

Chapter 7

Web 2.0 Approaches for Active, Collaborative Learning in Medicine and Health

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ABSTRACT

In recent years, advances in information and communication technology and especially the Internet have acted as catalysts for significant developments in the sector of health care, having a strong impact in supporting medical diagnosis, enabling efficient and effective patient and healthcare management and reforming medical education. There is currently an international trend to involve computers and the Internet heavily in medical curricula, in continuing life-long medical learning, as well as in general health education of the public. However, effective technology-supported interventions are usually created when there is a successful alignment of the specific requirements with the potential end use of technology. And it is just such a juncture we are currently facing with the emergent paradigm of Web 2.0. This chapter elaborates on the potential of Web 2.0 for active and, potentially, effective learning in medicine and in health and reviews current practices and trends in the field. The discussion focuses on research directions and emerging applications that fully exploit the potential of Web 2.0 for advancing medical education. Finally, the envisaged merit of merging with Web 3.0 technologies is also discussed.

INTRODUCTION

Current innovations in information systems and communication services mark the switch from an

“information society”, characterized by mass information seeking and based on the distribution of pre-defined and standardized data, to a “knowledge society”, that is, a society based on knowledge as a value. This emphasizes the cognitive advancement

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and involvement of each individual. The growing use of Internet not only modifies quickly and habitually the way people work but it also leads the race in this educational revolution.

The penetration of technology and the Internet in medical education, and in education in general, created a new situation where the teacher as mediator to knowledge can often be bypassed while the individual strives for knowledge based on their own efforts and aided by the vast amount of information and educational activities presented in the Web. When new technologies were first introduced in education about two decades ago (although experimental attempts date back to 1970s), there was a considerable hype about the emerging electronic teacher, which fortunately soon enough subsided to reveal serious limitations of the computer-to-student education model (Dertouzos, 1997). The emerging Web 2.0 paradigm however is promising to bring about yet another new situation, where the conventional human mediator as well as the electronic mediator in the form of the Internet and the Web is replaced by virtual dynamic communities of peers that learn and advance together.

This chapter will elaborate on the potential of Web 2.0 for active and, potentially, effective learning in medicine and health and review current practices and emerging advances in the field, providing an indicative overview of various projects where Web 2.0 is used to support health and medical education. The chapter will also present some example emerging application areas where Web 2.0 is expected to find its full implementation by enabling new online educational experiences not previously possible to achieve, including full support of active learning, new ways of assessment and evaluation, content sharing educational communities and content repurposing in medical education.

BACKGROUND

Education in Medicine and Health

Medical education is drawing much attention, due to its special characteristics. Firstly, it is a field that encompasses not only the fundamental issue of education, but also the sensitive issue of health and health care services. Furthermore, education in medicine is multidisciplinary and rather long, involving a good number of academic years and extending to life-long continuing updating and learning. Additionally, medical education is traditionally based on a two-fold model: theoretical instruction based on textbooks and clinical practice with one-to-one interaction. Finally, one should stress the current enormous expansion in medical and biomedical knowledge, which constitutes a fundamental challenge in medical education (Papaioakeim et al, 2006). As a result, two main issues arise in medical education: (a) the necessity for overspecialized learning material and educators; and (b) the trend towards a disease-based approach, rather than the more intuitive patient centered view.

In order to address these problems, medical education is embracing tools and approaches from two different fields. On one hand, alternative educational approaches have long been introduced in medicine. These include integrative curricula delivered via active, self-directed, student-centered, experiential learning. On the other hand, information technologies are also being employed to harness information explosion and support teaching in various ways. Ultimately, these two different fields could combine their contributions, with information technology effectively supporting active learning in medicine.

Traditionally, medical education requires students to sit through hours of lectures on basic sciences, while discussion takes place in large groups, sometimes with the whole class present. Advances in our understanding of learning processes now

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