

Understanding ESL Adults' Decisions in Mobile Communication Apps: Towards the Development of an Inclusive App

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Abstract

Individuals in the English as a Second Language (ESL) immigrant community are one of the many affected by the “digital divide.” However, the prevalence of mobile technology has helped bridge this gap. It has been found that decision support systems can be used to connect to ESL immigrant adults’ information needs. Mobile application usability and design can also provide information on how users approach certain mobile applications. By exploring these relationships between decision support systems and usability of application design, this poster can help inform application developers with best practices in design and potentially work towards an inclusive communication application.

Keywords: digital divide; decision support systems; usability; mobile applications

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1 Introduction

Mobile applications allow for increased communication and access to information. However, some populations are more likely to make the decision to use particular applications than others. Although many studies on the digital divide focus on the gap between those with access to technology and those who do not, there is a gap within the literature regarding the digital divide within populations that are already using technology. In other words, why do some subsets of the population that have access to technology make the decision to use particular applications over others? The purpose of this poster is to present an analysis of the literature and experimental design that examines the relationship between decision making and mobile application usability. The contribution of this poster is to expand the dialogue surrounding mobile applications usage by immigrant adults who speak English as a Second Language (ESL) and answer the following questions:

- What factors impact the decision-making processes in terms of application use of particular users within the immigrant communities?
- What makes particular mobile communication applications successful in terms of design, functionality, and accessibility for ESL immigrant adults?
- Can we take these concepts and make an app that more people use?

2 Background

There is already an abundance of literature about the digital divide, particularly in the ESL immigrant community. At the most basic level, the barriers to technology use can be categorized as technological, financial, and cultural factors that are all parts of the daily experiences of ESL immigrants. (Azam 2008). Further, access to technology is found to be related to the development of IT infrastructure, which is more commonly found in urban settings than in rural settings (Odendaal, Duminy, Saunders 2008). In order to understand the specific challenges faced by ESL immigrants in their usage of particular mobile applications, it is necessary to understand both the decision making processes and information behaviors and needs of this community, as well as the usability and user experience design of mobile applications.

2.1 Decision Making and Information Behaviors and Needs

By examining information behaviors and the process of decision making of under-represented groups, it has been shown that we can gain a stronger understanding of why certain mobile applications are used within immigrant communities (Shaw et al 2013). Decision support systems have been useful in assisting to determine different factors such as the degree of need, the decision behavior, design and construct of a mobile application (Lepore et al 2012). Surveys and interviews have provided insight into the cognitive processes of ESL adults and their attitudes towards information-seeking and sharing within the community (Lingel 2012). An analysis of the results demonstrates the need to personalize mobile applications so as to gain a better understanding of the decision-making and information behaviors observed in immigrants.

2.2 Usability and User Experience Design

The user experience is determined by the physical features of the mobile devices and the operating systems. A restricted screen size and qwerty keyboards can be challenging for most adults who are not well educated in technology. Also, the use of ambiguous application icons and interfaces can be overwhelming, and increase the gap between ESL immigrants and technology. Therefore, mobile applications on a touchscreen device are significantly easier for adults to use compared to other devices such as laptops and computers due to the decline of cognitive, sensory, and motor functions (Watkins et al. 2014). Thus, it is imperative that mobile applications be functional, easy to learn, and user-friendly.

3 Challenges in Human Computer Interaction Research

Many challenges present themselves in this research. In this poster, we focus on the primary challenges of the interaction between decision making and application usability and development. The primary concern of this poster is to identify what makes mobile communication applications successful in terms of design, functionality, and accessibility for ESL immigrant adults. Decision making processes need to be compared and examined in terms of their usability and design. In other words, how do the factors that influence ESL immigrant adult decision making relate to their user experience? It has been suggested that direct contact and interviews are an effective method to usability design since it focuses on the user's interest, and not the developer's end-goal (Gould & Lewis, 1985). This study seeks to use this principle when attempting to understand how the interaction of these opposing factors help designers of mobile applications create user experiences more friendly to ESL immigrant adults.

4 Proposed Future Work

The proposed study will provide a stronger understanding of immigrant adults' information behavior and needs when using a mobile communication application. The general premise of the proposed study is as follows: with a better understanding on immigrant's decision making, mobile app developers can design a more personalized user interface that will help immigrant adults. Because of this, the proposed experiment is twofold. Part 1 focuses on determining why participants use certain apps. Part 2 focuses on how the

usability features of those apps can be integrated into other apps. After the proposed work is conducted, future studies should look how a personalized mobile application design will create a larger digital trail amongst immigrants, which can have an influence on different information technology policies supporting underrepresented communities and groups.

4.1 Experimental Design

The proposed user study would survey ESL immigrant adults in an effort to determine how they approach and choose which mobile applications to use. From there, personal interviews to evaluate the specific needs of users would be conducted with the purpose being to gather information on the decision-making processes of the immigrant adults. With these two pieces of information a prototype of a mobile application could then be developed that truly follows a user-centered design. The interactive mobile communication application prototype will be created using tools such as Sketch, Invision, and Framer.js. Usability tools such as UserZoom and Userlytics will be utilized to evaluate how users interact with the prototype to capture the user experience data to improve the mobile communication application further.

After the prototype is built, the application can then be evaluated by the ESL immigrant community and compared to currently available apps.

5 Conclusion

In conclusion, mobile applications have an enormous potential to bridge the digital divide and provide access to information and communication for rural and underprivileged populations (Boyera, 2009). However, there are still challenges faced in terms of the usability, user experience design, and choosing which communication application to choose. By exploring ESL immigrant adults' decision making processes and current app usage it may be possible to design a communication application that facilitates these decision processes. In this poster we propose an experiment that takes these concepts into account. We also propose some future work that could further facilitate the creation of an inclusive mobile communication app.

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