INTERNATIONAL JOURNAL OF INSTRUCTIONAL TECHNOLOGY AND DISTANCE LEARNING

August 2010
Volume 7 Number 8

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ISSN 1550-6908

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International Journal of
Instructional Technology & Distance Learning

Vol. 7. No. 8.

ISSN 1550-6908

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Editorial

"The Problem is the Solution"

Donald G. Perrin

I first heard this expression fifty years ago from the Superintendent of the New York City Schools. I have lost his name and reference, but the expression stayed with me. The solution is defined by the problem, and defining the problem is the first step in problem solving. Many of us bypass the definition step because we already have a solution. However, incomplete analysis and definition is not likely to produce an optimal solution, and a solution that is looking for a problem to solve may not be a solution at all.

A more focused approach is to analyze relevant aspects of the problem, establish goals and criteria, and find several possible solutions. Further research will enable us to determine which solution is practical and most likely to achieve the desired result. This is the scientific method. Solutions may be constrained by access to relevant information, experience, and expectations. For example, the motion picture was fifty years in discovery until George Eastman introduced photographic emulsion on celluloid film in 1889. Sometimes we cannot see the obvious solution because, as Joel Barker (1989) would say, we are limited by our paradigms. If a solution does not match expectations based on our previous experience, it is may be impossible to recognize it as a solution to the problem.

Key ingredients in problem solving are vision, what we know, what we can discover, and what we can create. We must develop an ability to foresee short-term and long term implications. We need to determine possible byproducts including second and third order effects. For example, Henry Ford produced large numbers of "affordable" automobiles by setting up an assembly line. Second order effects were the need for roads and service stations. Third order effects were social changes. People could now travel further for jobs, shopping, and meeting with friends and associates. The automobile made it practical for large numbers of people to develop relationships outside their immediate community.

In school reform, Cuban (1988) categorizes problems associated with educational change into:

1. quality-control problems (first-order changes), and
2. design problems (second order changes).

First-order changes in schools include "recruiting better teachers and administrators, raising teacher salaries, allocating resources equitably, selecting better textbooks, altering content and coursework, scheduling people and activities more efficiently, and introducing new methods of evaluation and training." First-order changes make the school more efficient and effective without altering organization and structure.

Second order changes transform structure, organization, and the roles of teachers and students by introducing new goals and innovative solutions to solve persistent problems and improve learning and performance. Examples include open classrooms, vouchers, magnet schools, and interactive learning technologies.

In distance learning, emulating the existing classroom experience is a first order change to efficiently reach large numbers of would-be-students who could not otherwise participate in the educational experience. Second order changes are represented by the diagnostic-prescriptive capability of computers and their ability to manage and dynamically adapt presentation materials to meet individual student needs anywhere and at any time. Many educational problems can be solved by distance learning, but it is necessary to recognize its limitations because there are situations where distance learning is not the solution to the problem.

Barker, Joel A (1993) Paradigms: The Business of Discovering the Future. Harper Business.

Cuban, L. (1988). A fundamental puzzle of school reform. Phi Delta Kappan, 69(5), 341-344.

Editor's Note: Distance learning is deeply wrapped in the history of instructional technology. Dr. Towhidi revisits opportunities and technologies that led to adoption of distance learning in advanced and developing countries. It is a chance to step back and gain new perspectives on the changing social needs, state-of-the-art technology, and options for the future of distance education.

Distance Education Technologies and Media Utilization in Higher Education

Afsaneh Towhidi
Iran

Abstract

In a distance education system (DES), teachers and learners are physically separate and the instructional materials are delivered via telecommunication systems. The global application of the DES has proven to be an approach that is both successful and useful in education.

Based on technological, structural, and financial capabilities, a number of varieties of technologies are applied in higher education distance learning systems. Print media (textbooks, study guides, study aids, and newspapers), audio media (Audio-books, audio-cards, records, audio-cassettes, reel-to-reel audiotapes, audio Compact-discs (CDs), telephones, cell phones, audio-texts, radios), and video media (Televisions, satellites, direct broadcast satellites, cable televisions, closed-circuit televisions, asynchronous and synchronous Podcasts and vodcasts, teleconferences, microwaves, interactive videos, teletexts, videotexts, computer internets, weblogs (blogs), electronic mails, chatrooms, and multimedia) are used to convey messages in terms of specific educational objectives to deliver and disseminate instructional materials to learners.

While using distance education in both advanced and developing countries, the limitations, strengths, and variables affecting it should be considered in advance.

Keywords: higher education, distance education, distance learning, higher distance education, technologies.

Introduction

In this fast growing world, it is very difficult to assume that anyone would be able to live without communication technologies (radios, televisions, telephones, and the latest forms of communication such as computers and cell phones). Educational systems are changing at great speed and the technology is changing rapidly. Older technology is replaced by new technological phenomena and the new ones are being adopted and these are affecting the educational systems.

In many countries, many university systems have adopted distance education to solve their educational dilemmas. What higher education systems can do for their societies are to improve and to reinforce the present educational systems, to utilize distance education in the most proper ways, to apply advanced communication technologies, and to use the experiences of the countries that have been successful in using distance education.

The purposes of this paper are to list successful countries using various systems of distance education in their higher education, to explain the nature of distance education, to describe the variables in distance education, to classify and to describe the media usage in distance education, to show constraints and highlights of distance education, to describe the utilization of media in different countries, to suggest some solutions to be utilized in higher education, and to present a summary and a conclusion.

Successful Countries

Current developments in communication and computer technologies, the contribution of behavioral scientists, educators, and psychologists doing research on teaching-learning process have changed the appearance of educational systems rapidly (Eisele & Eisele; 1990; Arafeh, 2004; & Conrad, 2009).

In 1840, Isaac Pitman began teaching via correspondence in England. At Wesleyan University, Illinois, bachelor and graduate degrees could be obtained in absentia in 1874. In 1900, the quality of correspondence teaching became popular (California Distance Learning Project (CDLP), 2005) and by 1969 the United Kingdom took the advantage of new technologies seriously in their higher education systems and established the British Open University as a degree granting institution. Two years later it became one of the largest UK Universities. The university served local and distant working adults who could not attend regular classes. They participated in distant classes (Gray, 1988).

Similar systems across the world were applied successfully. Open University in Japan, The External Degree in Australia, Correspondence Education at Post Secondary Level in the Soviet Union, University Courses to Degree Level for Part-time Adult Students in France, The UNRWA/UNESCO Institute of Education in Beirut, The Radio College (Run'dfunkin) in Federal Republic of Germany, The Correspondence Course Unit in the University Remote Nairobi in Kenya, External Courses, External Courses for Teachers in the Remote Rural Areas of Newfoundland in Canada, The Open University in Netherlands, The Empire State College in New York, The Minnesota Metropolitan State College, The Community College of Vermont, Indiana University, and many other colleges and universities, in the USA, all are the institutions using the system of distance education (McKenzie, , Postgate, & Scuupham, 1975; Chung, 1991; & Hummel, 1993).

Also, Open University in Indonesia, National Institute of Education, Institute of Distance Education in Srilanka, Correspondence and Open Studies Institute, University of Lagos in Nigeria, Deakin University BED Programme in Australia, The Free University of Iran, and many other open/distance educational systems are taking the advantage of the system of distance education at the university level successfully (McKenzie, et al., 1975 & Peeraton, 1993). Allama Iqbal Open University in Pakistan (Haque & Batool, 1999), Indira Gandhi National Open University in India (Romiszowski, 2008), Open University in Bangladesh (Anwarul & Nasirul, 2008), and many other Asian colleges and universities (Reddi & Mishra, 2005) have higher distance education systems which are more or less successful.

Definition of Distance Education System

Distance education is a relatively new terminology which one of the new formats of education along with new teaching/instructional media.

The open learning system, telecourse or televised teaching system, and distance education are similar terminologies which are used interchangeably. McKenzie, et al., (1975) explain that "open" as contrasted with "closed" carries suggestions of the lessening or removal of restrictions and of privileges, demolishing or lowering established barriers between subject areas, enlarging and enriching the areas of activities and experiences graded as educational. It symbolizes a shift in the relationship between teacher and pupil toward that of student and advisor".

Zigrell defines "telecourse" as "a learning system for the student that is compared to video programs, textbooks, study guides, learning experiences, and a variety of other study aids that may include telephone, mail, and face-to-face contacts with instructors" (Chung, 1991).

Evans describes distance education as "the delivery of credit and non-credit instruction where the majority of content expertise and management is at one location and the majority of student

learning activities at another". Feasley, (1982; as cited in Gray, 1988) defines it as "a learning system which takes place at a site remote from the instructor".

Knebel (2001) also introduces different terms for distance education: Computer-based training (CBT), Computer-mediated instruction (CMI), Interactive radio instruction (IRI), Interactive television (ITV), Quality assurance (QA), and Web-based training (WBT) which is used in teaching many subjects, including healthcare and medical education.

Association for Educational Communications and Technology AECT) (Schlosser, Ashland, & Simonson 2002) define distance education as "institution-based, formal education where the learning group is separated, and where interactive telecommunications systems are used to connect learners, resources, and instructors." In this definition there are four components: the first one is the concept that distance education is institutionally based which means it is different from self-study; the second concept is the separation of the teacher and student; the third concept is synchronous or asynchronous interactive telecommunications which imply interactivity through electronic media (television, telephone, and the Internet) and not limited to only electronic media; the forth concept is connecting learners, resources, and instructors that interact and while resources are available, they in turn help the learning process to occur. AECT mentions that the main goal of this form of education is to provide mass-produced courseware to a mass market, but notes, in recent emerging trends, that the goal of distance education is to focus on local and individual needs and requirements.

Western Cooperative for Educational Telecommunications (2003; as cited in Arafeh, 2004) defines distance education as, "instruction that occurs when the instructor and the student are separated by distance or time, or both." The California Distance Learning Project (CDLP) (2005) defines it as, *"an instructional delivery system that connects learners with educational resources."*

Distributed learning is another form of distance education which is different from the traditional ones. It is a combination of face-to-face teaching with synchronous and asynchronous mediated settings. This instructional strategy involves learning across a variety of geographic settings, across time, and across various interactive media (Dede, 2002; as cited in Arafeh, 2004).

On-line learning is one of the newest terms used frequently and is defined as a "delivery of learning through the use of information communication technology via the internet where learners and instructors are physically separated" (Chongwony, 2008).

It is realized that most of the definitions refer to a situation in which the teacher and the learner are separated and instructional materials are conveyed through telecommunication systems. It can also be elicited that the learner has the flexibility of adjusting herself/himself to the schedule and physical location of classes. In this article, "distance education" is the terminology chosen to be used.

Characteristics of the Distance Education System

Distance education has six characteristics which distinguish it from traditional, regular classroom situations (Unwin & Mc Aleese, 1988; Liu & Ginther, 1999; Schlosser, el al., 2002 & 2009; as cited in Arafeh, 2004; & Chongwony, 2008):

1- Separation of teacher and learner

2- Teacher's relationship with the learner

3- Utilization of media

4- Anticipation of the two-way communication

5- Occasional money and time for the institution and learner

6- Saving money and time for the institution and learner

Limitations of Distance Education

Limitations of distance education system in terms of teacher, learner, and media can be listed as below (Purdy, 1986; as cited in Chung, 1991):

1- Teacher and learner are separated.

2- Teacher's control over curriculum and instructional process is minimized.

The issues of interaction, coordination, time management, and attitudes can be listed as below (Dalton, 1987; as cited in Chung, 1991):

3. Teacher-learner interaction is diminished.
4. More complex logistical coordination of the instructional activities is required.
5. Additional time for management is demanded.
6. Some negative attitudes on the part of learner are elicited.

One of the weaknesses which is usually overlooked in distance education is learner's procrastination (Wilkinson & Sherman, 1989):

7. Learner procrastination or putting off the responsibilities is common.
8. Learner expectations about the nature of distance education are not realized.
9. Learner is required to be more structured.

Ashby (2002; as cited in Arafeh, 2004) and Woodley (2004; as cited in Edvardsson & Oskarsson, 2008) mention that distance learners are usually married or with children, living far or in unsafe urban areas, mostly women, and have jobs. So as the tenth limitation:

10- Usually atypical learners are persons with responsibilities other than being a student.

11- Education is not designed for everyone and is not beneficent to all learners.

Age of learners is the main issue in distance education. Usually older learners are distance learners. Ashby (2002; as cited in Arafeh, 2004) and Woodley (2004; as cited in Edvardsson & Oskarsson, 2008) note that distance students tend to be older than typical college and university students. Sikora and Carroll (2002), in a survey done for the U.S. Department of Education, Office of Education, report that distance learners are around 24 or older. So this may be a limitation:

12. Distance students tend to be older than campus students.

The U.S. Department of Education, Office of Education (Sikora & Carroll 2002) findings of the 1999-2000 survey on undergraduates showed that native English speakers are more willing to take distance courses than non-native speakers (8 versus 6 percent). So, as another limitation:

13. Language barriers do not allow non-native speakers to take the advantage of distance education.

Milheim (1991), in his suggestions for potential developers, explains additional limitations:

14. Significant initial expenses are required to start the large-scale use of electronic media systems, to revise the content of instructional materials, and to hire teachers and personnel.
15. Audience analysis is expected and it is hard to perform due to the nature of distance education systems.

16. Television and video media are viewed as two-dimensional and non-realistic means of portraying the facts.

Usually, when a new technology arrives, people show resistance because it requires a new challenge and getting acquainted to it (House, 1987). Therefore, as one of the final limitations:

17. Learner gets startled and becomes frightened.

Tallent-Runnels, Thomas, Lan, and Cooper (2006) did a meta analysis and found that most online students are nontraditional and Anglo Americans. They also found that few universities have written policies, guidelines, or technical support for faculty members or students. Learning outcomes appeared to be the same as in traditional courses, and students with prior training in computers were more satisfied with online courses. So,

18. Students are mostly minorities
19. There is not much control on distance education systems.
20. There is no advantage in distance education over the traditional approach
21. Students with no computer experience would feel uncomfortable.

Strengths of Distance Education Systems

In any system, as well as distance education systems, there are some advantages over weaknesses and disadvantages.

Strengths are described as follow (Dalton, 1987 as cited in Chung, 1991; Jevons, 1984 as cited in Chung, 1991; Purdy, 1986; as cited in Chung, 1991; and Tang, 2009):

1- Class sessions are smoother.

2- Texts and graphics are presented more effectively.

3- More courses are offered.

4- An opportunity to deliver instructional materials and teaching strategies through different media is provided.

5- More diverse groups of learners are gathered.

6- Easier chance of accessibility is given to the learner.

7- Independent learning is granted to the learner.

8- More control over instructional materials is produced.

9- An opportunity to improve pedagogic qualities is given.

10- Staff development results.

11- In the long term, more money is saved.

12- More enjoyment is elicited in learning by learner.

Edwards (1988) expresses that:

13- Overcoming the difficulties and helping disadvantaged and disabled learners resulted.

Many forms of prejudice and oppressive attitudes may play out in schools; distance education systems tend to decrease them (Kumashiro, 2000; Larreamendy-Joerns & Leinhardt, 2006). So,

14- More democracy is practiced.

Findings indicate that self-efficacy beliefs have positive effects on student motivation and achievement (Pintrich & De Groot, 1990, as cited in Ergul, 2004; Zimmerman, Bandura & Martinez-Pons, 1992, as cited in Ergul, 2004; & Pajares & Miller, 1994; as cited in Ergul, 2004). Ergul (2004), in his research done on 124 freshman students who enrolled in Anadolu University's distance learning programs of the 2001-2002-education year, found that self-efficacy of distance education was found to be significantly correlated to student's academic achievement. Consequently:

15- Distance education is correlated with learner's self-efficacy and academic achievement.

The newest form of distance education system is an integration of telecommunication networks with computers and an interaction of learner. Use of computers and computer networks not only carried the content but also bring together the teachers and the learners and in two-way communication via computer, the learners may benefit from having dialogues (Bernard, Abrami, Lou, Borokhovski, Wade, Wozney, Wallet, Fiset, & Huang, 2004).

