

Trends Report: New Trends in Medical Information Technology

Introduction

Social networks and mLearning are changing the way we access, distribute, and use information daily. In this report, the authors explore the ways in which members of the medical community use these tools for learning and implications for use in eLearning.

The report is also available on mobile:

<http://m.wix.com/danielle2carpenter/mlearningtrends>

Note: it is best viewed with a tablet

mLearning

Dani Carpenter

The objective of M-learning is to provide the learner the ability to integrate learning anywhere and at any time. mLearning is collaborative. Sharing is almost instantaneous among everyone using the same content, which leads to the reception of instant feedback and tips. This type of learning has proven itself, showing an increase in exam scores from the fiftieth to the seventieth percentile, and cut the dropout rate in technical fields by 22 percent (mLearning, 2012).

A mobile learning environment is about access to content, peers, experts, portfolio artifacts, credible sources, and previous thinking on relevant topics. It can be accessed via a smartphone or tablet, laptop or in-person, but access is constant (Rkmlton, 2012).

Analysis & Synthesis

Native vs. Browser

The best way to access information with your mobile device is either viewing it from a native app or mobile web app. What is the difference?

A native app is one that you download to your mobile device via an app store. These apps require that you, as the user, find, select and install the app and occasionally install updates for the application. Many of these apps allow you to function in offline mode or for apps to be customized to leverage the specific device capabilities for a great user experience (Heise, 2011). Each mobile application development platform has its own native programming language: Java (Android), Objective-C (iOS), and Visual C++ (Windows Mobile), etc. (Mudge, 2012). Once the

program has been written, it requires individual updates for end-users to install and refresh (Heise, 2011).

A mobile web app is an Internet-enabled app that has specific functionality for mobile device. They are accessed through the mobile device's web browser, such as Safari or Chrome and they don't need to be downloaded and installed on the device. Mobile web apps are written in HTML5, CSS3, JavaScript and server-side languages or web application frameworks of the developer's choice, such as PHP, Rails and Python. Thanks to these functionalities, an application can be easily replicated via the browser, without the need for the underlying infrastructure of a native application (Mudge, 2012).

For the user, there is rarely a difference in user interface. It can simply come down to the user's preference and accessibility.

The Medical Community: Students and Professionals

I interviewed a friend of mine who is currently enrolled in an accelerated nursing program. The program is located out of Wisconsin; he lives in Montana and is currently in clinicals in Colorado. During this program he has also participated as an online student, testing, studying and growing himself and his peers through social learning. Each student was issued a 64G iPod Touch to run the native applications, the subscription for which was paid for by the college. This particular group also started their own Facebook page, the first one ever to exclude instructors. It has served as a place to learn, support and commiserate as a group. They are almost always in touch with each other, to answer questions, share clinical experiences and even to give restaurant recommendations for students assigned outside of their hometown. My friend is in Colorado to participate in a predetermined number of clinical hours, where he is assigned to a resident nurse. When I asked him if he uses any mobile technology to help him in his rounds he explained he uses a few native apps installed on his phone to help in understanding drug uses, dosage, and the implications of mixing them with other known prescriptions. He also shared an app that is widely used in his program that everyone uses to help in studying for upcoming tests.

These experiences are just the tip of the iceberg. On television, we see hospital dramas depicting smart rooms with large screen, smart boards that project patient scans and x-rays. They can zoom in, rotate and otherwise alter the view of the patient's information. They are also using tablets to record patient information, which can then be used to transfer to the smart boards while explaining complicated procedures. Not that everything we see on TV is true, but I think it is a reflection of where mobile technology will be used next and how it will be used for learning and teaching.

At a learning conference I attended, I met someone who helped develop an app for the American College of Chest Physicians. The app was a collaboration of many cardio MDs all over the US. The resulting product contained 3D renditions of the torso with the ability to peel back layers of the body until you could see the heart and the surrounding affected areas. It also includes video of heart procedures and set of study information and self-assessments. It has been a successful tool for current cardiac students, Chest College instructors – and patients. Users of the app were showing patients and concerned loved ones the step-by-step videos and

using the 3D imagery to further explain how the surgery would be helpful. The developer joked and said doctors don't always have such good bedside manner, and the app enables them to dumb down their medical jargon and *show* patients and loved ones what will be happening. This is another indication of how people want to be more informed and the positive response to the opportunity of knowledge.

