But is it useful? Website usability testing of the UH STEM Education website

Melissa Arakawa
Learning Design and Technology
University of Hawai'i at Mānoa
2500 Campus Road
Honolulu, HI 96822
arakawam@hawaii.edu

Abstract: The digital age has ushered in a time where users are instantaneously and continuously connected to the world at the touch of a screen. Having an online presence is the lifeline of an institution. It is therefore imperative that an institution's website be easy to use, provide reliable information and be aesthetically pleasing to the user. Upon the creation of the new Office of STEM Education at the University of Hawai'i, a website was immediately launched to provide information. However, as the office grew the website remained stagnant. Feedback from constituents focused on the lack of current and relevant information. The purpose of this usability study was to analyze, develop and evaluate the content, navigation and user satisfaction of the Office STEM Education website and to improve its efficiency for faculty and students at the University of Hawai'i. Based on such feedback in the rapid prototyping and usability study changes were implemented on the website to improve the overall design and navigability.

Introduction

Online technology has advanced so far in such a short period of time. Now, more than ever, we are active participants in the online and mobile world; television shows ask us to vote with our smartphones, we can bank, pay bills, get turn by turn navigation, sign documents, participate in meetings and control our home security with the touch of a button. As it stands, having an online presence is the lifeline of an institution.

Working at the University of Hawai'i has given me the opportunity to be a part of many different offices all with different missions and goals. I have realized however, that throughout all these differences one core mission remains the same: to work for the betterment and education of the students who attend the University of Hawai'i. I've seen how easily students can get frustrated by websites that are either "clunky," outdated, too text heavy, and are not mobile-friendly. Increasingly we turn to our phones or tablets to find information. We look for service points online such as a chat function to help answer questions. Taking all of that into consideration, when given the opportunity to design a whole new website I was determined to do it right and provide an experience users will find useful. Designing an effective website was no easy challenge. Through rounds of beta testing and rapid prototyping, I designed and developed a website that provides useful information regarding STEM education.

Literature Review

According to multiple sources, the online attention span of the average human is eight seconds (McSpadden, 2015, Weatherhead, 2014). In those eight seconds a website has to grab the seeker's attention and provide them with the information they are looking for simply and quickly. Steve Krug's book *Don't make me think*, vocalizes the thought we all have when we visit a website, I should not shouldn't have to think. According to Krug (2014), "Your goal should be for each page or screen to be self-evident, so that just by looking at it the average user will know what it is and how to use it (p.16)." Website usability testing is one such way an institution can ensure its website, both traditional and mobile, is usable.

Usability is most often referred to as "functionality of a website for a broad group of people (Foley, 2011). According to Lee and Kozar (2012) usability refers to the "extent to which a product can be used by specified users to achieve specified goals with effectiveness, efficiency and satisfaction in a specific context of use." A usability study consists of a protocol or script to test varying characteristics such as usefulness, navigability, how effective or efficient, as well as overall satisfaction of users. Conducting a website usability study involves recruiting individuals and observing their reactions and listening to their feedback as they navigate a website based on a standard set of pre-designed interview type questions. That feedback is then used to improve the website.

According to research, there are varying factors that make a website "useful" to its users. In a study by Hall and Hanna (2004), the impact of color-combinations, websites with where there was high color contrast, led to higher readability and retention of information. According to Nasrul et al. (2012) websites fail because developers fail or completely overlook three important aspects: "who is the user, can the user use it easily and is the user satisfied in using it." One can argue the visual design of a website is one of the main factors that draw users to a website and hold their attention. Users become curious about a website and its product or information because of strategically placed aesthetics such as graphics. This initial curiosity then motivates a user to use the product or information (Sauer & Sonderegger, 2011). These first impressions are important for both the user and the designer. According to Leung and Law (2012), if a first impression of a website is positive they may disregard any negative experience they encounter later.

According to Lavie & Tractinsky (2004), the users' perceptions of the visual design of a website can be characterized as classical and expressive. Classical referring to visual clarity, is it clean, clear, is it visually symmetrical while expressive refers to originality, creativity and outside the box thinking. If users are not satisfied their experience on a website it does not necessarily mean they will never go back to it, it simply means their experience will be branded as negative and that connotation will thus carry over to the institution or company that the website represents (Belanche et al, 2012).

In a world of smartphone and tablet users, the mobile version of a website must also be equally considered. Mobile networks allow users to be connected instantaneously and continuously thus functioning as a computer simply with a smaller screen. According to Klein & Gubic (2014), the

only "major difference in using a mobile web browser compared to a desktop browser is screen size and resolution." Thus making it even more important that website developers understand how a website looks and feels on a mobile device.

Project Design and Development

For this usability study the website of the Office of STEM Education was chosen because it was in my locus of control. Because of that, making changes to the website and being able to respond to rapid prototype needs this made the project move along smoothly. It was decided to develop the website on the Wordpress platform simply because most university department websites were moving to this platform and we wanted to stay consistent. The old website was clunky and built upon straight HTML code and was difficult to edit, not mobile-friendly and was simply a page with lists of documents (figure 1).


Figure 1. Old website
(http://www.hawaii.edu/offices/aa/aapp/STEM.html)

First and foremost I conducted a needs analysis amongst current users in the department. The intent of the website is to provide users with updated and timely information regarding current events, STEM pathways, upcoming and current projects. The old website did not reflect any of these needs. In rapid prototyping the development of the website, I created a wish list, and with the help of others in the department, went item by item and discussed and ranked them according to what we felt was the most important. Because this was a brainstorming session all ideas were taken into consideration.

