How we use social media to supplement a novel curriculum in medical education

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Abstract

Background: The millennial learner is reliant on technology to gain knowledge. Social media in the form of Twitter and Facebook provide a unique way to reach these learners.

Aims: To demonstrate a supplement to a curriculum using “push technology” via Twitter and Facebook to deliver educational content to mobile devices.

Methods: A curriculum consisting of high-yield ultrasound concepts was developed and posted to Twitter @EDUltrasound daily. Followers received tweets “pushed” directly to their mobile devices. Following the year-long program, followers were surveyed regarding the program’s effectiveness. To determine the ways in which tweets were reaching users, followers were categorized demographically.

Results: Daily “tweets” were posted each morning beginning on July 1, 2010. By the end of the year, there were 87 followers on Twitter and 78 on Facebook. The majority of followers (55.6%) had not previously used Twitter. The majority of followers (88.9%) found Twitter user-friendly, while most (81.5%) found the information useful.

Conclusions: Due to ease of use and widespread applicability, Twitter and Facebook are excellent applications of “push technology” as a means to deliver educational content. This pilot project demonstrates the potential of social media to both supplement and enhance traditional educational methods.

Introduction

Today’s learners have progressively embraced more technology as learning tools and have advanced past traditional forms from the twentieth century. Lectures are now podcasts, textbooks are now e-books, and pharmacopeias are web-based applications (app’s). However, integrating new technology into the classroom can be challenging with the varying levels of sophistication in both the learners and the educators.

Although most medical educators have not necessarily been fluent in these technological advances, a certain level of awareness is beneficial to the educator–student relationship (Sandars 2006; McGee & Begg 2008). As the students change their learning style, it is important for the educator to find various ways to effectively connect to their audience. Although e-learning may still seem new to some educators, millennial learners have come to expect it as part of their education (Boulos et al. 2006).

What is social media?

Social media has been defined as

a category of online media where people are talking, participating, sharing, networking, and bookmarking online. Most social media services encourage discussion, feedback, voting, comments, and sharing of information from all interested parties. It’s more of a two-way conversation, rather than a one-way broadcast like traditional media. (Jones 2009)

There is ample recent literature about the uses of blogs, podcasts, and wikis in medical education (Boulos et al. 2006; Sandars 2006; Sandars et al. 2008; McGee & Begg 2008). The use of social media and peer-to-peer sharing has taken off since the advent of Napster, Myspace, Facebook, and now Twitter. A recent survey of students in health professions...
revealed that the majority of students prefer online media as their primary source of information (Giordano & Giordano 2011). However, there is very little literature on the use of “push technology” via modalities such as Twitter. The challenge of using these types of social media involves convincing an audience of the utility of using technology that pushes information to them rather than them having to selectively pull it from educational sites.

What are the technologies?

Twitter

Twitter is an online service that was launched in August 2006 and has now grown to serve over 200 million users (http://www.twitter.com). Twitter enables users to send and receive short messages, known as tweets, which are microblogs sent by an author to his or her audience, or “followers” (Bonetta 2009). The “tweets” are limited by the 140 character maximum per post with unlimited amounts of posts per site. Twitter posts can be viewed by anyone on the Twitter website or sent to a follower’s smart phone via mobile app or text message. Most Twitter usage involves spontaneous “tweets” that cover the gamut of social media, while little has been published on its use in education. In fact, one recent study showed that only 1% of tweets pertained to the topic of medical education (Chretien et al. 2011). Due to the ease of distribution, the “microblog” based nature of the service, and the potential to reach a large audience, Twitter can aid in the delivery of a curriculum to students (Trueman and Miles 2011).

Twuffer

Twuffer (short for “Tweet Buffer”) is a third-party web app that allows Twitter users to schedule tweets to be posted at a future date and time. Twuffer can aid in the delivery of a curriculum as it gives educators the freedom to schedule tweets in advance, relieving them from the burden of posting tweets on a daily basis. It also allows for consistency in the frequency and timing of posts (http://www.twuffer.com).

HootSuite

HootSuite, much like Twuffer, is a web app that facilitates social media communications by enhancing and automating many elements of the development process. HootSuite was designed as a more feature-rich and comprehensive social media manager, allowing for “brand development” across multiple social networks such as Facebook, Twitter, and MySpace. HootSuite offers a unified user interface through which all social media accounts can be managed in addition to providing a number of automated features. Some of these features include: posting a single message to multiple social media accounts, scheduling pre-written messages, and batch-uploading and scheduling of multiple tweets from a text file. A free version of HootSuite is available to users, but the majority of the features require a paid subscription starting at $6/month (http://hootsuite.com/).

bit.ly

bit.ly is a third-party app that allows for the compression of a web address into a much smaller size. It plays an important role in Twitter because it allows for the linking of web content without exceeding the 140-character limit imposed by the service. In addition, bit.ly maintains an archive of the links and allows users to view some basic statistics on each link posted (http://bit.ly).

