Chapter 1

Promoting Healthy Food Habits Through an mHealth Application

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ABSTRACT

MHealth involves the provision of health products, services, and information through mobile and wireless technologies. Companies and institutions in the healthcare sector are progressively proposing innovative mhealth solutions that simultaneously reduce costs and improve the quality of life of citizens. In this chapter, a mobile app is proposed to promote healthy food habits through better management of the food each person has at home. This app intends to reduce food waste and promotes the development of good food practices based on the nutritional value of each recipe and the indication of potential allergies to ingredients. The development of the app was based on the best practices of Mobile UX, which is fundamental to offer intuitive interaction and rapid learning for the user. Furthermore, other factors also relevant in the context of mobile apps were considered in the development, namely usability, data backup, performance, security, scalability, and interoperability.

INTRODUCTION

The health sector is being profoundly changed by globalization, from which new challenges arise that impact on the way citizens access health services. With the increasingly intense development of information technologies, new technological innovations are emerging, which is turning the world progressively more interoperable, mobile, connected and dynamic. In fact, characteristics such as mobility, ubiquity, instant connectivity, convenience, and personalization are constantly sought by users as a way to over-

come geographical, temporal and organizational barriers (Dunaway et al., 2018; Sarwar & Soomro, 2013; Taniar, 2008).

Mobile technologies offer enormous potential for the healthcare sector. Mobile Health or mhealth aims to improve people's lifestyles by contributing to the remote treatment of health problems, equipping healthcare providers to make better clinical decisions and also enabling the healthcare system to become more sustainable (Machado et al., 2017; Mayes & White, 2016). More broadly, mhealth involves the use of wireless technologies that allow the transmission of various data contents and services, which are easily accessible to healthcare workers, through mobile devices such as laptops, smartphones or PDAs. Therefore, it is possible to have a personalized and interactive health service with the aim of providing ubiquitous and universal access to information and medical advice by any user (Akter et al., 2013).

Nutrition is one of the areas that has gained growing relevance in health services. Campbell and Jacobson (2014) and Gropper et al. (2017) highlight the role of nutrition and nutrition in health promotion, disease prevention and progression, and therapeutic effectiveness is increasingly evident. The World Health Organization (2016) establishes that the main cause of mortality and morbidity throughout the European Region of the World Health Organization is poor nutrition, which contributes to diseases such as obesity, type 2 diabetes, cardiovascular diseases, and some types of cancer. Therefore, it can be considered that adequate nutrition is a key factor for the health of the world population.

The scientific and technological advances that have occurred in recent decades have made food more available and facilitated its consumption, as well as allowing stressful and time-consuming tasks to be carried out in a short period of time and with minimal energy expenditure, thus saving time and money. Apparently, these changes should improve the nutritional status of the world population, contributing to its longevity and quality of life. However, what is observed is an increase in the consumption of fats, sugar, and sodium, to the detriment of the consumption of fruits and vegetables, in addition to the increase in physical inactivity (Marotz, 2014).

People's lifestyles and the increase in new services and food venues have led people to simplify mealtimes. Examples of these practices are industrialized products and self-service restaurants. Feeding outside the home is also another factor contributing to the increased prevalence of chronic non-communicable diseases. According to Seguin et al. (2016), this type of food is fundamentally less healthy, with a higher calorie density, sugar, salt and fat content, low in fibers and high in sodium, when compared to foods prepared at home.

New technological tools have been progressively used by health professionals to help individuals expand their awareness of appropriate choices and prevent the development of chronic non-communicable diseases. Among the new tools are mobile devices that bring together countless resources whose focus is no longer just the traditional process of making and receiving calls. The features of today's mobile devices are agile and easy to use, providing easy access to information and better support for multimedia applications. In fact, Free et al. (2013) and Ventola (2014) point out that mobile apps for the health sector have been very popular with citizens.

One of the difficulties that citizens experience due to the completion of numerous daily tasks and the scarcity of time is to have enough time and adequate ability to prepare a meal quickly and efficiently. It is therefore important to develop a mobile application that allows the person responsible for preparing the meal not to spend too much time thinking about possible recipes or purchasing ingredients that they do not have in their homes for the respective meal.

In this sense, the authors of this study developed a mobile application for Android devices, where the user easily introduces the ingredients they have, as well as the respective quantities, and a wide

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