

TechKnowTeach

Seamless Technology Integration

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Course Formative Evaluation

MIT 515

Web Teaching Design and Development

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Table of Contents

- I) Executive Summary
- II) Introduction
- III) Formative Evaluation Process
- IV) Data analysis and findings
- V) Conclusion
- VI) Appendix
 - a. Website Usability Worksheets
 - b. Usability Tasks and Goals

Executive Summary

TechKnowTeach has been developed to assist public school teachers in New Hanover County Schools in their preparation of curriculum products enhanced by the integration of technology in a seamless manner. The course provides an online environment that is based on Constructivist principles and contains Problem-Based Learning activities.

The course is divided into 5 units covering topics important to the process of building integrated technology instructional products that positively contribute to student's increased learning performance. These skills are needed for the successful integration of the North Carolina Computer Skills/Technology Standard Curriculum and the Core curriculum of any subject area.

The activities found in this course include problem-based activities where the learners are presented real-world problems regarding technology integration. Individuals participating in this course will work on assignments independently and collaboratively in groups for the development of solutions and skills that will address the issues and provide solutions to each problem. The activities found in this course are problem-based presenting the learners with real-world problems facing teachers in today's classroom.

The usability test conducted was reviewed to establish the effectiveness of the material, clarity of instructions, navigation of units, screen design for visual appeal, and specific questions referencing the user's interaction to web site. The observations were recorded and the results collected. The compiled results were reviewed for weaknesses in the course web site and related units for improvement in the overall usability for future users. The goal is to use these results to maximize the effectiveness of the course for the intended target audience.

The target users suggests need for improvement in the text labeling of the NCDPI curriculum links. Navigational problems were found in homepage links. Several homepage links need to be fixed. Overall screen design problems were found with size of the browser window. Users do not wish to scroll right to read all the text on the page.

Introduction

The primary audience consists of public school teachers in the New Hanover County School district that have at least five years of experience in classroom instruction. Participants in this course are required by North Carolina to obtain above the required amount of technology renewal credits in accordance with county licensing requirements (30 hours within 5 years). For support and professional growth, the participants are directed to seek out opportunities for collaboration through problem solving by serving on committees such as school technology teams, leadership/school improvement teams, and literacy teams at each school. In addition, they are to have the readiness to integrate technology into existing curriculum. The technology components are to be seamlessly integrated such as maintaining basic teacher websites (e.g. *Schoolnotes.com*) and using email to communicate with the community (e.g. parents) as well as other faculty.

The units are designed for integration of technology for classroom lessons and encourage the transfer of knowledge from one topic to the next.

Unit One, Getting Started with On-line Learning: This unit contains the introduction of students to the online environment and each other. Problems will require students to navigate through the environment and create a way to introduce themselves to the rest of the class.

Unit Two, Hardware and Software: The students must solve problems involving a multitude of hardware devices and multi-ability level students.

Unit Three, Assessment and Management: The learner will again be put through several scenarios and asked to come up with a solution. These scenarios will involve PBL assessment and classroom management with technology.

Unit Four, Copyright Laws: This unit will put the learner through scenarios that involve several different hardware devices and require the students to come up with solutions. There will also be scenarios that require the students to research and apply copyright laws.

Unit Five, Put It All Together: The students must combine all resources and unit assignments to solve problems on a global perspective for seamless integration into the classroom.

The objectives for the formative evaluation are as follows:

- Determine if the primary purpose of this web site is clear.
- Determine if the content material is an age appropriate level for the target audience.
- Determine if the site provides learners with an effective navigation system allow easy access to information available.
- Determine if there is visual appeal in the screen design of the web pages.
- Does the web site make good use of white space, colors and font size for visual appeal and readability?
- Determine if the site provides learners with clear and concise directions

Formative Evaluation Process

A usability test was conducted on the *TechKnowTeach* course in order to determine the effectiveness of the directions, relevance of the course material, usability of the web page, and visual appeal of the course pages.

The formative evaluation process was conducted with three potential students of "*TechKnowTeach*". These potential students are of various ages and technological experience. The first user is a Foreign Language/History teacher that has been in-service for over 20 years. He describes himself as "technologically illiterate." The second user is a technology teacher that has been in-service for 7 years. She teaches Networking. The third user is a Psychology teacher that has been in service for five years. She considers herself adequate with technology.

The students were presented with 7 tasks individually that evaluated four different goals. Each task was observed and timed. Notes were taken on the user's path, comments, and actions. The goals and tasks are listed below.

The goals for the formative evaluation are based on validity, readability, navigation and visual screen design. The areas are divided into goals and assigned tasks for subjective responses. The goal of *validity* was measured by asking the user to read the introduction of the syllabus and guide. The tasks identified for indicator benchmarks asked the user if the information specific to these pages were relevant to what a teacher and student would need for preparation to the course and areas of content specify.

The readability was measured by asking the user to indicate what action they would do after reading the syllabus and guide. The observation identified areas of confusion when having only the "back to homepage" buttons as guides for navigation.

The screen design was measured by asking the user to evaluate the main site links: homepage, syllabus, guide and resource pages. The user was asked to give their preference to the visual appeal "*TechKnowTeach*" logo and its relationship to the homepage. The user was asked to express the easy of locating links referenced within the homepage for content and resource areas. The user's body language and facial expressions were observed for overall approval of course site and motivational content.

The navigation was measured by focusing on tasks that required the user to find specific requirement need for the course, description of terms for content area, and any obstacles found within each tutorial.

The outline of the usability test questions are listed in Appendix B.

