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Role of Delivery, Course Design and Teacher-Student Interaction: Observations of adult distance education and Traditional on-campus education

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Abstract

This paper provides readers with an observation of an adult distance education programme, which took place in Malaysia. These observations are presented in terms of: study mode, course design, and interaction between three distinct student groups, and their teachers. Other factors that influence adult distance learning melded with traditional classroom settings were also observed. These factors included the demographics of distance learning students, type and nature of student-to-student and teacher-to-student interaction, students' employment, prior employment, and the subject studied. Our observation suggest that appropriate distance education design, coupled with hybrid opportunities for interaction among students engaged in distance and traditional on-campus modalities, optimise the learning experience of students engaged in both types of learning. Our observations also indicate that factors such as Web-based course design, students' previous technical competencies and employment history, must also be taken into consideration, when designing and delivering distance education programmes of study. The authors conclude from their observations that further research is needed in terms of proper distance education course design that address environmental factors such as students' employment history, previous educational experiences, and comfort levels using information and communications technology.

Keywords: adult distance education; distance learning; Web; Web communication; Web course design; teacher-student interaction

Introduction

Distance education, a pedagogical process that involves imparting knowledge beyond the traditional borders of students' physical attendance in a classroom, has been in existence for centuries. Recent advancements in Internet and communication technology have fuelled the growth of flexible course design and online delivery, giving new impetus to advance distance learning pedagogy. Because of rapid expansions in the global marketplace and the emergence of knowledge based economies, educational institutions around the world are striving to satisfy ever-increasing demand for higher education. However, many publicly funded institutions are

facing severe budget cuts from governments. Faced with funding shortfalls, many educational institutions are looking to new markets and adopting a more market-orientated approach to offset their operational costs. As a result, many institutions are exploring new markets in distant locations to complement their traditional local "markets."

Higher education has now become an arena where universities from around the world compete with each other for "customers." One such means to expand markets is through the provision of distance learning via the use of new information and Internet technologies (Altbach, 1998). A growing number of studies in this area of distance education have researched issues such as the transfer of education and knowledge via distance education modalities from one country to another; and increasingly on how distance education as a concept is being merged with elements of open learning, and multi media delivery (Cookson, Donaldson, and Allan, 1990; Edwards, R., 1997; Jones, O'Shea, and Scanlon,1987).

While distance learning itself is not a new pedagogical concept, in recent years there has been an explosion in the mechanisms and tools available for its implementation and support. Distance learning providers are faced with the often tough choices of sending their staff to the learner, shipping increasing quantities of study and research materials, and investing heavily in audio and video broadcast technologies to support students learning at a distance. In spite of tremendous upfront capital expenditures, broadcast capabilities have now revolutionized the scope and capability of distance learning programmes, creating favourable conditions that ease or remove time and space barriers previously faced by students. For some educational institutions, distance learning has become successfully integrated into their everyday learning environment, using new information technologies supported by the World Wide Web and telecommunication infrastructures.

Recent advancements in computer networking technologies have extend distance learning's scope and capabilities. Computer-based instruction programmes are continuously being upgraded, reused, and revised, allowing students more freedom to learn at a distance at a time and pace that are often convenient to them. With tremendous advancements in network access worldwide and progress in communication and information technologies generally, distance-learning programmes are becoming a viable means of offering educational opportunities to students. To support distance education students, more instructor-to-student and student-to-student interaction – similar to that found in traditional classroom instruction – is being incorporated into online programme materials (Sukumar et al., 2001).

A wider availability of protocols, such as the hypertext environment of the World Wide Web and the network capabilities of video and audio-conferencing, has also increased the application and pedagogical effectiveness of distance-based learning. Combined with lower costs and increasing penetration of personal computers in such everyday life venues as public kiosks, places of work, and the home, distance learning is now poised for explosive growth worldwide.

In the past, adult learning was traditionally restricted to ad-hoc training or education confined to reaching a pre-determined learning outcome, such acquiring a specific skill or competency related to employment. In spite of the growth of technologies that offers increased support for effective distance learning, ad hoc training and education remains the most common application in many countries such as China, where the number of adult distance education learners is estimated to be between two and four million people (Zhang, 2001). Other such examples include the Open University in UK, and extensive programmes in countries such as Norway to South Africa (Wilkes and Burnham, 1991). However, because the majority of adult education initiatives were traditionally designed to teach specific skills and competencies related to work, students and faculty still tend to perceive distance education as "partial training," – and a poor cousin of "on-campus" education.

