

# An Improved Website Design for Elders Utilizing Social Networking Sites

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## **Abstract**

Elder adults can benefit from the usage of social media for its collaborative and interactive nature; however, current social media interface design hinders elders who have disabilities/impairments, are computer illiterate, and have negative perceptions of technology. What improvements can be made to existing social networking sites to make them more usable? How should a social networking site be designed for elder users? Utilizing past research studies, preliminary results from a usability study, and existing guidelines, a proposed redesign of a social networking site interface is presented. The findings from this study will contribute to improving website usability and accessibility for elder adults utilizing social media.

## **Keywords**

Elder adults, social media, social networking sites, usability, accessibility.

## Introduction

Today, more than 40 million people account for elder adults aged 65 and older in the United States (Administration on Aging). This demographic has a growing number of computer users, with more than 50% using the internet and email. Even though there is growth of online elders, their social media usage has not drastically increased. Only about one-third of elder adult's participate in social media like Facebook or LinkedIn, despite the numerous benefits of these types of sites (Brenner). Past studies show that elder adults have an interest in learning about social media (Arfaa & Wang; Braun, Gibson, Moncur, Forbes, Arnott, Martin, Bhachu; Lehtinen, Nasanen, Sarvas; Xie, Watkins, Golbeck, Huang). Many elders with immobility and health issues could benefit from social networking sites as they allow users to connect with family, friends, professionals, and institutions on a platform without logistics and timing barriers. In addition, these types of sites house a number of informational resources, which are helpful for elders who strive for independence. Despite these benefits to the elderly, only a small percentage engages with social media (Norval). Research shows that elder adults experience half of what younger participants experience (Lustig, Tonev, Hasher).

Although best practices and guidelines have been presented in numerous publications such as Section 508 compliance (Section 508.gov), Web Content Accessibility Guidelines (WCAG), Usability.gov (Usability.gov), and the National Institute of Aging (National Institute of Aging & National Library of Medicine). They all agree to incorporate *larger text*, *contrasting colors*, and *limited scrolling*. Preliminary research shows that many of the popular social media sites do not incorporate these known guidelines, potentially making a website unusable to people with disabilities and the elderly (Arfaa & Wang). It also has been shown that elders are not familiar with social media concepts despite having computer experience (Arfaa & Wang).

Therefore, having a website conform to existing guidelines addresses only one aspect of usability and accessibility issues. In response to new technology trends, more research is needed to define best practices for elder adults utilizing sites with Web 2.0 features.

To understand how a social networking site interface should be redesigned to improve accessibility and usability for elder adults, an investigation of current best practices and design improvements is conducted. This paper presents a proposed social networking site redesign for elders based on existing research, known guidelines and mandates, and preliminary findings from a usability study.

### **Design Considerations**

Best practices of website design include offering an interface that can satisfy a range of users (Leiva). However, many websites do not adhere to best practices suggested for those with disabilities or the elderly. A past study by Arfaa and Wang showed that many social media websites violated guidelines that could possibly render a page unusable for those with disabilities. In addition, existing research and known guidelines and mandates do not specifically address Web 2.0 concepts and the nature of these technology trends. To address elderly usability and accessibility needs, guidelines regarding accessibility, formatting, multimedia, content, layout, navigation, trust, and perceptions were considered when designing the new interface prototype. Next section discusses in detail how these guidelines are incorporated into the newly designed interface.

### **New Interface Design**

#### *Accessibility -- Reduce scrolling*

Per the many guidelines that address accessibility, in particular Usability.gov and AOA.gov, the redesigned pages were constructed to reduce scrolling and instead incorporate

pagination to view additional information on a page. This need was evident during the preliminary usability study (Arfaa & Wang), where many elder adults failed to scroll to complete a task that required viewing more information not available on the current screen. In addition, each page was designed so that it could be understood with or without the use of color.

### *Formatting*

Inappropriate font size, color, and type were concerns voiced by the elder adults during the post-test questionnaire of the preliminary study. When completing tasks, many were observed to move closer to the screen to read items. In some cases, the font was so light that the participants were unable to answer content questions based on their examination of the page.

To combat these formatting issues, Verdana, a font made specifically for electronic media was utilized and text on the page was displayed to be at least 14 point font (WebAim.org). Gradients were avoided and text and buttons were fashioned to contrast with the white background of the website. In some instances, key words were highlighted for better visibility, such as the word “username” and “password” on the login page (Figure 1).

