Comparing User Experience in a News Website across Three Devices: iPhone, iPad, and Desktop

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ABSTRACT
Mobile devices are becoming an increasingly important access channel for news resources and services. Even though providing a mobile site for mobile device users may greatly enhance their news reading experience, many news organizations cannot afford such an additional option due to limited funding and staffing resources. Therefore, an alternative approach is to design a full website with careful consideration of both desktop users and mobile users. This study compared user experiences in a news website accessed via mobile devices (iPhone & iPad) as well as desktop computers. We aimed to discover similar and different design requirements across desktop, iPad, and iPhone users. Users across three types of devices reported to have similar perspectives on the organization schemes of news, the importance of currency of news, the need for more powerful image search functions and algorithms, and better visibility of menus/buttons. Meanwhile, differences between mobile users and desktop users have also been identified: mobile users reported requirements of making more efficient use of space on web pages, less typing, more user control and flexibility, and more sharing options via social media. Based on the findings, we provided a series of recommendations for improving the design of a full site which can meet the needs of both mobile and desktop users.

Keywords
mobile usability; iPad; iPhone; mobile device; user interfaces; full site; mobile news; information behavior.

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INTRODUCTION
Nowadays the usage of mobile digital devices (smart phones and/or tablet computers) has penetrated deeply into American society. According to a survey on Americans’ use of the internet conducted by Princeton Survey Research Associates International in 2011, 84% of American adults own a cell phone and/or tablet computer (Rosenstiel, Mitchell, Rainie, & Purcell, 2012). The rise of mobile digital devices has greatly changed people’s everyday life, such as their habits of reading news. Nearly half of all American adults (47 %) reported that they get at least some local news and information on their cell phone or tablet computer (Rosenstiel et al., 2012). Reading news has become one of the most popular activities with a mobile device (Kane et al., 2009; Kaikkonen, 2008). Thus, it is critical to optimize the design of news websites which will enhance mobile users’ experiences of accessing news resources and services.

There are mainly two approaches for supporting mobile users’ access to a website: 1) building a mobile-optimized site (also named as “mobile site”); 2) building a full-site (also called “desktop site”) that is accessible by mobile device users. Ideally, a separate mobile site should be designed to specifically address mobile device users’ needs. However, due to the restriction of financial budgets, many organizations cannot afford to build a separate mobile site. Thus, the full-site of an organization needs to be designed with careful consideration of all types of users—desktop users and mobile users. Even though many businesses/organizations have a full-site that operates on mobile devices, there is a risk of full-site being distorted on mobiles. Therefore, it is imperative to study mobile device users’ information behavior which will inform the design of a website.

Previous studies have identified some specific characteristics that are related to mobile device users. Callegaro (2013) reported multimedia is tricky to use on
phones. Geven, Sefelin and Tscheligi (2006) found narrow hierarchies performed better than broader hierarchies on mobile devices. Uther (2002) suggested considering limiting user input, displaying only minimal and relevant information, and the context of utilization in the mobile context. Budiu and Nielson (2009) identified a number of constraints of designing mobile sites such as small screens, awkward input, delayed downloads, etc. Venkatesh, Ramesh, and Massey (2003) found that people have different expectations when reading news on mobile devices. Even though these previous studies provide substantial input for designing a mobile site, these studies could not provide a comprehensive view of how to design a full site that is able to accommodate to both desktop users and mobile device users.

In this presented study, we aimed to compare user experiences of a news website when users accessed the website via mobile devices (iPhone & iPad), and desktop computers. Understanding users’ expectations and preferences of a news website on three different types of devices (iPhone, iPad, & desktop) enabled us to provide a series of recommendations for improving the design of a full site which can meet the needs of both mobile and desktop users. The website for testing was Religious News Service (RNS) (See Figure 1).

Our study focused on the following research questions:

1. What are the similar design requirements across desktop, iPad, and iPhone users?
2. What are the different design requirements across desktop, iPad, and iPhone users?

METHODS

15 people who access news websites via different devices were recruited to participate in this study. Think-aloud and semi-structured interview methods were used to collect data at a user experience laboratory. Three types of users were included: desktop users (5), iPad users (5), and iPhone users (5). During a think-aloud session, individual participants were asked to use RNS while continuously thinking aloud their actions and problems they were encountering. Think-aloud sessions were recorded with Morae Recorder 3.2. For mobile device users (iPhone & iPad users), their screen movements were recorded with a document camera. At the end of each think-aloud session, participants were invited to participate in a semi-structured interview to share their overall thoughts on their interactions with the system. The recording video sessions were analyzed with Morae Manager 3.2. The relevant parts of the recorded sessions were transcribed and analyzed further. For the purpose of data triangulation, participants’ self-reported feedback was coupled with facilitator observations. This procedure allowed us to capture the characteristics of user interactions with the system not reported by participants. Data analysis included reviewing the recorded sessions, coding the contents for occurring themes of user requirements and usability issues across three user groups.