Adult education is a substantial field of pedagogical study that spans basic skills upgrading, to vocational training that targets specific adult populations and age groups. Moreover, adult education caters to students who often work full- or part-time and have family obligations. Liveright and Haygood (1969) defined adult education as: "a process whereby persons who no longer attend school on a regular full-time basis . . . undertake sequential and organized activities with the conscious intention of bringing about changes in information, knowledge, understanding, or skill, appreciation and attitudes; or for the purpose of identifying or solving personal or community problems." It is our experience, that adults with diverse interests and differentiated backgrounds such as programme developers, teachers, advisors, administrators, educational administrators, frequently undertake educational upgrading using the distance mode. Similarly, business, industry, community agencies, health care organizations, continuing and professional education, often look to adult education modalities to train and upgrade their workforce.

Tools Available for Distance Education

The 1990s witnessed an explosion in communication and information technology development, followed by waves of information dissemination. Microwave and satellite technologies have significantly allowed the increase the number of television sets around the world, with broadcast signals reaching farther and to more locations, and delivering content at ever decreasing costs. New educational markets previously either non-existent or severely constrained by time and space, are now emerging. As a result, in the past 20 years there has been a significant increase in television-based learning initiatives that "should be more than a passive transmission of academic information" (Cartwright, 1994).

The emergence of two-way communication between learners and their instructors has been a large factor driving the growth of distance education. Video conferencing and two-way video communication technology enables instructors and students to see each other while engaging in classroom studies, a mode considered by many distance educators that greatly enhances adults' distance learning experience. This type of "full presence" learning system is becoming the minimum standard required for distance education programmes (Fuge, 1995). Successful distance education programmes tend to incorporate synchronous and asynchronous interaction among the students, creating conditions that help many intellectual leaps to occur (Sherry, 1996). Videoconferencing technology allows interaction not simply between the learner and the instructor, but also among the learners themselves. In the near future, fibre optic cable networks that increase bandwidth will greatly enhance the overall quality and "richness" of communication and information received by students, helping them to learn more effectively in the distance education mode.

Economic barriers previously associated with higher education both in terms of tuition paid and travel costs have been lowered to such an extent that many students who were previously denied access to education, now have access. For example, students often share the cost of video and Internet connections used, lowering costs related to distance education even further (Zhang, 2001).

Virtual reality is the next breakthrough expected in distance education. Increases in bandwidth allow for greater quantities of digital information to flow across fibre-optic cable and satellite networks, enabling "virtual reality" to evolve into a tool used in mainstream distance learning. Combining virtual reality technology with artificial intelligence will, in turn, enable the creation of a "virtual classroom lecture," further enhancing the experience of students engaged in distance learning.

Fulton, (1992) cites five fundamentals necessary for an effective distance education programme:

1. Contact between the student and the instructor

2. Active learning through writing out answers

3. Timely feedback to the instructor on students' comprehension"

4. Timely feedback to students on work done

5. Opportunity for students to make revisions and learn from their mistakes

However, we believe much has changed since Fulton's 1992 study. Taking into consideration our current perspective of distance education in Malaysia, we would like to add a few more points Fulton's model:

1. Merging interaction between younger distance education students and older adult distance education students

2. Weekly instructor/student meetings

3. Facilitation of interaction between on-campus students and adult distance education students, when and where it makes sense

Some Concerns Surrounding Adult Learning

Memory

- Memory in adult students fades when faced with meaningless learning, learning that involves reassessment of old knowledge and rote memorization (Merriam et al., 1991). With age and increased levels of responsibility, adult learners' memories often become fragmented.

- Adult's short-term memory capacity is limited to about five to nine bits of new information at one time (Cruikshank et al., 1995). New information stored in short-term memory erodes with the passage of time. However, when the memory is overloaded, "chunking" information together that into categories enables adult learners to increase their short-term memory capacity (Dixon et al., 1994).

- Young and middle-aged learners, as a general rule, are more self-confident and tend to be goal oriented. Research shows that young and middle-aged learners are often able to memorize facts more easily than older adults. Adults in the middle years (age 35 to 45) have been found to be more responsible, a finding that is in accordance with our present experiment. As older adult students tend to be passive and less flexible (Cross, 1981), reintegration into educational settings must be emphasized. To maximize strengths and minimize weaknesses for the entire group, earning groups will ideally be composed of students of various ages.

In light of previous research, we have developed a course called "Designing Websites" that contain small manageable learning modules. We will discuss in this article how this course design for adults works, and how it facilitates "memorizing" and "learning" for a specific group during student/student or teacher/student(s) interactions.

Motivation

Houle (1961) separated the motivations of learners into three general typologies:

1. Goal-oriented learners who use education as a means to an ends

2. Activity-oriented learners who participate for the sake of the social interaction

3. Learning-oriented learners who seek knowledge for knowledge's sake

Continuing education delivered at a distance via new and emerging information and communication technologies, is no longer a novelty but a necessity for working adults. Motivation, therefore, must not only stem from students' necessity to learn, but also from "within." This means conditions must be created whereby students become more eager to learn. Mental eagerness and imagination are directly related to the outcomes of the learning process itself. While learning processes can be created, actual learning outcomes cannot. Thus, student motivation plays a central role in achieving any given educational outcome. With student motivation in mind, we developed a course in which the organization of weekly meetings with students and instructors was fully explored. Our question in designing this course was: How do we motivate our students engaged in distance activities to learn how to learn?

