Building of a Lifelong Ohana – Evaluating usability of an online resource site for LTEC online master's program students

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Abstract: The purpose of this project was to design and evaluate an online orientation and resource site for online LTEC Master's students to help navigate their academic journey at the University of Hawaii at Mānoa, using the free LMS Canvas Instructure. Resource content was determined by consulting four LTEC faculty who are knowledgeable with the program and orientation as subject matter expert, conjointly based on the designer's experience as the office manager and LTEC Master's student, and frequently asked questions by LTEC students. Revisions and improvements were made to the site with feedback and rapid prototyping from three iteration of usability testing involving 11 LTEC current students and alumni. Qualitative and quantitative data from the pre and post questionnaires, usability tests, and post interview were analyzed to identify any usability issues. Based on Nielsen's (1995) 5-level scale for rating the severity of usability problems, each problem was rated and fixed by prioritizing highest severity of the usability issue. Overall, the feedback from the usability study suggested that the orientation resource site is user friendly, easy to navigate, and will be a welcomed addition to existing support provided by the department. Usability testing proved to be an effective means to evaluate such resource site, and the data gained can be rapidly translated into improvements to optimize the user experience. A future step for this project will be to continue to gather data from its target audience, to further improve on usability and expand on the website content to better serve LTEC students.

Keywords: Online resource site, Usability study, Online postgraduate program

INTRODUCTION

The Department of Learning Design and Technology (LTEC), University of Hawai'i at Mānoa welcomes approximately 10-20 online master's program (OTEC) student annually. Students are required to attend a compulsory campus-based, 3-day weekend orientation at the beginning of the program. Due to time limitation, the vast amount of content and accumulated fatigue during the on campus orientation, all these factors increase the difficulty of taking in and retaining the information being presented. Throughout the program, many find themselves frustrated due to having trouble with administrative processes, missing administrative deadlines, or having trouble locating vital campus resources. A usability study was conducted to facilitate the development and evaluation of an online orientational resource site. The goal was to create a user friendly and centralized platform to provide vital information to incoming OTEC students, and encourage them to learn more about the LTEC community and build upon the spirit of LTEC Ohana. It is not to replace the physical orientation, but provide a one stop shop as an enhancement for students to find resources, simplify the administrative processes, and allow students to begin to create connections, stay in touch with department updates and events in the future. The study assessed the design, navigation and usefulness of the resource site and aimed to answer the following research questions:

Q1. How do participants rate the design and ease of use of the online resource site to locate information they needed?

Q2. How do participants rate the ease of navigation of the online resource site to locate information they needed?

Q3. How do participants rate the usefulness of the information and resource provided on the website?

PROJECT DESIGN AND DEVELOPMENT

Literature indicated the need for extra support that orients students to the online learning environment, including technical skills such as familiarizing of online learning management systems and online applications utilized during the program, as well as soft skills that are required for online learning, such as time management, online collaboration and communication (Bozarth et al., 2004; Liu & Adams

2017). The designer consulted four faculty who are knowledgeable with the online Master's program and campus orientation, to act as Subject Matter Expert (SME) via questionnaires, to provide suggestions of topics to design the website around. The designer also narrowed the content down based on her own experience as the office manager and LTEC Master's program student, and frequently asked questions by LTEC students. Canvas Instructure was used as the learning management system (LMS) as it is one of the main LMS used by LTEC faculty throughout the OTEC program. This was to allow students to explore the LMS prior the start of their program in a risk-free environment. Content was divided into modules with four main topics: 1. Introduction to the LTEC Ohana, which includes information about the department, faculty, staff and LTEC's professional and social networks. 2. Online Registration including troubleshooting 3. Online Learning Skills and Teamwork Skills, including information about what makes a successful e-learner and an online team member. 4. Basic Technology Requirements and Tools needed for the program.

The homepage and modules were designed with a simple structure and simple directions. To enhance visual aesthetics, maintain attention and create a "sense of place", graphics of College of Education, the LTEC faculty, staff and students were included to portray the feeling of visiting the physical campus. The theme of the modules would be adhering to LTEC department's color scheme to strengthen students' sense of belonging and brand recognition. The design included consistent font type, font size, and effective use of white with space strategically placed graphics and icons. Research suggests that graphical icon, colors, images give a website higher attractiveness and could improve on user satisfaction (Zhang, Small, Von Dran, & Barcellos, 2000). Multimodal learning strategy were employed while delivering content in order to cater to the program's diverse student population, so students can be "exposed to different forms of delivery and maximize the chance for overall success" (Menchaca, 2014). Instructional videos were one of the main media used to present learning material. Since questions regarding the process of "Registration" is one of the most frequently asked topics by students, original instructional videos with audio voice-over were created, including step-by step screenshots that act as a guide for students to follow. A written guide was also provided as an option for viewing. These videos were intentionally shorter videos with informal conversation style which is found to be more engaging according to Guo, Kim & Rubins' (2014) extensive empirical research. These videos were modeled after University of Hawaii STAR system's tutorial videos for consistency. To test an online orientating resource site, a usability study was pivotal to determine the efficiency of the platform. While