Bernard, Abrami, Borokhovski, Wade, Tamim, Surkes, and Bethel (2009) did a meta-analysis on comparison of different types of interaction treatments with other instructional treatments in distance education: interaction among individual students or among students working in small groups, Student-instructor interaction traditionally focused on classroom-based dialogues, and students interaction with the subject matter to construct meaning. Overall, findings indicate the importance of the three types of interaction treatments and they are associated with the students' achievement enhancement and increase of cognitive engagement. The findings also show that there is a strong association between strength and achievement for asynchronous distance education courses than mediated synchronous courses or face-to-face interaction.

So, using computer to communicate has the following strengths:

16- Teacher and learners become united.

17- Teacher and learners may have interactions.

18- The administrator is given the courage to learn how to use applied software systems, such as word-processing database management and spreadsheet (Kearsley, 2005).

19- Access to the network information is allowed (Virkus, 1997).

20- Money is saved in writing memos, telephone calls, and tracking of maintenance records (Gubbins, n.d.).

21- Processing work orders and general personal services are saved (Akpan, 2008).

22- A chance of low cost access to communication facilities is given to both teachers and learners (Adam, 1999-2000).

23- Classroom walls are expanded (Shayo, Olfman, Iriberri & Igbaria, 2007).

24- Teaching strategies are allowed to go beyond traditional regular classroom presentations (Howell, Saba, Lindsay, & Williams, 2004).

In distance education learner is encouraged to use and share new technologies (Adam, 1999-2000). How individuals adopt innovations is a matter of research. Accepting a new technology is a complex, inherently social, developmental process and individuals construct their own unique perceptions of technology that would influence the adaptation process. This process is related to the cognitive, emotional, and contextual concerns (Straub, 2009). So,

25- Learner would use new technologies

26- There would be access to a shared system.

Liu and Ginther (1999) mention that in conveying the teaching materials, learner/teaching style should be considered in distance education. So,

27- Distance education is the proper way for adaptation of learner's learning style.

Not all the statistics confirm that distance students are older. The age trend has changed. A comparison was made by Worcester Polytechnic Institute (WPI) (2007)) on campus-based graduate programs in the years 2004 and 2007 on the demographics of potential graduate school students. The 2004 survey of their learners showed that 73% of the students were under the age of 35 which changed to 58% by 2007, an increase. So, as the last advantage:

28- The distance learners' average age is decreasing and getting closer to campus students.

Scientists, researchers, and educators take advantage of new technologies and do not give up because of limitations, and they will continue working on the technical and humane barriers to overcome the difficulties. What is important is that because of the mentioned reasons, the ministries of different countries are attracted to distance education systems (Perraton, 1993).

Research findings show that students with prior training in computers are more satisfied with online courses than traditional ones (Tallent-Runnels, et al., 2006). So,

29- Students with prior computer experience would feel more comfortable.

Objectives of Distance Education

The purpose of presenting the objectives is to provide and anticipate clear guidance to the system itself and to the learner in knowing what must be done and what content knowledge should be learned. McKenzie, et al. (1975) lists the objectives as:

1- The learner must be guided to elicit, interpret, and analyze goals at the beginning of the learning system and through her/his education.

2- The learner should be helped to make clear decisions in instructional design and evaluation systems.

3- The learner should be convinced to participate in the educational process.

4- Individual needs of the learner should be satisfied.

5- Different media such as sound, television, film, filmstrip…, etc must be applied.

6- The system itself should be well structured to be able to diagnose and analyze the learning objectives of the learners.

7- Accommodations between instructional staff resources and the learner must be provided.

8- The learner's concept of distance education, as a positive element to develop an independent way of learning, should be expanded.

One of the main goals is to overcome and remove the concept of time and space (Elbeck, 2009). Hence:

9- The learner's concept of time and space in distance education should be changed.

In distance education one of the theory bases is the constructivist theory that views learning as socially constructed and situated in a specific context and the learner himself/herself constructs the meaning (California Distance Learning Project (CDLP), 2005 & Mandernach, 2009). So:

10- The learner's concept of distance education should be based on the constructivist approach and should construct the meaning on her/his own effort.

Affective Variables in Distance Education system

There are many factors affecting a distance education system and they must be anticipated before starting the system. Let's review what Wagner (1993) states:

1- Technological reliability.

2- Institutional support.

3- Organizational design and developmental issues.

By technological reliability Wagner (1993) means that intuitional materials should be transmitted to the learner in a consistent and reliable manner; the institutional support should be addressed to the needs of learners, teachers, staffs, administrators, and personnel; and, finally, the organizational designs and developmental issues are dealt with job designs, developmental structures, and accommodation of technology with all its implications. Reiser and Gagne (1982) put the emphasis on Characteristics of learners, setting, and task as key factors in media selection. Tallent-Runnels, et al., (2006) also confirm in designing the distance education systems the environment, learners' outcomes, learners' characteristics, and institutional and administrative are the key factors related to delivery system variables.

In more detailed description, Wagner (1993) continues to mention, “needs assessment, audience analysis, course selection and class configuration, lesson planning, interactive instructional strategies, instructional strategies, instructional delivery, delivery systems, adapting media and materials for distant delivery presentation skills, developing effective television graphics, using facilitators at distance education sites, student and faculty support services, program evaluation and student assessment, organizational readiness, accreditation, inter-institutional partnership, and the regulatory environment” are all the issues which affect distance education system and should be considered in advance before employing and running the system.

If a certain instruction needs teacher’s presentation, the way of delivery is important. Delivery presentation skills affect the success of distance education in higher education and they should be considered seriously. Berg (2009) lists the characteristics of a successful instructor who (she/he) should understand the complexity of the distance education environment; be able to tolerate the paradox and the discomfort of this environment; learn to develop the passion for the content and have awareness of the environment; take risks of having new approaches; experiment with various media/tools to find which one accomplishes the course objectives the best; spend time with team members and plan the details; should feel comfortable working with team members; be flexible in difficult settings; be able to think on many levels simultaneously; reach the audience and create the sense of presence; be willing to spend time on practicing and refining her/his presentation skills; be able to refine and reshape the curriculum continuously; be intuitive; be able to develop contingency plans; be eager to search for quality; and develop a sense of humor.

Social presence is an important issue in distance education. Chongwony (2008) considers it as an essential ingredient in both face-to-face and online learning environments and defines it as “how participants- in online learning environments- relate, connect, share ideas and information, speak with one another, establish relationships (through an agreed-upon means),(despite the physical separation) create a feeling of togetherness or intimacy. Chongwony did an investigation on a sample of 218 students enrolled in an online-Lifelong-Learning program in the spring and summer quarter of the 2005/2006 academic year in a Midwestern university to see whether facilitation, affective responses, involvement, course design, community size, age, and gender would significantly predict perceived social presence of post-secondary learners enrolled in online learning environments. The findings showed that there was a strong positive relationship between perceived social presence, the dependent variable, and the predictor variables

involvement, facilitation, affective responses, community size, course design, gender, and age when combined.

Conrad (2009) also did a qualitative study in which findings showed that learners understood and accommodated the relationship and importance of the affective domain to their cognitive success in learning. The analysis of the findings reflected the key roles of learners' sense of cognition and their devotion to maintaining their cognitive presence when absent from their learning group. So, as another factor affecting distance education system, one can consider the following:

4- Social presence

Interested people in designing distance education systems can refer to standards in these organizations: the Institute of Electrical and Electronics Engineers Inc. (IEEE), the International Organization of Standardization (ISO), the IMS Global Learning Consortium Inc. (IMS), The World Wide Web Consortium (W3C), and the International Electro technical Commission (IEC). The Open Knowledge Initiative (OKI) is a software-development project and other softwares can aid professors to build their own web pages for their courses, for grading, and fortesting (California Distance Learning Project (CDLP), 2005).

There are differences in different countries in terms of cultural and educational expectations, educational policies and legislations, and tertiary education competitions which affect distance education systems (Romiszowski, 2008). So:

5- Challenges in terms of cultural and educational differences are worth considering.

Distance Education Teaching Media

There is a conceptual confusion about instructional media, instructional methods, information and communication technologies (ICT), and distribution methods. Instructional methods are grouped as group discussions, lectures, and demonstrations. Presentation methods are grouped as face-to-face, audio, video-based teleconferencing and Groupware for online interactions. Distribution methods are grouped as CD-ROM, e-mail, Internet, and videotapes. These might bring up the argument that these distinctions may conflate instructional media (e.g., the medium of e-mail) with methods of instruction or distribution (e.g., the instructional use of e-mail), but here, in this paper, all these terminologies are considered as different forms of media utilization in distance education.

Earlier forms of distance education systems relied on the technology of mail correspondence and, later, on radio and television (Reid and Day, 1942; Nasseh, 1997; & Distance Education Clearinghouse, 2003; as cited in Arafeh, 2004). Recent distance education efforts are relying more and more on Internet and other ICTs. The International Information and Communication Technologies Literacy Panel (2002; as cited in Arafeh, 2004) says, “ICTs reflect the convergence between computer and communications technologies and can be viewed as a set of activities and technologies that fall into the union of IT and telecommunications.

There are some findings that indicate on having no difference in teaching through instructional media. For example Clark (1983) did a meta-analysis on many studies to determine whether different media are effective. He found that there are no learning benefits in applying any media in learning. Fabos, and Young (1999) also claim in the field of telecommunication and teaching there are contradictory, inconclusive, and possible misleading researches. In spite of all these findings in distance teaching, the selection and application of teaching media is one of the most important decisions that distance education instructional designers should make to convey the instructional materials in the most proper and the most effective modes. Gagne (1982) also focuses on characteristics of learners, setting, and task as factors to be given primary

consideration in media selection. Shaeffer and Farr (1993) focus on the objectives and the methodology, and present a table of needed media (Table 1.).

Table 1
Appropriate Media in Distance Teaching

	Information	Producers	Principles & Concepts	Attitudes & Values
Audio	-readiness -audio/videotape -lecture -student presentation - guest speaker	-demonstrations -lecture -readiness	-class discussions -peer teaching -case studies -panel discussions -group projects	-reaction panel -panel discussions -class discussions -case studies -role playing
Audio graphics	-readiness -audio/videotape -lecture -student presentation - guest speaker	-demonstrations -lecture -readiness	-class discussions -peer teaching -case studies -panel discussions -group projects	-reaction panel -panel discussions -class discussions -case studies -role playing
Two-way audio/one way audio	-readiness -audio/videotape -lecture -student presentation -guest speaker	-demonstrations -lecture -readiness	-class discussions -peer teaching -case studies -panel discussions -group projects	-reaction panel -panel discussions -class discussions -case studies -role playing
Two-way audio/two-way video	-readiness -audio/videotape -lecture -student presentation - guest speaker	-demonstrations -lecture -readiness	-class discussions -peer teaching -case studies -panel discussions -group projects	-reaction panel -panel discussions -class discussions -case studies -role playing
Computer conferences	-readiness - guest speaker	-readiness -tutorials	-class discussions -panel discussions -group projects	-reaction panel -class discussions -debates -role playing

Distance Education Technologies and Media Utilization

Distance education usually has two forms: 1- the learner operates independently and 2- classroom instruction is accompanied by distance learning (California Distance Learning Project (CDLP), 2005). Either way, there is an overlap in terms of both technologies and media. The important elements are technological transmissions and the media applications.

The importance of transmitting instructional materials to distant learner through print, audio and video media, and to deliver messages have always been stressed (Chung, 1991). These technologies and media can be applied in both traditional and modern forms of distance educational systems in higher education in any country. One may define them as follows:

Distant Teacher

Gagne and Reiser (2001) consider any physical matter including teacher that is capable of conveying instruction is considered as an instructional medium and there is no limit on that. Clark and Mayer (2003) confirm this concept and mention any presenter including the teacher or the specialist could be considered as instructional media.

The reason is teacher like any other medium uses audios/sounds (speeches) and videos/pictures (to show processes) (Kim and Means, 2005).

In distance era, the concept of teacher is changing. In virtual courses many of teaching strategies (six modes of instruction: tutoring, lecture, recitation, discussion, laboratory, homework) are employed, so the methods that both concepts of teacher and students controls, must be expanded (Gagne, 1965; as cited in Mollenda, 1999).

In online teaching the speech or verbal communication is largely replaced by text and the new climate can be a scary place for students and instructors who are not familiar with the environment. So, an online successful teacher has these characteristics: being visible (students need to feel that the instructor is attending to them even though there is no face-to-face classroom), being organized (being well prepared and having well-defined assessment strategies, and assessment activities), being compassionate (letting students to communicate directly), being analytical (engaging in the ongoing discussions of content and concepts of the course), and being a leader-by-example (being a best practice model in teaching).

Print Media

Textbooks, study guides, study aids, and newspapers are easy to use, inexpensive, portable, and very familiar to the learner. They can easily be distributed to the learner by mail or package-delivery services. Print media is used in correspondence study, programmed instructions, and in modularized instruction (Feasley, 1982; as cited in Gray, 1988).Print is still in use in distance education (Gujjar & Malik, 2007) specifically in developing countries in which the needed technologies in distance education do not exist or their costs are so high they cause the trend of distance education to still be toward usage of print media (Mitchell, Smith, Louw, Tshesane, Petersen-Waughtal, & du Preez, 2007).

Textbooks, Study Guides, and Study Aids

In a more traditional form of distance education, textbooks, study guides, or study aids are usually used, along with radio and television. For example, in Pakistan, television is the dominant distance education medium and uses printed textbooks as the complementary source (Siraj, 2008). Bangladesh Open University (BOU) also uses textbooks and study guides, audiocassettes, occasional face to face tutorial as tertiary media, along with radio and television (Islam, Rahman, & Rahman, 2006).

Paxton (1999) based on a research on history textbooks focusing found that role of the authorship in historical texts are underscored and the students are largely influenced by the anonymous, authoritative style of writing. Fox (2009) also did an investigation (45 studies) on the role of reader characteristics in processing and learning from informational text. Findings indicate that low level of ability; experience, knowledge, and interest were associated with local-level processing and effortful construction of a text base. In contrast high levels of ability; experience, knowledge, and interest were associated with more globally directed, more effective, more flexible engagement, and leading to better quality mental representations and greater learning.

Adams (2003) researched the effectiveness of the Physics distance education in Kentucky Community and Technical College System's Kentucky University (KYVU). The students were not very highly computer literate and the applied media were websites, emails, chatrooms

(synchronous), discussion (asynchronous), and printed textbooks with a CD. The findings showed that 78% of the students rated the class excellent and successful completion of the class was 63%.

Slavin, Cheung, Groff, and Lake (2009) did an examination on the effectiveness of reading curricula; mixed-method models; computer-assisted instruction; and instructional process programs. Findings indicate that the programs designed to change daily teaching practices have substantially greater research support than those focused on curriculum or technology alone. Also positive achievement effects were found for instructional-process programs, especially for those involving cooperative learning, and for mixed-method programs.

Newspaper

Newspaper is a traditional form of print. Adult Literacy and Basic Skills Unit in London (1992) introduced newspaper as one of the resource materials for its advertisings and informing capabilities. Using the expression 'open-learning' meant flexible and distance learning in Britain.

Newspaper is a very useful resource for adult education students and for creating an individualized instructional program (Aiex, 1988).

Audio Technology and Media

Audio-books, audio-cards, records, audio-cassettes reel-to-reel audiotapes, audio Compact-discs (CDs), telephones, cell phones, audio-texts, and radios are classified under audio media which are described below:

Audio Book

Anadolu University in Turkey, in a project for 300 blind students, is using audio-books in music and drama classes as infrastructure. This has enabled them to study on their own. The courses are provided with the books that are vocalized radio-phonically. The subjects are distinguished from one another by music and the narration is enriched via emphasizing on the important sentences in the topic (Ozgur, & Kiray, 2007).

Audio-Card

Audio-card is a traditional medium which was used a lot and may still be used in some distance education systems. It is a magnetic medium which helps the learner listen to words and repeat them at the same time as she/he sees the words in print. The learner can record her/his own voice and play it back for comparisons and corrections. This medium is a very appropriate medium in teaching foreign languages, mathematics, and especially, if accompanied by pictorial materials, it can add to the quality of the instructional messages(Lewis, Harcleroad, & Brown, 1977; & Bezard, & Bourguignon, 1994).

