Podcasting in Medical Education: A Literature Review

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Received: 22/08/2014
Accepted: 22/08/2014
Published: 25/08/2014

Abstract

Background: Web 2.0 technologies such as Skyping, texting, videocasting, and podcasting have revolutionized teaching and learning. Integrating these technologies into any curriculum requires a good understanding of pedagogy, technology skills, and well-designed assessment tools to evaluate their impact.

Aims: The purpose of this article is to assess podcasting as a new technology and also highlight the extent to which it is integrated in professional education.

Methods: A literature search was performed in the PubMed, Dentistry and Oral Sciences Sources, and CINAHL databases.

Results: Of the 42 retrieved articles, 25 pertaining to podcasting in health sciences education were selected and reviewed. These included 15 studies, 5 technical articles, 3 commentaries, 1 editorial, and 1 general review. Study topics included information recall, student experiences, format preferences, and efficacy of podcasts as a complementary learning tool.

Conclusion: Studies found that podcasts were not designed to replace traditional lectures and did not affect class attendance. Instead, they supplemented live lectures and allowed students to study anywhere, at their own pace, and at their own time. The body of literature is limited therefore further studies are needed to gain insight into the potential roles and outcomes of enhanced podcasting in professional education.

Keywords: E-Learning/computers and teaching and learning.

Article

Introduction

Web 2.0 technologies such emailing, wikis, blogs, tweeting, Skyping, texting, flipped classrooms, and videocasting have revolutionized teaching and learning. Podcasting is a new technology that is also making an impact on education. Podcasting is defined as “the process of capturing an audio event, song, speech, or mix of sounds and then posting that digital sound object to a web site or blog in a data structure called an RSS 2.0 envelope (or feed)” (Meng 2005).
Integrating these technologies into any curriculum requires a good understanding of pedagogy, technology skills, and well-designed assessment tools to evaluate their impact. The purpose of this review is to assess podcasting as a new technology and also highlight the extent to which it has been integrated into health sciences education.

Methods

A literature search was performed in the PubMed, Dentistry and Oral Sciences Sources, and CINAHL databases. Of the 42 retrieved articles, 15 studies were analyzed and summarized for this review. The subjects in these publications were residents, medical, dental, nursing, and veterinary students. Students were evaluated and assessed on the effectiveness of podcasts in the following classes: anesthesiology, nutrient biochemistry, biology, molecular foundations, child health in a clinical course, clinical microbiology, and physiology. In dentistry classes, students developed scripts and recorded podcasts for discussing clinical and technical aspects of prosthetic dentistry. In Internal Medicine and General Surgery Clerkships, podcasts comprised short recordings for listening while on call.

Surveys and focus groups were used to collect data specific to the research. The sample sizes varied from 10 residents to 366 students.

Results

The reviewed studies introduced students to podcasting (audio and/or video); assessed the efficacy of podcasts as an educational tool when compared to lectures; examined the impact of podcasts on student learning satisfaction; compared information recall between students who attended lectures versus those who viewed or listened to podcasts; investigated perceptions and experiences of students’ use of simple and enhanced podcasts; evaluated the use of podcasts and ratings after converting class lectures into podcasts; and determined the effectiveness of podcasts versus lectures on exam scores for specific courses.

Advantages and disadvantages of integrating podcasts in professional education are highlighted below.

Advantages:

- Overall, the surveys confirmed that podcasts were useful as learning tools and revision aids, and that they promoted the understanding of course materials (Shantikumar 2009, Kalludi et al. 2013, McCann, Schneiderman & Hinton 2010, Shetty, Bin Reza & Tomkinson 2011).
- Student exam scores after viewing podcasts were significantly higher than their pre-podcast scores (O’Neill et al. 2010).
- When structured well, podcasts can greatly enhance learning and increase students’ knowledge in key areas; i.e., reinforcing learning or reviewing for exams (O’Neill et al. 2010) and they did not affect class attendance (Pilarski et al. 2008).
- Respondents agreed that podcasts were useful as learning tools (Narula, Ahmed & Rudkowski 2012) and revision aids, and that they promoted understanding course materials (Kalludi et al. 2013, McCann, Schneiderman & Hinton 2010, Mostyn et al. 2013, Shantikumar 2009, Shetty, Bin Reza & Tomkinson 2011).
- Podcasts were found to be convenient and flexible as learning aids to supplement lectures (Matava et al. 2013, Vogt et al. 2010, Walmsley et al. 2009).
- The majority of students found podcasts engaging and interesting while helping them learn core topics (White, Sharma & Boora 2011).
- They accommodated students’ learning styles, especially for auditory learners (Shetty, Bin Reza & Tomkinson 2011, White, Sharma & Boora 2011).
- The majority of respondents preferred video podcasts to traditional resources (Narula, Ahmed & Rudkowski 2012).
- Podcasts supplemented live lectures and allowed students to study at their own pace and at their own time (Gough 2011).
Podcasts were also convenient and flexible to supplement lectures (Vogt et al. 2010, Matava et al. 2013, Walmsley et al. 2009).

Not only were they engaging and interesting but they also reinforced learning (White, Sharma & Boora 2011).

The majority of respondents who were exposed to enhanced podcasts preferred video podcasts to traditional modes of learning (Narula, Ahmed & Rudkowski 2012).

Residents favored recordings of 5-15 minutes (Matava et al. 2013).

Podcasts are not designed to replace traditional lectures but are just as good as live lectures (Bensalem-Owen et al. 2011, Schreiber, Fukuta & Gordon 2010, O'Neill et al. 2010).

Disadvantage:

- The main concern was not having the opportunity to ask follow-up questions (Shetty, Bin Reza & Tomkinson 2011).

Discussion

Podcasting is a new modality that reinforces learning. It is a cost-effective method of disseminating lectures and other course-related information. Participants of most studies favored podcasts’ portability and flexibility of listening to content anytime and anywhere. Studies found that podcasts were not designed to replace traditional lectures and did not affect class attendance. Instead, they supplemented live lectures and demonstrated viability for accommodating the various learning styles of today’s students and leveraging multimodal instructional designs. The body of literature is limited; therefore further studies are needed to gain insight into the potential roles and outcomes of podcasting and other Web 2.0 technologies in professional education.
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References

http://dx.doi.org/10.1212/WNL.0b013e31822b0017


http://dx.doi.org/10.1186/1472-6920-13-59


http://dx.doi.org/10.1186/1472-6920-13-12

http://dx.doi.org/10.3109/0142159X.2012.689446

http://dx.doi.org/10.1016/j.jhin.2009.11.006

http://dx.doi.org/10.1080/01421590802144302

http://dx.doi.org/10.1186/1472-6920-10-68
http://dx.doi.org/10.1080/01421590802365584


http://dx.doi.org/10.1038/sj.bdj.2009.58

http://dx.doi.org/10.3109/0142159X.2011.588975