Designing and Evaluating an Online Resource Site for Distance Educators

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Abstract: Information technology brings new efficiency and connectivity to the world and educators are leveraging these innovations to create enhanced virtual learning environments. The purpose of this instructional design project was to develop and evaluate a resource website that provides support for instructors teaching online. Content and navigation of the site were well received and feedback for improved ease-of-use was noted. Considerations for educational resource websites are discussed.

Introduction

Advancements in information technology are making it possible for people to connect more easily than ever before. Education is one of the many fields taking advantage of this increased networking power, which is influencing the way learning occurs. Educators with experience teaching face-to-face courses are finding opportunities to reach learners via distance education tools, but professional development for them must also be provided. Distance educators need quality support resources as they transition into teaching online and beyond. The purpose of this instructional design project was to develop and evaluate a resource website that provides technology tool support for instructors teaching online in the College of Education (COE) at the University of Hawaii.

With a new role to fill, these instructors require support with technology in different ways than traditional educators do. Working from hundreds or thousands of miles and across time zones, accessibility is a primary consideration. Resources for distance educators should be available at any time, being accessible when instructors choose to begin implementing new tools and techniques. As an employee for the Technology and Distance Programs (TDP) group in the COE, I have gained experience working with many educators, a number of who teach distance courses. Therefor a resource website was built for distance educators in the University of Hawaii system, providing quality information about technology for instructors.

The resource site was also designed for instructors who do not yet teach distance courses, but that may find these productivity, communication, and teaching techniques helpful when teaching face-to-face or hybrid courses. The website was largely based on two resource websites currently in use by instructors in the COE. Advisors at TDP identified

a need for a site that incorporated the best elements of both sites, centralizing the information for online instructors. One of the sites was built as a repository, referenced during training face-to-face training sessions. Although it lacked organization, the contents of this site were very useful in determining the content of the resource site what was to be developed. Similarly, the second site had a great deal of quality information, but lacked the structure in mind for instructors in the COE. Referencing these sites aided greatly in the preparation and development of this resource website.

Website Planning and Build

Content for the resource website was first organized in Prezi, the Flash-based visual mind-mapping tool. Text and figures were loaded onto the canvas, where they were mobile and flexible, allowing a site map to be created and modified with ease. Multiple diagrams of navigation were constructed, outlining probable associations between topics that users would likely make. Grouping of topics was based on information gathered while working with instructors in the COE, with the goal of offering simple navigation.

Four iterations of the site navigation were created, changing with feedback from regular consultations with the COE's Instructional Designer. After a final version of the site navigation was approved, the website pages were created using Weebly, the free online website builder. The home page can be seen in Figure 1.
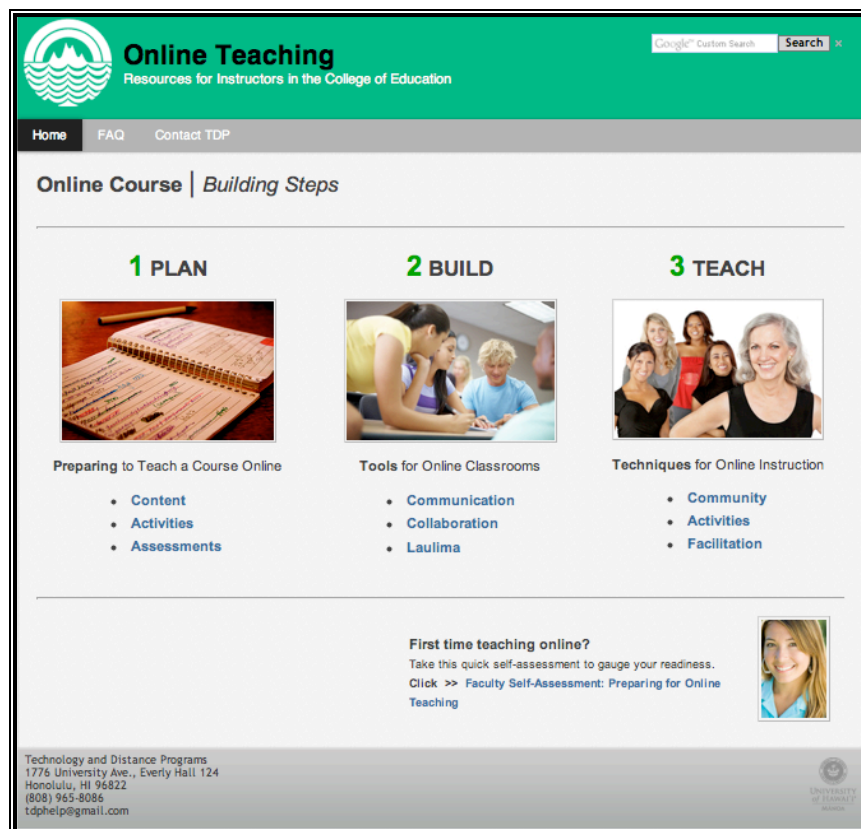