Record

The record is another traditional medium that is primarily used for sound effects (Burrows & Wood, 1982) and music (Holmberg, 1995 & Wikipedia, Foundation, I., 2010). It is a medium used in teaching, too (Parker, 1986). Reid and Day (1942) mention that radio and records were popular classroom media in 1940s.

Audio-Cassette and Reel-to-Reel Audiotape

Cassette is also a traditional medium which became much more dominant than reel-to-reel (Jamison, Suppes, & Wells, 1974; & Kemp & Smellie, 1989). Recording tapes requires no special skills or equipment, and a teacher can easily record her/his instructions or lectures on tape. Combinations of sound and sight lead to greater learning (Davies, 1971) and, along with print and radio media, audio cassettes are used widely (Perraton, 1993).

In Allama Iqbal Open University in Pakistan (Haque & Batool, 1999) and Bangladesh Open University (Karim, Kama,& Islam, 2001), due to the high costs of modern technologies, radio and

television programs, along with audiocassettes, are the dominant media. Research findings of Blok, Oostdam, Otter, & Overmatt (2002) and Baker (1971) show the use of computer and audio CDs had little effectiveness. But the literature show that computer and audio disks were initially used for reading materials to minimize the role of the teacher (Atkinson, 1966; as cited in Blok et al., 2002) and the theme was around the individualization of instruction and individual differences (Baker, 1971).

Audio Compact-Disc (CD)

The newer form of audio media is the audio compact disc which is used as an independent source (Barron, Orwig, Ivers, & Lilavois, 2002) or in conjunction with web or online learning (Notar, Restauri, Wilson, Friery, 2002; & Skylar, 2009). In compact-disc, the audio materials are recorded in a digital format and in play-back mode; sound is heard in a crisp and high-fidelity form (Liu & Chang, 2001).

Compact Disc - Read-Only Memory (CD-ROM)

Compact disc read-only memory (CD-ROM) is a 43/4 inch disc which allows storage of vast amounts of audio and video information and reduces the cost of production, distribution, and storage of printed materials (Bateman, 1986). Hitachi Company has developed on an erasable laser disc with a high capacity and a rapid accessibility (Wedemeyer, 1986). Nowadays many students in the language fields use encyclopedias on CD-ROMs (Tochon, 2009).

Telephone

An answer to the criticism that education via television and computer carries no human communication touches is the application of telephone. It brings learner and teacher together and to some extent fills the gap between them. Telephone is specifically a useful tool for disabled home-bound isolated hearing impaired blind and culturally or socially deprived learner (Stephens & Lazarus, 1989). Because of the mobility of the cell-phone or mobile, it has the flexibility in terms of space and its function is similar to telephone except that the telephone is cheaper.

Poling (1994) explains that at Clemenson University through a modem, any learner at home is able to dial her/his telephone to the computer system on campus. Using this system reduces telephone calls. All learners are given an account on university's main computer and they can be in contact with their professors whenever they wish.

With an electronic blackboard, the sender would send the drawn images or the text and these are converted to audible telephone tones. On the other end of the line, the receiver decoder would convert the signals into presentable screen formats (Schamber, 1988).

Cell-Phone

Telephone is replaced by cell phone as a newer form of overcoming the lack of direct contact between the teachers and learners but it may not have been adapted universally (Baggaley, 2008). In Asia cell phone is being used widely and educators have suggested the design and logistical principles for its use in educational systems (Librero, Ramos, Ranga, Trinona, & Lambert, 2007).

Audio-Text

Audio-text is a kind of technology in which the dissemination of text, particularly electronic word-processing and hypertext with sound and pictures are possible via the computer and telecommunication networks (Levinson, 1989).

Greenberger & Puffer (1989) describe a project using integrated telephone with computerized audio-text responses in which telemedicine is utilized.

Radio

Radio is an appropriate medium to present music performances, speeches, and discussions and the learners can record via radio and can develop their skills in their own location. Radio is specifically useful to teach philosophy, literature, history, language, and linguistics (Feasley, 1982; as cited in Gray, 1988). The classic literature show the film, television, taped lectures, and radio were common in instruction (Jamison, Suppes, & Wells, 1974), especially in 1940s students listened to presidential speeches or openings of the congress, symphony concerts, radio courses, social studies, and or news broadcasts (Reid & Day, 1942). The British Open University has used radio to distribute lectures, drama, poetry, reading, and guest presentations (Gray, 1988). The University of Nairobi has used radio with its correspondence program successfully (Perraton, 1993).

In developing countries, radio is still one of the main media in distance education (Karim et al., 2001; & Reddi & Mishra, 2005).

Video Technology and Media

Television, satellite, direct broadcast satellite, cable television, closed-circuit television, asynchronous and synchronous, Podcast and vodcast, teleconferencing, microwave, interactive Video, teletext, videotext, computer internet, weblogs (blogs), electronic mail, chatroom, and multimedia are all different applied technologies and media in distance education. In a report from the Task Force on Distance Education and Training in Professional Psychology, The American Psychological Association (2002) mentions the application of varieties of media in distance education are: television and computer in their newest forms (satellite, microwave, cable-television, interactive TV, television, direct broadcast satellite, and computer). In addition to television, film was the common medium in instruction (Jamison, Suppes, & Wells, 1974). Video was also mainly used in therapy teacher education, and in teacher training as self-confrontations in which individuals recorded them and played it back for further studying (Fuller & Manning, 1973).

Television and Satellite

Television is a complementary learning medium which interacts with learners and influences the structure of mental representations and cognitive processes of the learners (Kozma, 1991). Television courses can be presented in two basic forms: long range transmission (satellite) and short-range transmission (cable) (Eisele & Eisele, 1990). Television transmission is usually a one-way video or a two-way audio interaction by phone. Film, filmstrip, and video are usually applied as the helping-aids in distant teaching, but because of the easier use of video distribution, video itself can record filmstrips and slide images/still pictures as well as moving pictures (Kemp & Smellie, 1989). In the classic literature of application of video in classroom Fuller and Manning (1973) show that teachers almost at every level and every discipline have been using videotapes of themselves.

In the United States, millions of students enroll in television courses produced by colleges and universities, and satellite television networks are utilized to deliver vocational training to employees throughout the world (California Distance Learning Project (CDLP), 2005).

Satellite is an easy, flexible, relatively inexpensive method of transmitting information from one long distance to another (Gross, 1983 & Board of Governors, State University System of Florida, 2008). It can be used to transmit any information, including voice, data, and video, and can meet rapid expansion of telephone, television, teleconferencing, electronic mail, data communication, and others (Wedemeyer, 1986). In satellite transmission a space station is used to relay signals. A large station dish is placed on the ground to send and receive signals to and from satellites (Oakey, 1983).

Because of the satellite usage in eleven campuses of Tiffin University, its student population has risen by more than 50 percent between the years 2003 and 2008 (Blumenstyk, 2008).

Direct Broadcast Satellite

Direct broadcast satellite is intended to disseminate information directly from the satellite to home receivers, but, at present time, people can receive signals by placing a satellite dish in their backyard or on their specifically designed computers which are utilized as mass storage devices (Meadow, Singleton, & Gordon, 1983).

Pemberton, Fallahkhair, and Masthoff (2005) developed a project in which they showed interactive television(ITV) and direct broadcast have great potentials in teaching second language. They also pointed out that the conjunction of the ITV with cell phone can facilitate the informal language learning.

Cable Television

Cable television is a form of transmitting information in short distances through coaxial cables which disseminate messages in higher fidelity than regular telephone wires. Local television stations, local radio stations, pay cable services, and basic cable services use wire to transmit their signals. The signals are received from broadcast antenna and from satellite by cable facilities and then these signals are placed on buried cables under the ground or strung on telephone poles and passed through houses or a particular neighborhood and then attached to any individual television. People who pay a fee can receive the signals (Gross, 1983).

Cable television has wide application in education. Japan uses it to disseminate instructional materials (Wedemeyer, 1986). One-way video/two-way audio is a system in which television pictures are transmitted to particular sites where people can reply to the broadcasters with a telephone call-in system. Television pictures can also be transmitted in two directions simultaneously through telephone lines so that teachers and students in one place can see and hear teachers and students in other places. This video-conferencing technology increasingly uses the internet and is being used by businesses and university level learners in the California Distance Learning Project (CDLP), (2005).

Closed-Circuit TeleVision

Closed-circuit television (CCTV) is a kind of cable television in which two short distances are connected by cable. It can be a simple two-room hook up or a multi channel statewide interconnection (Burrows & Wood, 1982).

In closed-circuit-television, a limited number of users have access, and it can specifically be appropriate for educational applications, fires, floods, and security systems (Meadow et al., 1983).

Homes have become classrooms for children and adults and new delivery systems have stimulated the development and use of technological applications for teaching and learning. Foremost among them are wireless devices, such as laptop and handheld computers. Video materials are increasingly being delivered by a variety of distribution systems, such as video streaming on the Web, video conferencing, synchronous teaching and learning by closed circuit broadcasting, and satellite television systems (Ely, 2002).

Asynchronous and Synchronous

In asynchronous courses, students have a flexible environment in which self-paced learning is provided by using a variety of tools, such as CD-ROMs, streamed prerecorded audio/video web recordings, and audio podcasts. In synchronous courses, students have online learning environments in which self paced learning is very interactive when using web conferencing products, such as live presentations and live classrooms, Adobe Acrobat Connect Professional,

and other features which help the interactivity. A study compared these two ways of distance educations. The results of this analysis suggest that both types of lectures are effective in delivering online instruction, but they also emphasize on the importance of interactivity and increased level of technology skills (Skylar, 2009).

Another study was done on 180 teacher education students (151 females and 29 males) in asynchronous and synchronous ways. Findings showed, regardless of gender, that two-thirds of the participants preferred asynchronous modes over synchronous ones (Lin & Overbaugh, 2009).

Podcast and Vodcast

Podcast is a form of technology in which audio, video, text, and other media files can be played on a computer or downloaded to MP3 players (Sprague & Pixley, 2008), and it is a popular medium specifically for accessing and assimilating audio information (Copely, 2007).

In a study, the opinions of Aston University students were asked on the (audio) podcasts and the (video) vodcasts and how well they met the requirements and aided learning processes. Overall, students indicated that podcasts and vodcasts were two beneficial resources for learning, particularly when used in conjunction with lecturers' slides and as tools for revisions or assessments (Parson, Reddy, Wood, & Senior, 2009).

Teleconferencing

Teleconferencing is an integration of computer with telecommunication systems in which private companies, corporations, or organizations take the advantages of meeting together through electronic equipments. Teleconferencing is used in its two forms: video conferencing and computer conferencing. In video conferencing, meetings, discussions, and distant classes are held across the country or around the world by using a microphone, television camera, and television equipment. Satellite dishes and time are rented, too (Meadow et al., 1983). Teleconferencing is a form of group-based distance education in which some argue it creates the essence of traditional classroom (Bernard, et al., 2006).

After correspondence courses and audio-conferencing computer based training for individualized instruction, computer conference (Kear, 2001) or electronic forum is the newest form of delivering instructional materials in distance education (Patriarcheas & Xenos, 2009). There is a kind of e-mail which provides electronic mail, search (organizing factors/branching), file transfer, and editorial services. The interchange of messages among scattered users/learners on a particular topic takes place via computer networks (Romiszewski & Haas, 1989).

Videoconferencing enhances collaboration among online learners in an open learning context and encourages collaborative group work (Tomadaki, Quick, & Scott, 2008).

Microwave

Microwave transmission is a wireless form of transmission which is very similar to satellite distribution, but it has some limitations in which signals are sent from one microwave dish to another via line-of-sight. And an earth dish is placed on a high tower to avoid obstructions against received and sent signals (Gross, 1983).

A study was done in Boise State University in Idaho, the U.S.A. to explore the delivery methods. Data showed that the distance courses, enrollments, and credits were more than doubled between the years 1995 and 2000. The delivery methods included telecourses (public television with a limited number of live class meetings), the Knowledge Network (live broadcast to limited distribution sites and homes through wireless or wired cables by microwave), the Higher Education Network (broadcasts through the statewide analog microwave system), the Internet, radio, videoconferencing, and videotape (Belcheir & Atkinson, 2000).

Interactive Video

The optical video disc is an ideal instrument for instructional and reference purposes (Meadow et al., 1983) and combinations of microcomputer and/or cable television provide an interactive visual teaching system in which user/learner has an interaction from home to the broadcasting station. What makes the video displays interactive is the possibility for the learner to address the locations within a computer program, to find needed information to respond to the learner's questions (Eisele & Eisele, 1990).

Interactive videoconferencing (IVC) consists of live, synchronous audio and video communication through a computer or digital phone network among sites in different physical locations. It provides increased learning opportunities, enhanced student motivation, and a two-way instructor-student communication (Dal Bello, Knowlton, & Chaffin, 2007).

Computer

The computer as it is known today was developed in the 1940s. As a result of technological developments over the past years, computers have entered people's lives including film and television (Towhidi, 1986). Computer was introduced to the field of education in 1970s and its first applications were programming and later became the tutor or an aid to teachers (Fouts, 2000).

Computer technology is a suitable tool to present repetitive, drill-type exercises in mathematics or language learning, to create simulations in chemistry and biology laboratories, a source of advice on career decisions, to find relationship between learner's achievement, aptitude, interests, and success in the various fields; and to use the computer itself (to learn applies soft wares (Leffrancois, 1999). Teletex, videotext, e-mail, audiotex, teleconferencing, videodiscs, optical technologies, and interactive video are all applications of computer technology and are considered as an integrated importable of telecommunication technologies. Now, most of the educational systems have great tendencies to use multi-media systems with a mixture of audio and video (Malhotra & Erickson, 1994).

Teletex and Videotex

Teletex and videotex are two systems of transmitting electronic messages of text and graphic materials. There are two types of transmissions: one-way and two-way delivery systems (Wedemayer, 1986).

One-way delivery is known as teletex which is also called broadcast videotext. In this kind of delivery text and graphics are transmitted over the unused portion of television signals. It is a useful service as an encyclopedia, bibliographic search tool, and bulletin board (Gayeskie, 1989). Two-way delivery of text and graphics is known as videotext/videotext, view data, and interactive videotext (Wedemeyer, 1986) in which the message is sent over telephone lines (Gayeski, 1989).

Electronic Book and Electronic Library

Electronic book or open textbook is an open educational resource (OER) in which printed form is digitized and is available to all distant learners. It is usually supplied by the publisher, along with the printed text (Lo & Dale, 2009; & Matkin, 2009).

An important aspect of a distance education system is having computer networks, multimedia, search engines, electronic libraries, specifically in medical universities (Rokni, 2005 and Tang, 2009).

Internet

Adult basic education in distance learning is changing significantly from a low tech video based instructional system to the interactive internet. Distance education utilizes computer conferencing on the World Wide Web or internet in which teachers and students are able to present text,

pictures, audio, and video. File sharing and communications tools like e-mail, chats, and audio and video conferencing are integral to the Internet model. At this time, the British Open University offers a master's degree in the field of "Distance Education" to anyone in the world who has access to the internet. The American Distance Education Consortium (ADEC), the Distance Education Clearinghouse Web sites, and many other sites which can be found on routine internet searches, introduce colleges and universities that offer distant degrees (California Distance Learning Project (CDLP), 2005).

Weblog

World-Wide-Web is complemented by e-mail, instant messaging, chat rooms, internet phones, video-conferencing, net meeting, weblogs (blogs), and many other systems of communication(Perrin, 2006). Students usually use the webs mainly as an information resource and learning support (Kuiper, Volman, & Terwel, 2005). Blogs are designed for directed and orchestrated activities. Learner focused tools and their companions (such as multimedia podcast and videocast) allow low cost or free personalized publishing and retrieval of content created by anyone. It is easy to use, customized in terms of look and feel, content, target audience, and hyperlinked to other contents on the internet (Cameron & Anderson, 2006).

Web-based multimedia involves more than one modality, or delivery media presentation, and/ or presentation mode (Mandernach, 2009). Many universities provide the video content of some lectures to extend their classes beyond the campus (Marchionini, 2008).