Once the development began we incorporated many of these ideas. The major change was the "look and feel" of the website (figure 2). It was updated using Wordpress themes to reflect a more modern approach. Graphics were added to give the website a more "human" feel instead of

just an institutional website. The three main projects of the office, STEM Pathways, Broader Impact Network, and Diversity, were all highlighted and given their own section. On the old website you would not have been able to tell that these three projects represented the main core of the office. On the current website they are readily visible with text and images.
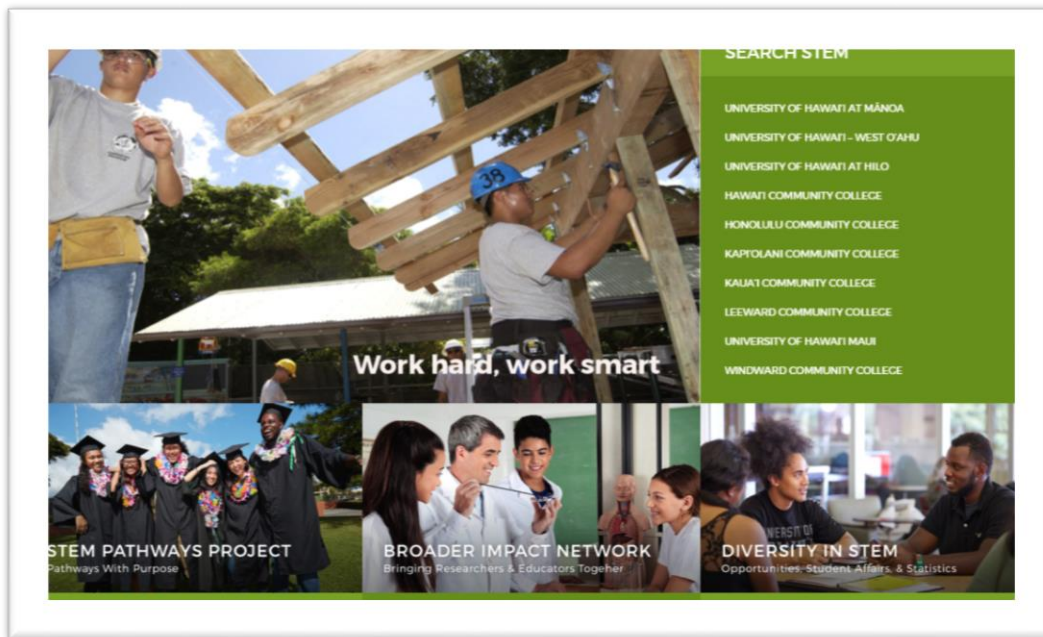

Figure 2. New website
(www.hawaii.edu/stem)

Another portion of the website is the "current events" section under the three projects (figure 3). While this section was identified as being important, I have found that keeping it up has presented many challenges. I found it actually takes much more time to find interesting and relevant current events to post online not to mention that it is difficult to balance the times between postings. In the rapid prototype phase many felt this was an important feature especially in a new website and with STEM being a new office.
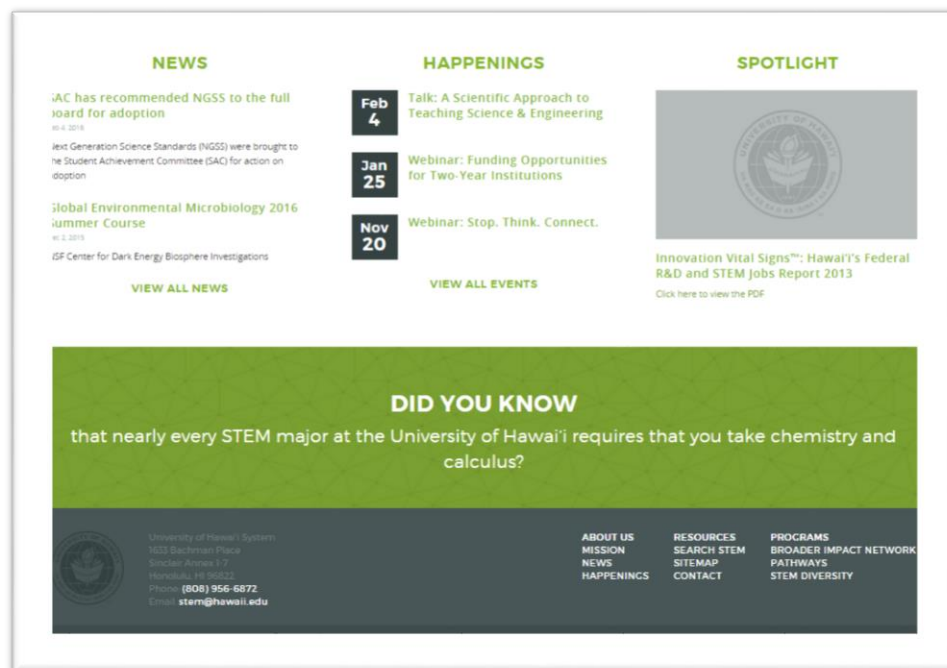
Figure 3. Current events section

Other smaller changes were also incorporated to reflect the goal of designing a website that was functional, purposeful, and useful. Contact information was added at the bottom in a standardized footer along with a repeat of the menu, links to campuses was added to get to campus specific STEM initiatives or websites, and an "about us" and "resources" section added (Figures 4, 5, and 6 below). These reflected multiple rounds and iterations of rapid prototyping.
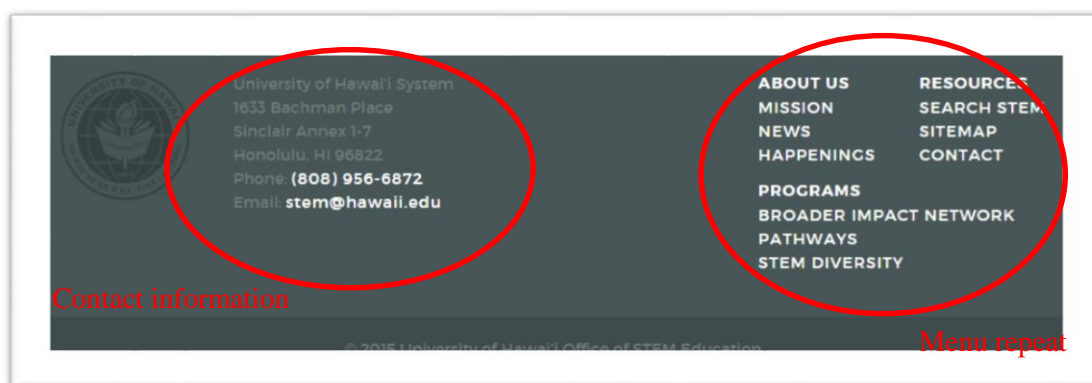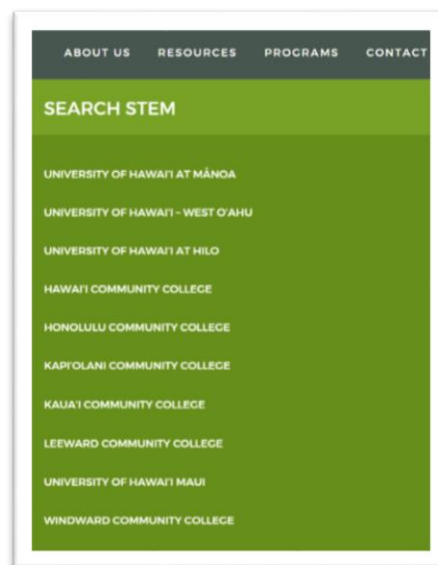