Data Analysis and Findings

Results of Usability Test	User 1	User 2	User 3
Suggests that there should be an introduction to each unit in the syllabus		X	
Asks what the grading procedures are	X		
Suggests a "Meet the Teacher" page		X	
Comments that the course purpose and description is the same as the introduction		X	
Suggests the site be more linear		X	
Was overwhelmed at the amount of information			
Agreed that the course was relevant and needed	X		
Had no problems with readability	X	X	X
Went to Unit 1 after reading introduction, guide, and syllabus	X		X
Went through the how to proceed steps to make sure they met the requirements for the course before beginning		X	
Did not like having to scroll to the right to read all the text	X	X	X
Suggested a back button on the bottom of each page in order to prevent using the back button on the browser		X	
Suggested we copy the links from the home page onto the syllabus and guide page to prevent using the back button			X
Commented that it is not visually exciting, but is straight forward	X		
Commented that they liked the logo and blue bars because it separates information well			X
Used the Standard Course of Study resources link for curriculum guides instead of the links on the bottom of the page	X	X	X
Completed navigation tasks within three minutes	X	X	X

The first user had no problems navigating the site, but was overwhelmed with the information presented. He commented on how difficult the course seemed. The first task presented was for the validity goal. He read the introduction and went straight to the syllabus link and completed the task within four minutes. This implies that the reading is on level for the user. He only had one question about the syllabus and the grading requirements. They are not presented in the syllabus because each unit has a different grading system. As he answered the questions, he said that the course is definitely a "need" more than a "want" due to the depth of the material.

The results of this usability test were as follow. The second task presented was for the readability goal. This user understood the material and exactly what he should do next. He stated that he would continue into unit one. The third task presented was for the screen design goal. His first comment was about having to scroll to the right in order to read the text. He feels that this is annoying and makes the material more

difficult to read. He comments that the screen design is not visually exciting, but it is clear. He did like the homepage graphics. When reading the question about the graphic he hesitated and stared at it for a moment. Then blurted "Oh, I get it! That is cute."

The last four tasks presented were for the navigation goal. This user had trouble with the hardware requirements. He visited the hardware and software unit and found the requirements for this unit instead of the hardware requirements for the course. Other than that he had no problems with navigation. He completed the other tasks successfully and quickly. He did not use the links provided for DPI. He went to the resource page, but successfully found the guides.

The second user immediately resized the screen in order to see all of the text and comment how she hates having to scroll. This happened before the first task was presented to her. This user had a lot of comments throughout the tasks that had to do with all of the goals. As a teacher that has taken on-line course her comments related to her previous experiences. She suggests a "meet the teacher" page. She feels that this would humanize the environment. She also suggests that there be a brief introduction to each unit in the syllabus and a back button at the bottom of each course page to make navigation easier. This user had no problem with the reading level of the site. She did not have any questions about the material presented. She obviously understood what she was supposed to do next. She stated that she would make sure that her system met all of the hardware and software requirements and then proceed to unit 1. She also liked the way the site was organized and the home page graphic. She was also very efficient in the navigation process. She did have some trouble finding the resource link, but it was because she overlooked it the first time she visited the resource page. She also used the resource page for DPI instead of the link provided on the home page.

The third user was nervous at first because I told her that she was going to be timed. Once she got over that nervous feeling she performed the entire test well. The first task for validity, she had no problems finding and reading the syllabus and guide. This shows that the reading level was fine. Scrolling to the right was the only complaint. Her only other comment was that we have links on the syllabus and guide for the other pages of the course to make navigation easier. She understands what she is supposed to do next. For the next task she goes to unit 1. This user has likes the screen design. She comments that the bars separate the information well. She also liked the logo, especially the floor. She actually started dancing. This user had trouble finding the "using the web" tutorial. She went back and forth between the pages until she found it. Again, the DPI links were not accessed. The resource page was used instead.

Conclusion

The overall interpretation of the usability test is that the course is relevant and needed due to the fact that all three users agreed upon that question. One user did comment that time would be a relevant issue due to the amount of material. The TechKnowTeach website is organized well and the readability level is on target for the audience. None of the users had trouble understanding the material presented or pointed out any language that was not known to them. The navigation of the site is also good due to the fact that all three users completed the navigation tasks within 2 minutes time. The screen design is visually pleasing, but not distracting.

Recommendations to better improve the site include providing links on the guide and syllabus page to provide users an alternative way to navigate without having to use the browser back button. The screen design needs to be modified so users can view all text without having to scroll back and forth. A label needs to be provided on each page for the NCDPI curriculum links in order for users to know where they lead. A brief introduction and grading procedure for each unit should be added to the syllabus. Information presented needs to be evaluated to determine if there are repetitive comments.

VI) Appendix

A. Website Usability Worksheets

B. Usability Tests And Goals

A. Website Usability Worksheets

Web Site Usability Test Worksheet	
Participant: _____	Page # _____ Date: _____ Place: _____
Goal of the test:	
Tasks # __:	Start time: _____ End time: _____
Observation note:	
Path:	
Test Team:	

B: Usability Test Goals and Tasks

Goal #1 – Validity

Task #1 – Read introduction syllabus and guide.

- 1) Do you find the information on these pages to be relevant to you as a teacher and student of this course?
- 2) Do you think that this is a course others will need or want?

Goal #2 – Readability

Task #2 – After you read the intro and guide, what would you do next?

Goal #3 – Screen Design

Task #3 – Visit the homepage, syllabus, guide, and resource pages.

- 1) Is the design understandable and/or visually pleasing?
- 2) Are the links easy to find?
- 3) Find the resource link for Problem Based Learning.
- 4) Is what you are supposed to do obvious?
- 5) Is the purpose of the design of the home page graphics apparent?

Goal #4 – Navigation

Task #4 – Find the hardware requirements for this course.

Task #5 – Find the description of the communication tools for this course.

Task #6 – Open the “Using the Web” tutorial.

Task # 7 - Locate the state curriculum guides for your subject.