

Chapter 39

Developing Emotion–Libras 2.0: An Instrument to Measure the Emotional Quality of Deaf Persons while Using Technology

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ABSTRACT

An important issue in the capture of the real user experience while interacting with technology is the ability to assess emotional quality. There are several methods for emotional quality evaluation in the literature. However, when the target users are deaf participants, communication problems arise. A substantial part of the deaf community communicates in sign language. Because user experience researchers are seldom fluent in sign language, they require the assistance of an interpreter whenever users are deaf signers. Evaluation of emotional quality may lose accuracy because of the mediation of an interpreter; consequently, emotional quality evaluation requires a special instrument that can be used in an intuitive and independent way by researchers and their deaf subjects. The authors present the process of creation and improvement of Emotion-Libras, an instrument for assessing the emotional quality of people with hearing disabilities when interacting with technology.

INTRODUCTION

Designers depend on knowledge about users' emotions when interacting with technological products (e.g., mobile applications, virtual learning environments) to enhance acceptance and to design more intense experiences.

Our literature research so far has shown that there are many studies about Emotional Design and User eXperience (UX), and several emotional measurement methods have been proposed (e.g., Russell (1980); Bradley & Lang (1994); Ekman (2003); Desmet (2003); Scherer (2005); Isbister *et al* (2007); Agarwal & Meyer (2009); Broekens, Pronker & Neuteboom (2010); Elokla, Hirai & Morita (2010)).

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These methods have been applied in a variety of contexts, with different user profiles; nevertheless, none of these literature findings has shown researches concerned with verifying the emotional user experience of people with hearing disabilities interacting with technology (e.g., computational systems or software, mobile applications).

We here present the process of creation and improvement of an instrument called Emotion-Libras. Emotion-LIBRAS was conceived from the need of an evaluation instrument with a natural communication interface to be used by - and with - people with hearing disabilities, so that they would be able to easily understand the instrument and to know how to manipulate it. LIBRAS is the Brazilian sign language, because the instrument was developed to be used with Brazilian signers. Despite that, we believe that localization can allow the application of Emotion-LIBRAS in other sign languages.

Developing Emotion-Libras required a five-phase research methodology: literature review, ethnographic study, design of the first version of Emotion-Libras, test with users and improvement, resulting in Emotion-Libras 2.0.

This paper is organized as follows: first, we present the theoretical background to emotional quality evaluation methods; next, we report the steps towards the first proposal of Emotion-Libras; after this, the improvement of Emotion-Libras is shown.

EMOTIONAL QUALITY EVALUATION METHODS: BACKGROUND

In this section, we depart from the definition of the word “emotion” and the expression “emotion quality” adopted in this paper. As stated by Scherer (2005, p. 696), “The number of scientific definitions [for the word emotion] proposed has grown to the point where counting seems quite hopeless (Kleinginna & Kleinginna already reviewed more than one hundred in 1981)”. Ekman (2003, p. 13), for example, states that “emotion is a process, a particular kind of automatic appraisal influenced by our evolutionary and personal past, in which we sense that something important to our welfare is occurring, and a set of physiological changes and emotional behaviors begins to deal with the situation”.

In this sense, adapting from Scherer’s definition (2005), we assume that emotion is the situation in which a person is affected by one or more feelings, either positive and/or negative, driven by a set of factors that influence actions and reactions, for example, past experiences, personal tastes, external factors, desires, and needs. Thus, considering this definition, emotional quality was defined as a value generated from the qualitative measure of a person’s emotions.

Emotional quality evaluation methods intend to find out what the target user feels while he/she interacts with products, such as computational systems. Evaluation of emotional quality is important in product design and is often a part of User Experience (UX) analysis. While emotions can be positive or negative, solutions are often expected by their designers to provide a positive experience to the user. Negative emotions are deleterious to UX and must be avoided carefully in product design. As Van Gorp & Adams (2012, p. 11) found, “in software, unpleasant error messages can cause people to remember and focus on negative experiences over positive ones, potentially distorting how they think and feel about the application”. UX evaluation, according to Bargas-Avila & Hornbæk (2011), must assess dimensions of “emotions and affect”, “enjoyment and fun”, and “aesthetics and appeal” besides other traditional usability attributes. However, Bargas-Avila & Hornbæk mentioned that despite many researches involving the use of emotional measurements to assess UX, they mostly found the use of simplistic instruments.

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