Internet Delivery within Course Content and Learner Satisfaction in Early Childhood Education

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Introduction

The internet is an ever expanding tool for learning, including distance education (Benson & Meyers, 2000; Lan, 1999; Owston, 1998; Williams, 1996). Whether or not the Internet can be an effective tool for training staff within the human services, particularly childcare staff, needs to be explored. Our project evaluated the effectiveness of the Internet training in terms of learning outcomes, its implementation (specifically, the technological aspects), and the student's level of satisfaction with the course. The impetus for our project came from two sources.

First, Pennsylvania delivers childcare training to all licensed and registered childcare providers in the state and is interested in making this system more cost effective and efficient. Discussions related to utilization of the latest technologies, such as the Internet, are being considered. Secondly, a new initiative, CyberStart, will link all licensed childcare centers in Pennsylvania to the Internet. While this initiative is specifically designed to offer Internet access and educational programming for children, it will also make this technology available to childcare staff. Hence, there is a need to evaluate the feasibility and effectiveness of Internet-based distance education as it becomes more available to childcare centers.

Methodology

A quasi-experimental design was employed, which consisted of four groups of five students who enrolled in the early childhood education (ECE) course ECE 479 *The Young Child's Play as Education Process*, which focused on play, communication, and curriculum.

1) A group experienced the traditional lecture/discussion course format.
2) A group took the course on the Internet, but within the context of a computer lab (located at Penn State York) where they had the opportunity to interact with their peers and the instructor.
3) A group took the course on the Internet as part of a local distance education (DE) group; this group also had some face-to-face interaction with their peers and knew the instructor.
4) A group took the course on the Internet, but as part of a statewide DE group. This group had no face-to-face interaction with their peers or the instructor.

This research design enabled us to examine the available technology to determine any hardware or software constraints, as well as the efficiency of the technological support services, by comparing groups that took the course via the Internet in different environmental circumstances (i.e., the on-campus computer lab vs. a home-computer set up). The research design also permitted us to evaluate the importance of the human element as a component of the effectiveness of this training modality since participants were in controlled settings with varying possibilities for face-to-face interaction.

Given the exploratory nature of this study, a qualitative approach with a small sample was employed to generate data from questionnaires and interviews, as well as from course assignments completed by students. The questionnaire included items that tapped demographic characteristics (age, sex, and prior education), current position and experience within childcare, and experience with computers. Phone interviews, administered before and after the course, and lasting in duration from 30 to 45 minutes each, assessed students' knowledge about play and perceptions about the course. In addition, select course assignments were independently graded to assess knowledge. The course aimed to increase the students' knowledge about play and its practical application. Two measures of the learning outcomes were used:

- interview responses to questions about play given before and after the course
- grades on selected course assignments.

A group took the course on the Internet, but as part of a statewide DE group. This group had no face-to-face interaction with their peers or the instructor.

Methodology

From the phone interviews, students' answers to four questions about *play* were evaluated. The questions were:

- What is play?
- What is the value of play?
- What is positive play?
- How can adults have a positive influence on play?

An empirically based coding system was developed and employed to score students' answers. Participants of the study consisted of 20 students who were all female and ranging in age from 23 to 60 with a mean of 39 years.

The course *The Young Child's Play as Educative Process* (ECE 47), offered by the Department of Curriculum and Instruction in the College of Education at The Pennsylvania State University, was selected for this experimental study of Internet-based instruction. Developing the course for Internet-based instruction required connecting with the Penn State World Campus (on-line learning). The stages of the course development include:

1) **Course structure –** Requirements included an observation project, designing play environments, writing letters explaining play-based teaching to parents and to a 'blue ribbon committee' of educational professional, as well as doing an implementation project and keeping a journal. *The Instructor's Manual to Accompany Johnson/Christie/Yawkey Play and Early Childhood Development, Second Edition* (Johnson, 1999) provided the guidelines for the overall course organization and sequencing, which followed the chapters of the text, with the content going from theory and research to policy and practice.

2) **Course content –** The course was organized into four modules with a number of online lessons or sessions in each module. Students had a reading assignment for each session and a self-administered objective-item exam, which produced computer-generated feedback for self-evaluation. The objective items and the open-ended discussion questions came from the instructor's manual.

3) **Course programming –** The course program included some special features to make the on-line learning experience more interesting. An animated pop-in character (a cartoon owl) appeared on their screen at various selected points throughout the sessions to ask questions as a real classmate might. A home page was also created for the course.

Results

Students reported prior experience using personal computers ranged from no experience to 15 years with a mean value of 4.1 years. A questionnaire item asked who usually provided technical support for their home PC (e.g., installing new software or hardware, answering software questions, and fixing problems). No more than five students usually relied on themselves for technical support for their home PCs. Of the four students who chose "other," three students usually relied on a friend, and one usually relied on another teacher in her childcare center.