Mobile medical trends definitely include mobile medical apps that house a plethora of information that can be accessed from tablets even in hospitals where cell phone use is prohibited (Clark). Researchers are pushing the government to expand a National Health Information Network that brings consumer health organizations into the process and help speed up the process by which patient data is transferred. A national archive of health data would vastly improve health services by cutting down on repetitive forms and ensuring that a patient's health history was accurately and thoroughly communicated between health professionals in different cities and states (Unknown). This information would no doubt be available from a doctor's tablet or via your smart phone upon checking into a hospital.

The Informed Consumer

Medical/healthcare is the third fastest growing app category for both the iPhone and Google Inc.'s Android phones, based on information from Float Mobile Learning. Eighty percent of doctors use smartphones and medical apps while 40% of doctors believe mobile health technologies can reduce the number of visits to physicians' offices, which reached 1 billion in the U.S. in 2011 (Spira & Fotiu, 2012). These apps range from calorie counters and fitness trackers to apps that provide doctor consultations, medical guides, and injury prevention. Some medical professionals are working on ways to let people use their cell phones to monitor physical activity and weight loss. The Walk n'Play iPhone app makes a game of basic movement; providing a score and statistics for users based on how often they walk around while carrying their phones (Unknown). Digital technology will enhance healthcare for medical professionals and their patients. The adoption of the use of technology in this field will take off as patients begin to demand the convenience and enhanced communication that these tools provide (Spira & Fotiu, 2012).

Implications for Practice

Simply, if you have a connected mobile device, you have access to the answers you are seeking. Today, learners come in all different forms. They are not just students, enrolled in classes, or professors gearing up to teach a new class. Because of mobile technology, learners are everyone, learning anytime anywhere. It has created a learning experience that is increasingly personalized: just in time, just enough, just for me (Rkmelton, 2012). The use of mobile technology has helped to create a social learning environment where we are not only learning, but also teaching one another (mLearning, 2012). It is offering ways for students to communicate and collaborate — whether they are side-by-side in the classroom or thousands of miles away (Watters, 2012).

Critical Stance

It is important to note that just as technology evolves and advances so do the methods learners will use to gather their information; there is no single ideal mobile learning solution. It is an intersection among the learners, their needs, their social context, and the technology. What works in a school will be wildly different from what works in an ambulance (Stead, 2012).

Technology

Useful Mobile Learning Apps (Williams, 2012)

[Dropbox](#):

With one Dropbox account, students enjoy access to their files while on the go, so they never accidentally miss a deadline again ... because of computer issues, anyway.

[Bento](#):

Available on iDevices (because of course), Bento makes organizing solo and group projects much, much easier by providing users with their own personal databases for storing contacts, drawing up calendars, and taking notes.

[Blackboard Mobile](#):

Because so many online courses rely on Blackboard for distributing the necessary materials and conducting the necessary assessments, downloading the app should be essential for remote students.

[TED](#):

While classes themselves might not use [TED as a supplement to lessons](#), students (both online and off) undoubtedly benefit from tuning into what the experts are saying about the latest ideas and innovations.

[Evernote](#):

Never forget an important project point with Evernote, an amazing scrapbook application for keeping everything organized and on hand, no matter the medium.

[Instapaper](#):

Perfect for online students who just can't recall the websites consulted for research purposes; this resource saves pages so they can read them anywhere and everywhere.

[Wikipedia](#):

Because everyone uses Wikipedia, even if they aren't supposed to admit it in an academic setting. Don't cite it in a bibliography, but definitely check out the sources used and start researching from there.

[Wolfram Alpha](#):

Forget Google. Wolfram Alpha works as an amazing search and computational engine specifically for scholastic pursuits, bringing back returns regarding pretty much everything students need to know about their desired subjects.