### **Login Page**

- Use this page to Log into your Facebook account.
- If you forgot your password, click **forgot Password**.
- If you want to create an account, click on **create an account**.

The image shows a login page with three numbered instructions and three buttons. Instruction 1 points to a yellow-highlighted label '1. Click here to enter your USERNAME:' above a text input field containing 'ElderAdult@gmail.com'. Instruction 2 points to a yellow-highlighted label '2. Click here to enter your PASSWORD:' above a password input field containing '\*\*\*\*\*'. Instruction 3 points to three buttons: a green 'Login' button, a black 'Forgot Password' button, and a black 'Create an Account' button.

Fig. 1. Login page with highlighted fields.

### *Multimedia*

Large images were avoided especially on the first screen of a page (Usability.gov). Images were used sparingly and only in meaningful situations, such as viewing photos, profile pictures, and advertisements.

### *Content, Objectives, and Labels*

All pages were equipped with instructions so that the elder users would be able to distinguish the purpose of a page. These directions were written in a straightforward and sequential manner. The organization of content was also scrutinized, so that information appeared clear and grouped in ways that made the interface more intuitive. For example, information pertaining to the user was grouped together, such as their favorite music, movies, and shows and flowed along with other personal information. Also, many of the elder adults expressed that they were not interested in numerous activities offered by the social networking site and instead preferred to view photos and communicate with friends by writing on people's walls. Therefore, a simplistic approach was taken, and references to games, interest pages and groups were removed from the prototype. In addition, familiar words were used along with jargon and technical terminology.

Buttons were used when possible as studies show that elder adults prefer buttons over text and image links (Arfaa & Wang). To take away any confusion on the button's destination, specific keywords on the navigation buttons were added, such as "Read Next Post" or "Read Previous Post" (Figure 2).

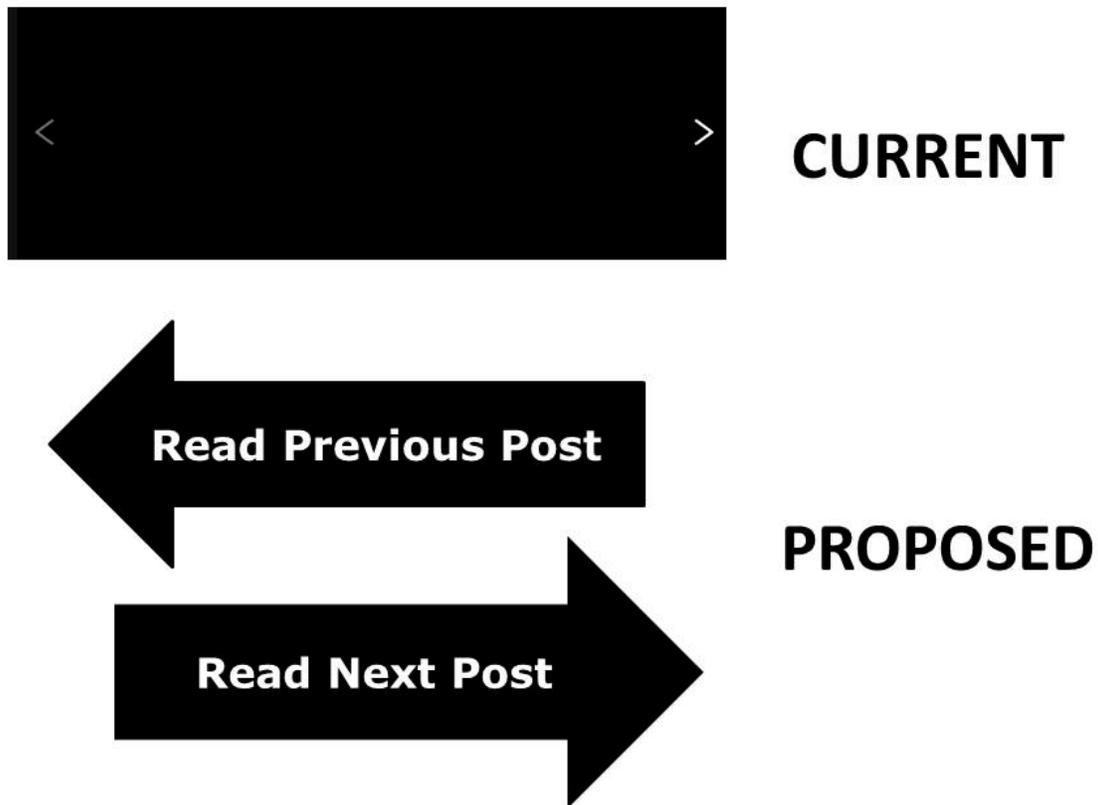


Fig. 2. Current Design and Proposed Design.