FINDINGS

1). What are the similar design requirements across desktop, iPad, and iPhone users?

The results indicated that users across three groups have similar perspectives on the organization schemes (information was organized by topics) of this news website. Participants of three groups commented that the menus and submenus were logical.

A majority of participants mentioned the importance of currency. For instance, participants across three groups all preferred to have current headlines instead of editor’s picks to be placed at the top or other prominent locations.

Participants across three groups showed the tendency to take the least efforts to complete tasks. For example, they complained when playing a video, it required two steps. Users preferred to play videos with one click rather than two clicks (See Figure 2).
All participants emphasized the needs for more powerful image search functions and algorithms. Existing search functions of this site could not adequately support users’ visual information needs (e.g., photographs).

All participants required a more intuitive design for sharing information. For instance, users expected a “Share Article” link at the end of the article instead of at the beginning, as users wanted to finish reading the article before they decide whether or not to share it.

The results demonstrated that visibility of menus/buttons was critical to all three groups of users. The majority of users across three groups mentioned that the lack of contrast between menu links and background colors on RNS led to their ignorance of important sub-menu links (See Figure 3).

![Figure 3. Sub-menu links were not visible (used with permission of the publisher of RNS)](image)

2). What are the distinct design requirements across desktop, iPad, and iPhone users?

Mobile device users required to make more efficient use of space of web pages. For instance, mobile users had lower tolerance for advertisements than desktop users, because space is very limited on mobile screens, especially on phones. Mobile users complained on advertisement taking too much space. They suggested either completely removing ads, or reducing the space they take, or moving them down to the bottom of the page. Also, mobile users suggested reducing the size of banner images and making top menu collapsible to save space on iPhone. On the contrary, for desktop users, space is not a major concern. Users wanted to add a multimedia section on homepage to make it more appealing.

Mobile users expected fewer actions (e.g., typing, clicking, scrolling) for completing a search task than desktop users. As typing is painful on mobile devices, users preferred to allow abbreviations of search keywords. Users did not like to login to buy photos as “registered users”. Instead, they would like to buy photos as “Guests.”

Mobile users expected more user control and flexibility on mobile devices. They preferred to be able to adjust text size and to pinch zoom to read text.

Mobile users had higher tolerance for slow downloads of videos on mobile devices. Users liked that the videos were embedded in the page and did not open in a new tab, since switching tabs on mobile devices is not as convenient as in the desktop context.

As mobile users are more likely to use social media, they emphasized sharing applications on mobile devices, e.g., user expected to see a “share” button for a blog article, and even a video through Facebook, Twitter, etc.

CONCLUSION

Based on the findings of this study, we have the following recommendations for designers and developers for designing a full site which meets the needs of both desktop and mobile device users:

- Present more important contents at top of pages;
- Put search box in a prominent place;
- Minimize the number of clicks that users need to go through for an action;
- Improve image search algorithm to help users find relevant images;
- Make menus, links and buttons visible;
- Remove or reduce space for advertisements;
- Provide collapsible menu if it takes a lot of space;
- Reduce image size to make it fit in the small screen of phones;
- Set skip registration as the default option if at all possible;
- Avoid using horizontal scrolling, which is annoying for reading news;
- Provide dropdowns to avoid too much tying;
- Use auto-completion when users fill in a textbox and do a keyword search;
- Allow for typos and abbreviations for search keywords;
- Use captions to help users distinguish images;
- Make clicking on the thumbnail and clicking on title of the video both play the video;
- Use content related links to help users navigate quickly between similar topics;
- Give users more control and flexibility to adjust some elements, e.g., text size;
- Provide ways to share on social media.

This study compared users’ experience when they interact with a news website via three types of devices: desktop, iPad, and iPhone. The results revealed many similar and different requirements from three types of users. For instance, we found that both desktop and mobile users preferred to have news organized by topics, obtain advanced multimedia search functions, and navigate the site with clear visual cues. On the other hand, we found mobile users required more efficient use of webpage space. Mobile users also expected less actions (such as typing and
clicking) but more control and flexibility on a site. These findings not only have significant contributions to the design of a full news website which addresses both desktop and mobile users’ needs, but also provides important input for building mobile sites of news organizations. Since this is an exploratory study, we involved a limited number of participants in this study. In future studies, we plan to enlarge the participant sample size to examine whether there are statistically significant differences between desktop and mobile users in terms of their information searching and using behaviors.

REFERENCES


