Online in a Hurry: Intensive Technology Orientation for Distance Education Students in Hawai`i Teacher Preparation Programs

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Abstract: As the largest institution preparing Hawaiian teachers for licensure and as the only nationally accredited teacher preparation institution in the state of Hawai`i, the University of Hawai`i at Manoa College of Education uses distance education to meet its numerous challenges. The Internet-based component of its distance education efforts poses unique challenges to student access – especially the availability of Internet service, students' technical abilities, and provision of technical support. In August, 2003, a technology orientation weekend was held for forty-five students entering two new distance education programs. Due to the geographic separation of Hawai`i's six major islands, students were flown to the UH-Manoa campus for this two-day intensive orientation. This paper delineates the orientation objectives, reviews the format and details the study results. Based on a pretest/post-test study, the model was successful in advancing most students' comfort levels in the targeted technology skills. Researchers concluded that the technology orientation weekend was effective in increasing participant's knowledge and skills in areas critical to success in online learning.

Introduction

Two teacher preparation programs, a Post-Baccalaureate certificate program in Secondary Education (PBCSE) and a Master of Education program in Special Education (M.Ed.), were offered by the College of Education (COE) at University of Hawai`i-Manoa beginning in Fall 2003. While both programs had been offered previously, neither had been made available to the entire state of Hawai`i simultaneously. In a state composed of six major islands, it is time-consuming and expensive for neighbor island students to fly to Honolulu to attend classes at the Manoa campus. Because Hawai`i faces a severe shortage of licensed teachers, especially on the islands neighboring Oahu, these programs were launched as the first phase of a larger initiative to prepare teachers throughout the state.

In order to enable student participation despite geographic separation, both programs were planned with hybrid delivery methods. Courses take advantage of Internet delivery, videoconferencing, and face-to-face instruction during intensive weekends when students fly to a central location. As with fully online programs, the introduction of hybrid instruction necessitated a close examination of student computer access, software compatibility, Internet access, and students' technological capabilities. After a pilot course in Summer 2003 (a prerequisite for the M.Ed. program), it was obvious that many students lacked basic computing skills and needed extensive assistance using computing technology in a hybrid (Internet and intensive weekends) course. The August 2003 Technology Orientation was designed to respond to these needs and to proactively prepare students in both programs for success in online activities.

It is important to note that approximately half of the M.Ed. participants took part in the pilot course prior to the technology orientation. The decision was made to require the technology orientation of these students despite their prior experience in order to establish a firm baseline of knowledge and skill expectation from the entire cohort. This requirement was expected to negatively impact the M.Ed. students' perceptions of the technology orientation as some of the participants did not believe their participation was necessary.

Orientation Structure and Learning Objectives

A variety of authors have identified that an introduction or orientation to online learning is a critical component of program planning and of student success (Cooper, 1999; Cooper, 2002; Scagnoli, 2001; Short, 2000). Specifically, orientation to online coursework can facilitate academic and social interactions, increase student involvement, help retention, and enhance students' sense of belonging to a learning community (Scagnoli, 2001). Abromitis (2002), identifies the use of orientation courses or materials as a trend for programs requiring online learning. Without an orientation, online students would be "left with traditional tools in a non-traditional environment." Because a reliance on technology changes the process of instructional delivery, introduction to the technological infrastructure of a technology-reliant program is necessary (Mungall, D.; Green, C.; Skunza, B., 2001).

The COE Technology Orientation was focused on preparing PBCSE and M.Ed. participants for success in online and hybrid courses. It was held on a Saturday from 10:00AM to 6:00PM and the following Sunday from 8:00 AM to 4:30PM. This schedule was intended to accommodate participants with weekday work obligations and to allow for travel time on Saturday morning and Sunday evening. In order to make use of the COE's instructional computing facilities, it was held at the Manoa campus. This necessitated inter-island air travel for all but one program participant. Participants were housed in a hotel facility a short drive from campus. The PBCSE group consisted of twenty-six students and the M.Ed. group consisted of nineteen students.

