Offering the same graduate level courses for residential and distance students: An observation at an instructional systems technology department in the U.S.A.

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ABSTRACT

This paper provides an analysis of a graduate level program for both residential and distance students; the study was derived from an examination of a course design based on existing documents, like the syllabus, and observation of the course by a graduate student. An overview of the program describes the characteristics of the program and how learner support was provided in the program. The analysis of the targeted course made explicit the differences between the residential and distance tracks of the program. The interpretation of the two tracks based on Simonson's ^{[1][2]} shows the possibility to be an equivalent program for two different types of students. Plans to conduct the future research are also discussed.

INTRODUCTION

How should the relationship between conventional education and distance education be considered? A number of researchers have conducted research from various angles about distance education, which includes theory and media use. The areas of research span a wide variety of topics: research and practice in collaborative learning that are often introduced in educational institutes^[3], the structure of assessment systems that is appropriate for distance education^[4], and a benchmark that is based on practices of 75 higher education institutes ^[5]. Also, scholars have proposed learning and design theories to match the needs of today's society and the current technologies in educational settings [6]. The online learning methods and the learners' support systems need to be considered according to the learners' environment, e.g., network systems, computers, and experience in online learning.

By analyzing from various standpoints, this research focuses on exploring a successful design form to provide high-quality learning that satisfies the learners' needs. Although education tends to be considered from the educators' and researchers' perspective, educational activities are the result of harmonious collaboration between providers and consumers, i.e., educators and learners. The authors have looked for the way the relationships among various types of people and resources can be schematized to show a successful learning environment. When the first author had an opportunity to study at a university as a residential student, she investigated, within the structure of the program throughout of the existing documents, the relationships among stakeholders and the effective use of technology. This paper is part of a larger research to examine how the program is provided to the two different types of students. Equivalency theory ^{[1][2]} was used to examine whether distance education provides the same quality of learning as conventional residential education.

AN OVERVIEW OF THE PROGRAM

The program, Instructional Systems Technology, has one of the longest histories in educational technology and has provided M.S. program for both residential and distance students. Students may choose either track when they apply to the school. Both types of students receive the same degree and must complete the same number of required credits. Residential students are required to go to the classroom and stay close to campus, but the distance students can attend the courses from anywhere in the world. The students of this program have varied backgrounds and interests, and they can satisfy their own interests and needs by taking different types of courses. While the students can choose the courses that fill their area of concentration, the four required courses are essential for all the students. Most M.S. students take the core courses in the first year of their program because they are prerequisites.

The students use various types of technologies that are provided by the school and the department. The university standard systems provide learning support systems such as mailing services, CMS, and the portal site. These have all been used as a foundation for students' support. Figure 1 shows how both types of students can access the learning resources, including course content and other learning support systems. With a reasonable degree of commonality of content, each type of student uses the system and resources harmoniously. All of these systems have been naturally accepted by the students as essential for students' support. The main courses of the program were designed to consider the learning environment as well as the characteristics, learning styles, preferences, and experiences of the two types of students.



Figure 1: Overview of access to the resources

ANALYSIS OF A COURSE

One of the core courses for both types of students was analyzed and compared. The common framework of the course and its schedule were provided to both classes; each course had, in the CMS, an overview of the course, its objectives, the deliverables and grading, schedule, and links to resources. In the beginning of the class, the same objectives and an overview of outcomes (assignments) were provided. All students were able to start learning by accessing the webpage to obtain the information that they needed. Not only the distance students, but also the residential students used online resources.

Table 1 shows the course structure for both types of students. For the residential students, readings were assigned to develop the foundation of the contents. The residential class meetings were held twice a week throughout the semester; the first class meeting of each week was for lectures about Power Point data (PPT) and Q&A sessions based on questions that students sent to the instructor in advance. Additional ad-hoc discussions were held, depending on the students' need in the second class meeting of the week. The content covered by the instructor sometimes overlapped.

In contrast, individual learning was the main activity for the distance students. These students were assigned the same readings as residential students, they checked PPT individually, and then participated in online discussions conducted once a week after the residential class took place; in the online discussion, supplemental remarks were provided by the instructor based on the Q&A sessions of the residential class meeting; the instructor provided information and advice for their assignments or feedback from the result of their assignments. The distance students were also asked to prepare questions and send them via email before the Q&A sessions started. The questions that seemed to be useful to all students were shared by the instructor through email.



The content of the course was exactly the same, and the same assignments were provided to both types of students; the outcome of the course was the same. There were four types of course assignments: unit quizzes, exercises, deliverables, and projects (see Table 2). The unit quizzes were time based and a short test was after completing each unit. All students were allowed to bring their notes when they took the quizzes. The residential students took the quizzes in the classroom and distance students received them via email. The distance students were required to return their answers within the designated time that was allowed for residential students. To avoid plagiarism, most of questions were application based so that the answers were not merely based on their notes.

