

Designing a Mobile Informational Website for Military Medical Personnel

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Abstract: Medical augmentees at Joint POW/MIA Accounting Command are responsible for the health and welfare of team members deployed to remote regions of the world to extract remains of lost service members. No method was in place to prepare these individuals for mission prior to arriving on Oahu and information needed to be available as an online resource and viewable on mobile hand-held devices so members could access information prior to and during deployment. The purpose of the instructional design project was to develop and evaluate a web-based instructional website designed to provide necessary medical and mission knowledge to medical augmentees. Fifteen current and former augmentees were asked to review the *Aloha Augmentee* website, evaluate the quality of content and make recommendations for improvement. Data were collected via online pre and post surveys. The results revealed that the website was viewed as successful with very positive qualitative feedback. Participants felt that the website could be even more effective with the addition of medical-grade photographs and more in-depth background about specific regional diagnoses. Feedback from participants will be used to improve the overall design and content of the website to better prepare future augmentees.

Introduction

In 2011 Congress mandated that by 2015 the Joint POW/MIA Accounting Command, or JPAC, must identify two-hundred missing service members a year (United States Accountability Office, 2013). Despite these increased demands, staffing at JPAC on the island of Oahu, Hawaii was insufficient to supply medical personnel for these additional missions (D. Brook, personal communication, September 6, 2013). In order to meet the demands of Congress, JPAC must staff approximately half of their missions with non-organic medical personnel, called augmentees. These individuals are not stationed at JPAC and have not been previously trained on these missions. The medical section of JPAC was looking for a way to both advise augmentees on the essentials of packing and preparedness before arriving on Oahu, as well as train them with mission information in a way that allowed for reference and view-ability on various mobile devices while deployed. The goal of the *Aloha Augmentee* website project was to develop a resource to meet these needs.

Background and Literature Review

Prior to the *Aloha Augmentee* website project, there was no singular way to train or advise these personnel prior to arriving on Oahu. They were sent an email with a brief welcome and a phone number to prepare for their arrival on Oahu. Many times there was insufficient staff in the office to answer these phone calls. In addition, essential mission information was unavailable in an easily accessible way while deployed (D. Brook, personal communication, September 6, 2013).

Giving this special group of medical personnel a single place to obtain all necessary information that also allowed view-ability on handheld devices ensured 24/7 access from nearly anywhere making “Just in Time” learning (Koole, 2009) possible. Research suggested that providing information that is viewable on the learner’s own mobile devices assists in learning motivation (Ruiz, Mintzer & Leipig, 2006). Based on Keller’s (2008) work on motivation, it was assumed that the augmentees would be eager to learn based on their perceived gap in knowledge for both preparation for a mission and readiness to arrive in Oahu.

Instructional videos, photos and other multimedia were suggested to assist comprehension for participants and for possible use in instructing patients, many who do not speak English (Houts, Doak, Doak & Loscalzo 2006). Ruiz, Mintzer and Leipzig (2006) asserted that medical information presented using various forms of media was learned more efficiently and had better retention. John Keller’s ARCS Model of Motivational Design was used with focus on relevance to motivate participants. Photographs of actual missions were used throughout the website whenever possible to enhance familiarity with the missions represented on the website as seen in Figure 1.



Figure 1. Screenshot of actual mission photo used on *Aloha Augmentee* to enhance familiarity.

Methodology

The *Aloha Augmentee* website attempted to both curate existing information and create new content necessary for a successful JPAC mission as a medical augmentee. Former

and current augmentees were asked to evaluate the module on: design, how it met the needs and goals of augmentees and how well they felt this module would contribute to their overall preparedness. The website took about 1 hour to review and 15 minutes to complete the pre and post-surveys.

Weebly was used to create the website due to its ability to be viewed successfully on handheld mobile devices. Google Forms was used to administer a pre demographic & attitudinal survey and post attitudinal survey embedded in the website. All participants were asked to review the website from his/her individual mobile device to ensure that the content was presented in a way that was suitable for varied devices.