Website Nomenclature

When designing websites, it is important that students understand website nomenclature. As well, understanding how Internet websites integrate and work together as a "web" is also an important issue (Pool et al., 1997). In designing our course on "Website Design," we were aware that "navigational integration" could possibly create confusion for our adult education students learning at a distance. We thus designed our course with a particular focus on website navigational integration. Recognizing that many students may not be comfortable with such an intensive level of navigational integration, we offered students basic instruction on how to "visit" a corresponding site, if and when the need arose.

Objective of the Study

Students in Malaysia come from different ethnic, cultural, and educational backgrounds. Students engaged in our course ranged in age from their early twenties to late forties. . Each student also brought to the course their own previous skill levels and expectations. For instance, we found that mature students' expectations varied greatly from those of their younger counterparts, in that they desired and expected to derive immediate benefit from their education. We also observed that mature students tend to prefer to study in areas related to their work, profession, or existing skills. Similarly, the older students' worldview tends to be more practical and hence, they expect to utilize their time for more focused, pre-defined, goal oriented work. Given this scenario, we designed a distance education course that encouraged them to learn. We hope sharing our experiences will create strategies for future research that will help advance adult distance education programming.

Our Experiences

For our course design, we randomly selected fifteen students. The first group of five students were traditional classroom students; the second group of five students were distance education students, age 20-22 years; the third group of five students were adult distance education students, aged 35 to 45 years. Our aim was to identify positive and negative factors that influenced

learning-outcomes among a diverse range of students engaged in distance and traditional on-campus studies. All three groups were assigned the same project named, "Designing Websites." This topic was chosen because it was thought to be popular and of general interest to all students. Our only entrance requirement for this course was that students in all three groups attend a face-to-face introductory class.

Because this course was the first exposure for some of the students to the technology used and adult learning in general, we felt it necessary to organise a face-to-face introductory class in which all three groups were briefed on housekeeping issues such as the course syllabus, textbook used, teacher's consulting hours and procedures. We also discussed the first project in length and distributed to each student group a handout containing relevant course information such as project completion dates, procedures, minimum technical requirements, and an overview of course study units, etc. Students were also given a handout containing step-by-step instructions on how to surf the web, set-up and access their email account, submit assignments via email, and download software. Lastly, students were also provided a list of resource websites, many of which contained lists of frequently asked questions related to the course. Students from all three groups were then assigned user names and passwords to access the course website where the course materials were made available. Throughout this face-to-face class, students were repeatedly encouraged to contact a member of the teaching team or visit a study lab in the event that they encountered any real or perceived problems. We determined that our introduction session was of sufficient complexity balanced with simplicity, that most students could readily understand what was required of them without too much problem.

To start the project and to facilitate interaction students and their instructors, we created email lists for the separate groups. This tactic also ensured that all members within a group share information with other members of their group.

All course materials required for this project (i.e., lectures, tutorials, programming tools, etc.) were posted on the course website, which were housed on a local server. Students accessed the class website via user names and password assigned during the introductory class. Given the limited scope of our course material, we determined that students needed to hyperlink several corresponding websites to fully understand the concepts behind taught in the course. Late version Hyper Text Markup Language (HTML) and Visual Basic script version software required for completion of this project was also posted on the class website for students to download and use. A complete set of project guidelines, procedures guide, and minimum guidelines for the final website project, was also posted.

During the first two weeks of the course, students from the three groups were taught the basics of HTML and Visual Basic scripts in two traditional face-to-face classes taught on-campus. However, distance education students (group 2, and group 3) engaged only in face-to-face instruction once per week, for a total of two full days of face-to-face instruction for the duration of the course. In sum, distance learners attended two face-to-face classes, as compared to traditional students who attended classes every day for the duration of the three-month course. During the two days spent with students (group 2, and group 3) who would complete the rest of their studies in the distance mode, several more handouts were given outlining the basics of HTML and Visual Basic scripts, etc. Open class discussion also occurred in these two face-to-face sessions, where students were encouraged to form bonds and share their concerns and ideas.

Observations

We observed that students from all three groups submitted their projects on time. Moreover, all three groups completed their projects to a minimally acceptable standard. But when delving into a more detailed comparison, there were marked differences between the three student groups.

While the traditional classroom students (group 1) performed extremely well on all projects, group two (distance education, aged 20-22) average grades were15 percent lower than group one; and group three students' (distance education, aged 35-45) performance was 18 per cent lower than the first group.

