

## Chapter 3

# Constructive eHealth Evaluation: Involving the End-User

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### **ABSTRACT**

*Despite the existence of an extensive body of knowledge about best practices and factors that contribute to the successful development and adoption of eHealth, many eHealth development-projects still face a number of problems - many of them of an organizational nature. This chapter presents a new method: “The Constructive eHealth evaluation method” aimed at supporting real end-user participation - a well-known success factor in eHealth development. It provides an analytical framework for achieving real end-user participation during the different phases in the eHealth lifecycle. The method was developed and used for the first time during the evaluation of an EHR planning process in a Danish region. It has proven effective for providing management at more levels on-going information and feedback from end-users, allowing management to change direction during eHealth development in order to achieve the most successful adoption and implementation of eHealth in healthcare environments.*

DOI: 10.4018/978-1-4666-9870-3.ch003

## **INTRODUCTION**

During the past decades an extensive body of knowledge and many research experiences about factors that contribute to successful development and implementation of eHealth technologies have been obtained (Ash, Stavre, & Kuperman, 2003; Berg, 2001; Kaplan & Harris-Salamone, 2009; Kaye, Kokia, Shalev, Idar, & Chinitz, 2010; Van der Meijden, Tange, Troost, & Hasman, 2003). Yet, lessons are still to be learned as many eHealth implementations still face a number of problems, many of them of an organizational nature (Ash, Stavre, & Kuperman, 2003; Cresswell, Bates, & Sheikh, 2013; Edmondson, 2003a; Høstgaard & Nøhr, 2004b; Pagliari, 2007; Van der Meijden, Tange, Troost, & Hasman, 2001; van Gemert-Pijnen et al., 2011). One of the most crucial organizational success factors in eHealth development is *end-user participation*, which has been increasingly recognized during the past decades (Berg & Winthereik, 2004; Cresswell, Bates, & Sheikh, 2013; Høstgaard, 2009; Kensing, Simonsen, & Bødker, 1996; Kensing & Blomberg, 1998; Kushniruk & Turner, 2011; Pagliari, 2007). However, the concept of “end-user participation” has a broad range of meanings, ranging from end-users as consultants (e.g. to test technologies before they are being implemented) to involving end-users during all the phases in the full technological development process (Arnstein, 2007).

In this chapter the concept is used in the sense of enabling end-users to exert influence in decision-making throughout the full eHealth life cycle. That is, *real* influence by participating in decision-making during all phases in the eHealth development process. Most methods developed to support and facilitate end-user participation so far have been developed for organizations in general and have focused on the design stage (Bødker, Kensing, & Simonsen, 2004; Kensing, Simonsen, & Bødker, 1996; Mumford & Weir, 1979). Methods designed for the full eHealth life cycle – formative evaluation methods - have been proposed by Catwell & Sheikh, Clarke et al. and van Gemert-Pijnen (Catwell & Sheikh, 2009; Clarke et al., 1994; van Gemert-Pijnen et al., 2011). However, none of these methods have end-user involvement as a fulcrum. Thus, so far, no methods have been developed with a specific focus on supporting end-user participation during the full eHealth lifecycle, i.e. during all the different phases in the eHealth development process.

A new formative evaluation method aiming at supporting end-user participation during the full eHealth lifecycle is presented in this chapter: “*Constructive eHealth evaluation*”. It is meant for eHealth management at all levels – and others working in the field of eHealth technology. The method provides tools for learning during the eHealth development process by involving end-users throughout the eHealth lifecycle. This allows eHealth management to benefit from the unique knowledge on the clinical work practices that end-users possess. Thus, based on feedback from the end-users, management is provided the opportunity to make adjustments in

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