Participants were recruited via email. IRB approval and consent forms can be found in Appendix A. The participants were fifteen enlisted medical personnel tasked with supporting JPAC recovery team missions either as an organic or augmentee medic. These individuals had Smartphones and other mobile handheld devices with which the website could be viewed both before and during missions. Medical personnel on mission were provided with satellite wi-fi access as the standard.

Quantitative and qualitative data were collected using the pre and post-surveys to gather demographic information about participants and feedback about their overall impression on the usability, content and effectiveness of the instructional website. Open ended and Liker-type items were used. Copies of the surveys can be found in Appendix B.

Results

Findings from the participants' review of the *Aloha Augmentee* website are presented here. Data were collected anonymously using Google Forms embedded in the website.

Demographics. Two of the fifteen participants were female and the remainder were male. Fourteen of the 15 participants were 30-44 years old, while one was 18-29. Seven participants had technical school training; seven held bachelor's degrees and one held a master's degree. Fourteen of fifteen had more than 15 years of medical experience focusing on field medicine, while one had 10-14 years of experience.

Pre-survey. Ten of fifteen participants felt that it would have been most useful to have a suggested packing list prior to arriving on Oahu. All expressed a desire to have some sort of curated web-based tool with information that they could reference prior to arriving and once on Oahu. Nine of fifteen expressed that they could have used a tool such as a website while on a prior mission.

Post-survey. Participants were asked fifteen questions following their review of the website. Eleven Likert scale questions were asked and four open-ended questions. Likert scale questions and responses are represented below in Figures 2 through 5, while open-ended questions are represented in Figures 6 & 7.

Organization/Structure. In looking at organization and structure of the web site, (Figure 2), all participants responded favorably to the statements in this section of the survey. Thirteen strongly agreed and two agreed that “The lessons were easy to follow” and “The lessons were an appropriate length.” All strongly agreed that “The length of the entire website was reasonable,” and fourteen strongly agreed and one agreed that “I was able to find information easily in this website.”

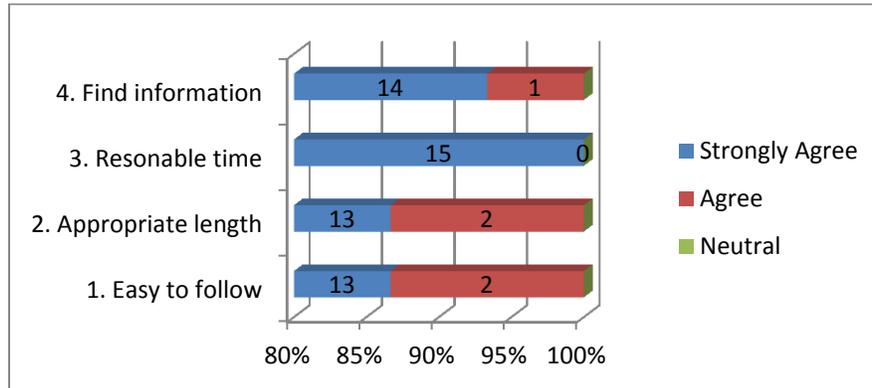


Figure 2. Responses for Likert scale statements 1-4 on organization and structure.

Usefulness of Content. Responses related to usefulness of content are reported in Figure 3. Eleven strongly agreed, while three agreed and one was neutral that “The cultural content was useful.” For #6, “I learned something from this website,” only one person agreed that they learned something from the website while four were neutral and ten disagreed that they learned anything. All participants strongly agreed that “The information is appropriate for a medical augmentee,” and “The website would help me prepare for a JPAC medical augmentee assignment.”

