Mobile Learning and the Visual Web, Oh My! Nutrition Education in the 21st Century

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Abstract: *Technology is rapidly changing how our program participants learn in school and for their personal improvement. Extension educators who deliver nutrition program will want to be aware of the technology trends that are driving these changes. Blended learning, mobile learning, the visual Web, and the gamification of health are approaches to consider using in programming in the near future to meet learners' expectations.*

Sonja is 40 years old, a working mom with two children. She has just been diagnosed with diabetes. She learns about a diabetes Extension class. Because of her busy schedule she doesn't have the time to enroll in a series of classes. Instead, she goes online to view short videos about diabetes, how to choose low cost healthy foods, and other lifestyle modifications. After viewing the videos she decides to participate in a half-day Extension diabetes class. During the class Sonja learns how to apply the information she learned in the online videos in her daily life. She leaves the Extension class with a short video she created in which she identifies how she will use the information she learned. With the aid of a mobile app, she can find stores in her neighborhood that offer low-cost, diabetes-friendly foods.

Sound far-fetched? This vignette illustrates how Extension educators may soon deliver programs to our learners. Online nutrition education has focused on credit courses (Cohen, Carbone, & Beffa-Negrini, 2011). A recent assessment of the use of

technology at Oregon State University highlights many relevant issues related to technology use in Extension, including the need to understand what trends are driving the learning preferences of our clients (Diem, Hino, Martin, & Meisenbach, 2012). Mobile technology is changing our society and how our program participants learn. This commentary explores mobile learning and related trends. How can Extension educators who deliver nutrition and health programs adapt to these changes?

Mobile Learning—What Is It?

Mobile learning (m-learning) involves the use of handheld devices to deliver education, foster collaboration, and more (Social Learning Blog, 2012). It took mobile phones seven years to have 50% penetration in the United States (Cult of Mac, 2012). Touch tablets are spreading even faster than cellphones. It's hard to believe that the first iPad was introduced January 2010 (Choney, 2009). Touch screen technology is becoming ubiquitous. New York City is converting some pay phones to touch screens. The next Wii will use the touch screen. Soon, use of mobile apps could overtake our use of the Web. According to PEW Research Center's Internet and American Life Project, Americans spent more time on apps than the desktop or mobile Web—an average of 81 minutes a day with apps compared to 74 minutes a day on the Web (Choney, 2011). U.S. smartphones now carry an average of 41 apps, up from 32 in 2011, a 28% increase (Insider, 2012). In 2010, there were over 7,000 health-related apps in the Apple AppStore (Mobihealthnews, 2010).

K-12 and higher education is taking mobile learning seriously. According to Apple, it sells more than twice as many iPads as Macintosh computers to U.S. education (Nagel, 2009). Blended learning, a mixture of virtual or online and face-to-face learning, is on the rise. Flipped classrooms, a strategy used in blended learning, are becoming increasingly popular. What are flipped classrooms? Students view recorded video lectures and do other preparatory work outside of class, leaving class time for inquiry-based learning traditionally done as homework.

The Rise of the Visual Web

Driving the explosion of the visual Web is our preference for viewing visuals to share concepts and data. Recently, the Institute of Medicine created an infographic titled "Obesity: Complex But Conquerable," highlighting report results. Tablets are well suited to viewing visuals such as infographics, pictures, and videos. More video is uploaded to YouTube in 1 month than the three television networks created in 60

years (Wasserman, 2012). K-12 teachers are embracing videos in the classroom with their use of recorded video lectures such as the Khan Academy, Ted-Ed, and Knowmia. The general public has also embraced video learning through YouTube. And the use of YouTube is not limited to the younger age demographic. Nearly one-half of online seniors visited YouTube (and Facebook) in 2009 (Parr, 2009).

Pinterest, a social curation site, was created to share hobbies and other interests via pinboards of images. Its exponential rise (it has grown 4377%) since its public debut in 2011 (McManus, 2012) has led to the creation of Pinterest sites for educators and their students. There is now Pinterest for educators—Learnist.