In computer conferences, the conference space or blog space can be used to present all kinds of writings, such as reports, reviews, debates, stories for instructor, or peer comments. Distance education systems utilize weblogs which empower and motivate teachers and make learners reflective and connected practitioners in new knowledge environments (Farmer & Bartlett-Bragg, 2005; as cited Cameron & Anderson, 2006). Blogs are designed for directed and orchestrated activities. Learner focused tools and their companions (such as multimedia podcast and videocast) allow low cost or free personalized publishing and retrieval of content created by anyone. It is easy to use, customized in terms of look and feel, content, target audience, and hyperlinked to other contents on the internet (Cameron & Anderson, 2006).

Electronic Mail

Electronic mail is a form of teletex and is a general name for electronic transmission of message in which the message is digitally transmitted (Meadow et al., 1983).

Poling (1994) explains that e-mail can be effective as a teaching tool for the following issues: "answering directed questions of students, counseling, giving class assignments, making general class announcements, giving occasional quizzes, establishing direct communication with a particular student; posting grades, giving helpful hints about homework or upcoming quizzes, introducing texts, and out ruling excuses for missing class".

Students' advising, registration questions, scheduling, questions on instructional materials, and personal matters can be done through e-mails (El Mansour, 2006). The National Center for Education Statistics (Parsad & Lewis, 2008), in their statistics for the 2006-2007 years, showed that distance education postsecondary degree granting institutions used e-mail as a technology or medium for instructional deliveries. E-mail is a medium by which students can send messages and questions to their instructors or their fellow classmates (Edvardsson & Oskarsson, 2008). Vooice mail is also an effective tool in learner/instructor conferences and parent/teacher communications (Yoakam, 2001).

Chatroom

Both Web and Chatrooms can function as supporting technologies to compensate for the relative lack of physical space where the teacher and the class members usually come together to discuss

courses of distance learning (Knebel, 2001). Twomey (2002) suggests an open chatroom to be used as one of the virtual teacher training center elements, along with other components within the instructional site (components like: extensive list of resources, tools for students' self-evaluation, teacher's evaluation of students, online grade books, and places for announcements). Chatrooms could be used for foreign language learning (Fabos & Young, 1999).

Multimedia

There are different yet similar definitions for multimedia. Doolittle (2002; as cited in Mandernach, 2009) defines it as presentation of instruction that involves more than one delivery media, presentation mode, and/or sensory modality. Schwartz & Beichner (1999), as cited in Mandernach (2009), mention that multimedia is multiple forms of media presentation. Mayer (2001) refers to multimedia as combination of sound, picture, text, and etc together; teacher, board, film, and etc together; and any computerized software that would combine of audio, video stuff. Maddux, Johnson, & Willis (2001), as cited in Mandernach (2009), say multimedia is a text along with at least one of the followings: audio or sophisticated sound, music, video, photographs, 3-D graphics, animation, or high-resolution graphics. The common thing among these definitions is this issue that all multimedia definitions include, but are not limited to, a text in combination with graphics, audio, music, video, and/or animation.

Although some Asian countries may use traditional media in their distance education systems but there are many Asian countries that are using multimedia successfully (Reddi & Mishra, 2005). Ellis (2004) developed a model to test the effectiveness of multimedia in learning on private college students attending one of three classes. The results show that multimedia is an effective tool in learning. Neo and Neo (2009) also did a research on Malaysian students' perceptions designing a multimedia constructivist-based project. The findings show the multimedia is an effective tool in teaching, learning, critical thinking, and acquiring communication skills.

Arroyo, Beck, Beal, Wing, & Woolf, 2001; Arroyo, Beck, Woolf, Beal, & Schultz, 2000; as cited in Aleven,Stahl, Schworm, Fischer, and Wallace (2003) did a study on the effect of level of interactivity of hints on a multimedia interactive learning environment (ILE). The findings show gender has a role in learning in multimedia social context. The boys benefited more from the shorter and less interactive hints and their self-confidence declined when they worked with the more highly interactive version but the level of interactivity did not affect girls' self-confidence and they did better when supported by more interactive help.

Problems in Developing Countries

Distance education system has been used in both advanced and developing countries but in regard to the degree of advancement, countries benefit the system and the technology associated with it. The statistics show the more advanced the country is, the better chances it has for improvement (Sharma, 2003).

Developing countries have severe educational problems which postpone their improvement and keep them behind. These problems are: high population growth, disparities between urban and rural areas, lack of enough teachers (specially the skilled ones), school graduated unemployment, high illiteracy rates, high school dropout rates, and heavy reliance on foreign aid and personnel (Wells, 1976; de Moura Castro, 2004; & Gueye, 2007). Lack of resources, tight budget and high costs of developing distance education structures are many of the other problems which developing countries are facing (Tsang, 1988). So, any country which decides to imply the system of distance education should consider its strengths and facilities to utilize the needed media and methods.

Summary and Conclusion

Distance education is a kind of education in which teacher and learner are separated and instructional materials are carried through telecommunication systems. Many universities across the world have used this system of learning and have had successful experiences with it. While using distance education, there are limitations, strengths, and affecting variables that should be considered in advance.

In distance education teaching and dissemination of instructional material to the learner, appropriate media should be chosen. Print media (textbooks, study guides, study aids, and newspapers), audio media (Audio-books, audio-cards, records, audio-cassettes and reel-to-reel audiotapes, audio compact-discs (CDs), telephones, cell phones, audio-texts, radios), and video media (Televisions, satellites, direct broadcast satellites, cable televisions, closed-circuit televisions, asynchronous and synchronous Podcasts and vodcasts, teleconferencing, microwaves, interactive Videos, teletx, videotext, computer internets, weblogs (blogs), electronic mails, chatrooms, and multimedia) are used to convey messages to achieve specific educational objectives.

Advanced countries have more opportunities for improvement than developing countries. Underdeveloped countries have some problems in utilizing a distance education system because they are handicapped with over population growth, remote and separated rural areas, lack of enough unskilled teachers, excessive school dropouts, high illiteracy rates, and not enough resources.

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About the Author

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Editor's Note: Instructional designers orchestrate learning experiences to capitalize on learner motivation and involve them in activities that foster exploration and interaction. Live face-to-face learning is difficult to replicate in asynchronous learning, but the designer has many tools that can achieve similar results for many students. This study seeks plausible techniques and strategies to give immediacy to the learning experience and reduce apparent distance or disconnection from instructor and fellow students.

Instructional Immediacy in Online Faculty Experiences

Jackie Hee-Young Kim and Curtis Bonk
USA

Abstract

The main purpose of this study was to explore best practice strategies in online instruction that effectively reduce perceptions of transactional or felt-psychological distance, and, in turn, promote socially and humanely rich online learning communities in higher education. From this perspective, this study adopted the construct of "instructional immediacy" from educational communications theory, and attempted to uncover applications of the construct in online teaching contexts. To better provide plausible techniques and strategies for online teaching practitioners, "instructional immediacy" was approached through rich narratives of the perspectives and experiences of online teaching practitioners as well as through narratives from students in these courses. Educationally meaningful strategies for enhancing instructional immediacy emerged from an analysis of instructors' and students' narratives. The patterns of strategies were categorized into four dimensions of online instruction: (1) affective interaction, (2) cognitive interaction, (3) technology adoption, and (4) course presentation and organization. This study opens the possibility of cultivating instructional immediacy in a text-based learning community which allows a promise for executing socially connected and engaging online instruction.

Keywords: online education, social presence, instructional immediacy, narrative inquiry.

Introduction

As more higher education institutions move into online learning environments where instructors cannot rely on physical presence as a natural community builder, the topic of how the human element affects Web-based learning environments has increasingly become a center of discussion in the field of education. (e.g., Arbaugh, 2001; Anderson, Rourke, Garrison, & Archer, 2001; Baker & Woods, 2004; Boser, 2004; Freitas, Myers, and Avtgis (1998); Gunawardena, 1995; Horton, 2000; Melrose & Bergeron, 2006; University of Illinois, 1999). Online learners often experience transactional distance which refers to a psychological distance as well as a physical separation among teachers and learners (Moore & Kearsley, 1996). This research was initiated to research ways to reduce any transactional or felt-psychological distance in order to create a sense of presence, and build positive learning communities. This study adopted the construct of "instructional immediacy" from educational communications theory where psychological distances between teachers and students were researched in depth, and further attempted to uncover the possibilities of applying the construct of instructional immediacy in online teaching contexts. In fact, in both face-to-face and distance education, the construct of "instructional immediacy" has emerged and is seen as critical to learners' ultimate success (Andersen, 1979; Anderson, Rourke, Garrison, & Archer, 2001; Baker & Woods, 2004; Feenberg, 1989; Gorham, 1988; Hackman & Walker, 1990; Richmond, Gorham, & McCroskey, 1987; Sanders & Wiseman, 1990; Shin, 2003; Walther 1992).

While being conscious of pedagogical and cultural differences between traditional and online education settings, there was a need to find ways to improve and promote instructional immediacy in online instructors' competences. To reduce the psychological distance between teaching and learning parties, this study, therefore, was aimed at identifying possible ways of

increasing the instructional immediacy in online teaching contexts by exploring four dimensional aspects of online teaching: interaction, course design, technology adoption, and the methods of course presentation.

This study was based on following questions:

- What are empirical strategies that online instructors have learned and implemented in reducing transactional and psychological distance?
- What were the patterns of the strategies for enhancing instructional immediacy competences categorized?

Initially, "teacher immediacy" was defined as "those communication behaviors that enhance closeness to and nonverbal interaction with another" (Mehrabian, 1969a, p. 203). However, instructional immediacy had to be redefined to be aligned with the characteristics of online educations as pedagogical and administrative actions an instructor takes throughout an online course to increase the students' sense of human interaction, instructor presence, caring, and connectedness, directed toward successful online teaching.

Theoretical Framework

This study is based on theory of instructional immediacy (Mehrabian,1967, 1971; Andersen, 1979; Gorham, 1988; Richmond, Gorham, & McCrosky, 1987) and social presence theory (Short, Williams, & Christies, 1976).

Teacher Immediacy and Social Presence

The concept of instructional immediacy has become associated with social presence theory as well as the concept of instructional intimacy. Social presence is the degree to which a person feels "socially present" in a mediated situation or the degree to which a person is perceived as a "real person" in mediated communication (Short, Williams, & Christies, 1976). Short et al. suggests that the social presence of the communications medium contributes to the level of intimacy that depends on factors such as physical distance, eye contact, and smiling.

Immediacy behavior has been defined and developed by Mehrabian (1969) to refer to behaviors that reduce the distance between people. The distance reduction can be accomplished by decreasing the actual physical proximity or by reducing psychological distance (Mehrabian, 1971). Instructors can convey immediacy or non-immediacy nonverbally (physical proximity, formality of dress, and facial expression) as well as verbally. Nonverbal immediacy behavioral cues include eye contact, gesture, relaxed body position, directing body position toward students, smiling, vocal expressiveness, movement, and proximity (Andersen, 1979).

Particularly significant verbal immediacy cues are the use of humor; praise of student work, actions, or comments; and frequency of initiating and/or willingness to become engaged in conversation before, after, or outside of class. These nonverbal cues are largely removed in online instruction. If immediacy enhances social presence which is a significant predictor of successful teaching, there is need to make a socially- rich environment so online instruction can be perceived as high in social presence, and, in turn, are generally judged (on Semantic Differential Scales) by users as warm, personal, sensitive, and sociable (Short et al., 1976).

Method

We adopted narrative inquiry as a research method. Since this study is based on empirical and reflective perspectives of online instructors, narrative inquiry method, a way of understanding

experiences through stories lived and told (Clandinin and Connelly, 2000), is the best fit to understand and expand instructors' professional experiences and empirical knowledge. Narrative inquiry offers the possibility of educative experiences (Dewey, 1938) as individuals expand meanings of their experiences in their particular situations where reality takes over the decision making process.

Participants

The participants of this study were drawn from online instructors and students at Public University, a comprehensive university located in Texas. Public University offered the largest and longest-running distance education program in Texas. Due to the use of narrative inquiry within this study, the participants were selected based on their willingness to participate. We recruited online instructor participants diverse in content area and gender. Pseudonyms are used here to provide participant anonymity.

This study used multiple data sources which included researcher journal, field notes, and research interviews combined with conversations and observations. Interview and document data were then analyzed using a common process of data analysis. Interview transcripts and other data sources were analyzed through a process of coding and the use of analytical memos (Miles & Huberman, 1994) from which the key themes within the data were identified, developed, and refined.

Results

Four dimensional aspects on online instructional immediacy competencies emerged from narratives of online instructors and their students. These four dimensions were intertwined in instructors' teaching repertoire while they pursued increased instructional immediacy. To find a simple way to present these interwoven dimensional themes embedded in practice, four integral quadrants for instructional immediacy were employed (see Figure 1). Figure 1, which was inspired by a four quadrant figure from Wilber (2000), indicates that effective teaching practices which enhance instructional immediacy not only come from interaction and communication but also from integral use of other elements of Web-based instruction such as technology adoption and course presentation/organization.

In the threaded stories of the participants, we found two different kinds of interaction in online communication: (1) affective and (2) cognitive. Affective interaction refers to the interaction that is executed for, and results from, personal attention and caring responses. Cognitive interaction refers to the interaction that is conducted for, and results in, the achievement of the content of the subject matter. Affective (social) interaction opens the door for building and maintaining the relationships between students and the instructor; it can affect the level of student achievement thereby creating a strong and engaging learning community. However, cognitive interaction also contributes to the building of relationships with students. As long as students can feel the instructors are out there listening to them, students perceive the presence of the instructor and feel higher satisfaction with the instructor's attitudes. When students receive prompt, detailed feedback and comments, they consider instructors' actions as caring for them as learners.

Learning and teaching in a Web-based environment is extremely static on the computer screen. As a result, simple feedback from the instructor appeals to students' perceptions of teaching presence: the instructor is out there listening to students. Although it is difficult to express nonverbal and verbal immediacy cues in a Web-based classroom, the research revealed here suggested that online students appreciate any form of instructor action presented during course activities, because online students expect less interaction. They anticipate the instructor will be less present than in face-to-face settings. It was also important to see that immediacy behaviors

can be derived not only from affective interactions but also cognitive interactions. Another phenomenon found in this study was that the immediacy approaches that instructors chose were dependent upon the size and content of the classes. With bigger size courses, instructors opted for collective activities rather than individual activities due to the limitation of time.

I. Affective Interaction Individual-Interior	II. Cognitive Interaction Individual-Interior
III. Technology Adoption Collective-Exterior	IV. Course Presentation/Organization Collective-Exterior

Figure 1. Integral Quadrants for Instructional Immediacy (Adapted and modified from Wilber, 2000)

Affective Interaction

Personal attention. The English professor, Dr. Parker, found a key drive of affective online interaction in personal attention and acts of caring (Noddings, 1984). He found that the students were "right there" with him when he approached students with personal attention. His interaction with students began with taking an active interest in students' concerns, understanding their situations, and sensing students' emotion.

> DR. PARKER: A woman talked about her baby being home sick for the day and …..So I'll just say something like, "Well I hope your baby gets better and take advantage of the time you are at home," and things like that.

Dr. Parker expressed his sympathy, comforting students, adding caring, warm comments, and offering advice in his interaction with students. To build his personalized interaction, he started by collecting students' personal information from the beginning of the semester, through asking students to write self-introductions, then by revisiting self-introductions as students approached him with their personal issues. Dr. Parker understood that he could not rely on cues from his physical presence as he was accustomed to in face-to-face classrooms. Therefore, he needed to seek out alternative "ways to make personal connections with students in his class." Dr. Parker's personal attention created a real sense of a virtual instructor for students, allowing students to claim that "he is real (Jennifer)" when teaching online.

Facilitating various communication channels. Dr. Williams found communicating on the telephone with students to be extremely effective. He believed that sometimes communication through written text was not enough to express complex and sensitive issues. He informed his students during their orientation session that they could call him if they needed to, thus providing a more accessible way to contact him. He mentioned that the telephone conversations provided answers and a certain atmosphere that email was not able to offer. He further stated that students who were in desperate need of assistance should feel free to call him. His phone conversations with students mostly related to difficulties in understanding the material and inherent anxieties related to failing the course. In addition to the email communication channel, he would like to open more communication channels in online instruction.