Based on experience with the pilot course, the orientation was designed to provide participants with the following knowledge and skills: 1. the ability to interact in the WebCT online course environment in comfort; 2. understanding how to access university technical resources such as a student identification number, email account, personal file space, and library research tools; 3. basic PowerPoint skills; 4. ability to create and use digital photos; 5. basic web page development skills; 6. file management, browser plug-ins, and troubleshooting skills. Workshops were held in computing facilities where each student had a laptop computer and wireless Internet access. Three instructors, including the authors of this article, presented hands-on workshops to the students. Instructors rotated between groups on a schedule, approximately every two hours. Additional support staff were available to field individual student questions during workshops. Participants were provided with morning, lunch, and afternoon breaks.

Each participant left the orientation with a resource binder including web site printouts, job aids, and resource documents from each workshop. They also signed out digital cameras and microphones for use during their course of study. Participants were also provided with a CD-ROM that included common browser plug-ins and job aid files for later reference.

Survey Methodology

Students were asked to fill out a survey prior to the beginning of instruction, and immediately after the final workshop. Surveys were anonymous. Students were asked to use an easily recalled code to allow us to match their pre-orientation surveys and post-orientation surveys. A few sets were not coded correctly and thus the researchers did not receive a 100% return rate.

The surveys consisted of thirty Likert scale statements addressing the knowledge and skill objectives and six demographic questions. Likert scale questions were measured on a scale of "strongly agree" (Likert score 5), "agree" (Likert score 4), "neither agree nor disagree" (Likert score 3), "somewhat disagree" (Likert score 2), and "strongly disagree" (Likert score 1). The survey statements and related research results are summarized in Table 1. By examining students' self-reported knowledge before and after the technology orientation, an analysis of the orientation's effectiveness was compiled.

PBCSE Scores Increased	M.Ed. Scores Increased	
		1. I know what is required in order to become a successful online learner, including time requirements and time management.
*	†	2. I know how to obtain a UH Unix Account (Email, Personal Web Site, Online File Space).
*	†	3. I know how to obtain a UH-Manoa ID for library access.
*		4. I know how to view Tegrity presentations online.
*		5. I know how to conduct online research using UH-Manoa online library resources and search engines.
*		6. I am familiar with the minimum hardware and software required in order to participate in an online course.
*		7. I know how to download and install plug-ins (e.g. free Netscape Composer, Acrobat Reader, Quicktime, RealOne Player).
*	†	8. I am familiar with file management concepts such as copying, deleting files, compressing files using Zip/Stuffit software, file extensions e.g. .doc, .pdf, .jpg, etc.
*		9. I know how to use a digital still camera.
*	†	10. I know how to perform a screen capture, ie. To capture an image of the computer screen.
*	†	11. I know how to edit a digital image, e.g. cropping, resizing using photo editing software.
*		12. I know how to use Microsoft PowerPoint software to create a slide presentation.
*	†	13. I know how to use a microphone to add voice narration to a PowerPoint presentation.
*	†	14. I know how to save a PowerPoint presentation as web pages (HTML).
*	†	15. I know how to create a basic webpage using HTML editing software such as Netscape Composer, MS FrontPage, etc.
*	†	16. I know how to upload files remotely to the UHUNIX server using FTP (Windows) or Fetch (Mac) software.
*	†	17. I know how to upload files to the WebCT Student Presentation area.
*	†	18. I know how to register for a WebCT student account.
*	†	19. I know how to add a new course to my WebCT account.
*	†	20. I know how to navigate within a WebCT course site.
*	†	21. I know how to compose and send email in WebCT.
*		22. I know how to use email attachments in WebCT.
*	†	23. I know how to participate in a discussion thread in WebCT.
*	†	24. I know how to participate in a live chat session in WebCT.
*	†	25. I am familiar with "Netiquette" rules that govern online communication.
*	†	26. I know how to create a Student Homepage in WebCT.
*	†	27. I know how to use the Student Presentation tool in WebCT.
*	†	28. I know how to submit assignments through the DropBox or Assignment tool in WebCT.
*	†	29. I know how to check for my grades using the MyGrade tool in WebCT.
*		30. When I'm having problems with my computer, I know how to troubleshoot my computer.