[Google](#):

We lied about forgetting Google. [Don't forget Google](#). Especially since its mobile app allows for voice searching.

[Wi-Fi Finder](#):

Obviously, online students should probably know where to look for wireless Internet in their areas — especially if their connections at home go all kabloolie.

[Quickoffice](#):

Create and edit Microsoft Office documents from anywhere and, most conveniently, see them saved across all linked devices when paired with a cloud application.

[StudyBlue:](#)

Create, store, and share notes and flashcards online and via a mobile application perfect for studying from pretty much anywhere.

[Dictionary.com:](#)

An indispensable resource for online students needing both a dictionary and a thesaurus. There's even some fun little word games available as a welcome distraction!

[myHomework:](#)

Even though an online education grants more autonomy than the traditional classroom structure, students still need to stay organized and on top of their homework assignments.

[Cliqset:](#)

Social media forms a major component of many online classes, and Cliqset makes it super-duper easy to update and keep track of them all in one convenient spot.

[Kindle:](#)

Download and read books and textbooks teachers may require for the class, conduct research, or receive a little extra help on the side.

[Dragon Dictation:](#)

This speech-to-text program helps students take verbal notes, send e-mails, and work on projects on the go without wearing down their thumbprints.

[GPA-mE!:](#)

As one can probably glean from the name there, online students can use this application to calculate their grade point averages as they go along rather than waiting on their teachers.

[Howcast:](#)

Learn how to do pretty much anything thanks to detailed step-by-step videos; they offer up information on multiple educational topics, meaning students will likely pick up some interesting tidbits here.

[Astrid:](#)

One of the most popular productivity apps available acts as a veritable personal assistant, with to-do lists, reminders, and organized collaboration.

[Zwoor:](#)

If a research project or a class requires any sort of polling, Zwoor makes collecting the data from friends, family, and total strangers a breeze.

[Pulse:](#)

Stay on top of relevant blogs and other online reading resources needed for projects through simply organized lists on iDevices and Androids.

[Study Tracker:](#)

Presented by McGraw-Hill, Study Tracker makes it cake for students to keep track of their grades and time spent on assignments and create comparisons for better academic management.

[Mint:](#)

Online and offline students alike definitely need to keep track of their personal finances, especially if they're taking classes requiring tuition.

[CourseSmart:](#)

Another popular option for students who prefer purchasing and reading textbooks digitally rather than lugging one around.

[Documents To Go:](#)

This full Microsoft Office suite allows for creating and editing files while out and about without requiring a cloud to sync everything up.

SimpleMind+:

Online students in possession of an iDevice use SimpleMind when mapping out papers and projects before getting started.

iAnnotate:

iAnnotate provides iDevice users a painless, easy method of marking up and taking notes on PDF files needed for classwork.

Cash4Books:

Use the iPhone or Android's barcode scanner and learn how much those textbooks and other reads will fetch when sent over for other students to buy and use.

Quora:

When stuck on a critical research question, some students (and even professors!) head to Quora and directly ask experts about their fields.

Chegg:

Rent the necessary textbooks from the comfort of the iPhone (sorry, Android and Blackberry users!) through this popular money-saving service.

Open Culture:

Who said online students have to enroll in formal classes to learn something? Open Culture provides one of the Internet's largest repositories for free educational materials – especially open source courses!

Medical Specific Apps

Nursing Central: The premier source of disease, drug, and test information for nurses. It also includes a leading dictionary, literature searching, and a study system. Get quick answers wherever you need them. (Native or mobile web app)

Medline Plus Mobile: Health information for patients and families. Covers diseases, conditions, medications, wellness topics, and the latest news. Available in English and Spanish. (Mobile web app)

Many others can be found at: <http://www.nlm.nih.gov/mobile/>

Other notable apps:

AHG Cloud Note: Features include: documenting processes or procedures with images, videos, and text, upload your process document to Cloud Note's cloud server and Integrate and share your process quickly with websites and colleagues. (Native App, Android devices only).