Figure 4. Standardized footer
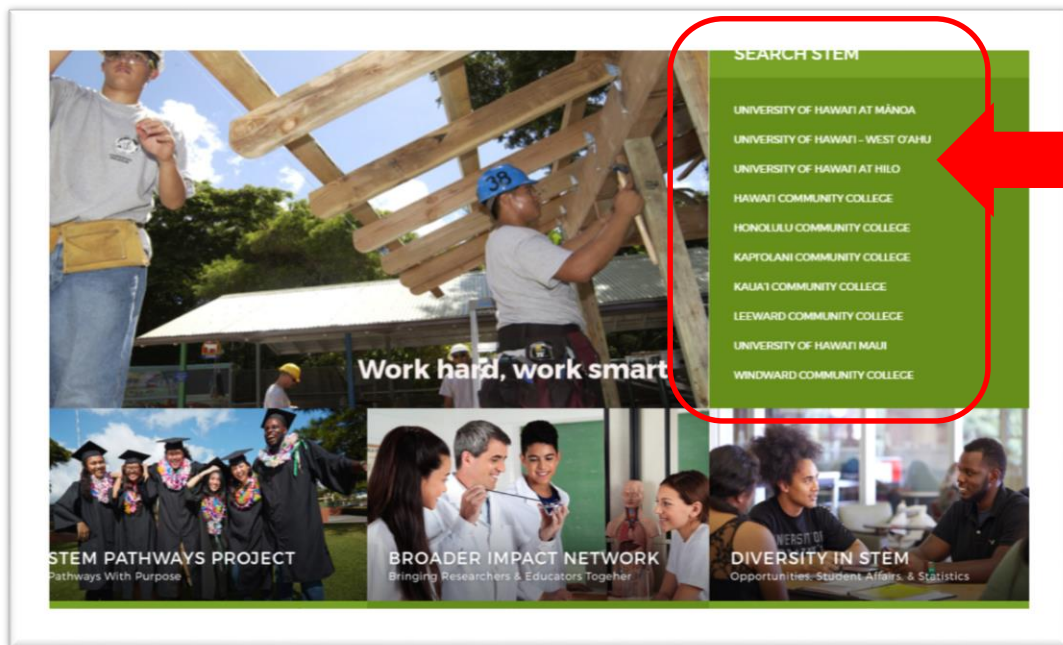
Figure 5. Campus links

Figure 6. About us and Resources

One of the biggest changes was the development of the STEM pathways model graphic. Because this represents a major portion of the work of the office it was decided to develop this model to the best of our ability with the time we had to go live. Because the STEM pathway model is used by all campuses within the University of Hawai'i system it needed to be flexible enough so as not to seem like it was favoring one campus or program, but standardized so it could be used interchangeably between campuses. The pathways model started out as a 2-dimensional drawing and was slowly converted to the graphic which is on the website today. It should be noted that on the website each word is interactive in that when you click, a pop up appears and will give the user feedback. For example, if you click on "engineering" the engineering concentration comes up and gives the user an idea of what engineering is at the community college level (Figure 7).
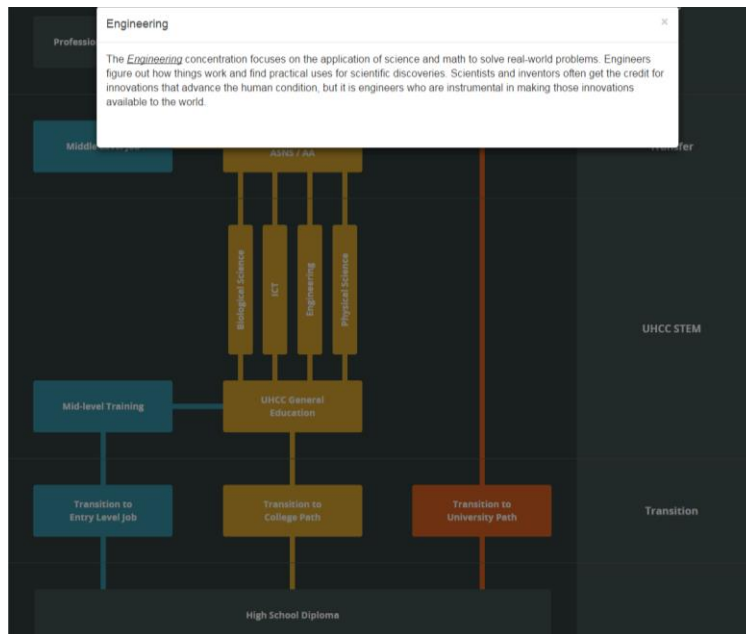
Figure 7. STEM pathways model

In total 21 pages were created with numerous links and graphics to aid the user in finding information. There was a lot of information up front, but the challenge was to pare it down to useful segments in which users could easily navigate. Even small changes such as adding contact information and making the STEM pathways project more visible made the website that muchmore appealing. Great care was taken in attention to these small details.