### *Layout*

Digital immigrants, people with little technology exposure in their youth, are used to viewing items in a serialized fashion. Therefore, the redesigned interfaces showed elements listed in a sequential fashion when possible on the site. Adequate whitespace was used and extraneous text and images were removed to conserve space and improve overall appeal. Following past studies, left-hand navigation was incorporated as the main navigation and sub-navigation links were found adjacent to these links. The main content of a page was delivered into the center of the screen, while the help button was placed at the top-right per Bernard (200). To facilitate an understandable layout, content was grouped together by an outlined box (Figure 3).

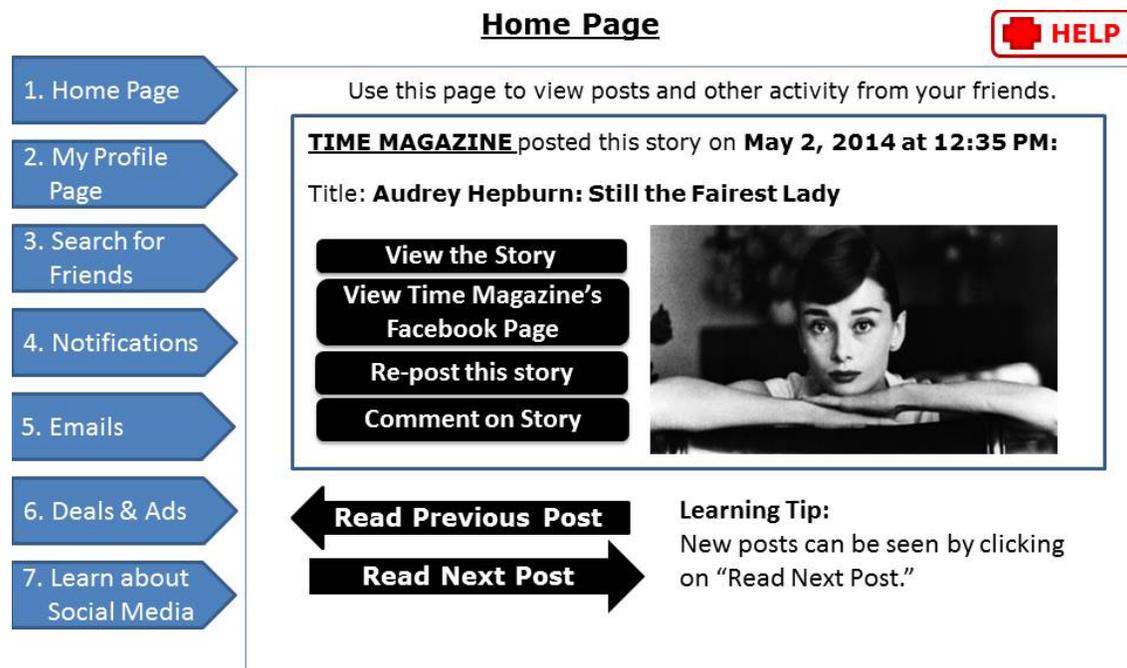


Fig. 3. Homepage displaying grouped elements.

### *Navigation*

To improve navigation, an overview of pages and activities was mapped. After the login page, the main pages included the home, profile, search for friends, notifications, emails, deals and ads, and the learning page. Afterwards, the subpages included common activities such as viewing a story or post, viewing a friend or company's profile page, as well as Web 2.0 trend activities such as sharing and commenting on a post, story, or profile. When navigating to the next story or photo, descriptive arrows were used to denote viewing past or future posts.

