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### Heuristic Evaluation: iOS 7 vs. Android 4.2

In evaluating the usability of two popular mobile operating systems, namely Apple's iOS 7 and Google's Android 4.2 "Jellybean", we found Apple's OS to be superior in efficiency, error-proneness, and satisfaction. The degree to which each OS follows its respective company's design guidelines, which are fairly similar, is directly correlated to the OS's success in the above findings. It is difficult to imagine any stark contrast between Google's guidelines around the time of 4.2, what they referred to as "a sweeter tasting Jelly Bean"<sup>1</sup>, versus current documents, but it should be noted that the following comparison uses these *current* documents. Also, as iOS 8 has been released within the past week, the guidelines may have been similarly updated. This could also be a source of many Jellybean errors, as many users may have been accustomed to a later version. I will address this discontinuity brought on by updating as a potential weakness in the usability of Android. Further, in our discussion of the guidelines and their relationships to the OSs, we will address the drastic differences in color, minimal feedback and nondescript layout of navigation that caused iOS to take the lead over Android.

In the Android design documents under a section titled, "New in Android", Google lists a comparison of changes between updates. From 4.1 to 4.4 (there is no indication in the docs of what 4.2 or 4.3 brought on), it is apparent that Android switched most of its stock UI color

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<sup>1</sup> "Nexus 4 - Software." Wikipedia, The Free Encyclopedia. Wikimedia Foundation, Web. 24 Sept. 2014.

scheme in favor of lighter hues and transparency<sup>2</sup>. When a designer uses near pitch black as a background, they often find themselves in short supply of colors that stand out on it. For Android, the most contrasting color, white, was chosen. These colors appear nowhere under the “Color” section of the documentation. Under “Typography” it points out that the primary color for text is white on black, which is decidedly jarring coming from any of the colors in the proposed palette or even any transparency. The sharpness of solid white, angular fonts on pure black creates a sharpness that limits visibility. The introduction of the transparency in 4.4 is welcome because of this, but creates more unintended color (from the user’s chosen backgrounds through the transparencies) making it even more startling to switch in and out of the black and white UI. Through both the current UI color and update differences, this single example manages to break much of the continuity in Android versions. This led to many user errors and skewed the findings towards the Apple OS.

A common response to tasks 2 and 3 (adding a contact & adding a world clock) was, “Uhh. Did I do it?”. Both OSs had a similar, non-existent feedback when a contact was added and iOS slightly signals the addition of a world clock, more an effect of the app’s layout than any deliberate mode of feedback. Android calls feedback, “acknowledging”<sup>3</sup>, and provides a ...unless the layout was itself designed to deliver such feedback. flowchart for developers that explains when to provide acknowledgement. The interface of the clock app displays one large digital or analog clock in the center of the screen and any others below it, justified to the left. In the flowchart we end up at, “Does completing the action involve implicit feedback”<sup>4</sup>. Arguably because the added clock is not “front and center” where feedback

<sup>2</sup> GadgetJM. “Android 4.4 KitKat vs Android 4.3 JellyBean comparison” YouTube. Web. 24 Sept. 2014.

“Confirming & Acknowledging.” Android User Interface Guidelines. Google. Web. 25 Sep 2014.

<sup>4</sup> Ibid

signaling closure, implicit or explicit, is expected, the user questions whether the action was completed. iOS has clear implicit feedback, because the added clock appears directly below any other clocks you may have added, all of equal size. Although the iOS docs do not have such a flowchart, Android could benefit from, “integrat[ing] status and other relevant feedback information into [their] UI”<sup>5</sup> if they insist on not placing the added clock directly in front of the user.

The most inhibiting factors about Jellybean were its navigation to apps within the OS and layout of the navigation within apps. When performing task 2, users were severely confused whether to add the contact through the phone application or contact book. Further, the users were presented with a different interface in each chain of events where iOS takes the user to the same UI in either case. Again, this is an issue in continuity, but primarily an issue with the inverted layout of the navigation. The usual case in both OSs is that any navigation through the app or feedback is located on the top and the actions (add, delete, edit) are on the bottom (visa versa in some cases). At the very least, this layout should be consistent through a series of user actions. The add or edit actions in the iOS chain of events are constantly in the top right corner. Similar actions on Jellybean are located first on the bottom and then when viewing a single contact, on the top. This resulted in a “where’s that damn add button” response in many users and

contributed to many errors. **...and this exemplifies the interaction design principle known as...? (it was one of those highlighted in class also, so really there is no reason \*not\* to use the precise term)**

Ultimately, discontinuity across updates coupled with uncomplimentary color schemes, **^ I think you mean "uncomplementary" here** nonexistent feedback and skewed layout caused most of the un-usability for the Android OS.

Lack of feedback was not unique to Jellybean, as it was apparent when users performed task 2 in

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<sup>5</sup> "Interactivity and Feedback." iOS Human Interface Guidelines. Apple. Web. 25 Sep 2014.

iOS 7. The research team felt that Apple's iOS 7 performed the best. Not only were users more satisfied with the experience, but iOS 7 proved to facilitate efficiency and mitigate most user errors.