Exercises were designed to confirm the application of the skills that the students learned. The topics were concretely specified such as an analysis of given data with specified techniques that the students learned. Deliverables were advanced practical questions: developing a proposal for a given problem. The students could choose how they would implement each exercise and deliverable: individually or by group. Most of the residential students selected to complete assignments such as exercises and deliverables as a group, and the distance students chose to do the assignments individually. The students selected the topic at the beginning of the course, got approval from the instructor to conduct it, and the project was conducted throughout the semester. The instructor provided several themes to the residential students, but the distance students chose a project that was related to their job. Also, some distance students preferred a combination of mini-projects; but all residential students chose one big group project.

Table 2: Course assignments				
Residence	Course	Distance		
	Assignments			
- individual	Unit Quizzes	- individual		
 paper based 	(open note	- digital		
 hand written 	and time-	-submission via		
	based tests)	email		
-group activity	Exercises	- individual		
-submission via	(applications	activity		
email	for the skills	- submission via		
	learned)	email		
-group activity	Deliverables	- individual		
-submission via	(advanced	activity		
email	practical	- submission via		
	questions)	email		
-group activity	Project	 individual 		
-client-specific	(client-	activity		
projects were	specific	student chose a		
provided by the	project or a	client-specific		
instructor or	combination	project that was		
chosen by the	of mini-	job related		
students	projects)			

A variety of activities such as discussions, readings, document writings, reflection, and feedback from the instructor, were provided. The instructor arranged the schedule of synchronous activities and gave the students the choice of group or individual activities.

AN INTERPRETATION BASED ON EQUIVALENCY THEORY

Equivalency theory is based on the idea that "the more equivalent the learning experiences of distant learners are to those of local learners, the more equivalent will be the outcomes of the educational experiences for all learners" ^[1]. Simonson ^[2] emphasizes that "distance education's appropriate application should provide equivalent learning experiences for all students distant and local in order for there to be expectations of equivalent outcomes of the educational experience." This theory describes the features of distance education and technological evolution, and implies that the best form of distance education that enables a valuable education may not take the same format as conventional education. The more the differences between the distance and conventional education have been understood, the more the quality of distance education has been assured through appropriate learning activities. To provide appropriate learning experiences, the theory also advocates the use of new telecommunications technologies for the distance learners who have a potential and an ability to be self-directing^[7].

Table 3 shows the interpretation of the course based on the five key elements of equivalency theory. The five elements, which help to understand the theory, include: the concept of equivalency, learning experiences, appropriate application, students, and outcomes. Both types of the course were examined by using all the key elements. Some elements were satisfied with common class learning activities, and some elements had different learning activities between residential and distance education. These elements can be used to analyze a program as well as a course, but in this study it was applied to a course. This study found that two types of courses designated for residential and distance students were equivalently provided for the different type of students.

According to the "equivalency" element that is the main concept of the theory, equivalency was maintained throughout the course. The group activities provided more opportunities to discuss and share ideas with peers, and the tasks were allocated freely among the members; but to get consensus and make decisions for an action required time to work with other group members. In contrast, individual activities required more responsibility in each process of the activity. The students who chose work individual needed to complete all the tasks by themselves, but they were able to choose their work time and topics more flexibly. The "learning experience" is an essential factor to provide an equivalent value of education. Based on the common content of learning resources, adequate learning activities were provided for each learner. The time spent on each activity varied. Residential students were required to participate in class meetings, but a compressed discussion was implemented in the distance class. The "students" element was satisfied by accepting all students as regular students in the M.S. program. The students chose the program based on the content: student should be defined by their enrolment in a course, not by their location"^[1]. However, the elective courses that students can take were different. The school has provided supportive systems such as email, CMS, and libraries for "Appropriate application." The school's support to access the resources and systems was available. The common "outcomes" were provided by equally informing and confirming the objectives and assignments. As mentioned above, this study found that there were many factors that maintained the equivalency theory.

Some areas of the course need to be improved. The instructor assisted both classes alone so that he sometimes seemed to be preoccupied responding to the students' questions and requests, which interfered with the transition of the learning process: feedback about the assignment took too time. It would be better to have a teaching assistant in the classes to accommodate more questions from distance students and have more interaction with the instructor. The distance students need quicker responses from the instructor, because they have less opportunity to talk with the instructor individually. Additionally, the learning system provided by the school can be used more effectively. Communication with the instructor was implemented through email and, as a result, some students had trouble receiving the emails because of 8th International Conference on Information Technology Based Higher Education and Training, 10th to 13th July 2007, Kumamoto, JAPAN

the quota limitation on email. Online discussion board and document uploading systems would address the problem and improve usability. If documents are saved in a specific place online, this would help students to get information equally.

CHALLENGES IN THE FUTURE

The comparison of the program for distance and residential students demonstrates the possibility of the provision of an equivalent program to residential and distance learners. The use of the five key elements of equivalency theory guided this comparative study of the relationship between conventional and distance education, and indicated the possibility that the two programs have provided the same quality of learning.