Figure 1. Resource Website Homepage

Resource Website Content

A different kind of educator is called for in distance education; one that is more dynamic, flexible, has real-world experience and can be customer-service oriented. (Puzziferro & Shelton, 2009) The field of distance education is a technical field, where professional educators must stay current on technology tools that enhance their practice. Although new technology tools are created frequently, standard tool categories are identified as they augment instruction in a specific way.

Similarly, the planning phase for the website identified a three-step process for teaching online that would make up the overall structure of the website:

1. Plan – Gathering of course materials and methods, information about electronic formats and methods of delivering content.
2. Build – Tool-focused step, information about communication and collaboration tools, as well as the UH Learning Management System (LMS) *Laulima*.
3. Teach – Technique and activity-based step, information about building communities and facilitating learning.

Plan

Preparing to teach an online course is essential to the success of students. Major sections of this topic were content, activities, and assessments for an online course. These documents and materials comprise the raw elements needed to convert a course online (Ko & Rossen, 2008), used by new online instructors and experienced instructors alike.

Build

While the tool should not be used to determine the type of activity done in an online class, choosing the most effective tool will contribute to the success of lessons (Conrad & Donaldson, 2011). This section included information about specific tools that can be used to build and support an online course. Major sections were communication, collaboration, and Laulima.

Teach

Palloff and Pratt (2007) mentioned the importance of teaching techniques in online teaching with, "…as educators and facilitators we must be able to create an atmosphere of safety and community in all of our learning settings, whether they are electronic or face-to-face." (Palloff & Pratt, 2007) This section included information about techniques to facilitate learning and improve the sense of community in an online course. Major sections included community, activities, and facilitation.

Methods

Purpose of Usability Testing

The usability testing aspect of the project was largely influenced by Steve Krug's book *Rocket Surgery Made Easy* (2009). Usability testing involves researchers conducting formative evaluations of web or application by having participants that represent your target population attempt to complete tasks using a specific website. Krug (2009) states that, "quantitative tests are like scientific experiments: They have to be rigorous, or the results won't be trustworthy." (Krug, 2009) As such, the design instrumentation and testing methods were consistent and controlled. Websites and applications can be tested for usability before release or launch, often improving user experience based on the collection and analysis of quantitative and qualitative data. Attitudinal and demographic data also allows researchers to discover patterns between user age groups and experience levels.

Usability Testing Design

Seven tasks were written based on common inquiries made by instructors in the COE about technology tools, as noted by graduate assistant support members. The tasks were meant to address common reasons why instructors would visit an online resource website as well as frequently asked questions and content.

The tasks were written as follow:

1. "You are an instructor who will be trying online teaching for this first time during an upcoming semester. Show me on this site where you would find information about which content materials you should begin gathering."

2. "You taught a course online last year and it did not go well. A common issue reported on your course evaluation was that students felt a lack of connection to the instructor. Show me on this website where you might find information about how to improve this aspect of your online teaching."

3. "You are interested in learning more about a specific tool called Google Docs and how you might incorporate it into an online course. Show me on this site where you would look."

4. "You are interested in seeing new tools or techniques that support better class discussion between your students. Show me on this site where you would look for this."

5. "You are having a tech problem related to your online teaching that is specific to your situation. Show me on this site where you would go to get personal help."

6. "You are an instructor who will be teaching online for the first time in an

upcoming semester and would like to now how well you understand technology needed to teach online. Show me on this site where you would look for that information."

7. "You are a new instructor who is unsure about your proficiency with technology teaching tools. Show me on this site where you would be able to assess your readiness to teach online."

One-on-One Evaluation

Twelve instructors in the COE were contacted via email, asking for their assistance in testing the use of the online resource website. The email included information about the length and design of the usability testing, to which ten out of the twelve instructors responded positively within twenty-four hours. A Google Calendar with Appointment Slots was created, allowing the volunteer instructors to sign up to participate when both parties were available. Six time slots over a two-week period were opened, with all appointments being filled within twelve hours of opening time.

Six instructors in the COE participated in the usability study, which was conducted over a seven-day period in February 2012. All but one participant had instructed a course online before participating. Three of the participants were faculty in the Special Education (SPED) department, the other three being faculty in the Institute for Teacher Education (ITE) department.

