Chapter 19
Localizing a Weight Loss Mobile Application

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ABSTRACT
This chapter introduces a context-appropriate mobile application for sustainable weight loss. Overweight and obesity are acknowledged to have become a worldwide health matter. Addressing weight loss and sustaining efforts remains in many ways a fragile undertaking. Strategies will vary by age group, gender, and social context. Moreover, the cultural, traditional ecosystem will impact weight loss strategies. In this chapter, the authors discuss contributions in the literature for technology-based weight loss support. They design a mobile application that leverages three strategies from proven behaviour change theories (increasing awareness of the aims of dieting, fostering motivation and self-efficacy, and impacting dieters’ attitudes). They adapt the application to the local context of a Middle Easterner’s society by conducting a usability testing experiment with potential users of the application. The authors also apply principles of localization to derive an appropriate application. Beyond the applied usage of the application, the chapter contributes to the currently scarce body of literature on Arabic-based mobile development.

INTRODUCTION
In this chapter we propose a mobile application that addresses sustainable weight loss (Limam Mansar & Kekre, 2000) and is culturally and contextually adapted to a Middle Eastern audience. The application implements three levels of support for changing dieters’ knowledge, attitude, and motivation to achieve a healthy weight and a healthy life-style. The three levels of support are as follows:

Strategy One: Increase awareness of dieting aims.
We will remind dieters of their set dieting
goals by sending them tailored text messages. Based on Strobe (2008) and Strobe et al.’s (2008) theory, we expect that text messages will result in improved dieting behavior and indirectly result in weight loss, but not necessarily in changed eating attitudes or body image.

**Strategy Two:** Foster motivation and self-efficacy.
We will provide support with sub-goals and visualizing progress by displaying sub-goals and current state of achievement. We expect visual sub-goals tracking will contribute to changing motivation to achieve the final goal and indirectly contribute to weight loss, but not necessarily foster changed eating attitudes or body image.

**Strategy Three:** Impact dieters’ attitudes.
We will provide means for social support through technology. One aspect of that support are the tailored text messages from the dietician implemented for strategy one. As another aspect, we incorporate social networks (group discussion boards, chatting) and protect access to appropriate participants (dieters with similar goals and caregivers). We hypothesize it will contribute to changing motivation to achieve the final goal.

The theoretical background for the recommended level of support was presented in (Limam Mansar, Brunstein, Jariwala, & Brunstein, 2012) and (Limam Mansar, Jariwala, Shahzad, Ang-graini, Behih, & AlZeyara, 2012) and draws from theories on behavior change. In the sequel, we start by discussing the current state of the art on mobile technologies and their use in weight loss and in promoting a healthy lifestyle; we then describe a fully-developed mobile application that exhibits the three aforementioned supporting strategies. The remaining sections of the chapter present the application’s validation, and modification to fit a culturally specific audience.

The chapter enhances the state of the art on both mobile application with a weight loss perspective and on directions for the localization of mobile applications.

**BACKGROUND**

Mobile technologies have been demonstrated to be effective for supporting dieting behavior. For example, there is evidence that tailored health information delivered via mobile technology or via web can be effective for improving health behavior and/or reducing weight. In one study, tailored health information for online supermarket service impacted shoppers to purchase healthier alternatives even after the service was terminated (Huang, et al., 2006). Food labelling in a college dining hall supported students’ healthy food choices in another study (Peterson, Ducan, Null, Roth, & Gill, 2010). Internet/video-delivered 40-min sessions on diet and activity improved students’ health behavior compared to control (Frenn, et al., 2005). More specifically, tailored text-messages have been demonstrated to support dieters’ weight loss efforts either compared with control or with other methods of delivery. A meta-study by Webb and colleagues (Webb, Joseph, Yardley, & Michie, 2010) found that sending dieters SMS (Short Message Services) significantly enhanced web-based interventions on weight loss. Patrick and colleagues (2009) found that SMS and MMS (Multi-Media Messaging Services) were the most effective among tailored health interventions for obese people in terms of weight loss. Similar effects are reported for weekly tailored emails from experts (Gold, Burke, Pintauro, Buzzell, & Harvey-Berino, 2007), bi-weekly SMS exchange (Donaldson & Fallows, 2011), Palmtop computer-based Ecological Momentary Interventions (EMI) (Burnett, Taylor, & Agras, 1985), and sending weekly emails on exercise.
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