various versions of usability testing are utilized by evaluators (Bergstorm, 2013; Krug, 2010; McDonald, Edwards, & Zhao, 2012), most variations involve observation of participants using a product while implementing a think-aloud method. Users verbalize their actions and thoughts as they perform set tasks, as well as reflecting on the experience after the completion of tasks retrospectively to provide qualitative and/or quantitative data about the user experience. For this usability study, Nielsen's Severity Ratings for Usability Problems (Nielsen, 1995) were used to rate problems identified in the platform based on participants' responses throughout three iterations of testing. The severity of the usability problem could be classified as no problem at all, cosmetic, minor problem, major problem or catastrophic. The usability problems classification is useful to determine which problems are more important to be refactored or improved in future release. Revisions and improvements were made to the site with rapid prototyping and feedback from 3 iteration of usability tests involving 11 LTEC current students and alumni.

RESULTS

Iteration one

During the first round of the usability study, all three test users had a positive impression with the resource site. They agreed that the simplicity of the layout of the website was appealing, and noticed the color theme of the site was consistent with LTEC's departmental color. All participants stated that they thought the amount of information to be appropriate and not overwhelming, and the topics chosen were suitable for what they perceived was the purpose of the resource site. In addition to the affirmative feedback, participants provided critical comments and constructive suggestions for improvements. In the area of design and layout, the test users quickly noticed that there were some inconsistencies with font sizes, color of the titles, and some text were not left margined. These errors were rated as cosmetic problem(s) only on Nielsen's 5-level scale, problems that were the least severe. Moreover, it was apparent that there were a few issues in the area of navigation, with the most prominent one being that all three participants took a relatively longer time to navigate to the module pages, though there were instructions on the homepage to instruct users to start browsing information by clicking the "Module" button on the navigation bar on the left. All participants commented on the need for "another way" to get the modules from the homepage. Additionally, all participants pointed out that the resource site content list was not hyperlinked, which had a negative impact on the flow and ease of navigation of the entire resource site (major usability problem). Though users were able to perform all the tasks and locate information with

relative ease, the need for clarity on module topics was also apparent, as participants had commented on changing topic titles may assist them in finding specific information.

Iteration two

The second iteration of usability study involved four test users. Though some of the participants also bought up the same usability issue of having only two tabs, Home and Modules, for the navigation bar from the previous iteration, which is a limitation of Canvas, the changes made to the resource site content list on the homepage to clickable hyperlinks made a significant difference directing users to the appropriate information page in a much swifter fashion. The blue hyperlinks stood out at a focal point of the homepage, and the participants were able to perform all the tasks with 100% accuracy with less time. While the revised prototype did result in a reduced amount of navigational issues, it was fascinating that participants turned their focus on design errors and the perceived usefulness of the web content. In the area of design and layout, one participant suggested to increase the dimensions of the embedded videos, and instead of having the titles of the videos and links listed separately, she recommended making video titles into hyperlinks which made the layout uncluttered and pleasant to look at (minor usability problem). One participant also brought up that the two diacritical markings 'okina and kahako used in Hawaiian language were not included in the website (minor usability problem). Though is it common practice and acceptable to not include any diacritical markings, the participant suggested that using 'Okina and kahako consistently throughout the website can ensure the true meaning of the words selected is conveyed, as well as acknowledging that our program was founded in a special place Hawai'i. In the area of usefulness, participants reflected that though they are happy to have found information of faculty and staff profiles, the information about faculty did not stand out and the layout of the staff profile was not attractive. The designer considers this a major usability problem as this error may demotivate users in engaging with this piece of content. To rectify this issue, the faculty and staff profiles were regrouped and reorganized in a way that was more eye catching.

Iteration three

Three test users participated in the third round of usability testing. Contrary to expectation, there were more major usability issues and changes identified at this stage of the study, though it is important to point out that one participant had extensive experience as a web designer, thus provided various critical yet beneficial comments to further improve the resource site. Two suggestions were made to improve the area of design. One was considered a major usability

problem, as the participants found the graphics loading time to be too long. As a result, all images dimensions were made smaller to reduce loading time. In the area of navigation, participants appreciated the social media icons which helped locate information about the department's social network. However, it was suggested to make the icons clickable as well to enhance ease of use, and add icons to the other LTEC affiliated group links for consistency (minor usability problem). Users also questioned the inclusion of some content, mainly the benefits listed at the top of each topic page. They feel that these did not add to the content and took away the focus from the "meat", the important information the designer intend to present (major usability problem). It is apparent over the course of three rounds of testing that as usability problems decreased, users' overall impression of the design and layout, navigation and usefulness of the resource site improved.

CONCLUSION

Overall, the feedback from the usability study suggested that the orientation resource site will be a welcomed addition to existing resource and support already provided by the department. Usability testing proved to be an effective means to evaluate a website such as this site, and the data gained can be rapidly translated into improvements to optimize the user experience. Future step for this project will be to continue to gather data from its target audience, to further improve on usability and expand on the website content to better serve LTEC students.

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