TwitPic

Similar to bit.ly, TwitPic allows Twitter users to compress and upload images to the site and gives a shortened web address linking directly to the image. Images can be an essential component of any curricula and this app allows for their inclusion and distribution (http://twitpic.com).

Facebook

Launched in the year 2004, Facebook is a social networking site that has exploded to over 600 million users. It is reported that over 40% of the population of the United States has an account. In a recent survey of students in health professions, Facebook was used by 91% of students aged 18–25 and 78% of students aged 26–35 (Giordano & Giordano 2011). On this social media site, users create their own profiles which are descriptions of themselves and can contain work status, marital status, age, location, and education history. In Facebook, users can join groups with others of a common interest and comment on threads or opinions. Twitter microblogs can link to Facebook. We linked our Twitter feed @EDUltrasound to the EDUltrasound Facebook page, allowing us to expand our audience (www.facebook.com).

How we created a curriculum for social media

We set out to distribute a novel ultrasound curriculum using “push technology” via social media, primarily Twitter, to deliver educational content in real time. A curriculum consisting of high-yield ultrasound concepts was developed and posted to Twitter @EDUltrasound every morning at 9 am EST beginning on July 1, 2010, as this coincides with the start of the academic year. Followers who signed up to the service received the 140-character tweets “pushed” directly to their mobile devices each morning. Our curricula, which is centered on focused emergency ultrasound, was divided into monthly categories covering ultrasound topics such as trauma, cardiac, critical care, and first-trimester OB/GYN scanning.

This curriculum was designed to supplement a longitudinal fourth-year elective ultrasound course at The Ohio State University College of Medicine. This longitudinal elective was initiated in 2005 and was structured to teach focused ultrasound to fourth-year medical students over a 10-month period. The course consists of asynchronous online learning through ultrasound modules, synchronous didactics, supervised hands-on scanning, and real-time ultrasonography in clinical venues. The Twitter curriculum was designed to be a
focused supplement of the elective, concentrating on a new topic each month. For example, the first month of the curriculum focuses on the basics of physics of ultrasonography including use of the probe, use of the machine, positioning of the patient, and the basics of ultrasound physics. Each month, a new topic was presented in 28–31 tweets (one each a day). The complete list of tweets can be seen at http://twitter.com/#!/EDUltrasound (Figure 1).

The content of the tweets @EDUltrasound consisted of ultrasound facts, normal and pathological images, as well as hyperlinks to useful online resources. To facilitate timely posting of the tweets, Twuffer was used to schedule automated posting of tweets to the page each morning at 9 am. Additionally, bit.ly was used to shorten hyperlinks to fit within the tweet character limit as described above. bit.ly also allowed the links to be archived and produced statistics on usage by followers of the online curriculum. As our curriculum is heavily based on image recognition, TwitPic was used to store and distribute images to supplement the content. Finally, due to its widespread popularity, particularly among college-aged learners, the ultrasound curriculum was also posted to Facebook. This was done using a Twitter app within the Facebook platform. By installing the Twitter app on the EDUltrasound Facebook page and linking it to the Twitter account, users on Facebook were able to see each tweet in the curriculum. In addition, the social networking features inherent to Facebook (such as the ability to “like” or comment on posts) was preserved and allowed to the users to interact with the curriculum. This created a discussion board that is not inherently available with Twitter alone.

**Evaluation**

We had 101 followers on Twitter @EDUltrasound and 78 on Facebook at the follow-up survey. Sixty-one (60%) of the Twitter followers who could be identified included 23 physicians, 16 corporate related, 12 students, and 4 ultrasound technicians. As the Twitter feed @EDUltrasound posts to Facebook and many followers used both methods of social media, we were unable to identify which of these were following on both, or just one. At the conclusion of the
academic year, we posted a 10-question survey as a link on a daily tweet to clarify the users and to study the efficacy of the curriculum. The survey (Appendix) was ultimately made available to our followers by e-mail, Facebook, and Twitter @EDUltrasound by a posted bit.ly link. Survey responses were collated anonymously via Survey Monkey and reported in aggregate form per exempt IRB approval.