Methodology

For the usability study itself, a protocol was developed which aimed to get at the user experience. At the beginning users are asked to complete a short demographic survey which asks them about their technology habits as well as familiarization with website design and development (see appendix B). Users then went through a scripted protocol asking questions regarding the look and feel, graphics, colors, and asked them to go through a series of tasks and discuss their initial reactions. The screen and their voices were recorded for data analysis along with the researcher's observations and notes. I administered the protocol and told the participants, they may terminate the session at any time with no consequence.

A total of 28 participants took part in the usability stud and were recruited via email and in person through the various groups affiliated with the Office of STEM Education. Results of the demographic survey are in Figure 8. In an effort to maintain balance amongst participants, those recruited came from varying ages and affiliations with the University. Female participants slightly outnumbered males though the age ranges were more evenly balanced. Because the target audience was all students, staff, and faculty the age ranges were varied from 18-67, with 64% between 18 and 35.

|	Total Number (n)	% of Survey Population
Gender		
Male	13	47%
Female	15	53%
Age Range		
18-24	8	32%
25-35	8	32%
36-46	4	16%
47-57	4	16%
58-67	4	16%
68 or older	0	0%
UH Affiliation		
Undergraduate	8	29%
Graduate	8	29%
Faculty	5	18%
Staff	5	18%
No Affiliation	2	7%

Figure 8. Participant Demographics

Results

Once users completed the demographic survey the usability study began. All usability tests were conducted face to face in a quiet office space. The session consisted of five tasks with follow up questions in which users were asked to go through and think out loud. The specific questions asked in the usability protocol can be found in Appendix A.

The first task consisted of basic questions regarding their initial reactions to the layout, graphics and colors. The questions in task two are coded as Usability Initial Responses, (UIR) and data was coded based on positive/yes and negative/no reactions. Task one consisted of four questions represented below in figure 9 as UIR-1 through UIR-IV. Users overwhelmingly reacted positively to the websites homepage and layout as well as aesthetics. Of the 28 participants, only one had ever used the website. This became immediately clear in the first round of testing that more dissemination and marketing of information needed to be done in order to promote the Office of STEM Education. All users reacted positively to Questions 2 and 3 that asked users for their initial reaction to the homepage and layout.
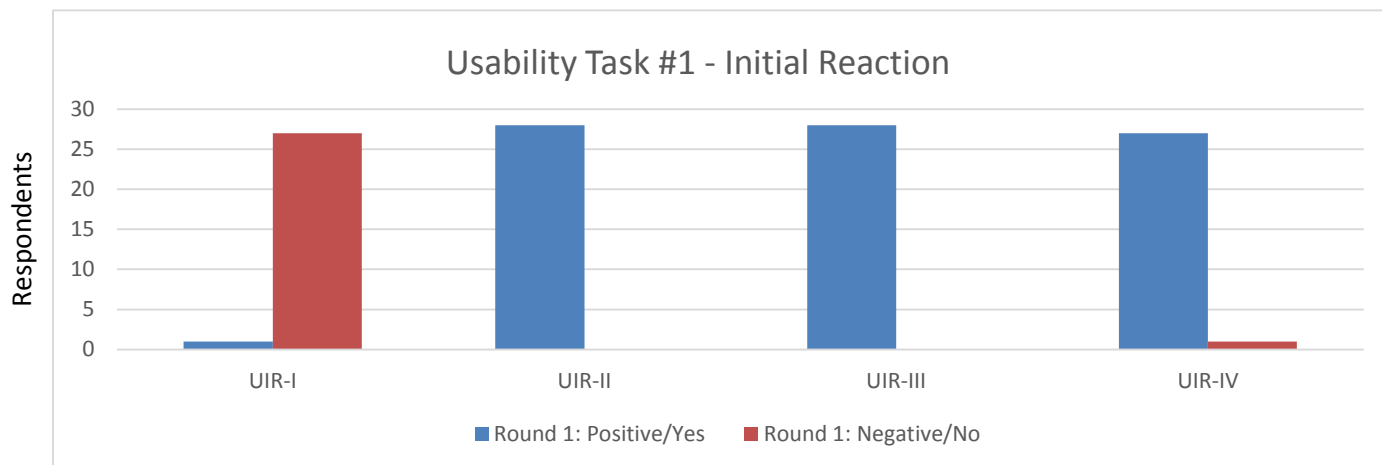
**Figure 9.** Usability Task #1 – Usability, Initial Reactions (UIR)

The second task began more in depth questions and focused specifically on the campus section of the website. Users were asked to navigate to a campus homepage and provide reactions with regards to their expectations, coded as Usability Campus Expectations (UCE). The second task comprised of three questions which are represented below in figure 10 as UCE-I for question one, UCE-II for question two and UCE-III for question three. This section in particular was important to the website developer because the OSE sits in the UH System Office of the Vice President for Academic Affairs. It was important to distinguish that OSE does not sit on one particular campus, but provides support to all campuses in the UH System.