Aurasma: This app allows your smartphone or tablet to recognize images and objects. It then augments your view with videos, music and 3D animations, called "Auras." (Native App)

ACCP-Seek: Case-based questions with rationales developed by nationally recognized experts provide thorough explanations for correct and incorrect answers, and linked references, helpful for board exam preparation or general review. Handy app features include answer tracking, note taking, voice annotating, highlighting, and reference links. Quickly find topics of interest with multiple search index options, including searching by key word, ACCP curriculum, and subject taxonomies, and a smart full-text search. Zoom in on images and figures, view them in portrait or landscape mode, and mark as favorites the images and figures you need to reference

again. On the iPad®, there also is enhanced figure viewing with double-sized (2x) screen capacity. Study on the go; no connectivity is needed to instantly access ACCP-SEEK® questions and answers once they are purchased. (Native App, IOS devices only)

Pinterest

Cyndee Tovsen

Social media has a strong following in the 21st–century learners, and is getting into healthcare using Pinterest. The use of the online tool, Pinterest, has become a new platform for student content-consumers as well as producers. Cyndee has created some online bulletin “boards” using Pinterest with some healthcare subject matter foci, “pinning” resources and has found other resource “boards” to “follow”.

Analysis

Pinterest (www.pinterest.com) is an online eLearning and mobile collection resource created by “pinners” who are content curators that create “boards” which are accumulations of specific interests and categories of information. The “boards” are created using found images, audio, video, or other multimedia pieces with the purpose to share information as a teacher and to be socially connected as a communication tool.

The items (links) on the “boards” can include articles, photographs, graphs, blogs, and more. The links provide access to the actual media material online for further study. “Boards” are created within the “pinner’s” Pinterest website around themes or categories in order to organize the media, much like an art curator collects and organizes artwork. The links provided by the “pinner” include works that the creator wants to remember and have easy access to finding again. Think of all those articles and notes you have clipped out of magazines and other resources and saved; this is a similar idea here. A **Pin It** button may be added to the “pinner’s” browser enabling him/her to clip or “pin” the media to a selected “board” easily.

Other people can “follow” your “boards” using an **RSS feed** to keep up with your new “pins” and to follow the direction your “board” is taking. A user may click onto an image or link to see or experience the original web posting. “Followers” (users) may comment on the “boards”.

Synthesis

Take a look at the three boards created by Cyndee to get an idea about how ideas and media are “pinned” together onto a “board” to make sense for a medical practitioner (or medical student), a patient (or concerned family member), or a specific medical information “board” holds new and contextual information. Cyndee created a specific “board” for pancreatic cancer information.

<http://pinterest.com/inmedia6/cyndee-s-elearning-medical-board/>

<http://pinterest.com/inmedia6/cyndee-s-patient-s-board/>

<http://pinterest.com/inmedia6/cyndee-s-pancreatic-cancer-board/>

Read the online help manual and other resources to get a better understanding of how to build a “board”, use the “pins”, or to “follow” someone’s “board”. There are several books on the market to get helpful tips and advice:

- *Pinfluence* by Beth Hayden
- *The Ultimate Guide to Marketing your Business on Pinterest* by Gabriela Taylor
- *Pinterest for Business* by Jess Loren and Edward Swiderski
- *How to Build a Huge Following on Pinterest* by Kelly Cooper

Thurston (2012, September, p80) tells us, “Four out of four authors of books about Pinterest agree: Pinterest is important!”

Implications for Practice

Thompson, Younes, and Miller (2012, September) suggest using social media such as Pinterest for one of these purposes in the medical field:

1. *To treat: to engage directly with patients about care.*
2. *To teach: to provide timely and credible education to patients and/or the public.*
3. *To learn: to share medical information/knowledge with other physicians and healthcare professionals.*

Anyone with an interest in a subject or a desire to share knowledge can use Pinterest. The original Pinterest was developed for commercial marketing use, but it has evolved to be a valuable professional and personal resource. Dallas designer, Chris Culley states, “The thing that appealed to me was that it was never-ending. I would sit there and scroll for an hour” (Chafkin, 2012, October, p. 146).