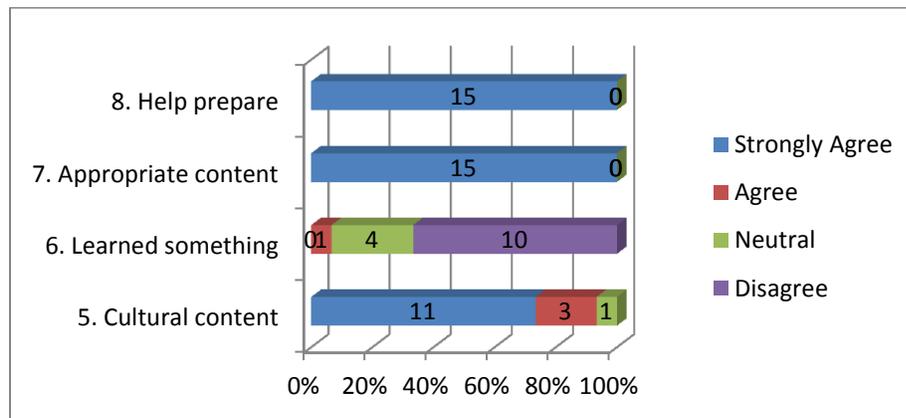


Figure 3. Responses for Likert scale statements 5-8 on usefulness of content.

Mobility. In considering mobility, question 9, “I was able to view the website on a handheld device,” all participants strongly agreed that the website was viewable on their handheld/mobile devices (Figure 4).

difficult (Koole, 2009). Changes need to be made to the present website however, to incorporate contradictory data from this study which indicates that this particular group of individuals would have preferred to have much more medical content. The data from Figure 7 also indicated that the “Tips & Tricks” portion of the website was more highly valued than anticipated. This portion should perhaps be expanded in content and given a more prominent location in the website navigation.

Conclusion

JPAC personnel have an important mission, to locate, identify, and bring home our fallen service personnel. Ensuring that these individuals feel prepared and confident in their duties is crucial to the safety of those with them and the overall success of the mission itself. The *Aloha Augmentee* website prototype was a small step in updating and better preparing a small specific group of individuals to better serve the needs of the mission as a whole.

References

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Appendix A



UNIVERSITY
of HAWAII
MĀNOA

Office of Research Compliance
Human Studies Program

December 11, 2013

TO: Stacy Brook
Principal Investigator
Educational Technology

FROM: Denise A. Lin-DeShetler, MPH, MA
Director

A handwritten signature in black ink, appearing to read 'Denise A. Lin-DeShetler'.

SUBJECT: CHS #21796- "Mobile Learning for Medical Personnel"

This letter is your record of the Human Studies Program approval of this study as exempt.

On December 11, 2013, the University of Hawai'i (UH) Human Studies Program approved this study as exempt from federal regulations pertaining to the protection of human research participants. The authority for the exemption applicable to your study is documented in the Code of Federal Regulations at 45CFR 46.101(b)(Exempt Category 2).

Exempt studies are subject to the ethical principles articulated in The Belmont Report, found at <http://www.hawaii.edu/irb/html/manual/appendices/A/belmont.html>.

Exempt studies do not require regular continuing review by the Human Studies Program. However, if you propose to modify your study, you must receive approval from the Human Studies Program prior to implementing any changes. You can submit your proposed changes via email at uhirb@hawaii.edu. (The subject line should read: Exempt Study Modification.) The Human Studies Program may review the exempt status at that time and request an application for approval as non-exempt research.

In order to protect the confidentiality of research participants, we encourage you to destroy private information which can be linked to the identities of individuals as soon as it is reasonable to do so. Signed consent forms, as applicable to your study, should be maintained for at least the duration of your project.

This approval does not expire. However, please notify the Human Studies Program when your study is complete. Upon notification, we will close our files pertaining to your study.

If you have any questions relating to the protection of human research participants, please contact the Human Studies Program at 956-5007 or uhirb@hawaii.edu. We wish you success in carrying out your research project.