These tasks were rated on positive and negative responses. In the usability study, on the first question in the second task which asked them, "When you see this list of campuses what do you expect when you click on a campus?" 3 of the 25 participants reacted negatively or with a no answer. (figure 10.) With further prodding and listening to the participants talk about what they were seeing, it was evident that the three participants, who were all faculty members, were expecting the page to go to the campus website rather than directly to the department specific units. The most negative reaction came when users were asked about the tie between the Office of STEM Education and the campus website the link on the page takes the user to. Many did not understand what the point of such a redirect was and it was clear this was something that needed to be clarified in the second round of tests.
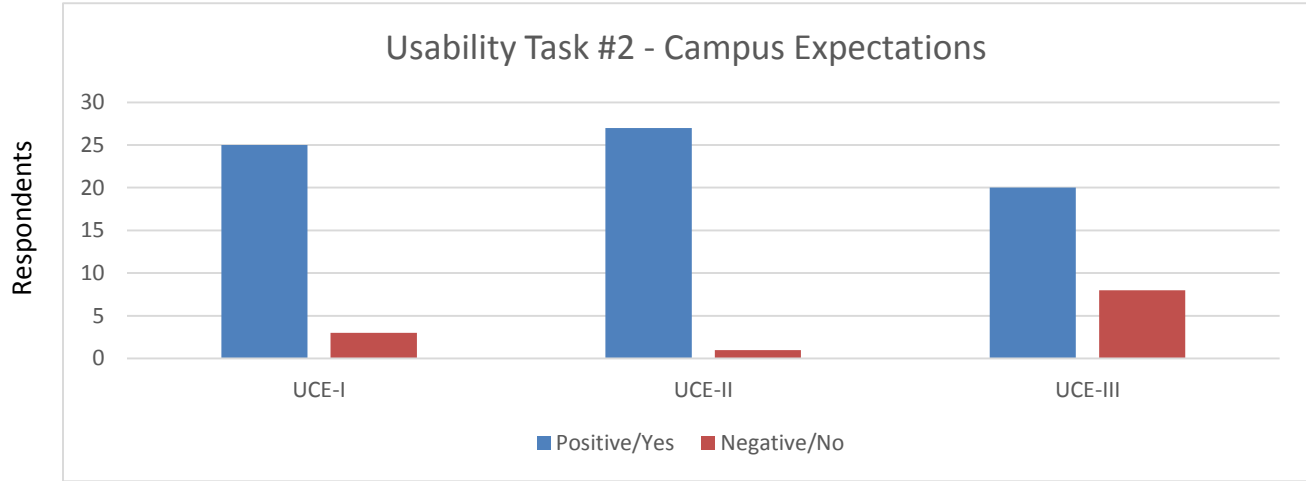
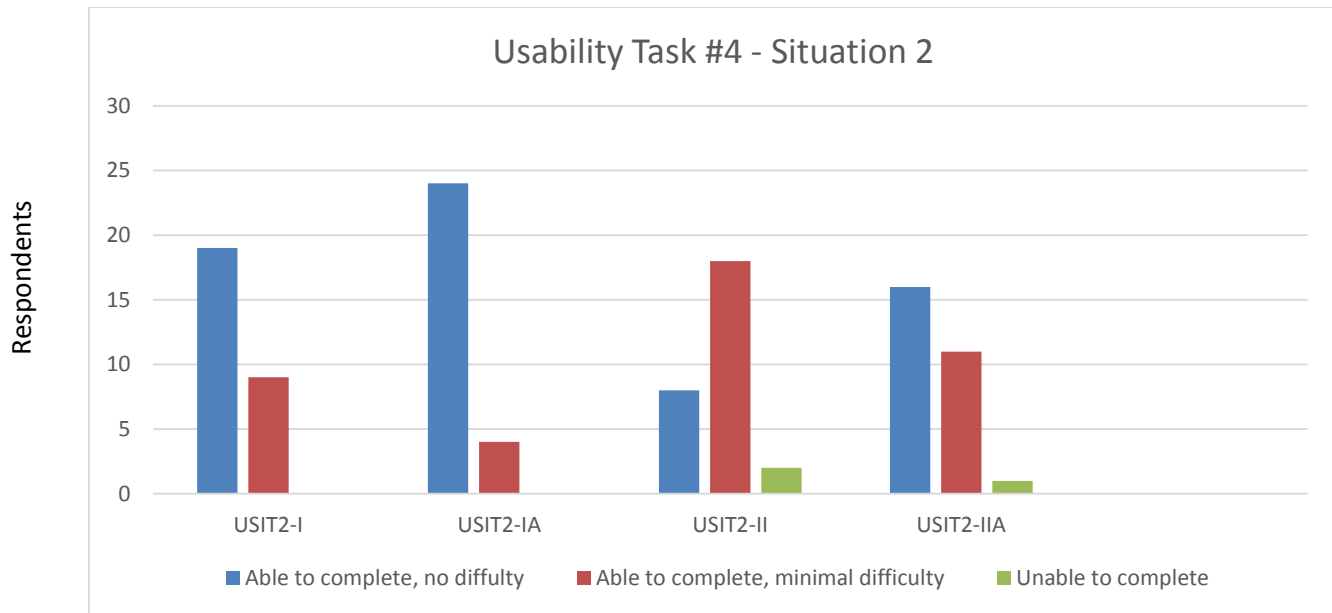**Figure 10.** Usability Task #2 – Usability, Campus Expectations