### *Alleviating computer illiteracy*

To address issues with computer illiteracy, the redesign incorporated a number of ways to facilitate learning for elder adults. Instructions were added to each page so that elders would understand the purpose of the page and its content. Tips associated with content from the current page were added as well, especially those that related to Web 2.0 terms. In addition, two separate pages "Help" and "Learn about Social Media" were added for independent learning and

troubleshooting. On the login page in the original design, there were many different links which proved confusing to the elder adults during the preliminary study (Figure 1). During the usability study, the first task had the elders logging into an existing account by entering their username and password. Instead of clicking on the top right corner's Login section, the users clicked the fields under the "Sign-Up" section. To eliminate this issue, the login page was designed to include instructions and the login and sign-up sections were split to two separate pages. In addition, the username and password fields were highlighted per the elder adult's suggestion of emphasizing important words.

### *Alleviating negative perceptions*

The fear of compromised security and privacy is a barrier for elders who want to use computers, the internet, and social media. Therefore, the site was designed to be more transparent of each page's information, links, and intentions. For example, advertisements were given their own navigation tab and page, however were labeled as "Deals and Ads" to spark elder adults looking for a deal or coupons (Figure 4).



Fig. 4. Advertising page.

In addition, each element was labeled clearly, and tips displayed on a page reminded the elders if the information displaying was public. For the redesign, personal information of an elder adult had a learning tip showing that the information displayed was of public view (Figure 5).

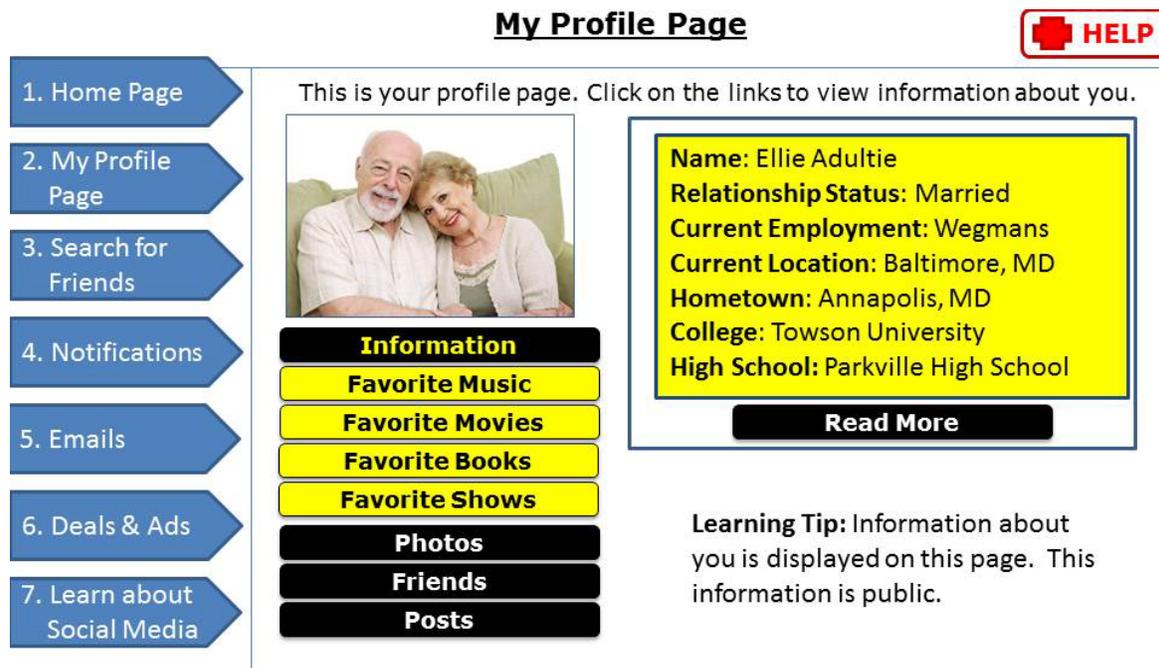


Fig. 5. Profile showing public information tip.

## Discussion

The newly proposed design tried to follow the guidelines and findings from previous literature to accommodate elder adults. In addition, additional features such as a help and training section should be incorporated to assist elder adults that are not familiar with social media technology. Having a section dedicated to addressing Web 2.0 terminology allows elders to be independent and to learn at their own pace. With the incorporation of the guidelines that are aligned to the elder adults' need and usage pattern, the authors hope that the newly designed interface will help improve the accessibility and usability of the social networking sites for the elderly. A preliminary user study has indicated that the elder participants did prefer the newly

designed interface to the original one (Arfaa). Therefore, incorporating a newly designed social media interface could impact elder social media usage. Having the ability to create and maintain relationships as well as access resources and assets could result in greater independence and self-esteem for the elders.