Troutner (2012, October) states that curiosity is a key that students can use to learn new things. Many times “boards” are so visually interesting, a student or professional cannot help but look further into the collection or click the images and links to discover what is behind them, increasing their experience and knowledge.

“Many educators use Pinterest to curate ideas for their classrooms” (Folk, 2012, October, p. 43). There is no concept of “friending” as in Facebook, although it is easy to “follow” a “pinner” creator or a “board”. A user may “re-pin” an item found on another “board” to their “board”.

Sara Congill, a Denver math teacher says, “...If you want to know what I’m doing, check Facebook. If you want to know what I’ve been thinking about lately, check my Pins on Pinterest” (Pattison, 2012, September-October, p. 70).

Critical Stance

The use of Pinterest may hold some keys for eLearning and mobile learning practice for healthcare educators and information users (patients, family members, and other interested users). According to the Safety and Health Practitioner (2012, September) Pinterest’s popularity

has overtaken Linked In, coming in the third ranking for social media; Facebook and Twitter remain the social leaders.

The “boards” do not typically instruct people, but include them. Diversity and equity appear to be seamless and the information is transparent in most curated “boards”. However, the “boards” can be created to specifically draw attention to topics of diversity, equity, and inclusion.

The limitations of the “boards” could be lengthy documents, as the idea behind the “boards” is visual and auditory. Graphics, video, and audio are the key pieces to “pin” onto a “board”. “Pinner” are free to scan their personal images and materials to add to the “boards”, and thus are limitless as a universal tool for information dissemination.

Language may be a limit for written or oral materials. Audio of spoken word may create a language barrier. Purely visual graphics, photographs, and video are truly universal and easily accessible to “followers” or viewers of the “board”.

Pinterest is a unique and helpful online tool for content creators and consumers. It is easy to use, to add new information, and to maintain existing links. Medical practitioners, students, patients, and other interested users will find the “boards” to be a great resource for every day, instant information and resources.

Social Network Sites: Opportunities for Learning

Cindy Harris

In 2004, when four students at Boston University devised a technological means for social networking, they likely did not imagine their grandmothers would use it, much less students and educators; but that is exactly what’s happened. What began as a way for students to share personal and social information via technology has become a tool for sharing knowledge, information, professional opportunities and urgent needs. Today, social network sites (SNS’s) are a powerful tool for teaching and learning. New LMS’s such as LORE and Canvas contain a built-in social networking feature, and F2F educators are using sites such as Facebook, Google Groups, and Edmodo to reach digital natives. Unlike technologies that have come into the learning arena before, the use of SNS’s and social media for learning has been developed by learners who, innately cognizant of the social nature of learning, have exploited the affordances of social networks and media for learning.

This brief report will focus on how SNS’s, particularly Facebook, are being used for learning by medical students. In medicine, information develops rapidly: new research is released, new trials announced, and techniques change, thanks in large part to the development of new technology, products, and pharmaceutical products. Additionally, opportunities and needs for medical help arise daily. The community of medical teachers and learners is vast and healthcare is a global concern: therefore, the field provides a valuable lens through which to view new trends in the use of SNS’s for teaching and learning.

Analysis

The current generation of learners (Gen Y) grew up using technology and social media. A new Pew research report on social networking reports 92% of internet-users age 18-29 use social media (Pew, 2012). It is no surprise that 48% of the 1 billion active users of Facebook are between the ages of 18-34, which corresponds to the age of medical students and early practitioners (Facebook, 2012). And Facebook is the most widely used social media among medical students: a recent study of students in health professions found Facebook was used by 91% of students aged 18-25 and 78% of students aged 26-35 (Bahner, 2012). A recent American College of Surgeons survey found that of 300 surveyed, 64% use Facebook, 20% use Twitter, and 34.5% use online forums or health blogs (Wells, 2012).

