Chapter 2

Biomedical Test Instruments: Usability, Ergonomics, and Communicability Assessment

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ABSTRACT

In the chapter is analyzed the evolution of the ergonomic and interactive design of an instrument of generalized use among people suffering from diabetes, such as is Melitus II. The results obtained in the usability and usefulness of the instrument belong to third age users who in an autonomous way should carry out the examination of their level of sugar in blood. The positive and negative elements are both presented, in the triad ergonomics, usability and communicability.

INTRODUCTION

With the passing of time, the number of people who suffer from diabetes in the world is growing in an exponential way, due to the stress of the daily life, the negative habits in the ingestion of junk food (usually, the term “junk2 refers to the place where the food items whose shelf life is finished end up, but in our case we refer to their composition, such as can be the high level of

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carbonic hydrates, for instance), the consequences of the chemotherapy and radiotherapy processes, which entail the appearance of the diabetes of the type Melitus II, etc. Once its presence has been detected, the doctors, will advise the use of the blood glucose meter for its daily control (Brown & Brown, 2013; El-Gayar, et al. 2013). In relation to the obtained results in the measurement of sugar, the patient will have to take the pertinent drugs. Traditionally, it is an area multidisciplinary transdisciplinary and interdisciplinary for the global research (e.g., Fischer, 1991; Parker, Doyle, & Peppas, 2001; Preuveneers, & Berbers, 2008; Tatara, et al., 2010) and today, it is special for telemedicine using Internet and new devices, hardware, software, etc., for example (Woodward, Istepanian, & Richards, 2001; Mamykina, Mynatt, & Kaufman, 2006; Jurik, & Weaver, 2008; Das, & Alsos, 2008).

Now the tools for the measurement of glucose, that is, the blood glucose meters, have been at the core of two terms at the moment of carrying out the usability and usefulness test (Nielsen, 1993; Barnum, 2002). Two words which we find in the graphic made by Nielsen in the 90s (Nielsen, 1993; Nielsen & Mack, 1994), where inside the system acceptability, we have a bifurcation between social acceptability and practical acceptability (Figure 1). In the former its components are not defined. In our case of study, we would include the publicity factors of the instrument, whether it is with commercial purposes or not, the positive comments of the users of the different types of measurers (specialized websites, blogs, oral communication, etc.) and the interpretation of the statistic data of the manufacturers and of the public, private and hybrid health institutions who control the patients who use these

Figure 1. Usability and the system acceptability

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