When comparing the three groups using group 1(on-campus) as the benchmark, we observed that many distance education students said they felt less confident because they lacked access to a physical classroom. Another interesting observation was that the older distance education students in group 3 (aged 35 to 45), tended to feel more confident about their studies than the younger distance learners in group 2, (age 20 to 22). We also observed that both student groups, 2 and 3, studying online tended to display more responsible behaviour toward their distance education peers.

Not surprisingly, initiative also appears to play a role in achieving online learning success. In one instance, one student (group 2) did not own computer at home; however this student managed to complete their project by working with another student. Moreover, this same student produced the best work and was awarded the highest grade.

Student-Student Interaction through Communication

Based on our observations, we believe that a combination of face-to-face and online communication with the students was important for learner success. In our experience, a combination of in-class and online modalities tended to enhance students' confidence and overall learning experience. Student-student interaction not only enhanced confidence levels, it also facilitated the exchange of ideas among students, which is a necessary process of learning. Because individual students had dissimilar perspectives and approached problems from different angles, as a whole, they learned in a more broad and comprehensive manner.

Instructor-Student Communication

In distance education, communication by instructors was primarily conducted through email and on occasion, by telephone. In our course, when a student posed a question, our response to that question was sent to all three groups. All student-to-student questions were also made available to instructors, so we could share relevant questions with other groups when and where we felt it was appropriate. Our objective in doing such, was to build a learning environment that was, in many respects, similar to that of a physical classroom.

Completion and Outcome of Project

After the projects were completed and graded, we invited feedback from all three student groups. Our objective was to explore the consequences of our integrated study approach, which we hoped would leverage their learning. We observed the following:

1. Most students tended to like project work, which could be segmented, so that they could fit it more with personal schedules and not loose marks. Distance education students in group 2 (age 20-22), tended to prefer small, more structured learning modules, whereas distance learners in group 3 (age 35 to 45) tended to prefer even smaller learning modules.

2. Many students, including those studying in the distance mode, preferred to tape record in-class lectures on audiocassettes, believing that this would help them to follow instructions more closely.

3. Distance education students previously exposed to information technology (i.e., working with computer at their places of work) were more confident in the use of technology than their peers studying in the distance mode.

Distance Versus On-Campus Education: Our experience

There were some similarities worth noting between distance students age 20 to 22 years (group 2), and adult distance education students age 35 to 45 years (group 3). For students in both groups who were employed in job scenarios related to the course taken, the main concern was how to organize time efficiently and effectively. For students in both groups who were not employed in a job related to the course, concerns focused on "lack of confidence issues," particularly during at the beginning of the course when "everything was so new." Both distance education groups reported that their confidence levels rose as they began participating in the student-to-student and tutor-to-student email consultative processes.

Another point of similarity between both distance groups was that they generally felt confident enough about what they learned, and displayed high levels of confidence when speaking knowledgably about the subject in course presentations.

Although students were encouraged to interact with peers within their group, we discovered that one adult distance education student (group 3), was in constant touch with a traditional on-campus student (group 1). Both students benefited greatly from this cross-modality exchange, as they were able to help each other "learn how to learn." When questioned the adult distance education student (group 3) said she gained more confidence in that the concepts taught became more tangible, whereas the classroom student (group 1) felt that the small, segmented distance learning modules designed were easier to understand.

We observed that distance education students more readily linked their daily job and other activities to their education. This may stem from their tendency to adopt a more practical approach to learning, but we feel it also may be evidence of factors stemming from limited time and memory. This observation can be compared to in-class students, a group that generally more closely adhered to the concepts taught by the teacher.

Adult Distance Education and Wearable Computing

While it is important for many working adults to update their skills and knowledge via distance education, despite its flexibility, this mode still restricts students' movement as they are often tied to their desk at home or at work. In this context, the age of "wearable computers" such as coming generations of even smaller laptops, web/cellular telephones, etc., are worth discussing. Using such highly portable micro-technology will release people from their desks, and increase their mobility and flexibility in terms of accessing and using of online learning resources whenever and wherever. Students will have total control concerning the time and place that learning will take place. Increased bandwidth, advances in satellite technology, and the use of artificial intelligence will one day greatly enhance the anywhere, anytime learning experience of distance learners.

Conclusion

To examine the possibility of designing appropriate learning environments that facilitate interaction between distance education students and students engaged in traditional classroom studies, we conclude from our observations that more research is necessary. Two-way interactions between distance and classroom students can greatly enhance the anywhere, anytime learning experience of distance learners.

From our perspective, the most important outcome of this experience is that we now know how to use our resources more effectively and efficiently – i.e., design of future online training, development of Web-related material, and methods and tactics to facilitate the flow and exchange of appropriate views between and among students and the instructors engaged in different modes of study. Based on our experience in Malaysia, we recommend building bridges between distance and traditional classroom education and conducting weekly meetings to help distance adult education students to learn how to learn.

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