Synthesis

Forms of Social Network Sites

SNS's come in three basic forms: public networks that are open to everyone, for example, Facebook, Twitter, and LinkedIn, SNS within online courses, and specialized social network sites (SSNS) which are designed for specific user groups.

Public SNS

Public SNS's such as Facebook, LinkedIn, Pinterest, and Twitter offer a wide range of opportunities for interaction. Katie Wells, a surgical resident, wrote "My generation uses social media not only to connect with old and new friends but also to learn of occupational opportunities, share travel ideas, highlight ways to become involved in humanitarian relief efforts, and discover media content that educates and inspires us" (Wells). As an example, medical students use Facebook in the following ways: (See also Prezi: How Medical Students Use Social Network Sites <http://prezi.com/odunsfaszik/how-medical-students-use-social-network-sites/>)

- Participate in group work, share research, videos, and podcasts, and schedule meetings
- Locate and follow groups of interest
- Maintain and develop personal and professional relationships
- Interact with fellow students across the globe
- Learn of urgent needs, as in disaster situations
- Learn of new opportunities via their socio-professional network
- Follow newsfeeds that provide, for example, new research findings and developments
- Post and answer questions, for example in diagnosis and treatment
- Communicate confidentially about academic concerns (in cases where instructors are not permitted into the group)

Instructors use Facebook for teaching as well:

- Using a Facebook page, instructors may share various forms of content and share news of interest
- The instructors' Facebook page for learning, as opposed to his personal Facebook page, allows past, present, and future learners to participate in one community.

- Using a Facebook Group, instructors may set up learning activities for individual courses

A very effective multi-faceted tool for learning can be built by integrating Facebook with websites, blogs, and Twitter. For example:

- By incorporating a Twitter feed in a Facebook page, subscribers may learn of breaking news via a tweet. The tweet directs subscribers to the Facebook page, where they may respond to the topic. The Facebook page may direct participants to a website containing a live video feed.
- A website may contain a blog learners may subscribe to. The blog may lead subscribers to new content.
- An instructor may use Twuffer to schedule daily tweets relating to course content. The tweets can be incorporated into a Facebook page, where participants can discuss and contribute additional information. Those who do not participate in Twitter are still able to participate in the discussion via Facebook (Bahner)

SNS within Online Course:

This is a new LMS feature. Rather than using an external SNS within a Moodle course, for example, the internal SNS offers the same technical and social functionality within the course. Ideally, this will expand the social and sharing component of course interactions and permit members to maintain ties beyond the course, a quality missing from the current discussion thread format. As a new LMS feature, however, evaluations of use and effect have not yet occurred. It will be interesting to see how learners manipulate this feature, and if educators are quick to adapt to and exploit its capabilities.

Specialized Social Networks (SSNS)

These are networks designed for special groups, such as medical students and doctors. They generally consist of website and forums for various interest groups, for example nursing, pathology, infectious disease, etc. As a website Launchpad for social networking, SSNS have ready integration with blogs, news and Twitter feeds. Interested parties may locate a SSNS via a topic web search or even via a Facebook or LinkedIn presence.

Benefits of SSNS's are much the same as those of Facebook and other open SNS, with the emphasis on professional development and sharing with a community of like-minded people.

Examples

Medscape Connect <http://www.medscape.com/connect>

"Medscape Connect is a private, physician-only discussion community where members can ask questions, share perspectives, and gain insights on topics relevant to practicing physicians." Also has several "boards": Med Student, Nursing, Clinical, and Pathology & Laboratory.

Sermo <http://www.sermo.com/about/who-we-are>

"We're passionate about social media and its impact on healthcare. That's why we created the largest online community, exclusive to physicians. With over 125,000 licensed physicians, Sermo is facilitating collaboration in medicine like never before."

Doctors Hangout, emphasizing worldwide participation. <http://www.doctorshangout.com/>

“DoctorsHangout.com is an exclusive next generation social networking service for Medical Students, Residents and Doctors.”

Student Doctor Network Forums <http://forums.studentdoctor.net/>

“The educational mission of SDN is to assist and encourage all students through the challenging and complicated healthcare education process and into practice.”

