HONORS 499P/T - PROPOSAL

Steve Jones

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1. INTRODUCTION

What are you researching and why?

1.1 - General Description of Project Topic

I'm a student who is passionate about building beautiful software. I discovered this passion early in high school and decided I would go to UMass and study computer science in order to learn how to build software. The majority of my courses at UMass have focused on theory and basic implementation but I have had little opportunity to learn and develop skills to design and build elegant software. I am excited to take advantage of this honors project as an opportunity to fulfill this experience.

I am hoping to start my career in the field of Product Design. After graduating from UMass I would like to attend graduate school to obtain a master's degree in User Experience (UX) or Human-Computer Interaction (HCI). This project is the ideal opportunity for me to build upon my UX career skills while also developing myself into a better candidate for HCI graduate programs. I hope to produce materials that I can submit with my graduate school applications that demonstrate my HCI abilities.

Growing up in an era of design revolutions lead by companies such as Apple and Google is what lured me into this field. With the release of the iPhone in 2007 a revolution of design ignited. Concepts such as touch-based user interface design and “mobile first design” have developed. Products such as the tablets and wearables continue to evolve design. Mobile design is still a young field and there is much to research and explore.

I have always been very interested in how companies build and style their products. The user experience principles and design guidelines that companies follow help define their products and the company as a whole. The culmination of all the design decisions these companies make are enough for their users to develop intense emotional feelings or allegiance to a company or a product. There are people who are devout Apple fans and there are others who swear allegiance to a companies such as Microsoft or Google. The design identities of these companies are so impactful that they can cause people to be connected enough to a company's product that they will have intense arguments to support it over a competitor.

For my honors project I am going to explore the user experience behind a specific component of Google’s Material Design. Material Design is a revolutionary set of design guidelines that have had a substantial impact on the UX field. There has been much debate over some of the principles and components of Material Design. For example, the UX of the “hamburger menu” has been hot topic in the field. Many people have written opinion pieces on this design component and some companies have even published research on its effectiveness.

Another component introduced by Material Design is the Floating Action Button (FAB). The introduction and adoption of this component has been another controversial topic in UX. Similar to the “hamburger menu” many people have expressed criticism and support of the FAB component. However, to my knowledge there has been no usability research published about the FAB. I would like to do user testing of the FAB explore the usability of the component.

This experience of designing and building mobile applications, researching design guidelines and user experience principles, as well as performing and deciphering user tests will be the ultimate experience to prepare me for graduate school and my career

1.2 - Statement about Scientific Problem

1.2.1 - What is a FAB?

- FAB - Floating Action Button
  - Circular buttons that float above the UI
  - On top of every other UI element

1.2.2 - Purpose of the FAB component

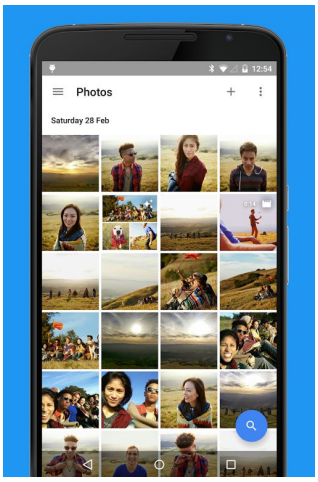
- "Used for a promoted action"
- Call to action buttons
- Meant to represent the single action users perform the most on that particular screen

1.2.3 - Benefits of FABs

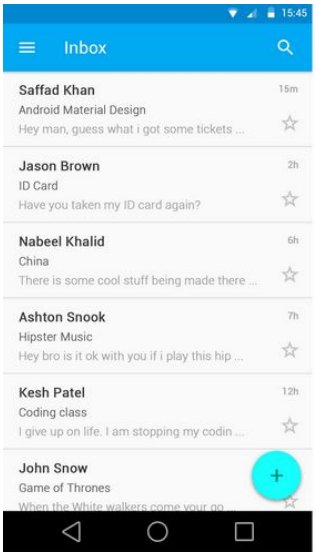
- Make promoted action prominent & always available
- Fitt's Law
  - Large button
  - Close reach