Cognitive Interaction

Promptly responding to students' needs. Dr. Parker learned how it was critical to let students know how prompt instructors' response would be. His goal was a turn-around time of 12 hours so that he could reduce the level of anxiety students would have when not getting immediate responses:

> I try to get back to them within twelve hours….I make a religious effort to do that but sometimes, let's say ….. I try to respond twice a day.

Clearly, Dr. Parker understood that prompt feedback was a way that he could show his concerns for his students. Because he exchanged emails as his primary mode of interaction with students, he sought to narrow the time it took for him to respond to them.

Facilitating chat sessions. One of Dr. Williams' methods of initiating conversation with students was synchronous virtual meetings. Every night at 9 p.m., he logged on to the online chat room and waited for his students to enter, ask questions, and talk to him. He wanted to make sure that if students out there in e-space needed help, they could approach him without delay. And his students knew he would be there for them. If they needed help, they would know where to go find him. Dr. Williams believed that the chat session offered multi-layered conversations as compared to email, which allowed for only two-way conversation. Multi-voice conversations allow students to survey the opinions of others on the same subject. He also felt that successful interactions in these synchronous meetings could be an indication of better classes. He has found the same methods were viewed differently with different groups of students. That is the nature of the interaction which relies on both sets of interactors—learners and instructor—not merely the instructor's ability to promote students' participation.

There were always regulars who took advantage of the chat session, as well as those who never used the resources offered by the instructor. Dr. Williams was often alone, with no one showing up to chat toward the end of the semester. Nevertheless, he retained the chat session space because he wanted his students to get the most from his online class. Dr. Williams used the chat session to impress on his students the habit of attendance; he also monitored students to see if they were keeping up with the learning events. He believed that these kinds of ongoing class activities possibly created a sense of urgency about completing assignments, which is largely absent in online contexts due to the removal of the physical presence of instructors and peers from their sight.

When we asked one of Dr. Williams' students about the chat sessions, we found some extremely interesting phenomena. Our impression of Dr. Williams's synchronous meetings was that they were not a success story because of low participation rates; in effect, we thought that students did not find value in them. Interviews with his students, surprisingly, revealed that our hypothesis was incorrect. For instance, though one of his students (i.e., Maggie) attended the synchronous sessions just one time during the semester, she claimed that the synchronous chat sessions were informative. She noted, however, that the chat session time did not align with her own schedule due to her family-related responsibilities and time needed for her children. Nonetheless, she logged on later when everyone else had left, and checked on what others were talking about—perhaps they had similar issues and concerns. Asked about the value of the chat session, she suggested its continuance. Maggie, as we understood it, had experienced vicarious immediacy or feelings of closeness by witnessing interactions between one's teacher and other students (LaRose, Gregg, & Eastin, 1999) in chat rooms.

In Maggie's report, we found two different kinds of participation: (1) visible participation, and (2) invisible participation. Students who missed the chat session participated in the synchronous discussion activity by logging on after the session closed and reading the transcript of the sessions. Dr. Williams, however, was considering making participation in an online chat session

part of the students' grade in his next course since he believed that this live support could contribute to students' learning and completion rate. Given Maggie's situation (and perhaps many others with similar busy work and family schedules), he might want to, instead, make chat sessions a mandatory class activity with required written reflections on the synchronous discussion.

Being proactive in the contact. Proactive where communication was concerned, Dr. Williams surveyed individual students' patterns of responding to the class activities, and initiated contact with his students when he located key issues around students' performances. His online teaching experience revealed that online students were reticent in soliciting help. At the same time, he found it difficult to connect with students' needs without making students think he perceived a student as a poor academic performer.

The sensitive situation deterred Dr. Williams from attempting repeated contacts. It was interesting to observe that as students are laboring away, instructors might be hesitant to approach students with problems because of the touchy situation. However, Dr. Williams ensured that students knew he would be available whenever they needed him through emails and orientations. One of his students acknowledged his efforts at initiating contacts with his students. She observed that he kept track of students' work and guided off-task students in the right direction. It was significant to see an online student crediting her instructor's actions, even when the instructor was helping other students.

Technology Adoption

Learning students' learning styles: As a professor of accounting, Dr. Raji felt inherent limitations in learning through textual forms in terms of understanding the content, and, consequently, employed technology to provide better teaching presence with more sensory stimulation. Dr. Raji learned the importance of human elements in online teaching from workshops and conferences, and agreed on the effectiveness of humanized online classes. She attempted to enhance technology with the human elements by inserting her voice into her presentation slides. She wanted students to understand better through supplemental materials and to hear the "feeling" of her instruction. Students without discipline did not use the technology-integrated instructional resources created for students' own benefits. She felt disappointed when she observed that some students never listened to her voice lecture in which she had invested a great deal of her time, energy, and other resources in order to promote a better understanding of materials.

It seemed that these online students followed the principle of economy in learning: online students who were task-oriented sought to achieve the best grades with the least effort. Maggie, one of Dr. Williams' students, found the PowerPoint slides with embedded voice helpful since she was an auditory learner. However, sometimes she could not listen to the audio because it was a time-consuming process to do so. "It is like being in a class, listening to the lecture. It is time-consuming," she claimed. She continued that, "I do not know what other graduate students' lives (are) like. There are so many things to do, so many things waiting for me."

Course Presentation/Organization

Visual Channel of Personalization: "Virtual Physical Objects." Online courses are composed largely of written text formats, which provide scant social-emotional cues in making acquaintances between teachers and learners or between learners and other learners. As an effort to reveal who he was really, Dr. Parker provided an extensive number of visual and communication channels for his students: for example, those channels that included his homepage, welcoming message page, personal pictures, and an introduction letter which disclosed personal and professional information about himself. Such documents and resources offered a self-image of Dr. Parker to his students which scaffolded a more open and socio-emotionally rich environment (Short, Williams, & Christie, 1976). More specifically, Dr. Parker

posted a picture of himself mountain climbing in his course welcoming page, taken when he taught the ”Semester at Sea” course, to show students that he was an active man, not a bookworm in a university office surrounded by the bookshelves. His picture played a role in creating his “electronic self-image and personality” of being adventurous and active. To be more personalized, Dr. Parker added a personal message below the picture.

Written Channel of Personalization: “I,” “You,” and “Narrative.” It is common that an online presentation style should be a literary style rather than a dialogic one. Dr. Parker, however, explained that online classes should have features of the conventional classroom, where the instructors presented their instruction in a conversational way. Consequently, he adopted a conversational style in his writings for class Web sites, using “I,” “you,” and “narrative.”

Disciplining students. To succeed within Web-based instruction, online instructors have had to find ways to work with students who are used to traditional ways of learning. Dr. Parker discovered that one of the mistakes students repeatedly made was that they miss reading notices posted in multiple places throughout the Web site because they do not have face-to-face peers reminding them about class procedures or professors repeating verbal instructions during the ensuing live class session.

In response to these concerns, Dr. Parker encouraged his students to be more alert than they were in a traditional classroom. In addition, he walked students through the requirements in a face-to-face orientation of the course, while his weekly messages repeatedly detailed what was expected. This was a key factor in establishing the accepted routines and procedures of the class; a step toward the structured discipline for students who might have gotten lost in this complex, new environment. He confessed that occasionally he purposefully tried not to repeat himself; instead, he asked students to remind him of the coming tasks and requirements and ask questions if anything was ambiguous.

Such a teaching style opened a more informal, mistake-allowed atmosphere. Dr. Parker’s weekly message section became an announcement board wherein students gradually established their online learning habits and expectations as well as their overall pace of learning. One of Dr. Parker’s students, Brittney, mentioned that her teacher always attended to his students’ activities, sending emails to remind them of their missed tasks. “If you don’t turn in your weekly journal, then he’ll email you. Whereas in other online classes, they don’t care whether you log in or not.” It was clear that Britney appreciated and felt an affinity for Dr. Parker’s caring attitude toward students.

Creating momentum in communication. We learn how to behave in situated contexts and a given culture. When the momentum of interaction is established, a better opportunity is given to improve the relationship between instructors and students. Continuous interaction played a role building the momentum of communication. For instance, Dr. Parker developed momentum in communication by supporting a discussion board and journal writing. The discussion board and journal writing developed students’ habits to execute the learning events while they were participating in such events on a regular basis. This can be seen as the gradual internalization of processes initially shared between participants of the learning activity (Chang-Wells & Wells, 1993). Keeping journal entries on a weekly basis and responding to the discussion topics on discussion board—these activities functioned to immerse students in a routine of communication. In effect, he believed that ongoing communication played a key role in both students’ academic performance and rapport between students and teachers in online classrooms.

Dr. Williams noticed that nontraditional students who had not been exposed to online environments or had not taken traditional courses for a while lacked the sense of rigor and intensity necessary for successful online learning. Students enrolled in face-to-face classes had had more opportunities to feel pressured to finish their work by hearing the instructor repeat reminders aloud and by observing their peers discuss and prepare assignments. Talking to peers about the assignment and their work process also provided a sense of urgency to traditional students in regular classes. This was the pressure arising from their learning communities.

According to Dr. Williams, online students lacked the support from instructors' physical messages and the pressure from learning communities. Dr. Williams used the chat session to impress on his students a sense of urgency about completing assignments.

Table 2
Four Online Instructional Immediacy Dimensions and Instructional Competencies

Dimensions	Competencies
I. Affective Interaction	*Personal attention:* Taking active interest in students' concerns; understanding their situations; sensing students' emotions; expressing sympathy; comforting students; adding caring, providing warm comments; offering advice; and using self-introductions. *Facilitating various communication channels:* Informing students in their orientation session of the availability of communication through telephone; helping with the difficulty of understanding the material; and using the telephone to comfort student anxiety about failing the course.
II. Cognitive interaction	*Promptly responding to students' needs:* Keeping track of students' work; guiding off-task students in the right direction; reminding students of their missed tasks; and regulating turn-around time between 12-48 hours. *Facilitating chat sessions:* Initiating conversations with students in synchronous virtual meetings; being aware of those students who are only able to participate in synchronous meetings by reading transcripts. *Initiating the contact:* Being proactive in communication with students, and ensuring the availability of instructors through emails and orientations.
III. Technology Adoption	*Learning students' learning styles:* Creating effective technology-enhanced instruction by walking students through the requirements; detailing what was expected depending on students' learning styles; and using condensed, time-effective presentation slides with voice-over instruction to provide the feeling of instruction.
IV. Course Presentation/ Organization	*Visual Channel of Personalization: "Virtual Physical Objects":* Providing social-emotional cues by using a number of visual channels such as a homepage and a welcoming message page containing event-oriented pictures which present the instructor's self-image and attitudes, and attached messages which explain the content of pictures. *Written Channel of Personalization: "I," "You," and "Narrative":* Presenting online instruction in a dialogic style. *Disciplining students:* Walking students through the requirements; detailing what was expected as well as possible problems they would face; and creating routines to get students familiar with new ways of learning. *Creating momentum in communication*: Creating continuous, regular-basis opportunities for interaction such as journal writing, weekly discussion, open-ended, problem solving discussion boards, and asynchronous discussion meetings.

Table 2 summarizes the findings of the study in four online instructional immediacy dimensions, and details instructional competencies presented in instructors' personal practical knowledge.

Table 3
Online Instructional Verbal Immediacy Competencies

Instructional Dimensions	Categories	Verbal Immediacy Example
Affective interaction	Personal attention	1. For student whose baby was sick and was not able to come to classes. "Well I hope your baby gets better and take advantage of the time you are at home." 2. For students who got fired from their jobs "…you got more time to devote to the class. There are possibilities for new jobs for you." 3. For students who considered dropping out of classes because of job relocation. "Wait and see what the situation would be offshore, and we'll see whether you have to drop out. It is expensive to drop out, you know."
	Facilitating various communication channels	"You could call me if you need of any assistance in the difficulty of understanding the material and anxiety about failing the course." "Feel free to email about any issues with this class."
Cognitive interaction	Promptly responding to students' needs.	"Please ask me whatever it is that you need to know right away."
	Facilitating chat sessions.	"I set up the evening virtual office hours in the chat room, and we will get started next week."
	Being proactive in the contact.	"I did not see your second assignment. I would like to know if you are in some kind of trouble in the course. If so, please call me or email me for advice or help."
Course presentation	Visual channel of personalization: "Virtual Physical Objects."	"Hi! That is me on the right, Dr. Parker, your professor for this class. I am not actually waving to you but to some other students who reached the summit of the Avacha volcano ahead of me (description of a picture posted)."
	Written channel of personalization: "I," "You," and "Narrative."	"Each week I will post a weekly message to update the syllabus, go into greater detail on the activities for the week, or comment on other matters dealing with the class. Normally I try to post the weekly message on the weekend, but sometimes I may not get it up until Monday."
	Disciplining students	"Please reply back to me if you receive this email so that I know that all of my students are on board." "You must sign on regularly and you must turn in your work on schedule." "First, I think online classes require students to be a little more alert than classroom classes. In a classroom class if you absentmindedly miss something, the person sitting next to you may remind you, or the professor may repeat it the next class or near the end of the class. In an online class that may not happen."

Table 3 and the following tables state the verbal and non-verbal immediacy competencies emerged in findings. Verbal and non-verbal immediacy competencies were found in three instructional dimensions: (1) affective, (2) cognitive, and (3) course presentation. Verbal immediacy in affective domain is close to the instructional immediacy behaviors in traditional settings which present approachability, signal availability for communication, communicating interpersonal warmth and closeness. However, in online settings, students felt cared for when the content of communication was not related to the social, affective domain. The prompt manner of responses and methods of providing help of academic difficulty were perceived as positive caring behaviors. Therefore, instructional verbal immediacy competencies were also found in cognitive interaction. The effective online instructors believed that since teaching online is partly mimicking face-to-face classroom, a variety of channels of personalization creates a semblance of the atmosphere of face-to-face classroom. Students appreciated the reminders and alerts presented in the course Web site to prevent common problems of learning online such as procrastination.

Non-verbal immediacy behaviors in traditional settings were presented with physical proximity, high eye contact, and smiling, which conveyed greater intimacy, attraction, and trust. Due to the removal of physical appearance, all these non-verbal behaviors are not options in online instruction. However, methods of non-verbal immediacy competencies in online instruction were more versatile. Online instructors found ways to build immediacy in four dimensions such as facilitating the letter of introduction, virtual office hours, photos of instructors, personal homepage, telephone, and weekly discussion activities. Online instructional non-verbal immediacy competencies are summarized in Table 4.

Discussion

As is clear from this particular study, online teacher immediacy behaviors, as displayed socially, culturally, and pedagogically, are different from those witnessed in conventional classrooms due to the nature of instruction delivered through this medium since it lacks physical contact while also typically lacking a real-time presence. Even though the verbal and nonverbal immediacy competences need to be created in a different ways in online settings compared to face-to-face settings, the results of this study offer the possibilities of creating online instructional behaviors.

Through the presentation and analysis of the online practitioners' threaded stories, this study also illustrates that instructional immediacy competencies in online instruction could and should be created in all four dimensional aspects of online teaching. In addition, the methods of creating online instructor immediacy should be adapted to the characteristics of the prevailing Web-based culture, online students, content area, and students' learning styles. This study shows various approaches used by online instructors to enhance the sense of instructional immediacy. Such practices used by the instructors in this study demonstrate that online instructional immediacy, in a virtual world, is possible.

Web-based environments, where the instruction is delivered electronically, are new to both the learning and teaching parties. As a result, Web-based environments call for human adjustment on the part of both teachers and students. All three participants had to find alternative ways to connect with students' needs and interests by facilitating continuing synchronous and asynchronous interactions, moderating online journals, and initiating contacts, thereby discovering and employing possible ways to be present in their teaching procedures. Their pedagogical, social, and administrative approaches were still in the experimental stage. However, their methods of understanding online students are being adjusted gradually.