Implications for Practice

The benefits of using SNS's reach far beyond the formal academic experience. Gen Y is establishing the practice of using social media for lifelong learning and demonstrating that learning happens all day every day, casually, and within a social framework. “The social electronic network allows me the opportunity to be a life-long learner in my profession and part of a ‘global’ community that is a daily inspiration of my decision to go into surgery.”(Wells) As a far cry from the lecture hall, the challenge for educators lies in learning to use the various forms of social networks and media correctly and as learners do. “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 (Bahner).

Critical Stance

As a technological tool, SNS's are available only to those with internet access, computers and mobile devices, and the skills to use them. However, the benefits from the use of SNS's by members of the medical community, for example, may reach people in need beyond the borders of technology.

The Pew study found the following use of SNS's, which indicates the potential reach of SNS's for teaching and learning:

- 68% of Blacks
- 72% of Hispanics
- 73% of people with incomes less than \$30,000/year
- 65% without a high school diploma

Reflection

Dani Carpenter

When we were brainstorming our project, we thought it would be a fun idea to present our topic of mobile learning on a mobile web site. I encountered a few limitations.

- Wix mobile templates were limiting
 - Color themes, fonts and icons were predetermined per template chosen
- Formatting was very basic
- Creating external hyperlinks were limited to one of two choices

- In line text, where it was difficult to read due to clashing colors (that I couldn't change) but I could choose to have the link open in a new browser window or the same browser window.
 - Default link template, which created a link that would only open in the same browser window as the main mobile site
- Graphically speaking, the layouts were limiting, though I think for our purposes, it turned out fine.
- I would also say (in the beginning) it was a bit cumbersome to organize the content for our site. It was not as intuitive as building a normal Wix website

Overall, I think our content is well represented and it was exciting to put together my first mobile site!

References

- Bahner, D. P. (2012). How we use social media to supplement a novel curriculum. *Medical Teacher*, 439-444.
- Brenner, J. (2012). Pew Internet: Social Networking. Retrieved November 14, 2012, from <http://pewinternet.org/Commentary/2012/March/Pew-Internet-Social-Networking-full-detail.aspx>
- Chafkin, Max. "Starring Ben Silbermann as the pinup kid." *Fast Company*. Vol. 169 (October 2012): pp.90-96, 146-147.
- Clark, Valerie. (2011, November 9) Medical Technology Trends to Watch. *patexia.com*. Retrieved November 10, 2012, from: <http://www.patexia.com/feed/medical-technology-trends-to-watch-1335>
- Falk, Kristen. "Pinterest." *Library Media Collection* (October 2012): p43. Web 15 Nov. 2012. http://tb4cz3en3e.search.serialssolutions.com/?ctx_ver=Z39.88-2004&ctx_enc=info%3Aofi%2Fenc%3AUTF-8&rft_id=info:sid/summon.serialssolutions.com&rft_val_fmt=info:ofi/fmt:kev:mtx:journal&rft.genre=article&rft.atitle=Pinterest&rft.jtitle=Library+Media+Connection&rft.au=Kristen+Falk&rft.date=2012-10-01&rft.pub=Linworth+Publishing+Company&rft.issn=1542-4715&rft.volume=31&rft.issue=2&rft.spage=43&rft.externalDocID=2801699841
- Facebook Newsroom. Retrieved November 8, 2012, from <http://newsroom.fb.com/>
- Green, D. R. (2012). Beyond Good and Evil: Exploring Medical Trainee Use of Social Media. *Teaching and Learning in Medicine*, 1532-8015.
- Heise, Douglas. (2011, February 16) The Mobile Application: Browser vs. Native. *cmswire.com*. Retrieved November 11, 2012, from: <http://www.cmswire.com/cms/web-engagement/the-mobile-application-browser-vs-native-010223.php>
- MLearning. (2012, November 9). In *Wikipedia, The Free Encyclopedia*. Retrieved November 17, 2012, from <http://en.wikipedia.org/w/index.php?title=MLearning&oldid=522158548>
- Mudge, JT. (2012, July 11) Native App vs. Mobile Web App: A Quick Comparison. *sixRevisions.com*. Retrieved November 10, 2012, from: <http://sixrevisions.com/mobile/native-app-vs-mobile-web-app-comparison/>
- Pattison, Darcy. "Producing and consuming content: participating in the online social culture." *Knowledge Quest* 41.1 (2012): pp70+. *Academic One File*. Web. 15 Nov. 2012. http://0-go.galegroup.com.skyline.ucdenver.edu/ps/i.do?id=GALE%7CA305454633&v=2.1&u=auraria_main&it=r&p=AONE&sw=w