Instruments

Before beginning usability testing, each participant read and signed a hard-copy consent form. Participants then were then given a verbal explanation of the testing procedure and were reminded that the website's navigation was under study, not the participants' skill or knowledge levels (Appendix A).

Attitudinal and demographic information was collected anonymously using a 12-question pre-test (Appendix B) and a 14-questions post-test (Appendix C) questionnaire. The data was gathered through the use of Google Forms, which exported raw data into a spreadsheet automatically.

To collect data during the usability testing sessions, Camtasia screencast software on a laptop computer running Microsoft Windows7 was used. Participants used a microphone headset to verbally describe their navigation as they attempted to complete usability tasks given to them by the researcher. All participants chose to use the optical mouse provided by the researcher as opposed to the touch-pad on the laptop computer.

Google's Chrome web browser was used to display the website on the testing computer during all usability testing sessions. Outside of the screencast software and web browser, all applications were closed on the testing computer to eliminate distractions and provide a consistent user experience during testing of the website.

Findings and Results

Pre-test Questionnaire

Nearly all participants rated themselves as being confident in learning to use new technology tools, with lower confidence reported in the instructor's ability to explain the use of tools. Instructors were also asked which, if any, resource websites for online teaching they used regularly. Responses included a number of official library and database resources as well as topic-specific websites for courses they instructed (iris.edu, reading.org, etc.). Four of the six instructors included YouTube as a resource, confirming the presence of video content used in online teaching.

Usability Tasks

All but one participant was able to complete the seven usability tasks asked of them in the study. The time to complete each task varied between participants and between the tasks, themselves.

Participants noted that certain key words used to identify discreet sections of the resource website were misleading. Four participants spent time exploring each main section (plan, build, and teach) during the first two tasks, searching for clarity between the main topic headings. Two participants mentioned that they wished there were more thorough descriptions of the topic areas on the home page. Two participants also noted that they did not immediately understand the difference between what they would find in the "communication" and "collaboration" tool sections of the website. As such, more time was spent by three of the six participants when browsing the tool sections to complete one of the tasks.

A major issue with the resource website was the dependence on the instructors' willingness to click on images as links. Two instructors did not navigate to the second layer of navigation during usability testing, where the three main topics were described in detail, largely because the heading type of each section was too small. The instructors who did find and use the second layer of navigation spent less time on each task, using the descriptions on this layer of navigation to quickly see where to look.

Two participants mentioned that the task that involved finding the link for a self-assessment of online teaching preparedness was made difficult by an image next to the link. The image was of a young professional female, but was noted to appear similar to a live support worker avatar commonly found on retail websites. Consequently, the two participants spent more than a minute longer on that task than the other instructors in the study, overlooking the link.

Post-Test Questionnaire

As displayed in figure 2, all of the participants reported that their overall impression of the resource website's navigation was good or very good. Similarly, the instructors reported that the website's content was good or very good, with identical ratings on the Likert scale.
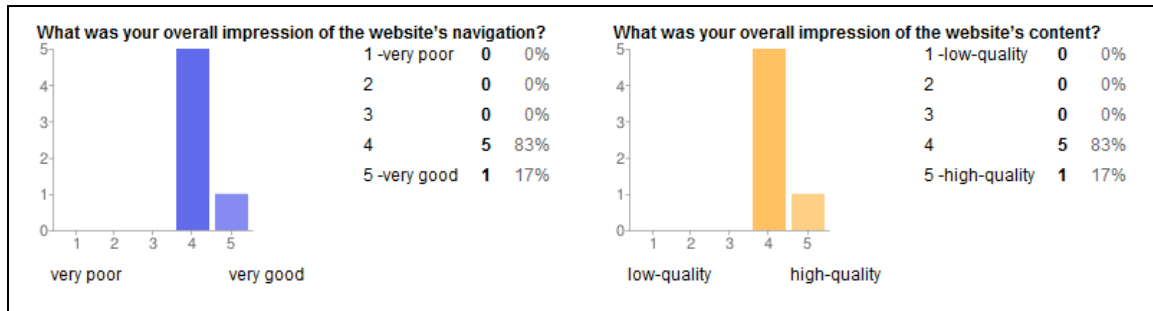

Figure 2. Post-test Attitudinal Data

Implications or Discussion

Levels of Navigation

Through this two-part process of building and evaluating a resource website for distance educators, a great deal about how this population uses online resources was gained. Website navigation techniques varied between participants, with three participants often ignoring the top menu when introduced to a task. The website would be improved by a merger of content between the first and second layers. This would simplify the navigation by giving more information on the first layer, but with more concise wording.

