

# Chapter 23

## Comprehensive E-Learning Appraisal System

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### ABSTRACT

*The healthcare sector in the 21<sup>st</sup> century presents a big technological development. All fields of medicine are deepening their knowledge, which increases the volume of material that must be handled by professionals in each specialty. This large volume of material should be taken into account by health professionals, because it contributes to a better quality of care. The traditional way of teaching has been face-to-face classes; however, with rising technologies, virtual training via computers and virtual teachers are being implemented in some institutions. This change in the way of teaching also leads to changes in how to assess the knowledge gained through this method of learning. The aim of this chapter is to provide a small analysis of online training courses for health professionals, and deepen into an appraisal system developed to integrate different complementary variables, and how they can be implemented as a method addressed to assess online courses in a more comprehensive way.*

### INTRODUCTION

The healthcare sector in the XXI century presents a big technological development that covers a broad knowledge. All fields of medicine are deepening their knowledge, which increases the volume of material that must be handled by professionals in each specialty. This large volume of material should be taken into account by health professionals, because it contributes to a better quality of care

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The mode of transmission of this knowledge to professionals is usually through training courses in their own work areas (internal instruction) or outside the centers (external instruction). New technologies have entered the world of education, leading to changes in the way people teach and learn. The traditional way of teaching has been face-to-face classes; however, with rising technologies, virtual training via computers and virtual teachers are being implemented in some institutions. This change in the way of teaching also leads to changes in how to assess the knowledge gained through this method of learning.

The aim of this paper is to provide a small analysis of online training courses for health professionals, and deepen into an appraisal system developed to integrate different complementary variables, and how they can be implemented as a method addressed to assess online courses in a more comprehensive way.

## **BACKGROUND**

### **Health Training**

Health training is a complex field; several areas of knowledge and practice make necessary an update in instructional and teaching methodologies (Schoonheim, 2014; Frenk, 2010; Horton, 2010).

There are many examples of instructional needs in the field of health. Many medical specialties (e.g. primary care, surgery, or oncology) require continuous training and up-to-date of professionals to provide the best patient care. Doctors, nurses, and technicians, all of them attend courses or educational programs in order to improve their knowledge or skills in each specialty.

One example is Evidence Based Medicine (EBM). It is based on the principle that medical decision making is achieved by integrating the best available evidence with clinical expertise and patient values. When teaching EBM it should integrate core knowledge with clinical practical activities. This will lead to taught EBM with a variety of modes: lectures, tutorials, online, problem based or self-directed learning (Straus 2011; Del Mar, 2004).

Not only the health areas but also the professionals in medical specialties have troubles with their instruction/training. General practitioners (GPs) struggle with several barriers to the use of EBM related to insufficient knowledge and skills. They also find barriers related to their practice and patient population such as lack of time, patient-related factors or a lack of available evidence (Mayer1999; Zwolsman 2013; Te Pas 2013).

Standalone teaching improves student knowledge, but not skills, attitudes or behavior in EBM. Non randomized clinical trials indicated that integrating teaching of EBM with clinical activities (blended learning) was associated with improvements across all four domains: knowledge, skills, attitudes and behavior (Coomarasamy 2004). In the results of randomized controlled trials, the authors concluded that any form of teaching, including lecture, tutorial, self-directed, online, problem-based, multidisciplinary, was associated with an increase in EBM competency (Ilic 2014).

A comprehensive meta-analysis recently conducted by Teachers College (Columbia University) (Means 2013), indicated that students in online classrooms had moderately better performances than those receiving instruction in traditional classrooms (Milic 2016).

In the Ilic's study students's perceptions were positive about using the BL approach in teaching and learning about EBM (Ilic 2015). They developed a three-step approach (i) self-directed learning through online multimedia presentations, (ii) discussion and activities in class, and (iii) application in practice. This method was positively received by students. Students involved in the BL approach found the content

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