

Chapter 12

UX Design Guideline for Health Mobile Application to Improve Accessibility for the Visually Impaired: Focusing on Disease Retinitis Pigmentosa

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ABSTRACT

A health mobile application (app) has enabled users to access personal health records at any time and place. As an app provides health service to users, it is crucial for an app to be accessible to every user. However, often an app does not provide proper visual aid for users who are visually impaired. The authors restrict the range of visually impaired to retinitis pigmentosa (RP) patients in this chapter. RP is a rare type of progressive retinal disease that is hard to cure. Unfortunately, there are no established guidelines to assist RP patients in using their degrading sense of vision. In this chapter, the authors review WCAG (web content accessibility guidelines) specified by W3C, analyze the UX designs of 140 popular health apps chosen based on the number of download counts in app stores, and propose a set of standard-compliant UX design guidelines to assist the visually impaired (RP) in accessing visual data and evaluate its compliance compared to WCAG.

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INTRODUCTION

According to the annual Internet World Stats, there are over 3.27 billion internet users people have access to the Internet as of June 2015 (Miniwatts Marketing Group, 2015). According to Mobility Report November 2015 issue by Ericsson, the number of smartphone users in the world exceeded 3.4 billion, amounting to 45.9% of the number of mobile phone users (Ericsson, 2015). One significant reason why the web has become a prominent media form is that it has offered easy access to information to everyone. Tim O'Reilly, the founder of the O'Reilly Media Inc., proposed Web 2.0 in October 2004 and it has empowered people to create, save, and share data at any place as long as they are connected to the Internet. At the same time, introduction of mobile devices capable of web browsing provided the physical structure for access to data by any individual at any time and place. As Web 2.0 has matured, Mobile Web 2.0 was introduced and it enabled the visually impaired to communicate with physically healthy people and to participate in social activities (Martin & Chuck, 2015, pp40-44). The trend of empowering people to access data regardless of physical conditions has continued to date in 2015, and apps in 'Medical' and 'Health & Fitness' categories are receiving increased attention on the market, which are expected to increase in value from 2.4 billion dollars in 2014 to 26 billion dollars in 2017 in total at both Apple's AppStore and Google's PlayStore according to Research2Guidance (Research 2Guidance, 2013). Such an explosive growth of health apps is partly due to the availability of more various types of health devices matched with the general consumer trend that actively seeks to stay healthy.

Paying attention to health on individual level is a positive trend for aging societies because public health policy and budget for public health care cannot cover all aspects of public health in the face of increasing life expectancy. In addition, if an individual proactively participate in health management by oneself and the management results in decrease in one's overall medical cost, the management can be an effective way to improve one's quality of life. From the viewpoint of public service administrator, this approach would certainly help reduce the public health cost in aging societies. However, to date in 2015, Apple and Google does not provide proper Design Guideline to planners, developers, and designers enabling them to develop an App which provides easy access to RP patients. As a result, visually impaired users could not utilize an App as effective as other people who have healthy eyesight. This is a violation of the "Twenty-First Century Communications and Video Accessibility Act" enacted by the Obama Administration in October 2010 (Federal Communications Commission, 2010). In this paper, we seek to shed light on factors that hinder easy access to data for the visually impaired in health apps. We propose a set of standard-compliant UX design guidelines to assist the visually impaired(RP) in accessing visual data and evaluate its compliance compared to WCAG.

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