The third task was a scenario question and asked users to think aloud with regards to what they would do in a certain situation. The response data was coded as Usability, Situation 1, Contact Information, (USIT1) where USIT1-I represents round one of the usability study and USIT1-IA represents round two, in this case task number three asked questions with regards to contact information. In these scenario tasks users were rated on their ability to complete the task from able to complete, defined as being able to complete in one click, to unable to complete the task. In round one of the usability study, denoted as USIT1-I, versus round two, denoted as USIT1-IA, in figure 11, users were more likely to complete the task with more than one click to get to the correct page. However, in round two of testing, in almost every question, users were able to complete the task with no difficulty. Users reacted most strongly to the third question. Most users responded that because contact information was such an integral part of a website most are able to find it either at the top or bottom with no level of difficulty
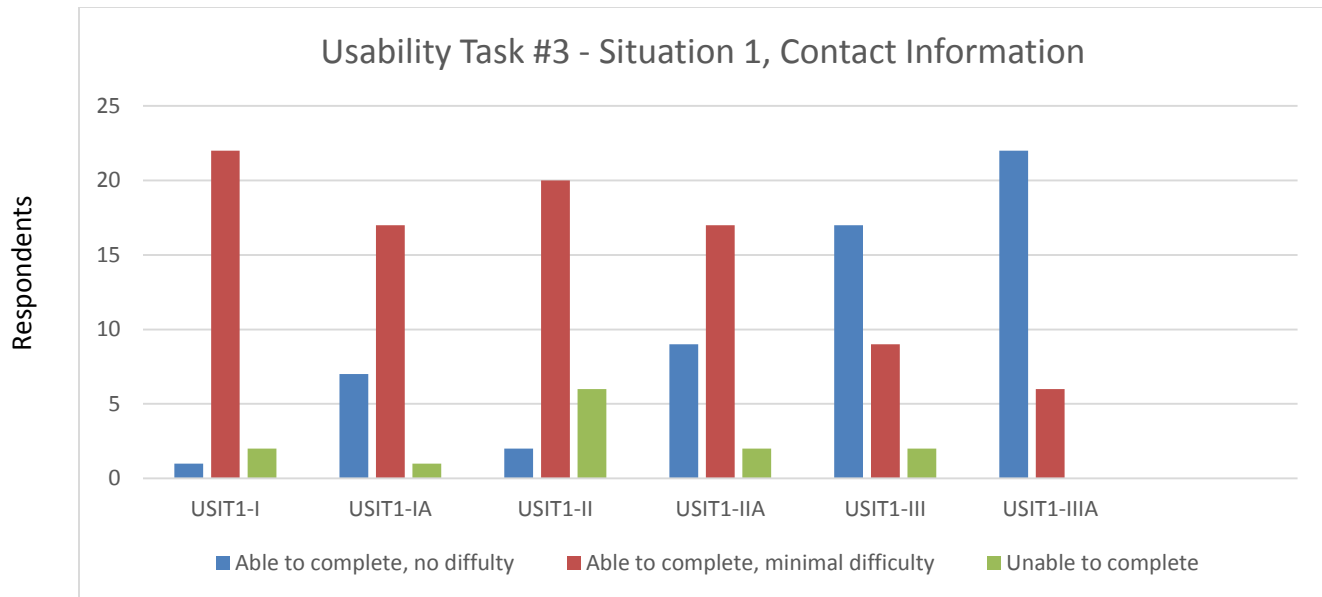
Figure 11. Usability Task #3, Situation 1 – Contact Information.

The fourth task was also a scenario question and asked users to think aloud with regards to a specific section of the website, Usability Situation 2, STEM Pathways (USIT2). This was chosen as part of the usability study specifically because of the importance the content experts relayed when doing the rapid prototype design. The STEM Pathways were identified as a core function of the OSE and therefore was integral to test.

This task was also rated users on their ability to complete the task from able to complete, defined as being able to complete the task in one click, to unable to complete the task. In round one of the usability study, denoted as USIT2-I, versus round two, denoted as USIT2-IA, in figure 11 below, users were more likely to complete the task with more than one click to get to the correct page

Figure 12. Usability Task #4, Situation 2 – STEM Pathways

The fifth task was a scenario question and asked users to think aloud with regards to what they would do in a certain situation, in this case regarding key personnel and funding. This scenario aimed to get users into trying to find information regarding funding of STEM Education and STEM initiatives. As participants were going through the scenario in round one of testing it was obvious that what the website designers had envisioned, clearly was not what the users were able to find. Most were confused, but eventually completed the task. Though they had many questions with regards to who was in charge of the office and where it was located. This task was also rated users on their ability to complete the task from able to complete, defined as being able to complete the task in one click, to unable to complete the task. In round one of the usability study, denoted as USIT3-I, versus round two, denoted as USIT3-IA, in Figure 12, users were more likely to complete the task with more than one click to get to the correct page

After some minor changes, in round two of testing the users were able to complete the task at almost double the rate of round one testing. Users overwhelmingly stated that with regards to contact information it was best to name an actual person rather than just a generic office email or location. When asked, only one person was able to correctly name the Director for STEM Education. By adding actual contact information with names, users felt this made the website much more user friendly and made it personable.
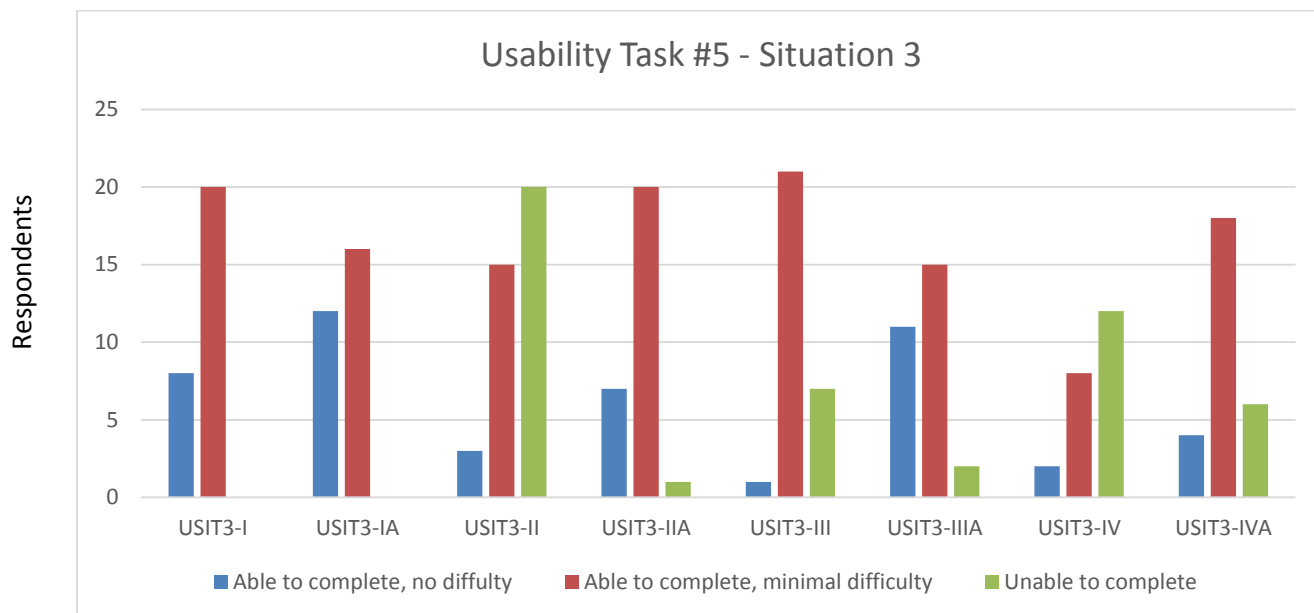
Figure 13. Usability Task #5, Situation 3 – Key Personnel and Funding.

