Manner, J. (2003, March). Avoiding isolation in online education. In C. Crawford, D.A. Willis, R. Carlsen, I Gibson, K. McFerrin, Jerry Price, et al. (Eds.), *Proceedings of Society for Information Technology and Teacher Education International Conference 2003* (pp. 408-410), Albuquerque, NM. Chesapeake, VA: Association for the Advancement of Computing in Education.
- Manner, J. (2004, November). Best practices for supporting the non-traditional student in online education. In G. Richards (Ed.), *Proceedings of World Conference on E-Learning in Corporate, Government, Healthcare, and Higher Education 2004* (pp. 2395-2398), Washington, DC. Chesapeake, VA: Association for the Advancement of Computing in Education.
- Marlino, M. (2002, June). Educational digital libraries: Building community; building libraries. In P. Kommers & G. Richards (Eds.), *Proceedings of World Conference on Educational Multimedia, Hypermedia and Telecommunications 2002* (pp. 1223-1225), Denver, CO. Chesapeake, VA: Association for the Advancement of Computing in Education.
- Murgatroyd, S. (1992). Business, education, and business education. In M. G. Moore (Ed.), *Distance education for corporate and military training: Readings in distance education* (No. 3, pp. 50-63). University Park, PA: Penn State University, American Center for the Study of Distance Education.
- Olugbenga, O.D., Rotimi, O., & Olakulehin, F.K. (2006). Attitudes and perceptions of students to open and distance learning in Nigeria. *Online Journal of Distance Learning Administration*, 9(2).
- Reparaz, C., Naval, C., & Lara, S. (2004, June). Online managing, tutoring and evaluation of practical training project. In P. Kommers & G. Richards (Eds.), *Proceedings of World Conference on Educational Multimedia, Hypermedia and Telecommunications 2004* (pp. 5073-5075), Lugano, Switzerland. Chesapeake, VA: Association for the Advancement of Computing in Education.
- Restauri, S. (2004, March). Supporting instructors in the use of technology in the distance education classroom. In C. Crawford, D.A. Willis, R. Carlsen, I. Gibson, K. McFerrin, Jerry Price, et al. (Eds.), *Proceedings of Society for Information Technology and Teacher Education International Conference 2004* (pp. 2577-2581), Atlanta, GA. Chesapeake, VA: Association for the Advancement of Computing in Education.
- Roblyer, M., & Ekhaml, L. (2001, March). A rubric for assessing the interactive qualities of distance learning courses: Results from faculty and student feedback. In C. Crawford, D.A. Willis, R. Carlsen, I. Gibson, K. McFerrin, Jerry Price, et al. (Eds.), *Proceedings of Society for Information Technology and Teacher Education International Conference 2001* (pp. 2925-2930), Orlando, FL. Chesapeake, VA: Association for the Advancement of Computing in Education.
- Scott, D., Aragon S., Shaik, N., & Palma-Rivas, N. (2000). Comparative analysis of learner satisfaction and learning: Outcomes in online and face-to-face learning environments. *Journal of Interactive Learning Research*, 11(1), 29-49.
- Shea, P. (2006). A study of students' sense of learning in online environments. *Journal of Asynchronous Learning Networks*, 10 (1). Retrieved September 19, 2007, from http://www.sloan-c.org/publications/jaln/v10n1/pdf/v10n1_4shea.pdf

- Stick, S.L., & Ivankova, N.V. (2004). A decade of innovation and success in virtual learning: A world-wide asynchronous graduate program and educational leadership and higher education. *Online Journal of Distance Learning Administration, VII* (IV).
- Stevens, G., Gatling, S., & Murdock, T. (2004, November). Designing "culturally dynamic" online learning environments: Using MOODLE implementations. In G. Richards (Ed.), *Proceedings of World Conference on E-Learning in Corporate, Government, Healthcare, and Higher Education 2004* (pp. 2440-2445), Washington, DC. Chesapeake, VA: Association for the Advancement of Computing in Education.
- Sulcic, V., & Lesjak, D. (2002, October). Students' readiness for on-line distance education in Slovenia. In G. Richards (Ed.), *Proceedings of World Conference on E-Learning in Corporate, Government, Healthcare, and Higher Education 2002* (pp. 922-928), Montreal, QB, Canada. Chesapeake, VA: Association for the Advancement of Computing in Education.
- Tyler-Smith, K. (2006). Early attrition among first time elearners: A review of factors that contribute to drop-out, withdrawal and non-completion rates of adult learners undertaking elearning programmes. *Journal of Online learning and Teaching, 2*(2), 73-85.
- Taylor, R. (2002). Pros and cons of online learning – A faculty perspective. *Journal of European Industrial Training, 26*(1), 24-37.
- Thurmond, V. (2003, March). Examination of interaction variables as predictors of students' satisfaction and willingness to enroll in future web-based courses while controlling for student characteristics. In C. Crawford, D.A. Willis, R. Carlsen, I. Gibson, K. McFerrin, Jerry Price, et al. (Eds.), *Proceedings of Society for Information Technology and Teacher Education International Conference 2003* (pp. 528-531), Albuquerque, NM. Chesapeake, VA: Association for the Advancement of Computing in Education.
- Turchi, L., & Ruppert, N. (2004, March). A teaching and learning community enhanced by archaeological adventures and technological tools. In C. Crawford, D.A. Willis, R. Carlsen, I. Gibson, K. McFerrin, Jerry Price, et al. (Eds.), *Proceedings of Society for Information Technology and Teacher Education International Conference 2004* (pp. 3747-3749), Atlanta, GA. Chesapeake, VA: Association for the Advancement of Computing in Education.
- Webster, J., & Hackley, P. (1997). Teaching effectiveness in technology-mediated distance learning. *The Academy of Management Journal, 40*(6), 1282-1309.
- Weiner, C. (2003). Key ingredients to online learning: Adolescent students study in cyberspace – The nature of the study. *International Journal on E-Learning, 2*(3), 44-50.
- Yerk-Zwickl, S. (2003, October). E-collaboration using centra symposium. In G. Richards (Ed.), *Proceedings of World Conference on E-Learning in Corporate, Government, Healthcare, and Higher Education 2003* (pp. 2508-2509), Phoenix, AZ. Chesapeake, VA: Association for the Advancement of Computing in Education.