## **Conclusions**

Elder adults show an interest in utilizing social media, however online elders account for the smallest demographic utilizing social networking sites. Therefore, an examination regarding the usability and accessibility of these types of sites was investigated through a literature review of elder adult usability studies and a preliminary usability study of elder adults utilizing an existing social networking site. It was the goal of this research to distinguish design factors that can improve the overall accessibility and usability for elder adults utilizing social networking sites.

It was concluded that a combination of methods can be implemented to improve the accessibility and usability of social networking site interfaces. Social media should be designed by utilizing existing best practices found in a variety of guidelines. However, a site should not use guidelines alone to guarantee the ease of use for elders. Other aspects should be reflected including design considerations addressing elder adult social media barriers such as computer illiteracy and negative perceptions.

## Works Cited

- Administration on Aging. "A Profile of Older Americans: 2011." 2011. Web.  
<[http://www.aoa.gov/Aging\\_Statistics/Profile/2011/docs/2011profile.pdf](http://www.aoa.gov/Aging_Statistics/Profile/2011/docs/2011profile.pdf)>.
- Arfaa, J and Wang, Y. "An Accessibility Evaluation of Social Media Websites for Elder Adults." *Social Computing and Social Media*. Proc. of 16th International Conference HCI International, Greece, Crete. Ed. Gabriele Meiselwitz. Vol. 8531. N.p.: Springer International, 2014a. 13-24. Print. Lecture Notes in Computer Science.
- Arfaa, J and Wang, Y. "A Usability Study on Elder Adults Utilizing Social Networking Sites." *Design, User Experience, and Usability. User Experience Design for Diverse Interaction Platforms and Environments*. Proc. of 16th International Conference HCI International, Greece, Crete. Ed. Aaron Marcus. Vol. 8518. N.p.: Springer International, 2014b. 50-61. Print. Lecture Notes in Computer Science.
- Arfaa, J. "A Usability Study of Elder Adults Utilizing Social Networking Sites." Dissertation. Towson University 2014c. Print.
- Bernard, M. "Criteria for Optimal Web Design." *Designing for Usability*. (2003).
- Bernard, M. "User Expectations for the Location of Common E-Commerce Web Objects." *Usability News* 4.1 (2002).
- Braun, M. "Obstacles to Social Networking Website use among Adults." *Computers in Behavior* 29 (2013): 673-680.
- Brenner, J. "Pew Internet: Social Networking." Feb 14, 2013. Web.  
<<http://pewinternet.org/Commentary/2012/March/Pew-Internet-Social-Networking-full-detail.aspx>>.

- Gibson, L, Moncur, W., Forbes, P., Arnott, J., Martin, C., Bhachu, A. "Designing Social Networking Sites for Older Adults." *the Authors* (2010): 186-194.
- Lustig C, Tonev S, Hasher L. "Visual Distraction and Processing Speed". *Cognitive Aging Conference*. Atlanta, GA. 2000.
- National Institute of Aging & National Library of Medicine. "Making Your Web Site Senior Friendly." October 9, 2002. Web.  
<<http://www.nlm.nih.gov/pubs/staffpubs/od/ocpl/agingchecklist.html>>.
- Section 508.gov. "Section 508 Standards Summary." Web.  
<<http://www.section508.gov/index.cfm?fuseAction=stdsSum>>.
- Usability.gov. "Guidelines." Web. <<http://www.usability.gov/guidelines/index.html>>.
- WebAim.org. "*Web Accessibility in Mind*." 2014. <<http://webaim.org/techniques/fonts/>>
- Web Content Accessibility Guidelines. *Web Content Accessibility Guidelines (WCAG) Overview* (2014). 2014. < <http://www.w3.org/WAI/intro/wcag>>
- Xie, B., Watkins, I., Golbeck, J. and Huang, M. "Understanding and Changing Older Adults' Perceptions and Learning of Social Media." *Educational Gerontology* (2012).