What Does Mobile Learning Have to Do With Teaching Nutrition and Health?

In the short-term, our program participants will continue to value face-to-face, high-touch experiential learning. What might the near future hold? Future Extension clients who have participated in blended learning such as K-12 and higher education students will expect these approaches to be used in Extension nutrition programs. Using blended learning approaches can make Extension classes more relevant and focused. Adults who attend classes aren't blank slates. They come to class with already acquired knowledge and skills. Program participants could view a short content lecture or narrated PowerPoint before class so that class time is better spent on application of information and skill development. Promoting BYOD (bring your own devices) at Extension nutrition classes would help participants identify credible, research-based and low-cost mobile nutrition mobile apps. This is especially relevant for young adults because PEW Research Center's Internet and American Life Project research has shown that this demographic is more likely to have a smartphone, use it to search for health information, and use apps to manage eating and track physical activity (PEW Internet & American Life Project, 2010).

Other Visual Approaches to Teach Nutrition Concepts

Pinterest is well suited to viewing nutrition-related content—57% of its content is devoted to food (SmartBlog on Food and Beverage, 2012). Extension nutrition-related Pinterest sites from the Families, Food and Fitness Community of Practice and Alice Henneman, University of Nebraska Extension, marry engaging visual content with targeted nutrition messages. Other visual learning ideas that Extension educators might use include free whiteboard mobile apps. These apps turn tablets into interactive whiteboards—screen content is recorded along with audio to make a video. Extension educators could create personalized short videos of class content for

participants. Participants who are comfortable with the use of these mobile apps could develop their own videos as personalized take-aways from classes they attend. These take-away videos could help participants focus on how they will apply the information they learned in their daily life. Talking photos such as Fotobabble, a free mobile app, is another visual approach to consider using as a follow-up to nutrition classes. Recorded audio messages are added to photos. These talking photos could be used to illustrate important points from a nutrition class such as examples of a healthy plate.

Technology Use in Staff Trainings

Extension educators who train others to teach nutrition and health, such as in the EFNEP (Expanded Food and Nutrition Education Program) and SNAP-Ed (Supplemental Nutrition Assistance Program) programs, can incorporate ideas now from blended learning to enhance trainings. This could help educators get comfortable with these tools so that they can be used in programming. Screencasting/screen recording using Microsoft Community Clips or other mobile apps enables users to easily record a short video ahead of training. VoiceThread, another app, adds audio to a slide presentation, photos, or a video. Staff can then view the presentation and respond by microphone, webcam, text, or telephone. Extension faculty who deliver training could upload a PowerPoint about an upcoming training topic and get staff perceptions about that training topic so that the information covered in training is more relevant and focused to staff needs.

Expectations About the Use of Interactive Whiteboards in Classrooms—A Window to Future Technology Expectations?

Although not new, interactive whiteboards are increasingly being used in K-12 classrooms. These large interactive boards connect to a computer and projector to allow manipulation of and interaction with digital content. Many Extension programs such as Snap-Ed bring nutrition education into classrooms with these boards, and, in Missouri, we have received requests from teachers to integrate this technology into our nutrition lessons. Increasingly, as these and other technologies such as mobile learning are integrated into classrooms, students and teachers will expect Extension educators to use these tools in teaching.

The Future

Gaming is another technology that has exploded in recent years, and it is being used in learning. One of six key areas in game trends is the gamification of health—

getting healthy is fun and social. Zamzee <https://www.zamzee.com/>, an online rewards program to increase physical activity in kids, debuted in fall 2012. A recent report indicated that youth, particularly 2 to 8 years of age, use educational game apps (Dickson, 2012). Extension educators will want to watch the trends related to gamification of health for clues about how extensively our program participants use gaming to learn.

Summary and Recommendations

In the years ahead, it will be essential for Extension educators to continually keep up with mobile learning tools and approaches used in K-12, higher education, and the general society and incorporate these approaches into programming. Many of these tools will make learning more relevant and fun. Our Extension clients' use and comfort level with these tools will reinforce our need to use and be comfortable with them.

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