POLLING

1. How many of you whose online courses were not designed for a mobile device wished the course was designed for a mobile device?

   a. Yes, I wished it very much.
   b. Yes, it would have been nice.
   c. No opinions at this point
   d. No, I don’t care about a course designed for a mobile device.
HOW I STARTED

• I teach at University of Hawaii West Oahu.
• I regularly teach online courses.

• Challenges of teaching online course
  – how to create a sense of community
  – how to give meaningful social interactions to learners

• Importance of Social Presence in Online Learning (Garrison, Anderson & Archer, 1999)

Community of Inquiry Model
(Garrison et al., 1999, 2008.)
HOW I STARTED

HOW I STARTED
Welcome to BUSA 345 Website!

**NEED OF AN ORGANIZER FOR MULTIPLE PLATFORMS**

- Embedded Hyperlinks in the Course Schedule
Welcome to BUSA 345 Website!

SMARTPHONE APP ➔ APP FOR ONLINE

- A class organizer in their pocket anywhere anytime
- Convenience & Easy Access to the Course On-the-Go
WHY ONLINE COURSE ON MOBILE DEVICE?

- An organizer for my course
- Pew Research 2015 Reports
  - 64% of American adults own a smartphone
  - 7% of Americans rely heavily on a smartphone for internet access at home
  - among 18-29 years old, 15% are “Smartphone-dependent” users
  - 13% of those with low household incomes and educational level are smartphone-dependent

PROBLEM STATEMENT

- The overarching research question of this project is whether a mobile app developed for an online course can enhance students’ e-learning experiences.
- Specifically, this study looked into the student participants’ perceptions of the app’s four areas of usability.
  1. Design
  2. Navigation
  3. Ease of Use
  4. Perceived Usefulness
PROJECT DESIGN & PROCESS

1. Developing BUSA 345 Mobile App
2. Developing Tutorial Website, “App for Online”
3. Developing Assessment Instruments
4. Recruiting Volunteers from BUSA 345
5. Conducting Usability Study Round 1
6. Making Improvements
7. Conducting Usability Study Round 2
8. Analyzing the Data
9. Writing a Report
10. Presenting it at TCC

1. DEVELOPING APP

BUSA 345 Prototype App
By Appery.Io

Revised Final BUSA 345 App
By AppMkr
2. Developing Website, “App for Online”
http://appforonline.weebly.com/

3. ASSESSMENT INSTRUMENTS

• Pre-test Survey (demographics, smartphone specs)
• Post-test Survey (user experience in four areas)
• Five-point Likert Scale and Open Questions
4. RECRUITING VOLUNTEERS

- Sent out a solicitation email at the end of January
- Criteria: BUSA 345 online student and own a smartphone
- For Round 1, three students immediately volunteered but hard time to recruit for Round 2

5. USABILITY STUDY ROUND 1

<table>
<thead>
<tr>
<th>ID#</th>
<th>Gender</th>
<th>Age</th>
<th>Ethnicity</th>
<th>Class Standing</th>
<th>Type of Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td>R1. 01</td>
<td>F</td>
<td>23</td>
<td>Mixed Asian</td>
<td>Junior</td>
<td>iPhone 6 plus</td>
</tr>
<tr>
<td>R1. 02</td>
<td>M</td>
<td>23</td>
<td>Filipino</td>
<td>Senior</td>
<td>Android Samsung Galaxy S6</td>
</tr>
<tr>
<td>R1. 03</td>
<td>M</td>
<td>20</td>
<td>Afro-American</td>
<td>Junior</td>
<td>iPhone 5s</td>
</tr>
</tbody>
</table>
6. MAKING IMPROVEMENTS

Step 7: Send a Voice Message
Objective: Call the Instructor’s office from the app.
1. Tap the telephone icon on the course app, and call your Instructor’s office from your app and leave a short message.

Note 5:
If you would like to put all apps relevant to BUA 345 such as Google+ and Hangouts into one folder, drag the icon over to BUA 345 App icon and let it go. Now you see a newly created folder that contains the icon. Press your home button to save the folder.
If you want to rename your folder, click here for further instruction.

Note 2:
If you want to send a message about this app, click "Send to a Friend" on the Menu located at the bottom of the app.

This is the end of the mobile app tasks. Now, take the post-survey. Thank you for your participation.