Table 1: Survey Statements and Group Conclusions. * indicates higher post-orientation scores for PBCSE group. † indicates higher post-orientation scores for M.Ed. group.

The study's operational hypothesis was that participants would indicate more knowledge (a higher score on the Likert scale) after the technology orientation. The null hypothesis, therefore, was that the mean scores on each item were the same prior and after the orientation. The researchers felt that the possibility existed for participants to rate themselves lower on some survey items following the orientation, therefore a two-tailed test was employed – allowing for both positive and negative score changes. For each student group, PBCSE and M.Ed., self-response scores were compared between pre-orientation and post-orientation using a paired-samples T test. A paired-samples T test compares the means of two variables for a single group. It computes the differences between values of the two variables and tests whether the average differs from zero (SPSS version 12). The T test used a 95% confidence interval.

For paired sample T tests, the observations for each pair should be made under the same conditions. In this case, the observation conditions were substantially similar, although the first survey was completed on paper and the post-orientation survey was an online quiz in WebCT. Both used the same questions, were completed in the same room and with the same instructions. An assumption of the paired samples T test is that the mean differences are normally distributed, although variances can be equal or unequal (SPSS version 12). Because these sample sizes can be considered large and similar, the effects of non-normal mean differences would be minimal (Hinkle, Wiersma, & Jurs, 1994). Due to the anonymous nature of the survey, some results were not paired and the full forty-five student results are not reportable. Twenty three paired surveys were returned by the PBCSE students. Nineteen paired surveys were returned by the M.Ed. students.

Results

T test results are displayed in Table 2. All mean score differences were positive, indicating more knowledge on respective survey items after the orientation. With a 95% confidence interval, a p value of .025 or less leads us to a rejection of the null hypothesis. These cases indicate a demonstrated increase in the students' knowledge level on that survey item.

Survey Statement	PBCSE Students (n=23)			M.Ed. Students (n=19)		
	Mean Score Differences	SD	p	Mean Score Differences	SD	p
1	.83	1.435	.011	.12	1.495	.750
2	2.52	1.123	.000	1.19	.981	.000
3	2.00	1.624	.000	1.12	1.409	.005
4	2.87	1.140	.000	1.24	1.751	.010
5	1.65	1.465	.000	.53	1.419	.144
6	1.14	1.283	.000	.31	1.078	.264
7	1.00	1.069	.000	.50	1.211	.119
8	.95	1.253	.002	1.00	1.414	.013
9	1.32	1.211	.000	.50	.816	.027
10	1.14	1.167	.000	1.31	1.302	.001
11	1.35	1.301	.000	1.76	1.522	.000
12	1.30	1.329	.000	.53	1.375	.132
13	2.70	1.222	.000	2.00	1.458	.000
14	2.30	1.222	.000	1.35	1.539	.002
15	2.23	1.378	.000	1.53	1.231	.000
16	2.05	1.322	.000	1.53	1.505	.001
17	2.62	1.359	.000	1.94	1.519	.000
18	2.67	1.39	.000	1.47	1.807	.004
19	3.00	1.095	.000	1.35	1.656	.004
20	2.52	1.504	.000	1.41	1.698	.003
21	2.19	1.537	.000	1.18	1.741	.013
22	2.61	1.438	.000	.82	1.551	.044
23	2.74	1.287	.000	1.12	1.409	.005
24	2.74	1.356	.000	1.29	1.649	.005
25	1.74	1.657	.000	.94	1.391	.013
26	2.91	1.240	.000	1.82	1.380	.000
27	3.00	1.087	.000	1.94	1.391	.000
28	2.73	1.241	.000	1.94	1.298	.000
29	2.55	1.405	.000	1.24	1.821	.013
30	1.05	1.290	.001	.76	1.522	.055

Table 2: T test results for PBCSE and M.Ed. participants

Analysis

This research was intended to answer several questions. The researchers wished to verify the efficacy of the technology orientation as a model for future cohorts. The research was also intended to identify which knowledge and skills the students may have had prior to the orientation. Furthermore, because the M.Ed. group included many students with prior experience in a hybrid course (the pilot course for their program), the research enabled an examination of skills and knowledge that were improved by the orientation beyond those acquired in a hybrid course experience.