This investigation is only an examination from a course participant's perspective with existing documents. To provide more validity to the findings of the study, more detailed data collection and analysis are necessary. The next step for this research would be to conduct interviews with the members of the faculty involved in the M.S. curriculum

development, the teaching faculty, and both residential and distance students. By interviewing people who have a different perspective and a different role in the program, the following information can be obtained: how the administrators designed the program, and why four core courses are required; how the teachers implemented the learner's support system into the course; and how the students work through class activities, as well as what they think about the course and its support system. Additionally, other observations about how instructors support students learning process, as well as other existing document reviews will be conducted. Participation in teaching activities as a teaching assistant is a way to implement the observation.

As the anticipation of technological changes and a diversity of learning methods are provided, various theories of distance learning have been proposed, and many practices have been examined by researchers and educators. Our research constructively contributes to the understanding of the current situations and the potency of distance education.

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	The residential students	The distant students	
Equivalency.	Same activities were provided to all students: readings, documents, and		
-A central concept of the	quizzes as individual activities; exercises, deliverables, and projects either		
theory	individually or in a group.		
-The experiences of the local	Most of their activities were	Their activities were mainly	
and the distant learners should	provided as group work. As a	conducted by individuals because it	
have equivalent values	member of the group, they focused	was difficult to form a team among	
-These experiences may be	their target topic and discussed how	students who were physically	
different	to implement, effectively, the	distant and had a different life style.	
	project assigned to each group.	They shared their own ideas and	
	Regularly and/or as-needed, the	topics via online discussions. The	
	instructor gave feedback to each	instructors gave feedback to each	
	team.	question in the synchronous	
		discussions.	
Learning Experience.	The methods varied, but the experiences were similar. Students learned		
-The types of experience	through readings, discussions, document development, talking with		
might differ	instructors, and peer feedback. Both have a combination of group and		
-1 his includes what is	individual activities. Also, there was flexibility in terms of schedule. The		
The instructional planning is	same resources could be accessed.		
-The instructional plaining is	Most activities were implemented	Most activities were conducted	
of experiences for each leaver	by groups. Two main activities	Individually. Based on individual	
of experiences for each leaner	composed primarily of class	diaguagian and group O & A cassions	
	meetings and group project	uiscussion and group Q&A sessions	
	reading and writing were offered	were implemented.	
	within the group activities		
Appropriate Application	A common system environment prov	ided by the school such as an E-mail	
-Appropriate learning	address CMS a Webnage a nortal site was used to provide resources and		
experience to the target	to communicate All resources in the courses are accessible both within		
learner should provide	campus and outside campus. Basic technical knowledge of the use of		
through appropriate learning	media is required to enter the program. Library online service is available		
environment for the learner	to all.		

	University and department facilities such as library space and computer labs were open to all. Use of these facilities is available on demand.	Students are required to prepare the learning environment (the internet, pc, etc.) to assure they can access the learning environment with support from the school.		
Students.	The program is an M.S. program. The analyzed course was required and is			
-Students are able to	three credits. Students could change residential and distance track by			
participate in the course they want to take	request. Residential students can take a distance course and vice versa.			
-The students seek	Students can select a variety of	Elective courses are limited.		
institutionally-based learning	elective courses from other			
activities	departments, and select Ph.D.			
	courses provided by the			
	department.			
Outcomes.	Students have common outcomes and objectives (core courses) of which			
-The outcomes of a learning	they are informed at the beginning of the course.			
experience are obvious and	The common objectives were in the syllabus for both students, and all			
measurable	assignments and outcomes were equivalent.			
-Two categories of outcomes:	The instructor's support toward the outcomes was provided separately.			
instructor determined and	Almost all outcomes were specified by the instructor, but each learner			
learner determined	could select the topic or target of the project to meet the requirements of			
	the course.			

REFERENCE

- [1] Simonson, M. (2000). Equivalency theory and distance education. TechTrends, 43(5), 5-8.
- [2] Simonson, M., Schlosser, C., and Hanson, D. (1999). Theory and Distance Education: A New Discussion. *The American journal of distance education* [0892-3647], vol:13.
- [3] Moore, M. (1994). Autonomy and interdependence. American Journal of Distance Education, 8(2), 1-5.
- [4] Harasim, Linda. (1993) Collaborating in Cyberspace: Using Computer Conferences as a Group Learning Environment. *Interactive Learning Environments*, 3 (2), 119-130.
- [5] Hricko, M., & Schotte, L. H. (2006). ONLINE Assessment and Measuremnet. Hershey, PA, USA: Information Science Publishing.
- [6] Institute for Higher Education Policy. (2000). Quality on the line: benchmarks for success in internet-based distance education. Washington, DC: The Institute.
- [7] Merril, M. D. (2002). First principles of instruction . Educational Technology Research and Development, Volume 50, 43-59.