For the following four *play* question, each student's answers given in the post-course interview were compared with the pre-course answers in order to evaluate whether there were response improvements, defined by an increase in positive responses and/or a decrease in negative responses.

Question 1: What is the definition of play?

All classroom and computer lab students improved, as did the three statewide DE students who stayed in the course. Classroom and lab students showed few negative responses before or after the course, while local DE students gave 8 negative responses and statewide DE students gave 13 negative responses before the course. However, in post-course interviews the six DE students made only five negative replies.

Results

Question 2: What are the benefits of play?

As can be seen in Table 1, the classroom and lab students performed better than the local DE and statewide DE students on this item. They were able to identify significantly more functions of play, especially after the course was taken. Nine of ten students in the classroom/lab groups improved, but only 3 of 6 in the DE groups did.

Question 3: What is good play?

Only seven of 16 students improved. Evidently, the course did not impact very much how well students could answer this question. Most students talked about types, functions and characteristics of play and failed to differentiate good play from play in an acceptable manner as determined by the coding and scoring system used in this study. This discouraging result may be because the scoring criteria were too harsh, or perhaps because interviewees did not understand the question.

Question 4: How can adults make child's play better?

Table 2 shows the mean scores across groups and for before and after the course. There were 11 students who improved, with all but one of them coming from the classroom or computer lab research groups. Only one student in a DE improved. Five students in DE groups actually performed more poorly in answer to this question after the course was over. In sum, the course influenced students' performance in identifying adult roles in children's play differentially depending on which research group they were in – classroom and lab students outperformed DE students.

There were three assignments that were graded for all the students: implementation activity (A), a parent letter (B), and a blue ribbon letter (C). As shown in Table 3, a comparison of the grades on these assignments across all four groups did not reveal that any one group consistently scored higher than the others. However, the traditional classroom group did score the highest on assignment B and had the second highest set of scores on assignments A and C.

For assignments A and B the differences in scores for the four groups were statistically significant. No significant differences were found for Assignment C. The computer lab group scored the lowest on assignments A and B while the other three groups of students all scored about the same. When all the assignments are totaled for an overall score, the traditional classroom performed significantly better than the other three groups.

Respondents revealed general satisfaction with the content of the course, the course activities, and the course requirements. There was a strong appreciation and high evaluation for the teacher. Even with good course content, instructional design, teacher, and technical delivery, there were several people who clearly indicated reservations about Internet learning because it lacked face-to-face interaction. These people indicated that even if there were no technical difficulties, they would miss the human contact and would prefer courses or training taken in a classroom where there was greater opportunity for interpersonal interaction and contact.

Table 1: Pre- and post- course mean scores for benefits of play across four conditions

Groups	Classroom	Computer Lab	Local DE	Statewide DE
Pre-course	5.2	4.0	3.8	3.0
Post-course	8.4	7.2	3.3	5.6

Table 2: Mean scores for total roles across groups before and after the course

Groups	Classroom	Computer Lab	Local DE	Statewide DE
Pre-course	3.8	2.4	4.0	3.6
Post-course	7.0	4.6	3.3	5.6

Results

Table 3: Scores on course assignments across four groups

Groups	Assignment A	Assignment B	Assignment C	Total
Classroom	2.86	3.86	2.75	9.47
Lab	1.90	2.63	3.00	7.53
Local DE	2.69	3.37	2.50	8.56
Statewide DE	2.99	3.61	2.35	8.95

Conclusion

This evaluation provides insights into offering ECE courses over the Internet. It seems that the success of this technology is dependent upon the persistence and knowledge of the student for learning to occur. Four students who did not complete the course were from the local (N=2) and statewide (N=2) Internet-based distance education groups; none were from the traditional classroom or computer lab settings. The students had considerable difficultly in accessing and doing the course online. Possibly the dropout rate would have been greater if the students were at a beginning stage of their career (Cohen, 2000; but see Schrum, 1992). Students in the traditional classroom and in the computer lab groups, where there was more face-to-face interaction, scored the best on the interview play evaluations.

On the three course requirements, the classroom group scored the highest on assignments summed together (9.47); but the computer lab group scored the lowest on the assignments (7.53), with the two distance education groups in the middle. This is in consistent with the results from the analyses of the interview responses to the four questions about play. Here both the classroom group and the computer lab group gained the most. The students in the two distance education groups scored higher on the course assignments compared to the computer lab group, their results were still lower than the students' scores from the traditional classroom group.

For Internet instruction to be effective it seems that students must be technologically literate and knowledgeable about course content to some degree, and they must be persistent and highly motivated. Without these personal characteristics, the Internet course experience may not be a positive learning experience. The Internet training for childcare staff needs to be targeted, beginning with directors of programs, who generally have the greatest experience and education and potential exposure to computer technology.

Internet technology provides a great deal of promise for reaching childcare staff with needed specialized in-service training in ECE. But first it is necessary that the technology gets the fine-tuning to ensure its effectiveness as a training modality for the majority of childcare provides.

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