Instructor and Student Perceptions/Attitude on the Design of Instruction for the Internet and ITV

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Introduction

Background of the Problem

Instructional design is aimed at improving instruction to ensure the learning of the individual. "Systematically designed instruction can greatly affect individual human development" (Gagne, Briggs & Wager, 1992, p. 5). Teaching at a distance, whether synchronous or asynchronous, requires the designer to place greater stress on the initial planning phase. Although distance education has become a viable alternative or addition to traditional education, there is little research on the instructor and student perceptions of the design of the instruction when the two major distance education technologies, the Internet and Interactive Television (ITV) are used. Therefore, additional research in this area has become the focus of this study.

Purpose of the Study

This study examined the perceptions of both instructors and students at the University of Northern Iowa, Cedar Falls, Iowa on the need for the instructional design process used when designing instruction for two major distance education technologies-- the Internet and ITV.

Significance of the Study

It is important to gain instructor and student perceptions/attitude on the design of instruction for the Internet and ITV. The information gained from this study provides an understanding of how the use of the Internet and ITV affects the design for instruction in distance education courses. The data acquired from the study provides administrators and instructors who are involved in distance education with decision-making information related to instructional design to enhance the distance teaching process. In addition, this knowledge can be used for the distance education program planners and educators to broaden the scope of effective learning experiences available to distant learners and to improve the quality of the learning experiences of the distant students.

Theoretical Background

There is very limited literature resources that address the issue regarding instructor and student perceptions of designing instruction related to using the Internet and ITV in distance education.
Teaching at a distance requires greater stress on the initial planning phase (Simonson, Smaldino, Albright, & Zvacek, 2000). To secure the success of the planning, distance learning faculty should pay attention to some key issues regarding designing instruction at a distance. According to Simonson, et al. (2000) the following issues need to be considered:

1. Who are the learners? The instructors need to have knowledge of general learner characteristics. This knowledge about the learners can help the instructor handle the separation of instructor and students successfully.

2. What is the essential content? The content of a course should reflect where this content relates to the rest of the curriculum. Instructors need to consider the nature of the content, and the sequence of information. Generally, the scope of the content for a course needs to be sufficient to ensure that the learning experience will result in desired outcomes. The identification of goals and objectives for instruction is necessary.

3. What teaching strategies and media should be used? Learner participation is important when distance educators decide which strategy or strategies to use. The instructor needs to think about selecting those instructional strategies that enable all the learners to engage actively in their own learning.

4. What is the learning environment? To completely understand distance education, one must examine not only the technology, but the learning environments that are created (Herring, & Smaldino, 1998).

5. How do you determine the quality of the instruction? Since so many different variables can influence the effectiveness of the quality of instruction, it is important that the instructor reflect on distance teaching practices. Formative evaluation is necessary for successful distance teaching/learning experiences.
6. The distance education instructor needs to address general learner characteristics, the nature of content, teaching strategies and media selected, the learning environment and evaluation. These are important factors related to designing instruction at a distance. Based on those factors, the study described in this paper reports on the perceptions of both instructors and students on the design of instruction when conducted via the Internet and ITV by focusing on four factors or areas: (1) the Internet and interactive television technology characteristics, (2) content organization, (3) learner considerations, (4) evaluation.

Statement of Research Questions

Surrounding those four areas, research questions are generated as follows:

1. What are UNI distance teaching instructor and distance learning student perceptions toward technology characteristics, content organization, learner considerations, and evaluation?
2. Is there any significant difference in perceptions of technology characteristics
3. between the UNI distance teaching instructors and distance learning students involved in teaching or learning the courses offered at UNI?
4. Is there any significant difference in perceptions of content organization
5. between the UNI distance teaching instructors and distance learning students involved in teaching or learning the courses offered at UNI?
6. Is there any significant difference in perceptions of learner considerations
7. between the UNI distance teaching instructors and distance learning students involved in teaching or learning the courses offered at UNI?
8. Is there any significant difference in perceptions of evaluation between the UNI distance teaching instructors and distance learning students involved in teaching or learning the courses offered at UNI?