1.2.4 - Issues with FABs

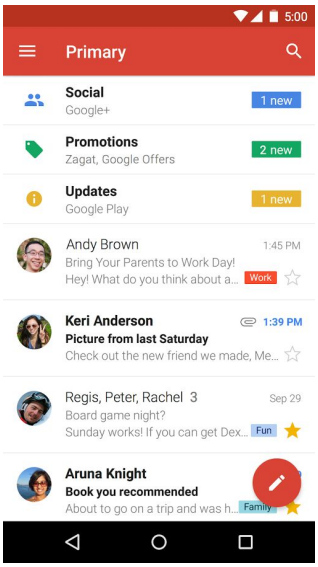
- Material Design - bold visual style → FABs are strikingly hard to ignore and stand out
- Take immersion out of the experience
  - On top of every other UI element
    - Adding FAB - automatically result in a UX that is less immersive
  - Example: Google's Photos App
    - Gallery view, with a floating search button
    - Primary Purpose - Most users just want to view photos
      - Search FAB thus distracts the user from an immersive photo-browsing experience
    - Google's Statement:
      - "Not every screen needs a floating action button. A floating action button represents the primary action in an application"
      - "The primary action is to touch images in a gallery, so no button is needed"



- FABs stand out & stand in the way
  - FABs block content
    - Take up real estate on the screen
  - Example: Google's Photos App
    - FAB blocks ~50% of an image thumbnail
      - Additional scroll needed to look at every 4th thumbnail of the last row on screen
  - Example: GMail's Inbox App
    - List views - blocks right justified info
    - FAB blocking "favorite" button and time stamp
    - Especially problematic when: last item on list can't be scrolled up any further



        - Proper usability - Entire column the width of the FAB has to be sacrificed (by repositioning the star button, timestamp, etc.)
            - FAB takes up way more screen real estate than its size suggests
- Promoted actions might not be used that often
    - 80/20 rule - users will use 20% of the features 80% of the time
        - FAB does this if feature is actually in that 20%
    - Example: Google's GMail App
        - FAB - compose button
            - Suggests primary action users perform - create an email
                - Studies show ~50% of emails are now read on a mobile device
                - Composing emails much less - users still prefer desktop
            - Primary action - reading, not writing



1.2.5 - Summary

- FABs seem to provide good UX in ideal conditions
    - Users don't only perform actions on apps, they consume content as well (if not more of the time)
    - In actual practice, widespread adoption of FABs might be detrimental to the overall UX of the app

1.3 - Description of Objectives

To research the usability of the FAB I will design and develop two mobile applications. One using the FAB as directed in Google's material design guidelines, and one that uses a more traditional alternate component that serves the same function as the FAB. Both applications will be designed with the same purpose and core functionality, however each will have the distinct difference of the component used for the purpose that the FAB serves.

After designing and building each application, I will to perform A/B testing on this specific feature of the application. For example I will test the user experience of a feature such as "Compose New Message". One application will be designed to complete this action using an alternate compose button (Image 1), whereas the other application will use its Floating Action Button (FAB) component (Image 2).

Image 1

Image 2

1.4 - Hypothesis

- The FAB presents negative UX implications

1.5 - Explanation for Significance Problem

e.g., relate the key literature to the problem or creative endeavor, and explain the study's importance to the advancement of knowledge in the discipline.

2. REVIEW OF LITERATURE

What have other researchers already written/published on your topic?

2.1 - Primary Literature Understanding Demonstration

(about 5-15 pages)

- Condense my 37 pages or research notes

2.2 - Key Literature Needed for Project Manuscript

2.3 - Formatting Style Used in your Discipline for Notes & Bibliography

(e.g., Chicago, MLA, APA, a specific Journal, etc.). Be sure to note the style you will be using.

3. METHOD

How are you conducting your research?

3.1 - Procedures or Techniques to Gather Information/Data or to Create Project?

- User testing
  - usertesting.com

3.2 - Research Resources/Materials

- usertesting.com

3.3 - Specialized Training

I have never developed an iOS or Android application, so as part of my research I will have to learn how. I will do this using online tutorials such as Lynda.com. I am proficient in Java but I will have to learn the Swift or Objective-C programming language for iOS development.

4. EVALUATION

How will your work be reviewed and graded?

4.1 - Measureable Goals

4.2 - How Will Committee Provide Progress Feedback

4.3 - Committee Assessment of Viability of Research to Produce Honors Project Manuscript with Oral Defense

4.4 - Specifications of Artifact Produced in Addition to Project Manuscript

5. COMMUNICATION

What are the expectations about meetings with your Committee Chair and other Committee Member(s)? Be specific.

5.1 - Committee Chair Meeting Schedule

5.2 - Full Committee Meeting Schedule

5.3 - Committee Chair & Members Expectations of Meetings

5.4 - Time Commitment Expected Between Meetings

6 Credits - 18 hours/week

6. TIMELINE

6.1 - Dates and Expectations for Periodic Review of Research Results

6.2 - Project Manuscript Deadlines

- Outline
- First Draft
- Second Draft

6.3 - Final Manuscript and Artifacts Deadline

6.4 - Oral Defense Setting & Deadline

(e.g., informal with 499T/P committee members only or public defense open to others)