Twenty-seven followers completed the survey with the majority (81.5%) being less than 30 years old. Many followers who completed the survey were medical students (63%), although interns (18.5%), residents (7.4%), and attendings (11.1%) also responded. Ultrasound experience ranged from novice (0–10 scans, 5.3% of respondents) to advanced (> 100 scans, 47% of respondents). The majority of followers (55.6%) were new to Twitter, although most followers (88.9%) found the Twitter feed user-friendly, the information useful (81.5%), and would like to follow more educational feeds via Twitter (59.2%). The Twitter app on mobile device was the most common way (80%) to access the information for the non-medical student followers, while medical students were more likely to use Facebook (35.3%) and Twitter (35.3%) via computer and also text messages and Facebook app. Interestingly, the medical students (29.4%) were less likely ($X^2 = 4.20, p < 0.04$) than the non-students (70%) to have used Twitter prior to this ultrasound feed. The new Twitter-user medical students indicated their approval by providing comments such as “Great idea!”, “Short messages are great!”, “The short nature of tweets allows for high yield information in a brief statement.”, “Having concise educational points/reminders daily is helpful to continued ultrasound education”, and “Keep up the good work. It is nice when images are provided along with the info.” The non-student followers also provided

![Figure 2](http://www.facebook.com/pages/ED-Ultrasound/153955921294182 on September 16, 2011).
In developing and producing this curriculum, the power of social media quickly became apparent. Although intended for local medical students, the curriculum took on a global appeal. In analyzing the data from Facebook, followers were from six different countries (USA, South Korea, Malaysia, Honduras, Canada, and Ukraine) and received the information in three different languages (English, German, and Korean).

**Limitations**

The primary limitation of Twitter as an educational tool is that most followers interface with the feeds in a unilateral manner much like receiving a lecture or watching the news. These microblogs of information do not routinely lead to discussion, but can provide valuable facts. We remedied this limitation by posting the feeds to Facebook which allows for a more social exchange (Figure 2).

It is difficult to guarantee Twitter followers. Although frequent announcements via various communication methods were sent, the end user still has to purposely sign up to receive the content.

Our Twitter followers @EDUltrasound are a diverse population that includes students, residents, faculty, and other non-academic personnel such as ultrasound technologists. Although initially conceived as a medical student education supplement, we found many other types of followers including vendors, institutions, and medical societies. This certainly impacted the response rate for our survey as these types of “followers” would not have completed the survey.

**What we will do in the future**

We currently have close to 110 followers @EDUltrasound. A recent spike in followers was observed secondary to the start of a new Ultrasound in Anatomy course at our institution (Figure 3).

**Conclusions**

Technology has outpaced traditional methods of delivering education and, therefore, educators may find themselves looking for new ways to distribute content. As content delivery moves away from the classroom toward online learning, educators will need to be able to navigate new technologies to reach their learners. Due to its ease of use and widespread applicability, Twitter is an excellent example of “push technology” as a means to deliver educational content. We hope this guide will help more educators harness the power of social media for their curricula.

**Declaration of interest:** The authors report no conflicts of interest. The authors alone are responsible for the content and writing of the article.

**Notes on contributors**

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ERIC ADKINS, MD, is an Assistant Professor of Emergency Medicine and Internal Medicine at the Ohio State University College of Medicine. Dr Adkins helped with curricular design and tweet production.

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**Figure 3.** Twitter counter showing most recent activity on @EDUltrasound. A recent spike was observed as of the start of a new Anatomy Course (http://twittercounter.com/compare/EDUltrasound/3month/followers).
ROLLIN NAGEL, PhD, is a Clinical Professor and Education Resource Specialist at the Ohio State University College of Medicine. He works for the Center for Education and Scholarship and assisted with statistical design and manuscript drafting.

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References


Internet resources
http://www.twitter.com
http://www.twuffer.com
http://twitpic.com
http://bit.ly
http://tweetstats.com/graphs/edultrasound
http://twittercounter.com/compare/EDUltrasound/
3month/followers
http://stats.brandtweet.com/
http://hootsuite.com/

Appendix
(1) Have you ever used twitter before accessing the EDUltrasound feed?
(a) Yes
(b) No

(2) Do you find this twitter feed user friendly?
(a) Strongly Disagree
(b) Disagree
(c) Neither Agree nor Disagree
(d) Agree
(e) Strongly Agree

(3) How often do you view ED Ultrasound on twitter?
(a) Never
(b) Monthly
(c) Weekly
(d) More than once per week
(e) Daily

(4) Do you find that the information conveyed is useful?
(a) Strongly Disagree
(b) Disagree
(c) Neither Agree nor Disagree
(d) Agree
(e) Strongly Agree

(5) Would you like to follow more educational feeds via Twitter?
(a) Strongly Disagree
(b) Disagree
(c) Neither Agree nor Disagree
(d) Agree
(e) Strongly Agree

(6) Describe your age bracket:
(a) 25 and under
(b) 26–30
(c) 31–35
(d) 36–40
(e) 40+

(7) What is your level of training?
(a) Medical Student
(b) Intern
(c) Resident
(d) Fellow
(e) Attending

(8) What is your level of experience with ultrasound?
(a) 0–10 Scans
(b) 11–50 Scans
(c) 51–100 Scans
(d) > 100 Scans

(9) What method do you primarily use to access the tweets?
(a) Facebook via Computer
(b) Twitter via Computer
(c) Text Message
(d) Facebook App on Mobile Device
(e) Twitter App on Mobile Device

(10) Please add any additional comments about your experience with EDUltrasound
(a) [Free Text Response]