Methodology

Participants

Eight instructors with ITV and Internet teaching experience and eighteen distance students enrolled in an ITV/web course were chosen to participate in this study. A mailed self-completion survey was distributed along with an introductory letter attached to the questionnaire. A total of seventeen students and six instructors returned their questionnaires by the deadline date. Among the six instructors, four were from the Department of Curriculum and Instruction, one from the Department of Educational Psychology and Foundations, and one from the Department of Science Education. The seventeen distance students were all from one graduate level Instructional Design course. Among the 23 returned surveys, three were not used in the study because one instructor only used ITV and two students' surveys contained missing important demographic data.

Instruments

The survey used in this study consists of two questionnaires, one for instructors and other for students. The two questionnaires were generally composed in the same way: both containing 26 items in which the same issues are addressed (except for in 23 and 24 items). The questions found in the two survey instruments were developed from issues and questions arising from the initial review of literature. The research questions served as guideposts in developing the specific items.

The four areas investigated in the questionnaires are identified as follows: the Internet and Interactive television technology characteristics being included in the first ten questions; content organization being identified by nine questions; learner considerations being defined in three questions; evaluation being covered by two questions. Two open-ended questions asking about the major strengths and weaknesses of using the Internet and ITV for teaching and learning the content are used to provide some detailed information to complement the UNI instructor and student perceptions related to those four areas investigated.

Validation of the instrument. Before doing this study, a focus group was used to test the research instrument to provide another source of information and a second data base. This group consists of one professor and five students in a research course in Fall, 2000. Since surveys are expensive and time-consuming, it is important to ask the right questions and to ask them in the right way. By conducting this focus group before initiating a survey, the researcher could formulate the survey questions more precisely. This focus group also helped the researcher to understand the prospective respondents' general perspective on the issues to be discussed, frame of reference to be used, and way of thinking and typical vocabulary when handing the topics at hand. The researcher applied the input provided by this focus group to the construction and revision of the two questionnaires.

In this study, a five-point Likert scale ranging from strongly agree to *strongly disagree* was used for the participants to answer the structured questions of the two questionnaires. Open-ended questions were also included in the questionnaires for more information about perceptions of strengths and limitations of the technologies.

Procedure

The five distance instructors and 15 distance students at UNI who participated in the study were given two weeks to complete the questionnaire and returned it.

Data Analysis

Both quantitative and qualitative methods were used to analyze the data. The data regarding the structured questions in the two questionnaires was statistically analyzed using SPSS 9.0 statistical software package. Means and standard deviations were calculated for each statement on the survey instrument. In addition, an overall cluster mean was calculated for each of the four cluster areas. An independent-samples t-test analysis was conducted on each of the four cluster areas to determine if there was a statistically significant difference that existed between the instructors' and students' perceptions of using the Internet and ITV for the design of instruction. An alpha level of .05 was used to determine significance. A coding system which a qualitative study usually applies was used to analyze the data regarding the open-ended questions in the two questionnaires which discuss the major strengths and weaknesses of using the Internet and ITV for teaching and learning the content. Some important themes were generated.

Results

Research Question 1 intended to determine the overall group means for each cluster of questions (see Table 1). The results based on mean scores among the two groups dealt with four clusters: technology characteristics, content organization, learner considerations, and evaluation. Generally, student cluster mean scores were rated lower than instructor cluster mean scores.

Research Questions 2, 3, 4 and 5 intended to determine if the differences found for the four cluster area means between two groups were significant at the .05 level. An independent-samples t-test revealed that the student group rated statements significantly lower than did the instructor group (see Table 2). Significant differences were not found among the Internet and Interactive television technology characteristics, content organization and learner considerations clusters between instructors and students. However, significant difference was found among the evaluation cluster between the two groups.

Discussion

The findings of this study showed that although the student group rated the four clusters of statements lower than did the instructor group, they still had generally positive perceptions of the design of instruction related to the four areas investigated in this study. The general themes generated through analyzing open-ended questions are presented as follows.

