


## Chapter 7

# Braille System Using an UX Evaluation Methodology Focused on the Use of Methods for Blind Users

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### ABSTRACT

*Recently, technology has been advancing and making some aspects of life simpler. Most people have an intelligent mobile device. These devices have applications that support users to perform various tasks. However, these applications are developed for users who don't have any type of disability. This chapter focuses on making use of some tools that exist within the area of software engineering (SE) and user experience (UX) with the aim of developing an interactive software system (ISS). It is expected that this ISS will support people with visual disabilities to learn Braille. To develop the ISS, the authors use modified usability and UX evaluation methods for blind people. The methodology to be followed is based on the ISO15288: 2015 standard of the SE. The methods used to perform the evaluation tests with blind users are card sorting and thinking aloud. Based on the results, it is observed that the ISS complies with most of the UX factors, such as ease of use, accessibility, and utility, so they expect the ISS to be usable for blind people.*

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## **INTRODUCTION**

According to Álvarez, T. (2018) there are currently few software development methodologies that involve a user with a disability and that at the same time focus on usability and UX. That is, there are few methodologies that focus on including users with visual impairment in the process of evaluating software engineering (SE).

The objective of this work is to develop an ISS focused on blind people and that this system complies with the UX factors.

To achieve compliance with the UX factors, we make use of an evaluation methodology of the UX for ISS with blind users proposed by Álvarez, T. (2018).

This methodology includes the stages of Analysis, Design, Development and Testing for the development and testing of the ISS. At each stage a modified evaluation method can be applied in order to make the ISS useful for the end user and be able to perform the test.

During the development process of the SE, two of the proposed modified methods were used: Thinking Aloud and Card Sorting. These methods allowed us to evaluate the UX factors and the ease of use of the ISS.

For the development of an ISS blind users must participate from the beginning of the tests to develop applications that are useful, usable and accessible to them.

It makes use of the methodology proposed by Álvarez, T. (2018), since it involves blind users from the initial stage of analysis to the delivery of the final product. Based on the above, the proposals and opinions of blind people are taken into account, crossing opinions with software developers, as indicated by the methodology.

It is important to involve the blind user from the beginning to make the relevant changes in the initial stages of development.

Based on the use of this methodology, it is expected that the final result of the ISS will meet the necessary characteristics to be usable and useful for blind users, that is, that the ISS for learning Braille will be simple and easy to use for blind users thus fulfilling with the basic factors of the UX.

## **STATE OF ART**

Pérez & Gardey (2008) define the method as a means used to “reach something”; Aguilera Hintelholher (2013) defines the methodology as a term composed of the Greek words “methods” which means procedures and “logos” which means agreement.

Together these words result in the discipline that studies, analyzes, promotes and refines the method.

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