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Telephone: (808) 956-5007
Fax: (808) 956-8663

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Consent Form
Consent to Participate in Research Project:
Mobile Learning for Medical Personnel

Aloha! My name is Stacy Brook. As a part of my master's program in Educational Technology at the University of Hawaii, I am creating an instructional module using Google sites to assist JPAC medical augmentees to prepare for successful missions. Participants will learn what to expect when they arrive in Hawaii and how to make the most of their preparation time here on island, as well as what to expect in country on mission. As I work to create this website, I need feedback and assistance from those who might be potential users of the final product. This feedback will help ensure that the module meets the needs of the JPAC medical augmentees. I am asking you to voluntarily be one of those to participate in this phase of the development and participate in my study.

What activities will you do in the study and how long will the activities last? If you participate, you will be asked to complete a pre-survey prior to viewing the website. You will then view all aspects of the website with sections on the topics: Arriving on Oahu, Medical information, Laos, Papua New Guinea, and Vietnam. After viewing the website, you will be asked to complete a post-survey to assist in the continued development of the website. The entire process should take no longer than 2 hours. If you would like to see a copy of all the questions that I will ask you, please let me know.

Benefits and Risks: There may be no direct benefits to you in participating in my research project. The results of this project might help me to finalize my instructional module. I believe there is little or no risk to you in participating in this project.

Confidentiality and Privacy: Please be assured that I will take all precautionary measures to ensure the privacy of your personal information. All data used in the study will remain confidential. I will be the only person reviewing the data. However, the University of Hawai'i Human Studies Program has the right to review my research methods. No personal information will be on the online pre, or post-tests. The questions will be answered anonymously.

Voluntary Participation: Your participation in this study is completely voluntary. If at any point you feel that you are being pressured into completing this study or feel uncomfortable, you have the option to withdraw. Once again, if you chose to participate, your information will remain confidential.

Questions: If you have any questions regarding the study, including data collection methods and analysis, please do not hesitate to contact me at stacylbrook@gmail.com. If

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you have any questions about your rights you can contact the University of Hawai'i Human Studies Program at uhirb@hawaii.edu or call at 808-956-5007. You should keep a copy of this form for your records. Thank you for your time.

Please keep this top portion for your records. If you agree to participate in this project, please sign the following signature portion of this consent form and return it to Stacy Brook.

Signature for Consent:

I agree to participate in the research conducted for the JPAC medical augmentee website. I understand that my name and personal information will not be released. Any data that is used in the final project will be confidential and my name or any identifying information will not be used in any way. I understand that I may change my mind about being in this project, at any time, by notifying the researcher.

Your name (Print):

Your signature:

_____ Date: _____

Appendix B

Pre-Survey

1. What is your gender?

Male Female

2. What is your age?

0-17 18-29 30-44 45-59 60+

3. What is your highest degree received?

High School/GED Tech school Bachelor Master Doctoral/professional degree

4. Are you an independent duty medic?

Yes No

5. If yes, are you presently attached to JPAC?

Yes No

6. If you are not attached to JPAC, what command are you attached to?

7. At this time are you scheduled to deploy with JPAC as a medical augmentee?

Yes No

8. Have you been on a previous mission as a JPAC medical augmentee?

Yes No

9. Would a suggested packing list have been helpful to you prior to arriving on Oahu?

Yes No Neutral

10. Would an online tool with all necessary mission information be helpful in preparing to arrive on Oahu?

Yes No Neutral

11. Would an online tool with all necessary mission information be helpful for referencing while on mission?

Yes No Neutral

Post Survey

Please answer a few questions about the website. Your input will be used to help improve the website. Please select the number that represents how you feel about the website.

