ABSTRACT
Mobile devices are very important to blind people’s autonomy and social life. Likewise, Social Networking Sites (SNS) promote social inclusion and are widely used by blind people. Previous research already focused on the accessibility of mobile devices and SNS in separate; however, little effort has been made to understand the barriers that blind people face when interacting with mobile social applications. This paper describes two exploratory case studies, resorting to Technology Biographies, where two blind people demonstrated their usual interaction with social applications and stressed their difficulties and strategies. More than looking at the accessibility problems of a particular platform, we give a preliminary insight about the limitations and open research challenges that are transversal to these social applications.

Categories and Subject Descriptors
H.5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous.

Keywords
Blind people; mobile accessibility; web accessibility; social networking sites; technology biographies; case study.

1. INTRODUCTION
Mobile devices are very important to blind people’s autonomy and social life. Besides basic communication features, they are able to provide most of the functions that desktop computers do. Moreover, the overlapping concerns between mobile and accessible web domains [7] lead to more accessible mobile applications.

In addition to accessibility and usability issues, the demands related with web information overload are exacerbated for blind people as they rely mostly on the auditory channel to consume information through screen readers. Thus, they end-up developing their own ad-hoc browsing strategies (e.g. navigate through headings) to find the information of interest faster [2].

Social Networking Sites (SNS) fit in this kind of applications that contain a large amount of information, but still widely used by blind people [4]. Yet, little efforts have been made to understand the challenges that blind people face as well as the opportunities for improving their interaction with such applications. The exception are studies on blind people’s usage of SNS, by the means of surveys, to find out the main uses and accessibility barriers (e.g. dynamic web pages) of specific desktop sites (e.g. [4]). Even those that actually evaluate the interfaces, resort to specific SNS and tasks (e.g. [3]). Wentz and Lazar [6] stand out by identifying the prevalence of mobile Facebook’s accessibility over its desktop application. Despite these efforts, an understanding of blind people’s difficulties in SNS and the opportunities to enhance their experience is lacking, particularly in mobile devices.

In this paper, we give a preliminary insight about the limitations and open research challenges of blind people’s interaction with mobile social applications. More than looking at the accessibility problems of a particular platform, we identify the difficulties and opportunities that are transversal to these social applications (and some to the web in general). We conducted an exploratory case study, where a blind person demonstrated her usual interaction with mobile social applications and stressed her difficulties, strategies and comparisons with desktop usage.

The mobile-desktop comparison was reinforced with an observation of a second blind user interacting with SNS using her desktop computer. It allowed us to establish the relation between the contexts themselves and identify device-independent limitations. All in all, it provided us insights about open research challenges in both mobile and desktop applications.

2. METHOD AND ANALYSIS
We carried out two exploratory case studies to understand the limitations and gaps that blind people face in desktop and (mainly) mobile social applications. Firstly, we observed Sara, a blind proficient iPhone user, demonstrating her usage of mobile social applications where she has expertise on (mainly) mobile social applications. Secondly, we observed Carlos, a blind user of JAWS, doing the same for desktop applications. Each case study comprised one session of approximately 2 hours and took place in a foundation that promotes the professional training for blind people.

We adapted Blythe et al Technology Biographies [1] similarly to Shinohara and Tenenberg in their case study with a blind person interacting with home technologies [5]. During these biographies, Sara and Carlos were encouraged to demonstrate and discuss the tasks that they usually perform. We prepared a set of questions (adapted from [5]) about how each task is performed in each application (Technology Tours), their progress over time (Personal History) and expectations for future improvements (Guided Speculation) (Figure 1). In addition, we asked questions related with the tasks’ observation. In Sara’s case study, we also promoted the comparison between mobile and desktop options.

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the use of more capable and recent technologies, as previous versions are “good enough”. Although JAWS is still the most popular screen reader, in the last few years the competition increased thanks to screen readers that are free (e.g. NVDA) or included in the OS (e.g. VoiceOver). In particular, current mobile OS (iOS and Android) provide now accessibility features (including screen readers).

3.4 Motivation to Learn
The motivation to learn a new skill has a big influence on the expertise acquired. Sara is a proficient user of her iPhone and of the social applications therein (e.g. Facebook, twitter, e-mail), due to her motivation to maintain frequent contact with her friends and establish new connections. In contrast, Carlos uses JAWS frequently but at a more basic level. He claimed: “I know there may be better ways to navigate herein with JAWS, but since my work does not depend on it and I am used to these strategies, I do not feel the need to learn more.” Although SNS can be motivating by themselves, finding new ways to prompt blind people to learn technologies that they use frequently may increase their effectiveness interacting with them.

3.5 Writing and Reading
Text-entry in touch-screens is a demanding task for blind people. Indeed, Sara identified it as the main barrier when she first got her iPhone. Yet, both Sara and Carlos’ current complaints are more related with information consumption. Although they use strategies to browse more rapidly [2], they still regret what they have to read and the time they take to reach their information of interest. This fact is exacerbated in SNS due to the extensive list of information items (e.g. posts, tweets) that they have to traverse. In this context, even summarization techniques seem to be insufficient as most posts are already small.

3.6 Personalization
It is hard to perceive where a sighted user’s attention is when looking at the screen. In contrast, blind users are constantly providing feedback about their personal interests via screen reader. Although Facebook already personalizes the news feed, it is limited to the previous actions therein. Screen readers have means to collect more hints about users’ interests. Listening or not to the entire content is a precious feedback about what information each user prefers and actually consumes. Sara stated that when browsing the news feed, she usually “moves to the next post just by listening to the person’s name or the beginning of a post”. This explicit feedback does not require further user effort and should be used to personalize the information read.

4. CONCLUSION
The results described in this paper present difficulties that blind people face when interacting with social applications, such as the inconsistencies between their mobile and desktop versions. Moreover, they depict opportunities to enrich the interaction with SNS (and the web in general), such as to take advantage of the interaction with the screen reader to personalize the data to transmit and to avoid loading data that is not used by blind people.

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2 http://www.nvda-project.org/
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6. REFERENCES