- “Pinterest joins IOSH’s social media family.” *The Safety & Health Practitioner* 30.9 (Sept. 2012): p34. *General OneFile* Web. 15 Nov. 2012.
http://0-go.galegroup.com.skyline.ucdenver.edu/ps/i.do?action=interpret&id=GALE%7CA303758039&v=2.1&u=auraria_main&it=r&p=ITOF&sw=w&authCount=1
- Pimmer, C. S. (2012). Facebook as a learning tool? A case study on the appropriating of social network sites from mobile phones in developing countries. *British Journal of Educational Technology*, 726-738
- Rkmeton. (2012, October 24) 12 Principles of Mobile Learning. *Emerging Technologies and Mobilization*. Retrieved November 1, 2012, from: <http://emergingtech.tbr.edu/12-principles-mobile-learning>
- Spira, Bronwyn, PT. & Fotiu, Alexis. (2012, August 2) Are you Ready for Generation Y? *physical-therapy.advanceweb.com*. Retrieved November 11, 2012, from: <http://physical-therapy.advanceweb.com/Features/Articles/Are-you-Ready-for-Generation-Y.aspx>
- Stead, Geoff. (2012, October 24). The eLearning Guild’s 61 Tips on mLearning: Making Learning Mobile. *elearningguild.com*. Retrieved November 13, 2012, from: <http://www.elearningguild.com/publications/index.cfm?id=22&from=home>
- Tilt, A. C. (2011). How surgical residents use social media. *Surgery*, 150:5-6.
- Thompson, Michael A., Anas Younes, and Robert S. Miller. “Using social media in oncology for education and patient engagement.” *Oncology* (Sept. 2012): p782. *General OneFile*. Web. 15 Nov. 2012.
http://0-go.galegroup.com.skyline.ucdenver.edu/ps/i.do?id=GALE%7CA306598646&v=2.1&u=auraria_main&it=r&p=ITOF&sw=w
- Thurston, Baratunde. “The social media roadmap.” *Fast Company*. Vol. 168 (September 2012): pp.68-89.
- Troutner, Joanne. “Old and new sites, apps, Pinterest, and so much more.” *Teacher Librarian* 39.6 (2012): pp42+. *General OneFile*. Web. 15 Nov. 2012.
http://0-go.galegroup.com.skyline.ucdenver.edu/ps/i.do?id=GALE%7CA307670193&v=2.1&u=auraria_main&it=r&p=ITOF&sw=w
- Unknown. (2010, June 27) Top 10 Trends in Mobile Medical Technology. *nursingschools.net*. Retrieved November 10, 2012, from: <http://www.nursingschools.net/blog/2010/06/top-10-trends-in-mobile-medical-technology/>
- Watters, Audrey. (2012, January 3) 12 Education Tech Trends to Watch in 2012. <http://blogs.kqed.org>. Retrieved November 9, from: <http://blogs.kqed.org/mindshift/2012/01/12-education-tech-trends-to-watch-in-2012/>

Wells, K.M. (2011) Social media in medical school education. *Surgery*, 150:2-4

Williams, Angelita. (2012, November 1) 32 Mobile Apps that Online Students Love.

onlinecollegecourses.com. Retrieved November 12, 2012, from:
<http://www.onlinecollegecourses.com/2012/11/01/32-mobile-apps-that-online-students-love/>