Table 4
Online Instructional Non-Verbal Immediacy Competencies

Instructional Dimensions	Categories	Non-verbal Immediacy Example
Affective interaction	Personal attention	Assigning a letter of introduction to know students better.
	Facilitating various communication channels	Phoning students, and using both external mail, and WebCT mail.
Cognitive interaction	Promptly responding to students' needs.	Establishing turn-around time for replying to emails, and providing frequent feedback.
	Facilitating chat sessions.	Opening evening virtual office hours.
	Being proactive in the contact.	Keeping track of students' works, identifying off-track students, and emailing and phoning students who are off-task.
Technology adoption	Learning students' learning styles.	Using sensory stimulating technology based on students' learning styles.
Course presentation and organization	Visual Channel of Personalization: "Virtual Physical Objects."	Posting a picture of the instructor. Developing personal homepage
	Disciplining students	Facilitating weekly message, and emailing students about the missed tasks.
	Creating momentum in communication.	Keeping weekly journal entries, offering evening virtual office hours, using instant messenger, and incorporating problem-solving discussion board.

The understanding of online students' learning styles and their main goals of taking online courses should be considered within the process of planning. The use of high technology is a time-consuming process and creates myth that technology-enhanced instruction will work. However, not every guideline for technology integration Dr. Raji learned in faculty trainings was functional for her instruction. Most guidelines, in fact, were created from the perspective of the senders of instruction (i.e., the instructors), not by receivers of education (i.e., the students). The guidelines, focusing on the teaching parties,-failed to understand the negative or positive responses of students to certain instructional efforts. She made the point that online instruction would be better understood when both sides of learning spectrum were analyzed.

As the online environment calls for *more* presence from the instructors, it is easy to fall into the illusion that expensive technology could solve all the pedagogical dilemmas caused by the removal of physical presence of instructors, and lead to the creation of humanly-rich environments. However, for online students who are mostly task-oriented, not up-to-date on technology, or lack the time to attend class on campus, the use of time-consuming technology is not appealing, no matter what the grand intentions or thoughtful efforts of their instructors. Rather, well-organized mechanisms in classes make students keep up with the course modules and force them to learn; in effect, they successfully help prevent student procrastination in their tasks. This sort of systematically developed instructional mechanism brought to students' an appreciation for the work of instructors as well as a feeling of closeness to their instructors. A

sense of instructional immediacy, as participants perceived, was developed through caring and guiding interactions with students throughout the course in forms of affective interaction as well as cognitive interaction. This sense of instructional immediacy was also made salient through well-structured course organization, presentation and effective use of technology,

Conclusion

American higher education has long struggled with the "right" model for facilitating an educationally connection between faculty and students. To explore the possibility of human connection (Palloff & Pratt, 1999), and of emotional involvement and feelings of personal relations between the teaching and learning parties (Holmberg, 1989) in online education environments, the construct of "instructional immediacy" was explored in the study. The results are intended to provide online educators with instructive models for teaching as well as guidelines for humanizing and enhancing instructional immediacy in a Web-based environment. Such findings, in turn, can be used to help bridge the gap between the guidelines for online teaching and the enactment of online teaching by providing detailed narration of online teaching processes. It is our hope that such immediacy can be cultivated in the process of teaching online as well as in the course design, course presentation, use of technology, and other course interactions in such socially-, culturally-, and pedagogically-altered learning environments.

To address the concerns related to dehumanization and impersonalization of online education, the findings of this study offer possibilities to understand and address issues that need to be considered in building instructional immediacy in online education. Information from the three online practitioner participants offer pathways that suggest, but do not dictate, better ways to proceed with online education. Now is the time to consider how we, as online educators, can learn from the knowledge derived from other online teaching experiences and how we can address the issues with which those online teachers struggled, not only at the individual level, but also at the institutional level.

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Editor's Note: Distance learning, whether by books, television, radio, correspondence, computer or the Internet will always be subject to quality analyses of achieved learning.

Student Perspectives on Campus-based Versus Online Courses

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USA

Abstract

This paper presents the results of a study on student attitudes toward campus-based and online courses in the master's program at the School of Information Resources and Library Science at the University of Arizona in Tucson. The information was obtained from 17 students via an online survey between 2005 and 2009. The findings reveal that online courses were popular because of advantages in convenience, time flexibility, and location. However, some respondents considered the quality of online courses inferior to campus-based courses. Regardless of preference, respondents indicated that instructors, including their technical skills, play a crucial role in the success of both types of courses.

Keywords: online courses, e-learning, virtual courses, SIRLS, distance learning, campus-based courses, face-to-face courses, online learning, library science

Introduction

The practice of distance learning based on mail correspondence existed long before e-learning became possible. Some university degree correspondence programs and numerous other correspondence schools operated in the United States in the late 19th century as a response to challenges presented by an increasingly mobile population and improvements in postal and transportation services.

Today, the terms e-learning, virtual learning, web-based learning, distance learning, online learning, technology-based learning, and others are so interconnected that they are sometimes used interchangeably. In this study we collapsed these terms into two main categories, making distinctions only between e-learning that can be employed in traditional, campus-based courses as one category, and fully online or online distance learning courses as the other category.

E-learning, one type of technology-based learning, is a technological mode of content delivery. It involves the use of electronic media such as the internet, intranets, satellite-broadcast, CD-ROMS, video and audio streaming courses, PowerPoint, webcast, and other means of delivering educational content to students. Online, web-based, or virtual, on the other hand, involve not only technological content presentation, but also the use of a variety of teaching strategies. It goes beyond the use of email, PowerPoint, video streaming material, and other specific technologies. One of the main characteristics of online learning is a physical separation of teachers and learners.

University online courses combine the characteristics of traditional distance education with newer technology-based delivery tools, all within a largely traditional academic educational framework. Instructors now use online tools to post lectures, readings, tests, quizzes, surveys, and discussion boards, among other things. Regardless of delivery mode, the goals of campus-based and online classes remain the same.

Purpose

The purpose of this study was to examine student attitudes toward online and campus-based instruction (courses) in the Master of Information Resources and Library Science degree (MLIS) program at the University of Arizona in Tucson. The School of Information Resources and Library Science (SIRLS), founded in 1969 as the Graduate Library School, focuses on the study of information in social contexts. The overall mission of the school is to help students understand the processes involved in information usage, from its creation to the use of knowledge and information resources in libraries and society in general, including interdisciplinary understanding, interpretation, creation, and use of knowledge and information (SIRLS Vision, 2010). A more specific goal of the school is to prepare graduate students for a variety of careers in the field of information and library science such as positions in academic, public, school, and specialized libraries. The MLIS program purports to be "…heavily weighted in technology and emphasizes theoretical constructs of information resources" (SIRLS Course Descriptions, 2010)

Background and Review of the Literature

Today, the number of online courses and enrolled students is increasing rapidly in many colleges and universities. A survey of more than 2,500 colleges and universities in the fall of 2007 revealed that more than 3.9 million students were taking at least one online course, a 12% increase over the previous year. From fall 2002 to fall 2007 the compound annual growth rate of students taking at least one online course was 19.7%, while the number of higher education students grew at an annual rate of approximately 1.6% during the same period (Allen & Seaman, 2008).

According to Keegan (2000), there are several advantages to online learning, such as flexibility in the scheduling of classes and class-related activities by instructors and students, absence of space constraints, and access to education by certain groups (e.g., homemakers, shift workers, travelers, and prisoners). An online learning environment can also facilitate learner-centered and learning-centered approaches, in large part because students may assume more responsibility for their learning. Finally, technology becomes one of the key elements in both the processes and outcomes of student learning in online environments.

In a 2007 study Haigh found that online students were more likely than face-to-face students in the same institution and degree program to believe that online education was of comparable quality to campus-based education. According to Yukawa (2006), the factors influencing online communication styles are complex and multidimensional. For example, one of her students reported that online courses may have encouraged her to be more frank and open than she would have been in a classroom. On the other hand, another student had to overcome insecurities about chat communication. For her, lack of immediate, visual, affective feedback denied her reassurance that she had been understood.

Technological considerations are vital in the preparation of learning materials, and frequently in the choice of delivery modes as well. However, many institutions that rely upon distance learning technology lack a research-based framework to guide the conception and implementation and to measure the results of their programs (McCombs & Vakili, 2005). That is, many practitioners lack the theoretical and technological training needed to apply and then transform the principles of traditional knowledge delivery into an online environment that can achieve the same or better results as campus-based instruction.

Some authors, among them Murphy and Loveless (2005), theorize that online learning, and particularly the online discussion forums, offer opportunities for enhancements in "disseminating, evaluating and discussing information and options, solving problems, thinking critically, co-constructing knowledge, and scaffolding by more able peers" (n.p.). Despite such claims,

however, little research has been conducted on how students perform in online versus classroom environments. The results of one study (Harley et al., 2003) showed that "students who reported using lecture webcasts as a replacement for the in-person lecture had lower scores in the course overall" (p. 35), a phenomenon the authors speculated might have been due to low-performing students relying on webcasts as a backup. Webcast use for reasons other than replacement purposes did not affect student performance. In fact, high usage of the course website correlated with higher course grades. A large study conducted in 2005 on learning value added through the use of information technology revealed that 40.6% of students preferred a moderate amount of technology in courses, while 29.5% preferred limited or no technology, a number that may have changed since then. Surprisingly, senior students tended to prefer more technology in their courses than did freshmen students; the same was true for older students in comparison with students of traditional college age. Furthermore, the perceived primary benefit of technology use in courses was convenience, followed (in descending order) by communication with the instructor and other students, management of course activities, and improved student learning (Kvavik & Caruso, 2005).

Method

The MLIS degree at the University of Arizona requires 36 credit hours earned in 12 three credit-hour courses. Required are 12 credit hours of core courses, 12 credit hours of elective courses, 6 credit hours of free choice SIRLS electives, and 6 credit hours of other curriculum options that can be taken outside SIRLS (SIRLS Master's Degree Requirements, 2010).

The program offers three delivery modes, two of which are distance-friendly. One is campus-based courses (SIRLS calls them "face–to-face courses"), typically carried out in a classroom environment with some use of technology. A second mode is online courses ("virtual courses"), taught in an online course environment without campus-based meetings and independent of location and time. The third delivery mode is a combination of campus-based and online courses ("hybrid courses") that feature on-campus classes accompanied by assignments to be completed online either before or after the class meeting(s). In rare cases campus-based and online modes of instruction occur in the same course.

Between 2005 and 2009, a survey instrument was sent to the SIRLS listserv. Of the 27 respondents, 17 had completed at least one online and one campus-based course. The survey consisted of one demographic question followed by 20 items designed to elicit information about specific aspects of each participant's experience with the SIRLS program. The response mode was closed for some items (i.e., a range of responses was presented in a "forced choice" format) and open for others (see Appendix for a copy of the survey instrument).

The survey data were collected and processed by November 2009. Data collected from closed-ended response mode items were coded and tabulated. The accuracy of the open-ended responses was verified through face-to-face interviews with six of the respondents. Finally, the authors categorized the open-ended responses in collaboration with an experienced outside researcher, who read the responses and discussed possible categories with the authors.

Results

The 17 respondents had taken a mean of 5.53 online courses, 1.59 campus-based courses, and 0.35 hybrid courses. Some students had taken more than the required minimum number of courses (12), while others had not completed all their courses at the time of their participation in the survey (Table 1).

Table 1
Number of Courses Taken, by Student

Online courses		Campus-based courses		Hybrid courses	
No. of students	No. of courses	No. of students	No. of courses	No. of students	No. of courses
1	1	7	1	7	0
1	3	4	2	8	1
2	4	2	3	1	2
1	5	2	4	1	3
2	6	1	6		
5	8	1	11		
2	10				
1	16				
1	18				
1	23				
Total 17	Total 94	Total 17	Total 27	Total 17	Total 6

Students who took classes prior to 2005 had used WebCT course management software for their courses. Those who took classes after 2004 used the WebCT software, Desire2Learn course management software, or both. Both types of software allow for content delivery, interaction (e.g., online discussion forums), and assessment.

Campus-Based Courses

Positive Aspects.

Sixteen of the 17 respondents reported face-to-face communication with teachers and students as a positive aspect of their campus-based courses. Some respondents also mentioned related benefits such as the ability to connect faces with names, the establishment and maintenance of eye contact, and issues related to mood, humor, and personality. Other advantages mentioned were clarity regarding assignments and expectations of the instructors; immediate discussion and response from instructors and classmates, including the ability to ask questions and receive an immediate response; vibrant class discussions; and better overall communication. In the context of social interaction, several respondents maintained that campus-based classes make students feel part of the university and community. Some respondents reported gaining greater overall awareness of issues that tend to arise only during conversations or merely by accident. Other participants mentioned that face-to-face relationships are beneficial for obtaining certain types of information, such as information about future careers.

Perceived social benefits were reflected in responses about meeting, socializing, and camaraderie with other students, as well as a distinct feeling of belonging to a larger community of learners and the effects of that on lifelong learning. One respondent mentioned the appeal of having a "campus feeling" in a beautiful, lively environment. Several respondents concluded that the academic and professional benefits of campus-based classes include learning from fellow students about classes, instructors, and potential and actual professional positions.

The findings support Dow's (2008) study, which suggests that social presence is a predictor of satisfaction in online learning. That is, person-to-person awareness without social context is a struggle in the online course environment.

Negative Aspects.

Inconvenience, limited time flexibility, and overall time limitations are the negative aspects of campus-based courses that the respondents seemed to feel strongly about. Most agreed that campus-based courses are more time-consuming, and the inflexible scheduled times create hardship for students with work and/or family commitments. The situation is more difficult for students who live far from campus because they have to arrange and pay for travel, parking, and lodging. All these factors add significantly to the overall cost of their education according to some respondents. One respondent mentioned limited time in class for student interaction, while two respondents opined that students' personal matters as well as their expressed opinions take too much time in campus-based classes. Finally, one respondent lamented that lack of student preparation is more obvious in campus-based classes, something she saw as a negative feature of such classes.

Online Courses

Positive Aspects.

Convenience, working at one's own pace, and flexibility of time, top the list of perceived positive features of online courses. Two respondents contended that these courses have important social qualities in that they benefit shy people by allowing them to open up, and by bringing a sense of community to small group projects.

Two respondents opined that in the online environment students can easily manage multiple tasks. The online discussion forums, whether synchronous or asynchronous, contribute significantly to the process of learning, according to some respondents. The results of a study completed in 2002 on student satisfaction in online learning show that most students prefer synchronous (interactive chat) to asynchronous (discussion boards) communication (Burnett, Bonnici, Miksa, & Kim, 2007).

There is a consensus among the respondents in this study that online courses allow students to manage their time more efficiently. Finally, self-motivation can hasten completion of the degree.

Negative Aspects.

The negative aspects of the online courses can be divided into two categories. One category has to do with instructors' knowledge about technology and with technical delivery. The second category of criticisms relates to perceived lack of communication in online environments.

Respondents generally agreed that online courses depend to a large extent on instructors' ability to teach them. Unfortunately, they reported that the instructors' limited technological backgrounds and online delivery skills sometimes impeded their teaching. Some respondents suggested that the successful implementation of online courses requires adequate training of instructors in online teaching techniques. Problems with technical delivery and training, and lack of computer experience of some students, may limit the success of this delivery mode also.

Insufficient social interaction is the main negative aspect reported by most of the respondents, including inadequate communication, lack of social momentum, lessened sense of community, and lack of responses from instructors or participants in group projects. Some participants believe that it is easy to disengage and go unnoticed by the instructor and/or classmates in an online environment, and that instructors can also disengage, or "hide out." Similar findings were reported from a case study in which students reported that more effort is needed to maintain a

suitable presence and image in an online environment than in an on-campus setting (Haythornthwaite, Kazmer, Robins, & Shoemaker, 2000).

Some other respondents in the present study mentioned the propensity for misunderstanding and lack of clarity regarding projects and assignments. Three respondents stated that online courses require more time than campus-based courses.

Hybrid Courses

Ten of the 17 respondents had taken hybrid courses (Table 1). They listed face-to-face interaction between students and instructor as a primary advantage, together with meeting classmates and associating people with names, and the ability to clarify issues with the instructor related to online components. The main disadvantages were travel and lodging arrangements for the on-campus meetings, and spending weekends or even entire weeks away from home.

