Would Printed Textbook Survive in the Digital Age?

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ABSTRACT

The need for a high quality medical service challenged the medical educationists to come with new learning tools, and strategies that can be adapted by the current generation of learners, and on the same side based on scientific learning theories. The new learning theories and technology had an impact on the style, content, and organization of modern textbook, which highlights the need for medical teachers who can renovate their role as a resource developer in the digital age.

Keywords: e-Textbook, Instructional Design, Interactive Learning, I-Textbook, Modern Textbook, New Learning Tools

1. INTRODUCTION

The behavior theory of learning has seen the teacher as the center of the learning process, and student as a passive receiver for knowledge. It has valued the need for an external stimulus to have a reaction. The goal was to transfer knowledge from the teacher to the student. The role of the student was to memorize; while the role of the teacher was to cover content (Peters, 2000; Torre, Daley, Sebastian, & Elnicki, 2006).

This theory was followed by the cognitive theory, which gave more attention to the higher cognitive levels of Blooms Taxonomy. The cognitive theory recognized the student as an active component in the learning process, and the role of the teacher has been changed to be a facilitator. The main role of the teacher is to teach the student how to learn rather than being a pure information provider. In contrast to behaviorism, the locus of learning in the cognitivist model is on the individual learner rather than on the external environment. This theory highlighted the need for knowledge to be applied, and processed in order to facilitate its storage, and retrieval from the long-term memory (Torre, Daley, Sebastian, & Elnicki, 2006; Patel, Yoskowitz, Arocha, & Shortliffe, 2009).

The constructive theory has emerged as a modification for the cognitive theory. It highlighted the need for experience to modify and add to previous understanding therefore the learners have the chance to reflect on their

DOI: 10.4018/jtd.2013040104
assumptions. The teacher role in this theory is a facilitator, who provides opportunities to expose inconsistencies between learners’ current understandings and new experiences, therefore providing the opportunity to develop new schemes. Therefore, learning is an active process that requires time for reflection on new experiences (Torre, Daley, Sebastian, & Elnicki, 2006; Kaufman, 2003).

1.1. Implications on Instructional Design

As the new learning theories are mainly student-centered, this highlighted the need for learning materials that are motivating and attractive for students self-learning. It is not enough to say that learners will engage in independent study or participate in online collaborative activity without having an attractive environment.

Pike stated that educators/trainers can do nothing to motivate learners but can create an environment where people will motivate themselves (Pike, 1994). Mann suggested that making learning enjoyable and rewarding, and using teaching and learning strategies that are intrinsically motivating are two keys to enhance learners’ motivation (Mann, 1999).

The gradual shift from behaviorism to constructivism had a great impact on the design of instruction materials in health education, as it provided a new rationale for designing materials that focus mainly on understanding concepts and principles, rather than mere recall.

The style, content, and organization of modern textbook reflect the influence of the constructive theory on instructional design, as it has moved from printed format to electronic format (e-textbook), and recently to an interactive format (I-textbook).

New advances in technology have further facilitated the transformation of instructional design. Mobile and tablets technology made learning accessible anytime, and anywhere, as it is now considered as an essential medium for delivering instructions. Medical literature advocated the idea of using reusable learning objects (RLOs) (Harden, Gessner, Gunn, Isenberg, Pringle, & Stewart, 2011). Finally, computer applications have emerged to facilitate the design of interactive instructions materials.

One of the applications that have recently emerged is iBook Author. It has been announced by Apple on 19/01/2012. It allows the creation of an interactive multi-touch textbook, which involves video, interactive diagrams, 3D objects, text with sound clips, shapes, charts, tables, multi-touch widgets, and animations that burst off the page. With this application, e-textbooks are no longer limited to static pictures to illustrate the text. Now students can dive into an image with interactive captions, rotate a 3D object, watch a video anywhere in the page, highlight text, take notes and find easily definitions in the glossary. The application also provides a solution for students’ self-assessment at different book chapters. It allows readers to test their knowledge using a variety of question types such as multiple choice, choose the correct image, label the image, or a mix of all three with immediate feedback (Apple in education, n.d.).

We need to ask ourselves important questions “did these applications appear to meet a need for instructional materials that are motivating, and interactive? Or they just appear to open the gate for more users, which means more spread of hardware?"

One of the challenges that faced the design of interactive learning instructions is the need for educational technologist. Educational technologist is an expert in technology who can implement what is requested by educationists. The current advances in mobile, and tablet applications empowered educationalists to produce their own interactive materials. Two of the twelve roles of medical teacher are defined under resource developer either for study guide, or for learning materials (Harden & Crosby, 2000).

With these new applications, the role of the teacher as a resource developer has been enhanced, and the role of educational technologist became limited to the creation of digital reusable learning objects that will be essential for feeding the I-textbook. Using public domain
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