Ordered Lists

During testing, four of the six participants verbally inquired about step-by-step instructions being available throughout the website. Five participants mentioned that they appreciated the sections of content that were in ordered lists, with two participants directly asking if the remaining pages of the website would be styled with ordered lists. As a website that was built for two purposes, ordered lists and step-by-step instructions integrated into the website may improve the usability.

No Commenting Ability Needed?

In a contrast to Stephanie Barry's results of usability testing of a similar site (2011), participants on this resource website did not inquire about a place to add user comments or post questions. The task of locating direct help from TDP was completed within 10 seconds for five of the six participants, which may indicate that they viewed the resource website purely as a repository of information; not a community in itself. A commenting or forum feature may be incorporated into the resource website at a later date based on additional user feedback or updated goals for the site.

Conclusion

This instructional design and evaluation project focused on evaluating the organization of an online teaching resource website. Common methods of navigating resource websites were observed and usability issues with the resource website were discovered. Instructors who teach online are equally receptive to, if not prefer, step-by-step instructions for implementing teaching techniques. The site's ability to direct instructors needing assistance was strong, which may have lessened the desire for a commenting discussion area on the resource website.

This resource website would benefit from a number of minor navigation modifications and additional usability testing. Technology and Distance Programs will be able to make improvements and expand the resource, providing additional support for online instructors in the COE.

Online instruction demands educators who have an understanding of both pedagogical practices and technology-specific strategies. Resource websites for online instructors need to be easily navigated by a diverse population of educators who bring varying experience levels with technology. Quality organization of content on such websites is paramount to the goal of providing helpful information to visitors. A main focus on ease-of-use is recommended, targeting the specific population a resource site is being built for. Quality content is only as good as the navigation of the site, and identifying properly targeted groups for usability testing can yield insightful results.

As a direct note to others building resource websites similar to that in this project, a thorough planning phase is highly recommended. All content should be accounted for before the site is constructed. This provides a lessened chance that major revisions in the organization are needed before making the site public.

References

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Appendix A: Verbal Prompt

Read aloud:

Thanks for helping test the usability of this Online Teaching Resource Website. As a reminder, this is not a test of your knowledge or ability; only a test of this website. This site is meant to provide helpful information about tools and techniques for the online teaching process. The navigation has been designed to make it easy for online instructors to locate information that is relevant to their teaching. Although there is content still to be integrated into the pages of this site (Lorem Ipsum filler-passages are used), the structure of the navigation (how topics and pages are linked) is complete. I will be providing you with tasks to do using only this website and would like you to not use the search function. While completing the tasks, please describe where you are looking on the page for links and items. Also, please describe anything that is misleading or confusing as you move around the website.

Do you have any questions before we begin?

Appendix B: Pre-test Questionnaire

Online Teaching Resource Website - Pre-test Questionaire

* Required

Which department do you teach courses in? *
- ○ Special Education
- ○ Educational Administration
- ○ Educational Technology
- ○ Kinesiology and Rehabilitation Studies
- ○ Educational Foundations
- ○ Institute for Teacher Education
- ○ Curriculum Studies
- ○ Other: [_____]

Do you primarily teach undergraduate level or graduate level courses? *
- ○ Undergraduate
- ○ Graduate

Have you taught online courses in the past? *
- ○ Yes
- ○ No

On a scale of one to five, one being low-confidence and five being high-confidence, how would you rate your present ability to teach online courses *

    1   2   3   4   5
low-confidence ○ ○ ○ ○ ○ high-confidence

On a scale of one to five, one being low-confidence and five being high-confidence, how would you rate your ability to explain the use of online instruction tools to students *

    1   2   3   4   5
low-confidence ○ ○ ○ ○ ○ high-confidence

On a scale of one to five, one being low-confidence and five being high-confidence, how would you rate your ability to learn to effectively use new online instruction tools *

    1   2   3   4   5
low-confidence ○ ○ ○ ○ ○ high-confidence

What online resources, if any, have you found to be useful in supporting your online teaching?

[   ]

Submit

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Appendix C: Post-test Questionnaire

Online Teaching Resource Website - Post-test Questionnaire

Thank you for completing this usability testing session! Please complete the following questionnaire, leaving additional comments at the bottom.
* Required

What was your overall impression of the website's navigation? *

      1 2 3 4 5

very poor ○ ○ ○ ○ ○ very good

What was your overall impression of the website's content? *

      1 2 3 4 5

low-quality ○ ○ ○ ○ ○ high-quality

Which of the tasks did you find to be the most difficult to complete?

Which is the tasks did you find to be the easiest to complete?

Did any part of the website seem confusing or misleading? If so, what was it?

Was any part of the website particularly helpful? If so, what was it?

What feature, if any, would you prefer to be removed from the website?

What features would you like to see added to the website?

Submit

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