Course Content, Technical Delivery and the Benefits of Online Discussion Forums

On a scale of 1-5 with 5 = excellent, 4 = good, 3 = average, 2 = fair, and 1 = poor, 3 respondents rated online course content as excellent, 10 as good, 3 as average, 1 as fair, and none as poor (Table 2). A statistically significant majority of respondents rated the online course content as excellent or good, as opposed to an aggregate of the "Average," "Fair," or "Poor" categories (χ^2 = 4.76, df = 1, $p < .05$). Using the same scale, 2 respondents rated online technical delivery as excellent, 9 as good, 6 as average, and none as fair or poor. This was a non-significant difference between the aggregate high and average/fair/poor categories (χ^2 = 1.47, df = 1, $p > .05$).

Similarly, 3 respondents rated the online discussion forums with students as excellent, 6 as good, 6 as average, two as fair, and none as poor (Table 2). This was a non-significant difference between the aggregate high and other aggregate categories (χ^2 = .06, df = 1, $p > .05$). The results were somewhat more positive for the online discussion forums with instructor: 5 respondents rated the quality as excellent, 8 as good, 2 as average, while 2 rated it as fair, and none as poor. These results were significantly higher for the excellent and good categories than for the other aggregate categories (χ^2 = 4.76, df = 1, $p < .05$).

The size of the standard deviations relative to the size of the respective means indicates a moderate degree of diversity of opinion for these four questions (Table 2). However, the non-significant differences between the relatively high ratings and relatively low ratings occurred at only chance levels for two of the four aspects of the classes. Only for the questions about online course content and instructor discussion forums were there significant levels of agreement, in this case favorable opinions, above the level of chance (95%). These two aspects of the courses also had the highest mean ratings of the four.

Comparison: Campus-based vs. Online Courses

Of the eleven respondents who responded to the question about the overall quality of the campus-based and online portions of the program, six replied that their campus-based courses were of higher quality than the online courses, two contended that their online courses were of better quality, and one thought they are of equal quality. The other two respondents maintained that instructors are the key to the success of all types of courses.

According to the Sloan-C survey from fall 2005, "Many . . . academic leaders are very positive about a number of aspects of online education, including a belief that students are at least as satisfied with online instruction as they are with face-to-face classes, evaluating the quality of online instruction is no more difficult than for face-to-face, and an increasing majority view the quality of online education as the same or better than face-to-face instruction" (Allen & Seaman, 2007, p. 18).

Table 2
Quantitative Ratings of Online Course Content, Technical Delivery and Discussion Forums (N = 17)

	Excellent (5)	Good (4)	Average (3)	Fair (2)	Poor (1)	Mean	Standard Deviation
Online course content	3	10	3	1	0	3.88	.78
Online technical delivery	2	9	6	0	0	3.76	.66
Discussion forums: students	3	6	6	2	0	3.59	.94
Discussion forums: instructor	5	8	2	2	0	3.94	.97

One participant in the present study implied that the best campus-based courses were better than the best online courses she took. Another said that "humans are visual creatures that thrive on information gathered through our eyes. . .we look for facial expressions; we want to connect." One respondent mentioned that the online instructors were far from memorable, as opposed to her campus-based instructors. Two respondents who stated that the quality of the campus-based courses was higher expressed satisfaction with the quality of the online portion of the program.

Although online group projects were often perceived as highly successful, respondents believed that the projects did not compare in quality with projects completed via campus-based group interaction. One participant thought the quality of online courses *per se* was equal to the quality of campus-based courses, but she said that sharing professional experiences with students adds value to on-campus courses, a feature not found in her online courses. The remark that instructors can hide behind their technical skills, using exciting gimmicky tools, is worthy of consideration.

Additional Comments

According to Anderson (2008), the major motivation for enrolling in distance education "…is not physical access per se, but the temporal freedom that allows students to move through the course of studies at a time and pace of their choice" (p. 52). This may be the case for students who are physically present at a given university and take only a limited number of online courses, but several participants in the present study who did not live in Tucson stated that they would not have been able to enroll in a program with no online component. Thus, it appears that the main motivation to enroll to an online program for at least some students who lived far from campus was the ability to enroll in that particular program, more so than convenience of the course delivery mode.

Conclusion

In this study most students who reported their views about quality considered the online courses inferior to the campus-based courses. The belief voiced by some respondents that online classes required more time indirectly supports previous research findings to the effect that online teaching is more time consuming than campus-based teaching mainly because of the increased interaction with students (Allen & Seaman, 2008; Cavanaugh, 2005; Coleman, 1996). That is, since instructors take more time to administer these courses, the question is whether the time

requirements influence the overall quality of the courses and could make them of lesser quality than campus-based courses. There is little comparative research on the quality of courses produced by these two delivery modes. More research is needed on ways to improve the quality of online instruction.

Duderstadt, Wulf, and Zemsky (2005) believe that as the power of digital technology continues to evolve, "the capacity to reproduce all aspects of human interactions at a distance could well eliminate the classroom and perhaps even the campus as the location of learning" (p. 36). On the other hand, Coleman's (1996) survey suggests that faculty members find it difficult to do quality teaching through online courses, since they lack the professional teaching skills and expertise needed to impart the basis of successful life-long learning. Instructors' technological skills and their willingness to update those skills regularly may prove crucial to the future of online teaching. Probably most important will be the ability of instructors to integrate new technologies with traditional instructional methods in ways that lead to genuine improvement in learning for their students.

Considerable research has been conducted on the social aspects of online versus campus-based learning. The results of this study show that social characteristics of online and campus-based learning depend on the personalities of the students, as well as their perceptions and attitudes. On one hand, a number of participants indicated that online courses are helpful for shy and withdrawn students; on the other hand, some participants opined that campus attendance and face-to-face student and instructor interaction enhances the feeling of belonging to a community. Follow-up studies should examine social aspects and academic quality of online versus campus-based learning.

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APPENDIX

Survey:

Please provide candid responses to the items below. We will use pseudonyms in our report so your identity will remain anonymous. Please respond directly to me via return email.

1. Completion date for your MLIS degree (month/year): _____

2. The (approximate) number of courses taken as part of your MLIS program:
    --a. online (virtual) courses:
    --b. campus-based courses:
    --c. hybrid courses (e.g., on-campus courses with online components):

3. Indicate ("yes") the online management software that you used for all (or most) of your online courses:
    --a. WebCT:
    --b. Distance2Learn (D2L):
    --c. other (please specify which):

4. List the positive aspects of:
    --a. campus-based courses:
    --b. online courses:
    --c. hybrid courses (if any):

5. List the negative aspects of:
    --a. campus-based courses:
    --b. online courses:
    --c. hybrid courses (if any):

6. Assess the following aspects of the online portions of the MLIS program (5=excellent, 4=good, 3=average, 2=fair, 1=poor):
    --a. course content:
    --b. technical delivery:

7. Compare the overall quality of the campus-based and online portions of this program:

8. Assess the benefits of online discussion forums (5=excellent, 4=good, 3=average, 2=fair, 1=poor):
    --a. with other students
    --b. with the instructor

Editor's Note: Web 2.0 tools, when used by informed teachers, offer enhanced learning opportunities. In choosing a technological tool for teaching or learning, it is essential to find the match between technological capabilities and the required tasks. This study provides detailed research evidence to support the value of interactive communication tools including the audio blog. It is well worth the time to study the evidence presented in this paper.

Affordances analysis of an audioblog and suggestions for its recruitment in oral lesson

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Abstract

Web 2.0 is a buzzword not only in the technological world, but also in the educational industry. The plethora of Web 2.0 tools presents affordances that have great potentials to be effectively used in the educational settings. While the options are abundant, appropriating Web 2.0 applications in learning and teaching requires informed decision for meaningful experiences. In order to achieve this, it is imperative that a thorough affordances analysis of the tool is performed so as to determine its potential for purposeful utilisation. This paper expounds the possible recruitment of an online audioblog tool, Podomatic, in oral lessons. It discusses three aspects of the affordances namely (i) pedagogy, (ii) social, and (iii) technology. Following that, it offers suggestions for (i) tackling issues that teachers and students faced, and (ii) for enhanced learning opportunities.

Keywords: information and communication technology (ICT) affordances analysis model; oral learning and teaching; English language; enhanced learning; Podomatic; web 2.0; podcast; blog

Introduction

The Partnership for 21st Century skills (2004) framework identified communication skill as one of the necessary skill students should acquire to succeed in work and life in the 21st century. It is paramount that students are able to articulate their intentions for the various purposes via verbal and non-verbal communication modes. In Singapore schools, oral lessons and examinations have been in place for a long time to prepare students to be effective and confident communicators (Ministry of Education, 2008). This is reiterated by the ministry (Ministry of Education, 2010) where she outlines one of the competencies of 21st century as being able to communicate ideas clearly and effectively. Interestingly, with the evolution of digital technology, changing profiles of learners and globalisation of the language, the previous English language curriculum has been revised to meet current needs and trends. In the English Language Syllabus 2010 (Ministry of Education, 2008), English language curriculum, which includes communication skills (oral and representing), will be enriched through the uses of a variety of print and non-print resources. These non-print resources include Web 2.0 tools and resources such as blogs, wikis and other multimedia resources for teaching and learning activities.

With vast emerging technology such as Web 2.0 tools, many new innovative ways can be examined to enhance the teaching and learning of oral skill. Although there is a common conviction that these tools present affordances that may be appropriated into a wide range of teaching strategies and learning activities, the utilisation of the tool has to be informed for purposeful deployment. Without proper investigations on the suitability of technological tools for specific educational purposes, the uses may possibly introduce pedagogical and technical issues, which become barriers instead of enhancing lessons. A case in point, which is also the anchor case of this paper, is illustrated in the section below.

Anchor case

In preparing students for oral exam, English teachers in a local secondary school (secondary two cohorts) developed learning tasks, which utilised podcast technology. As part of the oral lessons, students were given and explained on the oral assessment rubrics. They were tasked to record their oral presentations (from a given passage) and self-evaluate the recordings (by playing back) based on the assessment rubrics provided by teachers. Students used a non web-based software to create their podcasts. Prior to these lessons, the resident technology trainer conducted a training session on the use of the software. The recording (re-recordings) and self-evaluations were iterative processes until students were satisfied with the quality of their oral presentation. They then sent the final podcast file to their respective teachers via e-mail.

In class, teachers selected and played several podcasts (with contrasting qualities). They discussed with the whole class on these podcasts, also based on the rubrics. Students were engaged and participative in giving feedbacks and critics. At the end of the lesson, teachers summed up their discussions.

During a debrief session, teachers lamented that they faced technical issues with regards to the e-mailed podcasts. Some could not be played back or contained undetermined errors. Further, they shared that due to time constraint during curriculum time, they were not able to discuss more podcasts in class. Additionally, on the remaining podcasts, they found it challenging to have to listen and provide comments or feedback via separate platforms. Some students faced difficulties in producing the podcasts because of the technicalities involved. Collectively, teachers sought alternatives to address these issues and exploring other technological tool was a major part of it.

This paper hence describes a proposed alternative technological tool, in this case Podomatic, to be used in the teaching and learning of oral skill as to address the aforementioned issues and to enhance learning. A literature review is done to shed insights on similar studies relating to the uses of audioblog to inform and guide this proposal. The subsequent section expounds detailed analysis of Podomatic's affordances based on the information communication technology (ICT) affordance analysis model as prescribed by Wang, Woo and Chai (2010). The purpose is to determine if Podomatic is the legit alternative tool. This is followed with suggestions on possible uses of Podomatic in oral lessons. Then it culminates with a conclusion.

Review of Literature

Consistent with Tan, Ow, and Tan (2006) study, a review of the literature reveals that studies on audioblogging in educational context are scarce. Although numerous researches have been conducted on the uses of Web 2.0 tools such as blog, podcast and wiki (Lucking, Christmann, & Wighting, 2009; Siegle, 2007; Seitzinger, 2006) these usually expounded on the utilisation of a single tool— either a blog or podcast platform, but not a combination of both tools. Essentially, audioblog is an extension of blog platform (Tan, Ow, & Tan, 2006). Building on the architecture of blog, audioblog inherits key features of a blog such as: (i) ease of posting, (ii) reverse chronological order of information, and (iii) automatic archival of postings (Huann & Thong, 2006). Harris (2006) describes audioblog as a blogging platform where podcast links are posted. Similarly, Cebeci and Tekdal (2006) inform that in audioblog, podcast files are posted to blogging platform to capitalise the RSS feeding. In a nutshell, audioblog is a platform that offers text and audio postings.

Literature on the uses of audioblog in education centred on language learning with few other studies related to cognitive load and for education purposes in general. In language learning, teachers utilised audioblog for a variety of reasons. These include for teaching and learning improvement (Tan, Ow, & Tan, 2006), increase students' speaking and listening abilities (Hsu, Wang, & Comac, 2008) and as an extra opportunities for practice and informal exploratory

experiences (Sun, 2009). These uses of audioblog in language learning was grounded in Vygotskian theory of social meaning making where larger community of students interact and communicate to make meaning (Tan, Ow, & Tan, 2006; Huann & Thong, 2006). This was possible due to the highly accessibility nature of audioblog to vast Internet users (Hsu, Wang, & Comac, 2008; Huann & Thong, 2006).

Tan, Ow, and Tan (2006) investigate the uses of audioblog to support oral communication skills in Chinese language. The study employed activity theory as the design framework involved students from elementary school. Students were made to familiarise with the oral assessment rubrics. They then read and recorded passages. The recordings or podcasts were uploaded onto blogs where others listened and commented upon. Students learnt from others via the comments and from listening to mistakes that other students did. Weaker students were able to acquire 'formulaic expression' (p. 19) from stronger students.

The study by Hsu, Wang, and Comac (2008) focus on students' perception pertaining to the use of audioblog in English language learning. These were international students who had enrolled in the Advanced English Conversation course. In this study, teacher and students used Evoca to record their podcasts and then linked them to the appropriate blog. Teacher recorded assignment instructions and posted to her blog. Students responded to the assignment either in oral or written format. These include comprehension and pronunciation assignments. All students' audioblog sites were linked to teacher's site. The findings show that students were generally motivated and enjoyed learning with audioblog.

Sun (2009) explores the uses of audioblog in English language learning for Taiwanese college students. Audioblog was introduced as an add-on platform for extra practice opportunities. In this case, only one audioblog site was used. Students have their own space via the site. Because the purpose of using audioblog was to provide practice opportunities for improving oral skill, students were given autonomy to talk on any topic of their choice. Apart from peers and teacher, the audioblog was also opened to public so that anyone can listen and post comments. The study identified the stages that emerged in the audioblogging processes. These are (i) conceptualising, (ii) brainstorming, (iii) articulation, (iv) monitoring and, (v) evaluating.

Other studies on audioblog focused on cognitive load and education in general. Tan and Detenber (2006) examine the application of Limited Capacity Model on individual's attention and memory when presented with dynamic audioblog (where the voice and other elements such as images changed dynamically). They found that there were no cognitive overloads when voice was presented with images — which meant there was no memory decrement.

In a different study, Kolb (2006) proposes the use of cellphones for audioblogging. According to Kolb, being an integral part of students' lives, cellphones have great potentials to be transformed from a social to an educational tool. Using their cellphones, students will able to record interviews, sounds, commentaries and directly post their podcasts onto audioblogs via online tool such as Gabcast. These resources can be used later to construct meaningful projects. Kolb also warns of the possible issues in audioblogging activities such as privacy, copyright, cost and control issues and suggests some ways to address these issues.

Teachers reported that the automatic archival of posts made tracking of students' progress easier. They were able to evaluate and provide timely, personalised comments that addressed individual's needs (Sun, 2009; Hsu, Wang, & Comac, 2008; Huann & Thong, 2006). With this, students need not compete for teachers' attention. In fact majority of them were satisfied with their interactions with teachers (Hsu, Wang, & Comac, 2008). Additionally audioblog's ability to support various types of media opened up many new opportunities for teachers to design their lessons. Audioblog itself presented teachers with options to provide either auditory or textual comments. Other features such as hyperlinks, insert media and attachment feature allowed

teachers to post new assignments, broadcast news to students and provide links to other sites relevant to the subject (Sun, 2009; Hsu, Wang, & Comac, 2008). Teachers also made use of the comment features to scaffold students' learning (Tan, Ow, & Tan, 2006; Huann & Thong, 2006).