Discussion

Throughout the design process of the website a few things became increasingly apparent as critical to the success of a successful website. First and foremost, little changes make a big difference. Feedback from the usability study found that a small change, such as changing a text box over a graphic from opaque to transparent made a huge difference in the way users perceive and comprehend the text. As an opaque text box, part of the image is covered and users just glossed over the image and failed to read and truly comprehend the text. However, after it was changed to a transparent box, the majority of users almost immediately could locate what the box was. That small change made the graphic more aesthetically clear to users and many commented that it felt more "modern," "clean," and "professionally designed." That one change however, required numerous hours of work to change the text box from opaque to transparent. While it was time consuming to make that change, in the end the user found it more aesthetically pleasing. Second, change is not instantaneous and you cannot satisfy everyone. While all feedback was taken into consideration it is impossible to make every change, nor is it responsible to make change for the sake of change. Sometimes it takes day or two to absorb all the information gathered in the usability study and evaluate each suggestion as to how that suggested change fits in with the overall goal of the design of the website. Finally, always keep the big picture in mind. Ideas that are translated to a website should fit in with the overall theme and provide useful information.

Many users for example, in round one, of usability task #3, contact information, reacted strongly to not being able to find contact information and were increasingly frustrated at the lack of such basic information. While the designers in round two modified the new website to include a page specifically for contact information, users who reacted strongly to the old website in round one,

had comments such as "it finally has its own page," or "now I don't have to google that information, I can find it on the actual website." While all commented the new website was multitudes better than the old website in terms of contact information, their initial negative experience stuck with them. As Belanche et al (2014) confirmed in their study, usability has a direct correlation to satisfaction and while a user may still come back to the website, their initial experience sticks with them. While we strive to get it right the first time, we don't always succeed. This usability study provided invaluable feedback so others' who will use the new website for the first time will have positive reactions and thus will perceive the Office of STEM Education in a positive light.

Conclusion

By modifying the website using rapid prototyping problem areas were caught early on and fixed. It was helpful to see what participants in the usability study found useful and how easily they were able to navigate the website. Through the usability testing I gained a better understanding of how users view our website and how we can make the website experience simpler and easier. It became very apparent that often times what developers see as useful and easy to read, understand and view, is not how the user perceives what is on a website. Often times what I believed to be a useful and well-designed portion of the website, was viewed with lukewarm response from participants. Small changes to websites often times make the biggest differences. Changing a color or font, or in this case, adding a picture rather than a word, instantly made users want to go to that particular section.

This usability study ultimately helped to design and develop a website that was user-friendly, mobile-friendly, and increased the awareness of the user about the Office of STEM Education. By enhancing particular features deemed essential by content experts, I was able to get users to the desired information quicker and more efficiently.

References

Belanche, Danile, Casalo, Luis V., & Guinaliu, Miguel. (2012). Website usability, consumer satisfaction and the intention to use a website: the moderating effect of perceived risk. *Journal of Retailing and Consumer Services*, 19(1), 124-132.

Foley, A. (2011). Exploring the design, development and use of websites through accessibility and usability studies. *Journal of Educational Multimedia and Hypermedia*, 20(4), 361-385.

Hall, R. & Hanna, P. (2004). The impact of web page text-background colour combinations on Readability, retention, aesthetics and behavioural intention. *Behaviour & Infomration Technology, 23(3),* 183-195. doi: 10.1080/01449290410001669932

Klein, Deanna & Gubic, Aleksandar. (2014). Responsive website design for higher education utilizing mobile centric features. *Online Journal of Applied Knowledge Management*, 2(1), 69-81.

Krug, S. (2014). *Don't make me think revisited: A common sense approach to web and mobile usability.* San Francisco, CA: New Riders.

Lavie, T., & Tractinsky, N. (2004). Assessing dimensions of perceived visual aaesthetics of web sites. *International Journal of Human–Computer Studies*, 60(3), 269–298.

Lee, Younghwa & Kozar, Kenneth A. (2012). Understanding of website usability: Specifying and measuring constructs and their relationships. *Decision Support Systems*, 52(2), 450-463.

Leung, Rosanna & Law, Rob. (2012). Human factors in website usability measurement. In Zhang, Ying, Editor, *Future wireless networks and information systems* (501-507) Berlin: Springer Berlin Heidelberg.

McSpadden, K. (2015, May 14). You now have a shorter attention span than a goldfish. *Time*. Retrieved from: http://time.com/3858309/attention-spans-goldfish/

Nasrul, Mohammad, Nor, Khalil, Masrom, Maslin, Syarief, Achmad (2012). Website fit: An overview. *Asia Pacific Business Innovation and Technology Management Society,* 40, 315-325.

Sauer, J., & Sonderegger, A. (2011). The influence of product aesthetics and user state in usability testing. *Behaviour & Information Technology*, 30(6), 787–796.

Weatherhead, R. (2014, February 28). Say it quick, say it well - the attention span of a modern internet consumer. *The Guardian*. Retrieved from: http://www.theguardian.com/media-network/media-network blog/2012/mar/19/attention-span-internet-consumer.

Hi [PARTICIPANT NAME], my name is Melissa and I'll be walking you through today's usability session.

Prior to starting our session I will take you through the tasks you'll be asked to complete. Your participation is completely voluntary and you may stop the session at any time without penalty. You will be asked to review the Office of STEM Education's website. I am looking at things such as navigation, ease of use, consistency and user satisfaction.

Do you have any questions regarding the session?

I ask that as much as possible when viewing the website you think out loud; there are no wrong answers and you are not penalized for anything you say. Your thoughts and actions are important in the process of determining the effectiveness of the website.