7. USABILITY STUDY
ROUND 2

<table>
<thead>
<tr>
<th>Second Round (R2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>R2. 01</td>
</tr>
<tr>
<td>R2. 02</td>
</tr>
<tr>
<td>R2. 03</td>
</tr>
<tr>
<td>R2. 04</td>
</tr>
</tbody>
</table>
8. ANALYZING THE DATA

- Think Aloud Method and Video recording did not work well.
- Pre-test and Post-test Data were analyzed.
RESULTS OF THE PRE-TEST SURVEY

**Average Age of Participants:** 26.7 years. (20 – 43 years)

<table>
<thead>
<tr>
<th>Question</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. How often do you use your smartphone a day?</td>
<td>4.06*</td>
</tr>
<tr>
<td>2. How comfortable are you with using mobile apps?</td>
<td>4.71*</td>
</tr>
<tr>
<td>3. How many apps do you have on your smartphone now?</td>
<td>66</td>
</tr>
<tr>
<td>4. How many apps do you regularly use on your phone?</td>
<td>More than 7 apps (4)</td>
</tr>
<tr>
<td></td>
<td>4–6 apps (3)</td>
</tr>
<tr>
<td>5. How many of the apps that you have on your smartphone can be considered “for school/college”?</td>
<td>Zero app (2)</td>
</tr>
<tr>
<td></td>
<td>1–3 apps (3)</td>
</tr>
<tr>
<td></td>
<td>4–6 apps (2)</td>
</tr>
</tbody>
</table>

* denotes the mean of the responses on the 5-point Likert scale (with 5 the highest score, meaning “very often,” “very comfortable,” or “strongly agree,” and 1 the lowest score, meaning “rarely,” “uncomfortable,” or “strongly disagree”).
COMPATIBILITY & INTEGRATION

• With the existing course website (busa345.org)
• Google+ Community

COMPATIBILITY WITH COURSE WEBSITE
COMPATIBILITY WITH GOOGLE APPS
COMPATIBILITY RESULTS

- My app was compatible with my existing website and Google+ native apps.

RESULTS OF R1 & R2 POST-TESTS

<table>
<thead>
<tr>
<th>Rounds 1 &amp; 2 Results by Factors</th>
<th>Factor</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Round 1 (n=3)</td>
<td>Design</td>
<td>4.60</td>
</tr>
<tr>
<td></td>
<td>Navigation</td>
<td>5.00</td>
</tr>
<tr>
<td></td>
<td>Ease Of Use</td>
<td>4.92</td>
</tr>
<tr>
<td></td>
<td>Usefulness</td>
<td>4.73</td>
</tr>
<tr>
<td>Round 2 (n=4)</td>
<td>Design</td>
<td>4.70</td>
</tr>
<tr>
<td></td>
<td>Navigation</td>
<td>4.67</td>
</tr>
<tr>
<td></td>
<td>Ease Of Use</td>
<td>4.94</td>
</tr>
<tr>
<td></td>
<td>Usefulness</td>
<td>4.90</td>
</tr>
</tbody>
</table>
The Results of Overall Post-test Survey Round 1 & 2

Design Questions
The Results of Overall Post-test Survey Round 1 & 2

Ease of Use Questions

Usefulness Questions
The Results of Overall Post-test Survey Round 1 & 2

Navigation Questions
iPhone Round 1 & 2 Results

Android Round 1 & 2 Results
DISCUSSION & CONCLUSIONS

• Limitations
  1. Small number of participants (R1 n=3, R2 n=4)
  2. Those who were interested in technology may have volunteered.
  3. Results relied on the survey and informal interviews
  4. Design of the app was done on iPhone, therefore, testing the design and navigation on Android relied on the participant’s Android phones.
DISCUSSION & CONCLUSIONS

6. The app turned out to be easy to use and to navigate on iPhone.

7. The interface of Android differs from iPhone. The instructions on “App for Online” website needed to improve for Android users.

8. Participants perceived the app as “useful” and looked forward to using the app.

LESSONS LEARNED

1. The developer needs to have all platform devices at the design phase.

2. Soliciting volunteers may skew the type of participants, i.e. more tech savvy users would volunteer but not users with low tech self efficacy.
   Need to use different types of recruitment.
FUTURE PLANS

✓ Create two separate “App for Online” instructions; one for Android and one for iPhone.
✓ Explore the feasibility of offering a quiz on a mobile device.

PARTICIPANTS’ RESPONSES

“The app is easy to comprehend and navigate.”

“I am really excited to use this app! Thank you so much for taking the time to set up your class in a way to set your students up for success. :) Also, thank you for the opportunity! :) This was very exciting. :)”
ACKNOWLEDGEMENTS

My sincere “Thank you!” to

- Dr. Fulford, Critical Friends, Mark Yep and Elon Ng!
- Fellow LTEC classmates
- Faculty and Staff in the LTEC program at UHM

QUESTIONS?

Contact: hitosugi@hawaii.edu
THANK YOU FOR COMING TO MY SESSION!