Students were found to be motivated with the use of audioblog (Hsu, Wang, & Comac, 2008; Huann & Thong, 2006). There are many attributing factors to this motivation. From technical perspective, audioblog is easy to use. Students did not need to grapple with the technicalities that have the propensity to increase extraneous cognitive load (Hsu, Wang, & Comac, 2008). From learning and personal identity perspectives, audioblog offer personal individualised space, which directly increased their sense of ownership (Sun, 2009; Hsu, Wang, & Comac, 2008; Huann & Thong, 2006). With real audience, students were encouraged to produce quality work (Sun, 2009). They were also reported to be even motivated when they received positive comments from peers and teachers (Huann & Thong, 2006). The asynchronous nature of audioblog permitted students to deliberate before posting comments. They also used this feature to post reflections of their work and comments by others (Sun, 2009, Tan, Ow, & Tan, 2006). Additionally Tan, Ow, and Tan (2006) state that this internalisation of thought promotes meaning making.

Overall reports on the uses of audioblog in educational context are positive. The collaboration and meaning making processes through audioblogging activities have shown evidences of students' improvement in language learning. Hsu, Wang, and Comac (2009) inform that students' pronunciations and listening skills have improved since the use of audioblog. In another study by Tan, Ow, and Tan (2006), students were reported to gained confidence, read louder and felt natural (p. 20).

However it is equally important to note the issues reported in using audioblog. As Sun (2009) points out, over time the excitement of audioblog grew weaker and students were less engaged. Additionally, she highlights that having a big class size will be a challenge in managing audioblog activities. Copyright, plagiarism and other technical issues may also surface (Huann & Thong, 2006). Knowing these will help in the planning to use audioblog so as to circumvent such issues.

The cases above revealed that teaching and learning activities in oral lessons were enhanced with the use of audioblog. These were possible because the affordances of audioblog matched with the pedagogical needs and learning tasks. Hence for effective and meaningful use of technology in teaching and learning, it is essential to analyse the technology affordances as a determinant if its engagement would support the activities required to complete the tasks and achieve the goals. Although the above cases demonstrated the various utilisations of the differing features, a thorough affordances analysis of audioblog may elicit other unrealised affordances that could further enhance teaching and learning of oral skill. In the same vein, this would also elicit any potential extraneous cognitive load (Pass, Renkl, & Sweller, 2003) related with the use of technology that would otherwise serve as barrier in students' learning processes. One way of achieving this is via the employment of information and communication technology (ICT) affordances analysis model (Wang, Woo, & Chai, 2010).

Information and Communication Technology (ICT) Affordances Analysis Model

The information and communication technology (ICT) affordances model as explained by Wang, Woo, and Chai (2010) is a technology analysis model which analyses ICT tools or software from three aspects namely (i) pedagogy, (ii) social, and (iii) technology. These are elaborated in the paragraphs below.

Pedagogical affordances

These relate to affordances that support the implementation of various pedagogical approaches (p. 73). It has dual applicability—for teaching and learning purposes. From teaching perspectives, pedagogical affordances of technological tools enable teachers to deliver lessons in many effective ways that engage students based on the appropriate strategy that teachers have chosen. These are either teacher-centred such as incorporating animations in powerpoint presentations to augment a certain concept or student-centred approaches by asking students to use blogs for self-reflection. Teachers can then read the reflections and provide individualised comments. In adopting Gagne's nine events of instruction, many tools can be employed such as flash animation to gain attention, podcast or Youtube videos to deliver lesson in multiple modes and online chatrooms for personalised feedback and real-time discussions. Additionally these tools include features that enable teachers to track learners' progress, scaffold and assess learners' performance.

On the other hand, from students' learning perspective, the tools should support the designed learning activities that they are required to perform in any group dynamics. In collaborative pedagogical strategies, for example knowledge co-construction activities, students can use WIKI where they are able to share, negotiate and co-construct information. For individual activity, as gleaned in the aforementioned literature review, students can utilise Blog to post journals on their reflections and understanding on any particular subjects.

Social affordances

Social affordance attained its disposition from the natural ways of human communications where interaction forms a crucial part of living. Hence this affordance relates to affordances that support a variety of interactions and their dynamics. These include peer-to-peer, students and teachers and also assortments of interaction dynamics such as group or individual work. With reduced social context cues such as facial expression and body gestures, the technological tool must provide provisions where participants are able to project themselves as 'real' people through these mediums that engender safe and comfortable environment for social interaction. This is to improve rapport and encourage participations. Additionally, in encouraging participations, social affordance should cater to both synchronous and asynchronous modes of communications such as chatrooms, e-mails, discussion board and Skype. The plethora of these tools not only provides students with options to choose that suit their learning styles, but also augments specific interactions. For instance, Skype enables users to simultaneously talk, type and see the other participants. Discussion boards on the other hand are well suited for asynchronous discussion and information sharing activities.

Technological affordances

These are affordances associated with the usability of the technological tool in accomplishing tasks efficiently and effectively. With the advancing technology, many new tools are developed for purposes of educational and non-educational specifics. It is crucial then to analyse these affordances so as not to misappropriate the utilisation of these tools thus making them futile. Essentially, the utilities that technological tools offer centred on the ease of use for learning. They have to be user friendly and intuitive so that users can easily navigate through the tool to perform the required tasks. Besides these, preferably, the interface look and feel should be attractive to motivate students to experiment and use them. It is also desirable if the tools are customizable to fit users' differing needs and personalities. For example the colour of the interface can be changed and ability to manipulate resources such as options to choose and rearrange widgets to be displayed. In addition, the tool should be easily available and access. Typically in wireless broadband classrooms, web-based tools should be easily accessible to be used in teaching or learning.

Amongst the three affordances, pedagogical and social affordances analysis focus on the educational worth of the tool while technological affordances determines the potential of the tool in materialising and actualising the educational intent. The negotiation of these three affordances determines the suitability of the technological tool to be employed in teaching and learning.

Affordances Analysis Of Podomatic

As Podomatic is the proposed central technological tool to be engaged in the English oral lessons, besides already being informed of the affordance appropriations of audioblog through the preceding literature review, application of the affordances analysis model could potentially draw out affordances that have yet to be utilised and further determine if the consideration of Podomatic in supporting oral lessons is legitimate. Its valid affordances then not only could be capitalised in addressing the issues as described in the introduction section but also poised in harbouring many possibilities to support and enhance the pedagogy and learning activities.

Brief overview of Podomatic

Podomatic is an online audioblog that has blog and podcast features combined in a single platform. Though the blogging features are limited as opposed to full-fledged blog platform, the main components such as text posting (with rich text editor), comment box, reverse chronological ordering of postings and posting archives are indubitable in place. Some of the core podcast features are online recording and automatic hosting. With blog and podcast features combined in a single platform, Podomatic eliminates the propensity of having to use a separate platform/tool to record podcasts. Other features of Podomatic include e-mail, friend invitations, downloading of podcast as mp3 file and RSS feeds.

Pedagogical affordances

Podomatic supports a variety of pedagogical strategies such as case-based, anchored instruction, as well as co-operative learning. Teachers can use the post feature to post podcasts resources on particular cases or as information resources for cognitive construction. They have the options of recording their voices or upload ready audio files. In anchored instruction cases, a podcast and supporting textual information could be used as anchors for all subsequent learning and instructions. The recording feature presents opportunities for students to engage in a variety of activities such as doing oral self-reflection and practicing oral speeches. Besides audio recording, Podomatic allows video recording whereby teachers are able to employ as a mode of lesson delivery. To augment oral presentation, students can tap on this feature to video-record their presentations—permitting them to also see their facial and body expressions while presenting.

The rich text editor utility, which is part of the posting feature, further potentiates teaching and learning activities. Examples of such uses are: (i) posting of instructions and other resources (multiple modes) by teachers, and (ii) as a platform for students to rationalize and explain their actions (decisions) in the course of their activities. The reifying of thoughts into textual or oral format not only help students to internalise and negotiate meaning making but also made possible for teachers to identify any misconceptions and provide timely intervention. The reverse chronological ordering of postings enables teachers to track and monitor students' development processes.

The comment feature further allows teachers to provide timely and personalised feedback where necessary. Peers can also use this feature to provide comments, suggestions or advices. The asynchronous nature of Podomatic permits students to deliberate and organise their thoughts before responding. These activities promote co-operative learning. Teachers will have more time (out of classroom time) to provide individualised feedback. With personalised feedbacks, students are able assimilate the information and manifest their understanding through deliberations of these information in their iteration of re-recording process.

Finally, the timeline bar (see Figure 1) that is made avail via the player while playing back a podcast made it possible for teachers and peers to pinpoint directly to specific sections of podcast that they commented upon. By specifying the exact position in the podcast, learners can later quickly refer to these sections without having to scan through the entire podcast to look for the particular sections. This potentially reduces the extraneous cognitive load and increases germane cognitive load.

Figure1. Screenshot of Podomatic's player

Social affordances

Podomatic presents numerous ways to support social interactions. Although it is a private cyber space, Podomatic provides a variety of communication modes such as personal e-mail, public wall postings and also via the comment feature. These have great potential in fostering social interaction for an array of purposes that suit the tasks and participants' preferences. It offers a range of avenues for students to communicate with others namely video, oral or textual postings for others to watch, listen or read and hence respond. With the significant reduction in social context cues such as facial expression and body gestures, the availability to insert emoticons via the text editor becomes necessary in representing moods and feelings.

Podomatic provides a safe learning environment for students to work within. It requires users to log into the system in order to post messages to others. Hence unwanted posts from anonymous or unknown users are significantly reduced to almost nil; if not nil. The comment feature also permits students to withhold comments from being automatically published before being vetted. In addition to these, users are able to draft and modify postings before and after publishing. It gives them time to think, amend and improve on the postings suitable to their audiences or for other specific purposes. This provides an environment that is safe and comfortable for students to participate in learning activities.

The multiple communication channels extend the opportunities for social interactions according to users' needs, intentions and requirements. For instance, on the one hand, students' make use of the wall posting to broadcast a message not only to specific peer, but also meant for others to read as well. On the other hand, they may choose to use the e-mail feature to communicate with specific individual or group of people.

Podomatic's utilities support group work congeniality that has the potential to foster group dynamics cohesiveness. Every student can invite or request invitation to be 'friend' of another users. Once they are friends, their profile image will appear in their friends' lists. Besides being able to portray themselves as 'real' people, this visual representation also enables users to quickly identify their friends and start interacting.

Technological affordances

Essentially the main advantage of Podomatic is the combined features of podcast and blogging. This significantly made it easy to use Podomatic for a wide spectrum of purposes. The easy and straightforward podcast utilities considerably reduced extraneous cognitive load associated with the technicalities of the tool. This ease of use serves as a great motivation for students to start using the tool. Since it is web-based, it is conveniently accessible (as long as there is Internet connection) and do not require any complicated installation procedures. Students only require signing up using a valid e-mail account—a quick and relatively effortless procedure.

Further, Podomatic allows several interface and utility customisations. Students can choose any backdrop image from a list of available options. They are also able to decide the functional panels that they wish to make available for others. For the utility, students can decide on several options such as only allowing registered users (via log in) to comment on their posts and be notified if there are any comments made on their posts. Other more sophisticated customisations such as personalised background design or seamless incorporation of posts into other websites are available at a fee.

Additionally, Podomatic permits the downloading of podcast as mp3 files. This is an automatic feature in Podomatic, which does not require any action from students' part. The ability to download mp3 as portable audio files opens up alternative learning strategies that may boost students' motivation as they have the choice of listening to podcast anytime and anywhere (via portable player).

Finally, Podomatic offers the possibilities to include of a variety of resources across multiple modes. The post utility itself allows students to post video, audio, images and text. On top of that, the rich text editor has provisions for hyperlinks and file attachments. Interestingly, the text editor interface is akin to that of the standard word processing packages, hence making it easy for students and teachers to use.

Suggested Uses of Podomatic in Oral Lessons

The affordances analysis of Podomatic avers its potential uses in oral lessons. Based on the analysis, two lists of suggested uses are drawn up for possible implementation. One is for addressing the issues as described by teachers and the other is to enhance oral lessons for meaningful learning.

Suggested uses of Podomatic to address issues

In tackling teachers' complains that some of the e-mailed podcasts could not be played back or contained errors, a suggestion is to use Podomatic's recording utility. The recordings or podcast files are automatically saved and hosted via Podomatic's hosting service. These podcasts are immediately available for playback purposes through the same platform without the need of other tools. This seamless integration of utilities will significantly reduce the possibility of having corrupted files.

The recording feature also presents high possibility in addressing issues pertaining students not being able to produce podcasts due to the technicalities involved. Recording via Podomatic is easy and does not require any technical knowledge and skill pertaining to podcasting. The huge reduction in terms of technical-related tasks in Podomatic makes it easy for students to focus on their oral presentations.

The comment feature is recommended in addressing teachers' concerns that they did not have enough class time to discuss more podcasts. With the comment feature, teachers will still be able to provide comments and feedbacks even out of class time. They have more time to listen to individual podcasts and provide personalised comments. Thus all students have the chance to receive meaningful feedbacks.

The comment feature is also suggested to circumvent the challenges that teachers faced where they needed to switch from one tool to another while listening and providing comments. Since this feature is integrated in Podomatic, teachers no longer need to switch between tools. They are able to listen to podcast and offer comments all within the same platform.

Suggested activities and uses of Podomatic for enhanced teaching and learning

The recording feature of Podomatic enables students to record or write on their learning experiences or understanding of the oral skills that they acquired. This allows them to do self-reflection by reifying their mental thoughts into other modes to represent their thinking. According to Jonassen et al. (2008), doing self-reflections help learners deliberate and ponder on new knowledge so as to assimilate with prior knowledge thus constructing meaning. In this suggestion, learners have the opportunity to reflect on their own presentation and upon the comments from others.

Students can use the comment feature to provide feedback to peers. This activity encourages students to analyse other oral presentations, learn to offer constructive comments and at the same time reflect on their own presentations. As Jonassen et al. (2008) share, humans work together naturally in building knowledge. They assist and seek assistance from others in order to solve problems or perform certain tasks. From these co-operative activities and exchanging of ideas via conversation (online), humans tapped others' knowledge and appropriated them accordingly to suit their needs. In this context, peers provide comments so that learners can appropriate those to improve their oral presentations.

Another suggestion is for teachers to utilise the rich text editor to deliver content and supplement students with a variety of resources that they can work with. Since the rich text editor allows the insertion of many resources through hyperlink, attachment or embedment, teachers are able to include numerous different modes of teaching and learning materials. These include videos, podcasts, images and reading to suit the different learning modalities. Based on Gagne's nine events of instruction, the appropriate inclusion of these resources will aid in students learning such as capturing and sustaining students' attentions and multiple opportunities for practices to confirm understanding.

Finally teachers and students can make use of the podcast timeline to pinpoint specific section/s of the podcast where they commented upon. This makes it easy for respondent to crosscheck between the comments and section/s of the podcast. Without having to scan through the entire podcast to look for the specific sections, learners' extraneous cognitive load is reduced. This then potentially increases their germane cognitive load to focus on the learning activity (Pass, Renkl, & Sweller, 2003).

The aforementioned suggested uses of Podomatic utilities in oral lessons are made possible after a thorough analysis of its affordances. A closer look will show that the application of affordances analysis is applicable to almost every technological tool. With the already countless amount of technological tools readily available either online or offline, the recruitment of affordances analysis becomes indispensable to discern technology tools to be adapted for educational purposes.

Conclusion

The advent of technology, especially Web 2.0 opens up a spectrum of possibilities in creating new innovative ways of teaching and learning. This however comes with a caveat of possible misappropriation of the tool due to unacquaintance, which may result in limited use or non-congruency to goals of the lessons or tasks. Therefore, it becomes imperative that thorough affordance analyses of the technological tools are performed to determine their suitability to be used in specific context of education. Affordance analysis has great potential to uncover the affordances of the tool that fits into many teaching pedagogies and learning tasks. As Bower (2008) points out, in choosing a technological tool for teaching or learning, it is essential to find the match between technological affordances and the required tasks.

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