This session will last no longer than 30 minutes. I would like to advise you that your actions that are taking place on the screen including your mouse clicks and navigation as well as your audio commentary will both be recorded using Quicktime installed on the laptop. At the beginning and end of the session you'll be asked to complete a short five minute survey and post-test evaluation. None of your answers provided will be used in any way to personally identify you.

Do you have any questions before we begin this session?

TASK #1
This is the University of Hawai'i's STEM Education website. This site provides information for students, parents and faculty and staff at the University of Hawai'i regarding STEM Education. I'll give you a few minutes to look through the website before we begin. As you're doing so, I would remind and encourage you to think out loud.

[Give participant two minutes to look through website, when time is up begin]

We will now begin the session.

- Have you ever used this website before?
- What is your initial reaction to the homepage?
- What is your initial reaction to the layout of the homepage?
- Please describe aesthetics of the website, colors, graphics, etc. and your thoughts on them.

TASK #2
There is a list of campuses on the right side of the homepage.
- When you see this list of campuses what do you expect when you click on a campus?
Now pick a campus you are familiar with and click on that link.
- Is that what you were expecting?
- What were you expecting?

- What do you expect will happen if you click on a link in the page?

Now go ahead and click on any link.

- Where does this take you to?
- Do you understand the tie between the Office of STEM Education and the campus website it has taken you to?

TASK #3

This is a scenario question. I will read a made up scenario and you will take me through your process of locating the requested information.

SCENARIO: You are a new student and are interested in Engineering. You want to find out more about the Office of STEM Education and what its mission and objectives are and how it can help you in completing your degree.

- Where would you click to find out more about the Office of STEM Education?
- Where can you find information on the program of study you're interested in?
- Who can you contact for more information?
-

TASK #4

This is a scenario question. I will read a made up scenario and you will take me through your process of locating the requested information.

SCENARIO: You are a faculty teaching Engineering and are interested in learning more about the STEM Pathways and how you can best advise your students who are looking into what jobs their degree has to offer. You've heard about the Office of STEM Education and navigate to the website.

- What would you click on to learn more about STEM Pathways?

ONLY GO HERE IF PERSON NAVIGATES SUCCESSFULLY TO STEM PATHWAYS

- What is your initial thought on the STEM Pathways page?
- Which pathway would you click on to find out more information on jobs in the Engineering field?

Please feel free to click on various links in the page.

- What do you think of the layout of the Pathways project?
- Would you know how to advise your students based on this model?

IF THEY CANNOT FIND THE STEM PATHWAYS LINK POINT OUT TO THEM WHERE IT IS AND FOLLOW UP WITH THE SAME QUESTIONS.

- What is your initial thought on the STEM Pathways page?
- Which pathway would you click on to find out more information on jobs in the Engineering field?

Please feel free to click on various links in the page.

- What do you think of the layout of the Pathways project?
- Would you know how to advise your students based on this model?

TASK #5
This last question is a scenario question. I will read a made up scenario and you will take me through your process of locating the requested information.

SCENARIO: You are a legislator looking to provide funding to STEM Education at the University of Hawai'i. The Office of STEM Education seems like the perfect place to start your dialogue.

- Where would you go to find more information on the Office of STEM Education?
- Can you tell me where the Office of STEM Education is located?
- Do you know who is in charge of the Office of STEM Education?
- Can you find any data to backup your funding for STEM Education?

That is the end of our session. Thank you for your participation. There is a link to a short evaluation on your screen. If you could take a few minutes to fill it out it will help us tremendously in our evaluation.

Do you have any questions?

Appendix B. Demographic Survey

Link:
https://docs.google.com/a/hawaii.edu/forms/d/15-rM26iYe_mChpOcF3_3eeVwa1rgnfCXeeHVg15c2hg/viewform

Survey (to be administered at the beginning of the session)

1. What is your age?
- 18-24
- 25-35
- 36-46
- 47-57
- 58-68
- 68 or older

2. How much time do you spend a day on the internet?
- Less than one hour
- 1-2 hours
- 3-5 hours
- 6-8 hours
- More than 8 hours

3. How would you describe your familiarity with website design and development?
- Basic
- Intermediate
- Advanced

4. What is your affiliation with the University of Hawai'i?
- Undergraduate Student
- Graduate Student
- Staff
- Faculty
- I have no affiliation with the University of Hawai'i

5. Do you work in a Science, Technology, Engineering or Math (STEM) field?

- Yes
- No

6. Are you majoring in a STEM field?
- Yes
- No

Appendix C. Usability Study Participation Agreement Form

<u>Usability Study Participation Agreement Form</u>

This usability study is being conducted as a component for a Master's degree in Learning Design and Technology at the University of Hawaii at Manoa. The purpose of this usability study is to develop and evaluate the navigation and user satisfaction of a university department website to improve its efficiency for students, faculty, and staff at a university on Oʻahu. Your participation in this study will help determine where beneficial changes can be made to the Office of STEM Education's website to increase user satisfaction.

Participation in this study will consist of navigating your way through the Office of STEM Education website while being prompted with a series of questions and scenarios. These questions are intended to evaluate the navigational efficiency of the website. To help researchers gain your valuable feedback and opinion, you will be asked to share your thoughts aloud while you navigate. Your actions on the computer screen as well as your verbal comments will be screen captured and recorded. At the end of the recorded session, you will be asked to complete a short post-test survey. This survey is intended to gather your attitudinal feedback pertaining to the organization of content and user satisfaction of the website as a whole. You will be given the opportunity to offer suggestions of improvement to the website where needed. Your participation in this usability study will last no longer than 30 minutes.

The data taken from your participation in this study will be used solely for the purpose of this usability study. The recordings from this study will be transcribed to get accurate recordings of the sessions from all participants.

If you have any questions regarding your participation in this research study, please feel free to contact Melissa Arakawa at arakawam@hawaii.edu.
_____

I have read the information indicated above and agree to participate in this usability study. I understand that my usability test session will be recorded. By signing below, I hereby grant Melissa Arakawa permission to use any observational notes, video/audio recordings, and attitudinal survey for the purpose of improving the designs of the Office of STEM Education's website.

Name: _____

Signature: _____   Date: _____