Organization/Structure

1. The lessons were easy to follow.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

2. The lessons were an appropriate length.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

3. The length of the entire website was reasonable.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

4. I was able to find information easily in this website.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

Usefulness of Content

5. The cultural content was helpful.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

6. I learned something from this website.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

7. The information is appropriate for a medical augmentee.

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1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

8. The website would help me prepare for a JPAC medical augmentee assignment.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

Mobility

9. I was able to view the website on a handheld device.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

Multimedia/Visual

10. The pictures and videos provided assisted in my comprehension of the lessons.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

11. The pictures and videos provided added to my enjoyment of the lessons.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

Please respond to the following questions.

12. What did you find was the most valuable information provided on the website?

13. What did you think was unnecessary on the website?

14. What suggestions for improvement do you have?

15. Do you have anything else you wish to share? (optional)

Appendix C

Responses to open-ended questions (12-15) asked in the post-survey

12. What did you find was the most valuable information provided on the website?

The evacuation plans are the most essential for a safe mission.

The Welcome to Oahu is the most useful portion and is needed to inform personnel prior to coming to the island.

From a safety standpoint, the evacuation slide, from a newby perceptive, the information about where to go and what to do once you arrive from your home command

Mission specific information and what to do when arriving on Oahu

The ability to access the evacuation slides from the field

What to do when you first arrive as an augmentee

How to find a hotel and what the process is for that

The tips from past augmentees and organic medics

The evacuation plan definitely! Must easier than going through a bunch of paperwork!

Toss-up between The Welcome to Oahu portion of the website and the mission slides which are crucial for safety while in theater.

What to do when you get here and what to pack for sure! TIPS

Island information that is available before they even leave.

The suggestions from other medics. The tips!

What to pack and more importantly, what NOT to pack! And evacuation plans.

Evac plans & Mission location information

13. What did you think was unnecessary on the website?

The cultural stuff

The travel videos for each country under culture

None

None

n/a

nothing

the common phrases because we bring linguists with us

n/a

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the cultural information

the information about the countries in the videos

nothing

none

nothing

n/a

14. What suggestions for improvement do you have?

Add more countries for IT missions also if that is possible

More text about the various animals/insects/diseases and how to treat them...more than just the basics provided. We are paramedics so we can handle the big words and lengthy text...by the way, this is fantastic!!!

More information on the treatment of various regional diseases perhaps

Would like to know more about the medical treatment of regional issues.

More medical information beyond the basics

Make the "tips and tricks" portion more easily accessible or give it more focus. It is valuable information that needs to be highlighted.

I would include more medical content. We have a firm background in the basics, elaborate more on treatment options.

More pictures of the diseases so that they are easier to visually diagnose if possible.

More pictures. Maybe an acute case and then a very mild case if it presents itself physically for a picture to be taken

Tips and tricks is very useful. Make it editable and more prominent on the website

More medical treatment information and more pictures

Let u be able to find the tips from past medics easier on the website, not hidden as just additional information

More medical content...we can take it, I PROMISE YOU ☺

Reformat tips and tricks maybe and make it easier to find

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15. Do you have anything else you wish to share? (optional)

This is great and much needed! Especially for augmentees who have never been on island before. I really wish I had been sent this site a few weeks prior to my arrival on my first mission!

Love that this is viewable on SMARTphones! I wish I had this when I arrived as well as on mission!

Wish I had this when I was an augmentee.

Thank you for doing this for future augmentees. I can't wait to implement it!

This will be a VERY useful tool!

I am so glad I am able to assist in the development of this much needed tool!

I wish we had thought to do this sooner; it would have really helped to prepare people and decrease some of their anxiety prior to arrival.

Love the mission pictures! Doesn't hurt that they include such handsome models (you used a picture of me on purpose didn't you). Great Job Stacy!

The website will help our new medics A LOT! Thank you!

Very well done! Just what we needed!

This is SO great! You just have to get an "A+" on it!

I think logistically this will be great to send to people a few weeks prior to arriving on island so that they can review the information and prepare for packing appropriately. When we review the information on island we can reference the website and use it as a tool for augmentees to reference in the field. Super idea!