In order to verify the efficacy of the orientation, the researchers examined the change in mean scores for each survey item and also looked at the probability that the pre-orientation and post-orientation means were truly different (as indicated by p values in Table 2). For the PBCSE participants, all mean scores increased between surveys. Furthermore, with the exception of survey item 1, the T test for paired samples indicates that the means were significantly different. Thus, the researchers concluded that the technology orientation effectively increased the PBCSE students' knowledge and skills in almost all areas. Survey item 1 addressed students' knowledge of the requirements to become a successful online learner. Mean scores on this item were 3.83 prior to the orientation, indicating that typical students felt relatively confident in this area already. While the post-orientation scores on this item were higher than pre-orientation scores, a p value of .011 does not allow a rejection of the null hypothesis. We are therefore unable to draw a conclusion about the orientation's effects on PBCSE students' understanding of requirements for successful online learning.

For the M.Ed. participants, all mean scores increased between surveys. The T test for paired samples indicates that the means were significantly different except for survey items 1, 4, 5, 6, 7, 9, 12, 22 and 30. The researchers concluded that the technology orientation effectively increased the PBCSE students' knowledge and skills in all other areas.

For items 1, 4, 5, 6, 7, 9, 12, 22 and 30; we are unable to draw conclusions about the orientation's effects on the M.Ed. students' knowledge and skills. The pre-orientation and post-orientation means for these items are summarized in Table 3 below. It is interesting to note that the mean post-orientation scores in these areas were over 4.0 (except item 30) – corresponding to "Agree" or above on the Likert scale. The M.Ed. students, therefore, saw themselves as strong in these areas regardless of the effects of the orientation. This is very likely because many of them had participated in the program's pilot course – a prerequisite course for the M.Ed. program. Most of the skills that these items speak to were required activities for that course and the students probably felt that their abilities were sufficient prior to the orientation.

Survey Item	Pre-Orientation Mean Score*	Post-Orientation Mean Score*
1. I know what is required in order to become a successful online learner, including time requirements and time management.	4.06	4.18
4. I know how to view Tegrity presentations online.	3.35	4.59
5. I know how to conduct online research using UH-Manoa online library resources and search engines.	3.53	4.06
6. I am familiar with the minimum hardware and software required in order to participate in an online course.	4.13	4.44
7. I know how to download and install plug-ins (e.g. free Netscape Composer, Acrobat Reader, Quicktime, RealOne Player).	3.75	4.25
9. I know how to use a digital still camera.	4.00	4.50
12. I know how to use Microsoft PowerPoint software to create a slide presentation	3.71	4.24
22. I know how to use email attachments in WebCT.	3.35	4.18
30. When I'm having problems with my computer, I know how to troubleshoot my computer.	3.18	3.94

Table 3: Pre-orientation Means for M.Ed. Participants. *5 = strongly agree; 4 = agree; 3 = neither agree nor disagree; 2 = somewhat disagree; 1 = strongly disagree

Finally, the researchers note that for all survey items aside from those presented in Table 3, the M.Ed. students showed increased knowledge and skills. This includes a variety of skills necessary for interaction within the WebCT environment such as email, chat, discussion threads, student homepages, assignment submission, grade retrieval and student presentations. Despite many participants' prior experience with these issues, the orientation increased their knowledge and skills. This strongly suggests that a stand-alone technology orientation weekend provided a better introduction to critical online skills than when faculty integrated the orientation within a course.

Conclusions

The researchers concluded that the technology orientation weekend was an effective method to increase participants' knowledge and skills in areas critical to success in online and hybrid learning environments. This appeared to be true both for students with no prior experience in online or hybrid courses and for those that were introduced to WebCT and online interactions in a prior hybrid course. As a model for future orientations, the intensive weekend experience appears to be effective. It should be noted that this study did not address social and community-building issues that may need to be addressed in orientation experiences. Further inquiry in this area would be a valuable resource for future orientation programs.

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