The distance instructors and students provided some major strengths of using the Internet and ITV for teaching and learning the content. They generally believe that the Internet and ITV technologies complement one another very well and provide good educational experience. Both instructors and students agreed that obviously the use of the two technologies overcame limitations of time and distance because it allowed students to interact outside of class and made courses available to those who otherwise could not come to campus to take them so that more students can attend class. Instructors could also reach more students who took interest in their programs. Students commonly believed that taking ITV classes saved time traveling to campus and they could work and go to school at same time. Regarding the Internet-based courses, students generally observed that WebCT was an excellent user-friendly tool for it definitely helped them master the content. They believed that it had expanded resources and provided up-to-date information that print articles would otherwise carry and the schedule for it was flexible. Communication via e-mail/bulletin board was easy, friendly, and quick. They could work on WebCT at any time that was convenient to them especially when their schedule is very tight. And this makes discussion more interactive. Concerning ITV classes, some students believed that since the schedule for ITV classes was more structured, and it allowed time for group discussion. And it was also good for students to promote camaraderie among themselves. Some students felt that distance learning via the two technologies was challenging and student-centered. Students could communicate the content with distance learners from different locations with a variety of backgrounds and focuses and on-site professionals with a wide variety of perspectives across the state.

The distance instructors and students also offered some major weaknesses of using the Internet and ITV for teaching and learning the content. The major concern for ITV is the technical difficulties for those at distance sites. Quite a number of instructors and students reported that technical problems had been frequent on the ICN which was frustrating. Having a personal contact could solve this kind of problem and establish great support for students.

Lack of interaction and sharing of ideas is another concern for the Internet and ICN teaching. Both instructors and students felt that face-to-face interaction with the professor and other students was not possible on the ITV. Often there were not much small group discussion and activity. Sound was sometimes a problem. All the facilities were not equal in terms of resources for sharing information. Some instructors felt that sometimes they were lost in not being able to connect with their students on a personal level. Students also had the same feeling of losing one-on-one interaction with the teacher and other students. Sometimes, they felt that classes were too large for interaction; thus, a large part of class became teacher-centered. Some students indicated that they were shy to be on ITV, which may have contributed to limited interaction. Regarding the Internet-based instruction, students felt that they had to accept ideas as they were. The use of the Internet was somewhat of an impersonal experience. In addition, students commonly felt the Internet resources were too vast and it was easy to lose focus. To them, the Internet was a great resource to obtain information; however, it was hard to find exactly what they needed sometimes. Besides, some information was irrelevant. Finally, students felt that the ITV teaching lacked spontaneity because this kind of teaching was very much structured and that lecture format dominated the class though they knew that lecture was the best way to transfer information under these circumstances. The findings of this study have indicated needed areas for improvement in the distance learning program at UNI. Specifically, strategies need to be developed to help distance instructors and learners to overcome technical difficulties, additional measures need to be taken to enhance instructor-student and student-student interaction, such as small group discussion, presentations and projects and to help students to find the resources quickly which directly satisfy their learning needs.

Table 1. *Overall Cluster Item Means for Each Cluster Group*

	Instructor **Mean**	*Student* **Mean**	*Total* **Mean**
Technology Characteristics			
Overall Cluster Mean	2.2400	1.9167	2.0118
Content Organization			
Overall Cluster Mean	1.8889	1.6370	1.6901
Learner Consideration			
Overall Cluster Mean	1.9167	1.4667	1.5614
Evaluation			
Overall Cluster Mean	2.0000	1.2000	1.4000

Table 2. *Independent-Samples t-Tests for Technology Characteristics, Content Organization, Learner Consideration and Evaluation Cluster*

	Mean	*SD*	*t-Statistic*	*p Value*
Technology Characteristics				
Instructor	2.2400	.33615	-1.878	.108
Student	1.9167	.31861		
Content Organization				
Instructor	1.8889	.46259	-1.032	.376
Student	1.6370	.42718		
Learner Consideration				
Instructor	1.9167	.87665	-1.367	.387
Student	1.4667	.50079		
Evaluation				
Instructor	2.0000	.36839	-4.243	.003*

Student	1.2000	.35355

* Indicates a significant difference at .05.

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